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FEDERAL EXPENDITURE POLICY
FOR ECONOMIC GROWTH
AND STABILITY

PAPERS SUBMITTED BY PANELISTS APPEARING
BEFORE THE SUBCOMMITTEE ON FISCAL POLICY

JOINT ECONOMIC COMMITTEE



NOVEMBER 5, 1957

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LETTERS OF TRANSMITTAL

NOVEMBER 5, 1957.

Hon. WRIGHT PATMAN,
*Chairman, Joint Economic Committee,
United States House of Representatives,
Washington 25, D. C.*

DEAR MR. PATMAN: Transmitted herewith are the papers submitted by the panelists invited to appear before the Subcommittee on Fiscal Policy in its study of Federal expenditure policy for economic growth and stability. The subcommittee has undertaken this study pursuant to the findings and recommendations of the full committee in its February 28, 1957, report on the January 1957 Economic Report of the President.

These papers are presented in advance of the subcommittee's hearings, to be held November 18-27, to provide members of the subcommittee, the panelists, and the public an opportunity to examine the major issues lying within the scope of the study as they will be developed in oral statements and discussion at the hearings.

WILBUR D. MILLS,
Chairman, Subcommittee on Fiscal Policy.

NOVEMBER 5, 1957.

HON. WILBUR D. MILLS,
*Chairman, Subcommittee on Fiscal Policy,
United States House of Representatives,
Washington 25, D. C.*

DEAR MR. MILLS: Transmitted herewith are the papers submitted by the panelists invited to appear before the Subcommittee on Fiscal Policy in its study of Federal expenditure policy for economic growth and stability. The papers are presented in order of the scheduled appearance of the panelists during the subcommittee's hearings, November 18-27.

The topics to which these papers are addressed were selected by the staff economist, Norman B. Ture, pursuant to the suggestions and instructions of the subcommittee. Every effort has been made to insure representation of the varying expert viewpoints on the issues covered. These papers are presented as submitted without editing by the staff.

JOHN W. LEHMAN,
Acting Executive Director.

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CONTENTS

	Page
Introduction by Wilbur D. Mills, Chairman, Subcommittee on Fiscal Policy.....	xvii
I. Historical Magnitudes and Developments Affecting the Amount and Type of Federal Expenditures	xix
Historical Changes in Demands for Public Expenditures for Community Amenities, Charles E. Lindblom, associate professor of economics, Yale University.....	1
Federal Expenditure, Economic Growth, and Instability, Robert T. Patterson, associate professor of economics, Claremont Men's College	7
Growth of Government Over the Past 50 Years: An Analytical Review, Arnold M. Soloway, assistant professor of economics, Harvard University	19
Some Historical Aspects of Federal Fiscal Policy, 1790-1956, Paul B. Trescott, associate professor of economics, Kenyon College	60
II. Considerations in Determining Government Functions.....	85
Expansion of Governmental Responsibilities, Solomon Barkin, director of research, Textile Workers Union of America, AFL-CIO.....	87
Economics and the Applied Theory of Public Expenditures, Walter W. Heiler, professor of economics, School of Business Administration, University of Minnesota.....	98
Principles of Budget Determination, Richard A. Musgrave, professor of economics, University of Michigan	108
Some Problems in Optimizing the Level of Public Expenditures, Kenyon E. Poole, professor of economics, Northwestern University	116
Government and the Market, Procter Thomson, associate professor of economics, Claremont Men's College and Claremont Graduate School.....	130
Federal Expenditures in Modern America, Frazar B. Wilde, Chairman, Research and Policy Committee, Committee for Economic Development, and president, Connecticut General Life Insurance Co.....	153
III. Level of Government at Which Public Functions Are Performed.....	163
Level of Government at Which Public Functions Are Performed, George C. S. Benson, president, Claremont Men's College.....	165
Federal Expenditure and State Functions, James M. Buchanan, chairman, department of economics, University of Virginia	174
Increasing Role of Intergovernment Transfer Payments in the Performance of State and Local Functions, Frank L. Fernbach, economist, Department of Research, American Federation of Labor and Congress of Industrial Organizations.....	180
Centralized Versus Decentralized Finance, Harold M. Groves, professor of economics, University of Wisconsin	188
Expenditure Policy for Economic Growth and Stability in a Federal Setting, Werner Hochwald, chairman, department of economics, Washington University.....	195
Adjustment of Governmental Responsibilities Via Grants, James A. Maxwell, professor of economics, Clark University.....	200
Tenable Range of Functions of Local Government, George J. Stigler, professor of economics, Columbia University.....	213

	Page
IV. Economy and Efficiency in Government Expenditures.....	221
Some Devices for Increasing Efficiency in Government Expenditure, O. H. Brownlee, professor of economics, University of Minnesota.....	223
Economy and Efficiency in Government Expenditures, Albert G. Buehler, professor of public finance, University of Pennsylvania.....	230
Interest Rate in Cost-Benefit Analysis, Arnold C. Harberger, associate professor of economics, University of Chicago.....	239
Economy in Government Spending: The Concept, C. Lowell Harriss, associate professor of economics, Columbia University.....	242
Criteria of Efficiency in Government Expenditures, Roland N. McKean, the RAND Corp., Santa Monica, Calif.....	252
Economy and Efficiency in Government Expenditures, Wilson Wright, economist, Procter & Gamble Co.....	258
V. Federal Expenditures and Economic Growth.....	265
Contribution of Federal Expenditures to Economic Growth and Stability, Evsey D. Domar, professor of political economy, the Johns Hopkins University.....	267
Government Expenditures and Growth, James S. Duesenberry, professor of economics, Harvard University.....	285
Federal Expenditures and Economic Growth, George G. Hagedorn, associate director of research, National Association of Manufacturers.....	292
Federal Expenditures and Economic Growth, Stanley H. Ruttenberg, director of research, American Federation of Labor and Congress of Industrial Organizations.....	299
Federal Expenditures and Economic Growth: Analysis and Policy, Daniel C. Vandermeulen, associate professor of economics, Claremont Graduate School and Claremont Men's College.....	308
Government Expenditure and Economic Growth, David McCord Wright, William Dow professor of economics and political science, McGill University, Montreal, Canada.....	319
VI. Federal Expenditures and Economic Stability.....	323
Government Spending and Economic Stability, Walter D. Fackler, assistant director of economic research, Chamber of Commerce of the United States.....	325
Anticyclical Expenditure Variation, Walter Froehlich, professor of economics, Robert A. Johnston College of Business Administration, Marquette University.....	343
Federal Spending and the Stability of the Postwar Economy, Bert G. Hickman, the Brookings Institution.....	357
Varying Public Construction and Housing To Promote Economic Stability, Sherman J. Maisel, professor of business administration, University of California (Berkeley).....	382
Federal Spending and Economic Stability, Ralph Robey, economic adviser, National Association of Manufacturers.....	398
Government Interest Payments: Their Relationship to Economic Growth and Stability, James R. Schlesinger, assistant professor of economics, University of Virginia.....	404
Federal Expenditure and Economic Stability: The Fallacy of the Balanced Budget, Harold M. Somers, dean and professor of economics, School of Business Administration, University of Buffalo.....	412
VII. Procedures for Determining Federal Spending Programs.....	421
Hidden Effects of Federal Credit Programs, George F. Break, associate professor of economics, University of California, Berkeley.....	423
Guides and Procedures for Determining Federal Expenditure Programs, Gerhard Colm, chief economist, National Planning Association.....	433
Basic Weakness in Federal Budget Procedure, George Y. Harvey, director, Bureau of Government Research, University of Missouri.....	444

VII. Procedures for Determining Federal Spending, Etc.—Continued	
Systemic Improvement in the Federal Budgetary Process, Walter G. Held, secretary, Committee on Government Ex- penditures, Chamber of Commerce of the United States.....	Page 455
Improving Budget Procedures in Congress, Roswell Magill, president, Tax Foundation, Inc., partner, Cravath, Swaine & Moore.....	477
Government Budgets and Their Relation to National Accounts, Richard Ruggles, professor of economics, Yale University; and Nancy D. Ruggles, Bureau of Economic Affairs, United Nations.....	483
Federal Government Spending Process, Murray L. Weiden- baum, senior operations analyst, Convair, General Dynamics Corp.....	493
VIII. Federal Expenditures for National Security.....	
Military Expenditures, Economic Growth, and Stability, Arthur E. Burns, professor of economics, dean, The Graduate Council, the George Washington University.....	509
Economic Effects of Postwar National Security Expenditures, Leo Fishman, professor of economics and finance, and Betty G. Fishman, lecturer in economics, West Virginia University.....	518
Impacts of National Security Expenditures Upon the Stability and Growth of the American Economy, George H. Hilde- brand, professor of economics and director of the Institute of Industrial Relations, University of California, Los Angeles; and Norman V. Breckner, assistant professor of economics, University of California, Los Angeles.....	523
Federal Spending for National Security, David Novick, chief, Cost-Analysis Department, the RAND Corp., Santa Monica, Calif.....	542
Defense Budget, Arthur Smithies, Nathaniel Ropes professor of economics, Harvard University.....	551
IX. Federal Expenditures for Foreign Aid.....	
Relationship of the Federal Government's Foreign Aid Pro- grams and Expenditures to the Processes of Economic Growth in the Private Sectors of the Economy; the Usefulness or Limitations of Such Programs for Purposes of Stabilization; and the Standards Employed by the Department of State in Determining the Kind and Size of Such Programs Requested, John S. Hogland II, Acting Assistant Secretary of State for Congressional Relations.....	561
Foreign Aid Expenditures of the United States, Robert E. Asher, the Brookings Institution.....	570
America's Foreign Aid Program, Robert E. Baldwin, professor of economics, University of California, Los Angeles.....	595
Some Notes on Foreign Economic Aid, M. Bronfenbrenner, professor of economics, Michigan State University.....	605
Perspective on Foreign Aid, Howard S. Ellis, Flood professor of economics, University of California, Berkeley, Calif.....	613
Self-Help, Traditional Investment and Foreign Economic Aid, Virgil Salera, senior economist, American Enterprise Asso- ciation.....	620
Foreign Aid—Some Issues and Problems in Assessment, Wilson Schmidt, associate professor of economics, the George Wash- ington University.....	627
X. Federal Expenditures for Natural Resources Development.....	
Federal Expenditures and Programs for the Development of Natural Resources, Fred A. Seaton, Secretary of the Interior.....	645
Evaluation of Federal Expenditures for Water Resources Proj- ects, Otto Eckstein, assistant professor of economics, Harvard University.....	657
Water Resources, Martin G. Glaeser, professor of economics and commerce, University of Wisconsin.....	668
Use of Natural Resource Expenditures to Promote Growth and Stability in the American Economy, Lawrence G. Hines, professor of economics, Dartmouth College.....	683

X.	Federal Expenditures for Natural Resources Development—Con.	
	Federal Expenditure Policy for Economic Growth and Stability in the Area of Natural Resource Development With Special Reference to the Potential Impact of Atomic-Energy Developments on the Energy, Fuel, and Power Economies of the Country, Karl M. Mayer, Washington, D. C.-----	Page 701
	Development of Nuclear Energy, Perry D. Teitelbaum, economist, Council for Economic and Industry Research, Inc., and Philip Mullenbach, research director, Nuclear Energy Study, the Twentieth Century Fund, Washington, D. C.-----	715
	Atomic Power and Energy Resource Planning, Richard A. Tybout, associate professor of economics, the Ohio State University-----	736
XI.	Federal Expenditures for Regional Development-----	801
	Area Development Expenditures and Economic Stability in Local Areas, Frederick H. Mueller, Acting Secretary of Commerce-----	803
	Federal Expenditures for Regional Development, Walter Isard, professor of economics, University of Pennsylvania-----	805
	Problems in Evaluating Federal Expenditures for Regional Development, Robert A. Kavesh, business economist, the Chase Manhattan Bank-----	807
	Aspects of Regional Economic Growth, Robert E. Kuenne, assistant professor of economics, Princeton University-----	812
	Regional Framework for Government Expenditures, Charles M. Tiebout, assistant professor of economics, Northwestern University-----	818
XII.	Federal Expenditures for Housing and Urban Redevelopment-----	825
	Construction Costs and Government Policy, David M. Blank, associate economic adviser, Columbia Broadcasting System, Inc., New York, N. Y.-----	827
	Fiscal Implications of Federal Housing Programs, Leo Grebler, National Bureau of Economic Research-----	832
	Federal Expenditures for Housing and Urban Redevelopment, Robinson Newcomb, economic consultant, Washington, D. C.-----	844
	Federal Expenditures for Housing and Urban Redevelopment, Boris Shishkin, secretary, Housing Committee, American Federation of Labor and Congress of Industrial Organizations-----	855
XIII.	Federal Expenditures for Development of Human Resources, Including Health, Education, and Social Security-----	861
	Relationship of Health, Education, and Social Security Programs Administered by the Department of Health, Education, and Welfare to Economic Growth and Stability, Marion B. Folsom, Secretary of Health, Education, and Welfare-----	863
	Federal Government's Labor and Manpower Programs, James P. Mitchell, Secretary of Labor-----	885
	Education and Economic Growth, Howard R. Bowen, president, and John C. Dawson, assistant professor of economics, Grinnell College-----	894
	Federal Expenditure Policy for Health, Education and Social Security, W. Glenn Campbell, director of research, American Enterprise Association, Washington, D. C.-----	906
	Health, Education, and Welfare Policies and Expenditures for Economic Growth and the General Welfare, Wilbur J. Cohen, professor of public welfare administration, School of Social Work, University of Michigan-----	919
	Importance of Federal Expenditures for Development of Human Resources Through Education, Arthur F. Corey, State executive secretary, California Teachers Association-----	956
	Federal Investments in Human Resources, Katherine Ellickson, assistant director, Department of Social Security, American Federation of Labor and Congress of Industrial Organizations-----	968
	Perspectives for a Human Resource Policy, Eli Ginzberg, professor of economics and director, Conservation of Human Resources Project, Columbia University-----	980

XIII. Federal Expenditures for Development of Human Resources, Including Health, Education, and Social Security—Continued

 Pension Structure, Daniel M. Holland, associate professor of economics, School of Commerce, New York University..... Page 985

 Welfare programs and Economic Growth and Stability, Clarence D. Long, professor of economics, and Selma Mushkin, research associate School of Hygiene and Public Health and Department of Political Economy, Johns Hopkins University..... 1010

 Federal Responsibilities for Education, Paul J. Strayer, associate professor of economics, Princeton University..... 1032

 Criteria of Federal Welfare Expenditures: A Lawyer's View, Alanson W. Willcox, former general counsel, Federal Security Agency..... 1038

XIV. Federal Expenditures for Transportation, Particularly Highways and Other Public Works..... 1047

 Federal Highway Act of 1956, and Federal-Aid Airport Program, Frederick H. Mueller, Acting Secretary of Commerce... 1049

 Civil Works Program and Economic Growth, Dewey Short, Assistant Secretary of the Army (Civil-Military Affairs).... 1063a

 Federal Expenditures for Transportation, Burton N. Behling, economist, Bureau of Railway Economics, Association of American Railroads..... 1064

 Federal Highway Program, J. F. Due, professor of economics, University of Illinois..... 1073

 Federal Government's Role in the Highway Program, William C. Flaherty, Chrysler Corp..... 1082

 Public Works—Fond Hopes and Harsh Realities, Roger A. Freeman, vice president, Institute for Social Science Research, Washington, D. C..... 1087

 How To Provide the Roads for Which Users Are Willing To Pay, H. S. Houthakker, professor of economics, Stanford University..... 1107

 Highway Expenditures for Economic Growth and Stability, Richard M. Zettel, research economist, Institute of Transportation and Traffic Engineering, University of California... 1119

XV. Federal Expenditures for Research and Development..... 1133

 Atomic Energy Commission Programs, Economic Growth and Stability, K. E. Fields, General Manager, Atomic Energy Commission..... 1135

 Federal Research Expenditure Policy and Its Relation to Economic Growth and Stability, Ralph E. Burgess, economist, American Cyanamid Co..... 1140

 Federal Research—Stimulator of Progress, E. Finley Carter, director, Stanford Research Institute..... 1147

 Federal Expenditure Policy for Research and Development, Forest G. Hill, Melvin H. Baker associate professor of American Enterprise, University of Buffalo..... 1165

 Issues of Federal Science Policy, John C. Honey, executive associate, Carnegie Corporation of New York..... 1182

 Federal Expenditures for Research and Development, Frank D. Newbury, economic and management consultant, formerly Assistant Secretary of Defense (Research and Engineering)... 1195

CONTRIBUTORS

Asher, Robert E., the Brookings Institution, the Foreign Aid Expenditures of the United States..... 570

Baldwin, Robert E., professor of economics, University of California, Los Angeles, America's Foreign Aid Program..... 595

Barkin, Solomon, director of research, Textile Workers Union of America, AFL-CIO, Expansion of Governmental Responsibilities..... 87

Behling, Burton N., economist, Bureau of Railway Economics, Association of American Railroads, Federal Expenditures for Transportation..... 1064

Benson, George C. S., president, Claremont Men's College, Level of Government at Which Public Functions Are Performed..... 165

Blank, David M., associate economic adviser, Columbia Broadcasting System, Inc., New York, N. Y., Construction Costs and Government Policy.....	Page 827
Bowen, Howard R., president, and John C. Dawson, assistant professor of economics, Grinnell College, Education and Economic Growth.....	894
Break, George F., associate professor of economics, University of California, Berkeley, The Hidden Effects of Federal Credit Programs.....	423
Breckner, Norman V., assistant professor of economics, and George H. Hildebrand, professor of economics and director of the Institute of Industrial Relations, University of California, Los Angeles, the Impacts of National Security Expenditures Upon the Stability and Growth of the American Economy.....	523
Bronfenbrenner, M., professor of economics, Michigan State University, Some Notes on Foreign Economic Aid.....	605
Brownlee, O. H., professor of economics, University of Minnesota, Some Devices for Increasing Efficiency in Government Expenditure.....	223
Buchanan, James M., chairman, department of economics, University of Virginia, Federal Expenditures and State Functions.....	174
Buehler, Albert G., professor of public finance, University of Pennsylvania, Economy and Efficiency in Government Expenditures.....	230
Burgess, Ralph E., economist, American Cyanamid Co., Federal Research Expenditure Policy and Its Relation to Economic Growth and Stability..	1140
Burns, Arthur E., professor of economics, dean, The Graduate Council, The George Washington University, Military Expenditures, Economic Growth, and Stability.....	509
Campbell, W. Glenn, director of research, American Enterprise Association, Washington, D. C., Federal Expenditure Policy for Health, Education, and Social Security.....	906
Carter, E. Finley, director, Stanford Research Institute, Federal Research—Stimulator of Progress.....	1147
Cohen, Wilbur J., professor of public welfare administration, School of Social Work, University of Michigan, Health, Education, and Welfare Policies and Expenditures for Economic Growth and the General Welfare.....	919
Colm, Gerhard, chief economist, National Planning Association, Guides and Procedures for Determining Federal Expenditure Programs.....	433
Corey, Arthur F., State executive secretary, California Teachers College, the Importance of Federal Expenditures for Development of Human Resources Through Education.....	956
Dawson, John C., assistant professor of economics, and Howard R. Bowen, president, Grinnell College, Education and Economic Growth.....	894
Domar, Evsey D., professor of political economy, the Johns Hopkins University, Contribution of Federal Expenditures to Economic Growth and Stability.....	267
Due, J. F., professor of economics, University of Illinois, the Federal Highway Program.....	1073
Duesenberry, James S., professor of economics, Harvard University, Government Expenditures and Growth.....	285
Eckstein, Otto, assistant professor of economics, Harvard University, Evaluation of Federal Expenditures for Water Resources Projects.....	657
Ellickson, Katherine, assistant director, department of social security, American Federation of Labor and Congress of Industrial Organizations, Federal Investments in Human Resources.....	968
Ellis, Howard S., Flood professor of economics, University of California, Berkeley, Calif., A Perspective on Foreign Aid.....	613
Fackler, Walter D., assistant director of economic research, Chamber of Commerce of the United States, Government Spending and Economic Stability.....	325
Fernbach, Frank L., economist, Department of Research, American Federation of Labor and Congress of Industrial Organizations, The Increasing Role of Intergovernment Transfer Payments in the Performance of State and Local Functions.....	180
Fields, K. E., General Manager, Atomic Energy Commission, Atomic Energy Commission Programs, Economic Growth and Stability.....	1135
Fishman, Betty G., lecturer in economics, and Leo Fishman, professor of economics and finance, West Virginia University, Economic Effects of Postwar National Security Expenditures.....	518

	Page
Fishman, Leo, professor of economics and finance, and Betty G. Fishman, lecturer in economics, West Virginia University, Economic Effects of Postwar National Security Expenditures.....	518
Flaherty, William C., Chrysler Corp., The Federal Government's Role in the Highway Program.....	1082
Folsom, Marion B., Secretary of Health, Education, and Welfare, Relationship of Health, Education, and Social Security Programs Administered by the Department of Health, Education, and Welfare to Economic Growth and Stability.....	863
Freeman, Roger A., vice president, Institute for Social Science Research, Washington, D. C., Public Works—Fond Hopes and Harsh Realities....	1087
Froehlich, Walter, professor of economics, Robert A. Johnston College of Business Administration, Marquette University, Anticyclical Expenditure Variation.....	343
Ginzberg, Eli, professor of economics and director, Conservation of Human Resources Project, Columbia University, Perspective for a Human Resource Policy.....	980
Glaeser, Martin G., professor of economics and commerce, University of Wisconsin, Water Resources.....	668
Grebler, Leo, National Bureau of Economic Research, Fiscal Implications of Federal Housing Programs.....	832
Groves, Harold M., professor of economics, University of Wisconsin, Centralized Versus Decentralized Finance.....	188
Hagedorn, George C., associate director of research, National Association of Manufacturers, Federal Expenditures and Economic Growth.....	292
Harberger, Arnold C., associate professor of economics, University of Chicago, the Interest Rate in Cost-Benefit Analysis.....	239
Harriss, C. Lowell, associate professor of economics, Columbia University, Economy in Government Spending: the Concept.....	242
Harvey, George Y., director, bureau of government research, University of Missouri, Basic Weakness in Federal Budget Procedure.....	444
Held, Walter G., secretary, Committee on Government Expenditures, Chamber of Commerce of the United States, Systemic Improvement in the Federal Budgetary Process.....	455
Heller, Walter W., professor of economics, School of Business Administration, University of Minnesota, Economics and the Applied Theory of Public Expenditures.....	98
Hickman, Bert G., the Brookings Institution, Federal Spending and the Stability of the Postwar Economy.....	357
Hildebrand, George H., professor of economics and director of the Institute of Industrial Relations, and Norman V. Breckner, assistant professor of economics, University of California, Los Angeles, the Impacts of National Security Expenditures Upon the Stability and Growth of the American Economy.....	523
Hill, Forest G., Melvin H. Baker associate professor of American enterprise, University of Buffalo, Federal Expenditure Policy for Research and Development.....	1165
Hines, Lawrence G., professor of economics, Dartmouth College, the Use of Natural Resource Expenditures To Promote Growth and Stability in the American Economy.....	683
Hochwald, Werner, chairman department of economics, Washington University, Expenditure Policy for Economic Growth and Stability in a Federal Setting.....	195
Hogland, John S., II, Acting Assistant Secretary of State for Congressional Relations; the Relationship of the Federal Government's Foreign Aid Programs and Expenditures to the Processes of Economic Growth in the Private Sectors of the Economy; the Usefulness or Limitations of Such Programs for Purposes of Stabilization; and the Standards Employed by the Department of State in Determining the Kind and Size of Such Programs Requested.....	561
Holland, Daniel M., associate professor of economics, School of Commerce, New York University, the Pension Structure.....	985
Honey, John C., executive associate, Carnegie Corporation of New York, Issues of Federal Science Policy.....	1182
Houthakker, H. S., professor of economics, Stanford University, How To Provide the Roads for Which Users Are Willing To Pay.....	1107
Isard, Walter, professor of economics, University of Pennsylvania, Federal Expenditures for Regional Development.....	805

Kavesh, Robert A., business economist, the Chase Manhattan Bank, Problems in Evaluating Federal Expenditures for Regional Development.....	Page 807
Kuenne, Robert E., assistant professor of economics, Princeton University, Aspects of Regional Economic Growth.....	812
Lindblom, Charles E., associate professor of economics, Yale University, Historical Changes in Demands for Public Expenditures for Community Amenities.....	1
Long, Clarence D., professor of economics, and Selma Mushkin, research associate, School of Hygiene and Public Health and Department of Political Economy, Johns Hopkins University, Welfare Programs and Economic Growth and Stability.....	1010
Magill, Roswell, president, Tax Foundation, Inc., partner, Cravath, Swaine & Moore, Improving Budget Procedures in Congress.....	477
Maisel, Sherman J., professor of business administration, University of California (Berkeley), Varying Public Construction and Housing To Promote Economic Stability.....	382
Maxwell, James A., professor of economics, Clark University, Adjustment of Governmental Responsibilities Via Grants.....	200
Mayer, Karl M., Washington, D. C., Federal Expenditure Policy for Economic Growth and Stability in the Area of Natural Resource Development With Special Reference to the Potential Impact of Atomic-Energy Developments on the Energy, Fuel, and Power Economies of the Country.....	701
McKean, Roland N., the RAND Corp., Santa Monica Calif., Criteria of Efficiency in Government Expenditures.....	252
Mitchell, James P., Secretary of Labor, the Federal Government's Labor and Manpower Programs.....	885
Mueller, Frederick H., Acting Secretary of Commerce: Area Development Expenditures and Economic Stability in Local Areas.....	803
Federal Highway Act of 1956, and Federal-Aid Airport Program Policies and Procedures.....	1049
Mullenbach, Philip, research director, Nuclear Energy Study, the Twentieth Century Fund, and Perry D. Teitelbaum, economist, Council for Economic and Industry Research, Inc., the Development of Nuclear Energy.....	715
Musgrave, Richard A., professor of economics, University of Michigan, Principles of Budget Determination.....	108
Mushkin, Selma, research associate, School of Hygiene and Public Health and Department of Political Economy, and Clarence D. Long, professor of economics, Johns Hopkins University, Welfare Programs and Economic Growth and Stability.....	1010
Newbury, Frank D., economic and management consultant, formerly Assistant Secretary of Defense (Research and Engineering), Federal Expenditures for Research and Development.....	1195
Newcomb, Robinson, economic consultant, Washington, D. C., Federal Expenditures for Housing and Urban Redevelopment.....	844
Novick, David, chief, cost analysis department, the RAND Corp., Santa Monica, Calif., Federal Spending for National Security.....	542
Patterson, Robert T., associate professor of economics, Claremont Men's College, Federal Expenditure, Economic Growth, and Instability.....	7
Poole, Kenyon E., professor of economics, Northwestern University, Some Problems in Optimizing the Level of Public Expenditures.....	116
Robey, Ralph, economic adviser, National Association of Manufacturers, Federal Spending and Economic Stability.....	398
Ruggles, Nancy D., Bureau of Economic Affairs, United Nations, and Richard Ruggles, professor of economics, Yale University, Government Budgets and Their Relation to National Accounts.....	483
Ruggles, Richard, professor of economics, Yale University, and Nancy D. Ruggles, Bureau of Economic Affairs, United Nations, Government Budgets and Their Relation to National Accounts.....	483
Ruttenberg, Stanley H., director of research, American Federation of Labor and Congress of Industrial Organizations, Federal Expenditures and Economic Growth.....	299
Salera, Virgil, Senior economist, American Enterprise Association, Self-Help, Traditional Investment and Foreign Economic Aid.....	620

	Page
Schlesinger, James R., assistant professor of economics, University of Virginia, Government Interest Payments: Their Relationship to Economic Growth and Stability.....	404
Schmidt, Wilson, associate professor of economics, the George Washington University, Foreign Aid—Some Issues and Problems in Assessment.....	627
Seaton, Fred A., Secretary of the Interior, Federal Expenditures and Programs for the Development of Natural Resources.....	645
Shishkin, Boris, secretary, Housing Committee, American Federation of Labor and Congress of Industrial Relations, Federal Expenditures for Housing and Urban Redevelopment.....	855
Short, Dewey, Assistant Secretary of the Army (Civil-Military Affairs), Civil Works Programs and Economic Growth.....	1063a
Smithies, Arthur, Nathaniel Ropes professor of economics, Harvard University, the Defense Budget.....	551
Soloway, Arnold M., assistant professor of economics, Harvard University, the Growth of Government Over the Past 50 Years: An Analytical Review.....	19
Somers, Harold M., dean and professor of economics, School of Business Administration, University of Buffalo, Federal Expenditure and Economic Stability: The Fallacy of the Balanced Budget.....	412
Stigler, George J., professor of economics, Columbia University, The Tenable Range of Functions of Local Government.....	213
Strayer, Paul J., associate professor of economics, Princeton University, Federal Responsibility for Education.....	1032
Teitelbaum, Peter D., economist, Council for Economic and Industry Research, Inc., and Philip Mullenbach, research director, Nuclear Energy Study, the Twentieth Century Fund, Washington, D. C., the Development of Nuclear Energy.....	715
Thomson, Procter, associate professor of economics, Claremont Men's College, and Claremont Graduate School, Government and the Market.....	130
Tiebout, Charles M., assistant professor of economics, Northeastern University, A Regional Framework for Government Expenditures.....	818
Trescott, Paul B., associate professor of economics, Kenyon College, Some Historical Aspects of Federal Fiscal Policy, 1790-1956.....	60
Tybout, Richard A., associate professor of economics, the Ohio State University, Atomic Power and Energy Resource Planning.....	736
Vandermeulen, Daniel C., associate professor of economics, Claremont Graduate School and Claremont Men's College, Federal Expenditures and Economic Growth: Analysis and Policy.....	308
Weidenbaum, Murray L., senior operations analyst, Convair, General Dynamics Corp., The Federal Government Spending Process.....	493
Wilde, Frazar B., chairman, Research and Policy Committee, Committee for Economic Development, and president, Connecticut General Life Insurance Co., Federal Expenditures in Modern America.....	153
Willcox, Alanson W., former general counsel, Federal Security Agency, Criteria of Federal Welfare Expenditures: A Lawyer's View.....	1038
Wright, David McCord, William Dow professor of economics and political science, McGill University, Montreal, Canada, Government Expenditure and Economic Growth.....	319
Wright, Wilson, economist, Procter & Gamble Co., Economy and Efficiency in Government Expenditures.....	258
Zettel, Richard M., research economist, Institute of transportation and Traffic Engineering, University of California, Highway Expenditures for Economic Growth and Stability.....	1119

INTRODUCTION BY WILBUR D. MILLS, CHAIRMAN SUBCOMMITTEE ON FISCAL POLICY

Two years ago, the Subcommittee on Tax Policy of the Joint Economic Committee undertook a study of Federal tax policy for economic growth and stability. The purposes of that study were to add to our understanding of the manner in which our Federal revenue system affects the Nation's economic development and to formulate general economic principles upon which future tax policy, consistent with the requirements for steady economic growth, might be based. The impress of that study, I believe, will be a lasting one. The Subcommittee on Fiscal Policy has now turned its attention to the expenditure policies of the Federal Government, and their relationship to the economic stabilization and growth objectives of the Employment Act.

The Joint Economic Committee is not a legislating committee, but under the Employment Act it is charged with making studies of the major economic programs of the Federal Government as a guide to the legislating committees. The Subcommittee on Fiscal Policy recognizes, of course, that many considerations other than those of the Employment Act enter into decisions governing Federal spending programs. But it must also be recognized that virtually all Federal Government activities may have significant effects on many individuals and groups in the economy and, consequently, on the total amount and character of the Nation's economic activity. Federal Government expenditure programs, therefore, may have important consequences with respect to the effectiveness of the specific public policies aimed at attaining the Employment Act objectives. The subcommittee is hopeful that this study, directed at improving and refining our knowledge of the complex relationships between the scope and character of Government activity and that of the private sectors in our dynamic economy, will be of value to those in the executive branch of the Government as well as in the Congress who share responsibility for the formulation of Federal spending programs.

The study seeks first to develop an historical perspective concerning changes in the amount and character of Federal spending, and the relationship of such changes to major developments in the structure of the American economy. The second part of the study is concerned with basic economic principles and criteria bearing on the relationship between Federal Government activities and Employment Act objectives. The third phase of the study examines the impact of several major Federal programs on the rate and character of the Nation's economic growth and on the conditions for maintaining economic stability.

The subcommittee has sought the widest possible representation of expert viewpoints on the many important issues embraced by this

study. The list of contributors suggested by the subcommittee's staff, I believe, fully reflects this instruction.

On behalf of the subcommittee, I wish to commend the contributors for the valuable materials they have presented in this volume. They have given generously of their time and resources, and rendered a significant public service.

I. HISTORICAL MAGNITUDES AND DEVELOPMENTS
AFFECTING THE AMOUNT AND TYPE OF
FEDERAL EXPENDITURES

HISTORICAL MAGNITUDES AND DEVELOPMENTS AFFECTING THE AMOUNT AND TYPE OF FEDERAL EXPENDITURES

HISTORICAL CHANGES IN DEMANDS FOR PUBLIC EXPENDITURES FOR COMMUNITY AMENITIES

Charles E. Lindblom, associate professor of economics, Yale University

In the late twenties, the Federal Government spent only \$1 out of every \$5 of public expenditures in the United States, State and local governments spending \$4 out of every \$5. With the great depression and World War II both throwing responsibilities upon government that only the Federal Government could shoulder, it is not at all surprising that by the end of the war, the earlier situation had been reversed, with the Federal Government spending 4 out of 5 public expenditures dollars. But a striking feature of the period since 1946 is that, despite continued high Federal expenditures, State and local governments had risen by 1956 to about 40 percent of public expenditures and are still rising.

The almost explosive expansion of State and local government expenditures has drawn much comment, and predictions are freely being made that the expansion will continue. The significance of the upsurge is to be found in the character of State and local expenditures, as contrasted to Federal. What has been mushrooming is expenditures on community amenities. The demands that spark the growth are not those for regulatory functions, economic security, or economic development, but are instead demands for better education, better health, more pleasant cities, recreation, and mobility.

For the Federal Government, the significance of these burgeoning demands for amenities lies, in turn, in the possibility that the Federal Government will either be called upon to meet some of the new demands directly, or to come to the aid of the States and localities with grants, or to reduce Federal taxes so that State and local governments can accumulate the revenues required to support their growing functions.

Where did the new demands come from? How stable are they likely to be? Will they probably increase or decline? In this paper, I shall try to point up some historical changes that help answer these questions and—more generally—throw light on the magnitude of expenditures that might be called for in the awakened pursuit of those amenities of life that can most easily be attained only through collective action.

In America's early years, public economic policy was preoccupied with the economic security of a poor and precarious society. In the very earliest colonial ventures, mere survival overrode any other policy

objective. At a second stage, public economic policy was tailored to economic development to achieve the remarkable rise in personal income that marked the 19th century. But again in the 20th century, policy became preoccupied with economic security—this time not the insecurities of a new continent but the economic insecurities of a complex, unstable, depression-prone economic system. It is quite possible that we are now moving for the second time into a period of expansion and development as a fourth stage in the sequence. In the quickened pursuit of collective amenities, we may be on the threshold of a long period of expansion that will, as did the three earlier stages, put its distinctive stamp on the economy. The possibility of dividing American economic history into these four stages proves nothing, to be sure; but it suggests that present straws in the wind may presage not simply a minor alteration of our course but a fundamental change in the character of American life. Hence the growth of public expenditures on amenities ought to be investigated without any attempt to minimize its possible significance.

COMMON HYPOTHESES EXPLAINING RISING EXPENDITURES ON AMENITIES

Rapid growth and redistribution of population

Widely remarked as the source of many new demands for water and sewage systems, highways and streets, other public construction and public services, rising population and suburbanization are hardly to be questioned as major factors in post-World War II public expenditures. To be sure, increased density of population, up to a point, can spread the cost of social overheads, with a consequent decrease in per capita public expenditures, but new people in new places undoubtedly call for public expenditures, especially capital outlays, and too high a density of population probably pushes expenditures on social overheads beyond a point of diminishing returns. But rapid population growth and movement we have had before in the history of the United States, and, without belittling its immediate importance for State and local expenditures on amenities, one would doubt that it would produce a lasting and major redirection of public policy toward collective amenities unlike anything we have seen before.

Growing social interdependence

Modern technology, the scale of business enterprise, and urbanization have unquestionably created a high order of social interdependence in our society, running far beyond the interdependence of frontier farmers or early artisans. And everyone recognizes that this growing interdependence has increasingly thrust regulatory, protective, and developmental functions upon government. It seems fairly clear that it also makes it impossible for individuals to enjoy many of the amenities of life, such as certain kinds of recreation and easy mobility, without calling upon government to clear the way. And it is, of course, interdependence that makes each child's education the concern of every citizen and turns education from a privately consumed service into a collectively demanded and regulated one. Again, however, while growing interdependence explains some of the slowly growing expenditures on collective amenities over the course of

American history, it does not promise a sharp or revolutionary alteration in public expenditures on them.

Rising income and wealth

In rising income and wealth, we come to a phenomenon capable of sparking a dramatic alteration of public policy in the direction of collective amenities. We can now and increasingly in the near future afford even lavish outlays on education, recreation, highways, physical and mental health, urban redevelopment, and the like, for we have finally arrived at a level of personal income where we begin to wonder how to dispose of it, as is indicated by the character of American advertising and consumer response to it. There is little doubt that rising income, together with the new aspirations that accompany it, accounts for much of the postwar demands for better education, for example.

New leisure

The air is thick these days with talk of reducing the workweek, and the earlier achieved and prospective growth of leisure is the other side of the coin of increased income. We do not demand increased expenditures on community amenities only because we can afford them but also because we have time to enjoy them. Leisure is an enormous stimulant to aspiration.

The end of poverty

A development may sometimes go so far as to appear to have fundamentally changed its own character. The rise of American income has now gone so far as to have nearly eliminated poverty, in the usual sense of the term. Because it has been engraved upon our minds that the poor we shall always have with us, such a development can have great and dramatic consequences for our views of the world and for our aspirations. It is, of course, too early to say. But is it not believable that citizens freed from the age-old concern over poverty will find new goals of public policy, new causes, new issues, and find themselves caught up in an enthusiastic and accelerated demand for the amenities of life that seemed both too much and too immoral to hope for in the face of poverty among their fellow citizens? We should not underrate the force of such intangibles of history.

DECLINING DEBATE AND EMERGING AGREEMENT ON THE ROLE OF GOVERNMENT

Of the above historical changes, some would appear to account for a relatively small shift in public expenditures toward the amenities, while the full significance of some of the others will better be seen if they are coupled with a further historical change that outweighs them all; the slow but unmistakable decline of the debate over the proper functions of government and emerging agreement that government is an instrument to be used fairly freely in the pursuit of a wide variety of goals. It is as though we had finally decided to free a fettered giant.

Because the new agreement is, although overwhelming, still not unanimous, it is alarming to those who do not share it. But, whether alarming or gratifying, it has come to pass.

The emergent agreement can be described by contrasting it with the debate it supersedes. It was a debate over the role of government in which policy alternatives were identified with the grand alternatives of socialism and capitalism and in which the dominant view was that only by holding fast to private enterprise free from government domination could the evils of socialism be avoided. Even small policy alternatives, as, for example, those pertaining to details of monetary policy or the securities markets, were often debated as though the alternatives were not these policies at all but the two great institutions of socialism and capitalism.

Frightened by our own discussion of policy, we have hesitated to employ government as freely as we now appear to intend for the future.

Evidence that the debate is almost over has been conspicuous in recent years. In the last presidential campaign, the Democrats' poverty of campaign issues revealed the degree to which both major parties agreed on the role of government. It was no longer possible, as it had been in New and Fair Deal days, for the Democrats to find challenging functions for government that would separate the two parties. Or consider the flavor of some of the new conservatism, about which we have been hearing much lately. Its stress is not on the rugged individualism of unrestricted free enterprise but on the conforming community, on social solidarity. The new conservatism seems more fearful of the maverick than of strong government, and some of the new conservatives would happily embrace a program of collectively provided amenities with government in a paternal role if this would strengthen the bonds of community.

More striking evidence that we are all coming to agree on the new larger role for government is the Eisenhower budget, compelling evidence that public budgets cannot be significantly reduced. The cries of anguish that greeted its announcement were loud, but because the illusion that Republicans could cut the budget where Democrats would not was finally, bitterly, sadly, embarrassingly destroyed.

What in our history put an end to the old debate? What accounts for the emerging agreement on the expanded role of government?

The first explanation is that one cannot indefinitely debate irrelevancies without discovering that one is doing so. It never was true that each new function of government forced us to choose between socialism and capitalism, and, while one is tempted to quote from the historical debate to show how foolish it now looks in retrospect, it is enough to observe how liberal and conservative alike have come to point with pride at a growing list of governmental functions as proof of capitalism's flexibility in meeting the people's problems. For some public functions, ritual requires the old language, but few take its irrelevancies to heart.

Secondly, our experience since the late thirties with fiscal and monetary controls designed to maintain full employment—and, specifically, their relative success, have vastly increased our confidence in the instruments of government.

Thirdly, our wartime successes in government direction of the economy have given us, not a taste for the same diet in time of peace, but, again, a greater confidence that we can employ government far beyond the capacities we used to expect of it, and do so without fear of either intolerable inefficiency or threats to our liberties.

Fourth, we have come to understand government and society better than before, and we treat the question of governmental functions as a subject for research and discussion rather than for simple-minded moral pronouncements. The technical skills of economists in problems of monetary management, which go far beyond those of 20 years ago, illustrate that growing knowledge makes government a more tractable and generally useful servant.

Fifth, we agree on a new large role for government because, for the first time in our history, we cannot deny that we can afford it.

Sixth, we agree on expanding collective consumption because conspicuous private consumption is less admired than in the days when Thorstein Veblen invented the term. It is a curious shift in attitudes that makes blue jeans as popular among the wealthy as among the less favored. In a society as equalitarian as ours, some kinds of goods and services are comfortably consumed only when others can share their enjoyment; hence, the wealthy are turned to a degree from exclusive consumption to leadership in the demand that many of life's amenities be widely distributed through government. It is not the low-income groups who are always in the forefront of campaigns for better schools, parks, streets, and other public services.

Seventh, it may even be true that our traditional concern over the irrationality of much government expenditure is subsiding in the face of patterns of private consumption that flow from our phenomenally high incomes. The demand for new novelties in consumption "for the man who has everything" gives one pause about the rationality of private consumption. So, too, the price we are willing to pay for fashion, specifically for a series of new models in durable goods. We like the alternatives that our wealth offers us in private consumption, but we cannot any longer believe, as we could when bread and butter were more urgent needs, that private consumption is rationally directed toward higher priority goods and services than are government expenditures. Schools, parks, highways, water, sewage disposal, and the like come to be conceded an obvious high priority relative to many of the private goods we can find to use up our new incomes.

Lastly, one might mention as a possible factor in the emerging agreement on a large role for government-provided amenities the hypothesis that our society is too much fragmented and that our citizens want communal associations. It is only a hypothesis, but it is thoughtfully discussed by economists impressed by the impersonality of the market mechanism, by psychologists and psychiatrists impressed by evidences of personal insecurity in our large-scale society, and by sociologists impressed by the contrast between the social bonds of mass society and the more intimate ties of earlier and smaller societies. It is not impossible, therefore, that agreement on expansion of the social amenities is a reaction to the destruction of older forms of association by the expansion of the market economy.

The interpretation of historical trends is a dangerous business, all the more so in the present case because it has not been possible to document the analysis suggested here. But whether the reasons given here are correct or not, agreement does appear to be emerging on a new and large role for government; and this, above all other factors tending in the same direction, promises for the future a revolutionary expansion of provision of community amenities. As already indi-

cated; the immediate demands will be largely on State and local government; but the magnitude of the demands will raise many questions of tax and expenditure policy for the Federal Government, for it, too, will feel the force of the demands upon State and local government, as well as demands directly upon Washington.

FEDERAL EXPENDITURE, ECONOMIC GROWTH, AND STABILITY

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If we bear in mind the inherently close and complex relationship of Government spending, taxation, borrowing and debt management, as well as monetary policy, it is appropriate to separate out and focus attention upon any one of these parts of the fiscal-monetary pattern. In this compendium we are particularly concerned with the significance of Federal expenditure policy in terms of economic growth and stability, although the spending of State and local governments is not to be overlooked.

An earlier study, made in the same manner and for the same purpose as the one we are engaged in, dealt with taxation.¹ In its preliminary section, entitled "Focus of Tax Policy: Short-Run Stabilization and Long-Run Growth," various statements appear with respect to the nature, causes, and relationship of economic growth and stability which are germane also to a study of Government expenditure. Although the present paper undertakes to offer a fresh, but not in all ways dissimilar, view, it seems worthwhile to call attention to basic observations made in the earlier study. One, for example, is that although there is "considerably less than unanimity among duly accredited economists about the true explanation of business cycles * * * there is a broad range of agreement about the key role of monetary and credit expansion and contraction in producing surges of business and recessions." Another is that there is general agreement that "a lack of balance between investment and consumption may precipitate severe economic ups and downs." Still another is that "war-times excepted, when we have had a high level of business investment in new producing facilities, we have had a high level of prosperity, and when we have had a low level of such investment the reverse has been true."² These and other generalizations made in that study, however qualified by the individual economist, may help to clear the ground and further our progress.

The purpose of this paper is to note not only the significant changes that have occurred in the amount and types of Federal expenditure but also the variations in other economic phenomena which are associated with Federal financial policies. Emphasis is placed upon the period since World War II, for a part of the question which this and the succeeding studies will attempt to answer is whether the Federal Government has been doing, financially, what it ought to do and leav-

¹ United States Congress, Joint Committee on the Economic Report, *Federal Tax Policy for Economic Growth and Stability*, papers submitted by panelists appearing before the Subcommittee on Tax Policy, 84th Cong., 1st sess. (Washington, Government Printing Office, 1955).

² Dexter M. Keezer, *Economic Stability and Growth, Federal Tax Policy for Economic Growth and Stability*, pp. 7-8.

ing undone what it ought not to. The earlier history of Federal spending and of economic growth and instability is of value, too, for it gives perspective and shows certain important relationships and trends—especially the trend in Government spending, which has been the most dramatic of them all.

FEDERAL EXPENDITURE, ECONOMIC GROWTH, AND INSTABILITY,
1789–1933

Some generalizations will save much tabular space, yet keep the picture clear. The interrelationship of Federal spending and economic activity has been continually of major significance only since 1933. Until then Federal expenditure (and taxation, borrowing, and debt management) were often incidental and random influences, although there were times when Federal finance dominated the economy. Most notable of these were during and immediately after the War of 1812, the Civil War, and World War I. In quite a different way the unique problem of surplus revenue, which appeared in the 1830's and again in the 1880's and was associated with the political controversy over the tariff, gave a special emphasis to Federal disbursements (expenditure, debt retirement, and even—in 1837—the division of excess accumulated revenue among the States).

It cannot be said that during the 19th century and the first third of the 20th century those who understood Government finance were unaware of or unconcerned with the effect of the Government's fiscal activities upon business. At practically all times higher Treasury officials were conscious of it, and when possible they made adjustments—not always wisely—that were intended to mitigate its unfavorable influences. Nevertheless, the concept of the role of government in the Nation's economic life was a narrow one: There was no clearly defined fiscal policy; the spending power granted to Congress by the Constitution was, ordinarily, rigidly interpreted; and the Government's activities were, at most times, a small part of all economic activity.

Although, in this period, there was never any large, planned expenditure program intended to promote economic growth, there was an astonishing increase in real national wealth and income. It was not due to any single cause—climate, natural resources, the industrial revolution, the frontier, population growth, the character of the people, education, a Federal Constitution, saving and investment, an improving monetary system, economic instability, or some other—but to a complexity of causes. Planned Federal spending for broad economic effects, however, was not one of them.

Along with the remarkable growth of wealth and income there was marked economic instability. Prices rose and fell; booms, panics, and depressions ran their course; many fortunes were made which waves of bankruptcy wiped out. There were periods of mass unemployment with attendant misery and despair. The purchasing power of specie and paper currency varied with the phases of the business cycle; and at times when the currency was irredeemable its value depreciated drastically, though in each such instance redeemability finally restored it. The credit of the Government, too, fluctuated, sometimes markedly and adversely when the requirement of war or of unwise peacetime fiscal and monetary policies threatened the future value of the Government's obligations or cast a shadow upon its integrity.

Instabilities such as these were concomitants of great economic growth. Their various effects upon it, however, cannot all be separated out. Some of them would seem to have been far from conducive to long-run growth. Others, however, may have been essential to it. Any decline in the Government's credit and any marked decline in the value of the currency with its attendant inflationary effect on the price level—as such instabilities induced consumption spending and speculation rather than saving and investment—were probably not, although in the shorter run the inflationary stimulation could, like a narcotic acting upon the human system, make them seem to be. The panics and depressions—drastic perhaps in proportion to the debris of financial excesses, unwise investment, and false values which they cleared away—may well have been a necessary part of long-run real growth, though during them those who suffered would have found this hard to believe.

Because of the enormous change in magnitude of Federal expenditure over the course of time table 1 shows, in millions of dollars, the trend prior to 1933, while later as well as some overlapping data, in billions of dollars, appear in tables below.

TABLE 1.—*Expenditure of the Federal Government: selected years, 1789-1932*

[In millions of dollars]

1789-91.....	4. 3
1800.....	10. 8
1825.....	15. 9
1850.....	39. 5
1865.....	1, 297. 6
1875.....	274. 6
1900.....	520. 9
1910.....	693. 6
1919.....	18, 514. 9
1920.....	6, 403. 3
1925.....	3, 063. 1
1930.....	3, 440. 3
1932.....	4, 659. 2

Source: Annual Report of the Secretary of the Treasury on the State of the Finances, 1956.

FEDERAL, STATE, AND LOCAL EXPENDITURE

Before observing further the trends of Federal expenditure and economic growth and the nature of various phenomena associated with them, it is appropriate to note certain trends in expenditure by State and local government and their relation to that of the Federal Government.

During the 19th century, except for a time when State governments participated in canal construction and in railroad building and banking, their expenditures were kept to a minimum and were mostly concerned with the functions of general government, although some outlays were made for education, assistance to agriculture, and for construction and operation of asylums and hospitals. In the 20th century, and especially from 1920 onward, State government expenditure increased enormously, rising from about \$350 million in 1913 to \$21.7 billion in 1956. Construction and maintenance of highways, support of education, and social-welfare activities accounted for the greater part of this expansion. The relative amounts of these and other expenditures have varied widely among the individual States.

Local government expenditure increased almost continually from 1800 onward. Before 1860 municipal activities expanded greatly due to population increase, urbanization, and a public demand for more and better services at the local governmental level. Thereafter the increase continued, but at a slower rate and with retrenchments in depression periods. Between 1913 and 1956 expenditures by local governments rose from \$1.5 billion to \$28.3 billion. The major outlays today are for education, construction and maintenance of streets and highways, and public health and sanitation.

TABLE 2.—*The recent trend in State and local expenditures, 1953-56*¹

[In billions of dollars]

Year	State	Local	Total
1953.....	16.8	21.7	38.5
1954.....	18.7	23.8	42.5
1955.....	20.4	26.2	46.6
1956.....	21.7	28.3	50.0

¹ Without exclusion for transactions between levels of government.

Source: U. S. Department of Commerce, Bureau of the Census, Summary of Governmental Finances, 1955, 1956.

Before the middle of the 1930's expenditure of the Federal Government was the lesser part of all Government expenditure, except during wars and for short periods following them. Ordinarily, since 1890, Federal expenditure was between 25 and 30 percent of the total, local expenditure was 50 to 60 percent, and State expenditure ranged from 10 to 20 percent. In the period 1953-56 State and local expenditures together varied from 30 to 37 percent of all Government expenditure while Federal expenditure was between 63 and 70 percent. During that time local expenditure exceeded that of the States by about 30 percent, and nearly a third of State expenditure was of an intergovernmental nature.

TABLE 3.—*Percentage distribution of Government expenditure: Selected years, 1890-1956*

Year	Federal	State and local	Total	Year	Federal	State and local	Total
1890.....	35.6	64.4	100	1940.....	48.5	51.5	100
1913.....	26.8	73.2	100	1944.....	92.1	7.9	100
1919.....	87.5	12.5	100	1948.....	67.5	32.5	100
1929.....	27.0	73.0	100	1955.....	64.2	35.8	100
1933.....	35.7	64.3	100	1956.....	63.3	36.7	100
1936.....	52.7	47.3	100				

Sources: William J. Shultz and C. Lowell Harriss, *American Public Finance*, 6th edition (New York: Prentice-Hall, Inc., 1954), p. 20; and U. S. Department of Commerce, Bureau of the Census, *Survey of Governmental Finances in 1955, 1956*.

THE MORE RECENT EXPANSION OF FEDERAL SPENDING

The following tables show the nature and trend of expenditure by the Federal Government in more recent times:

TABLE 4.—Budget receipts and expenditures: Selected fiscal years, 1900-57

(In billions of dollars)

Year	Net receipts ¹	Expenditures	Surplus or deficit (-)	Year	Net receipts ¹	Expenditures	Surplus or deficit (-)
1900.....	0.6	0.5	(²)	1949.....	37.7	39.5	-1.8
1910.....	.7	.7	(²)	1950.....	36.5	39.6	-3.1
1920.....	6.7	6.4	.3	1951.....	47.6	44.1	3.5
1930.....	4.2	3.4	.7	1952.....	61.4	65.4	-4.0
1935.....	3.7	6.5	-2.8	1953.....	64.8	74.3	-9.5
1940.....	5.1	9.1	-3.9	1954.....	64.7	67.8	-3.1
1945.....	44.5	98.4	-53.9	1955.....	60.4	64.6	-4.2
1946.....	39.8	60.4	-20.7	1956.....	68.2	66.5	1.6
1947.....	39.8	39.0	.8	1957 ³	70.1	69.3	1.6
1948.....	41.5	33.1	8.4				

¹ Total receipts less refunds of receipts beginning with fiscal year 1931, and less transfer of tax receipts to the Federal old-age and survivors' insurance trust fund beginning with fiscal 1937 and to the railroad retirement account beginning with fiscal 1938.

² Less than \$50,000,000.

³ Preliminary.

Sources: Annual report of the Secretary of the Treasury on the State of the Finances, 1956; and Treasury Bulletin, August 1957.

TABLE 5.—Expenditure by major functions, fiscal years 1933-40

(In billions of dollars)

	1933	1934	1935	1936	1937	1938	1939	1940
National defense.....	0.7	0.5	0.7	0.9	0.9	1.0	1.2	1.6
Veterans' Administration.....	.9	.6	.6	2.4	1.1	.6	.6	.6
Grants to States.....				(¹)	.2	.3	.3	.4
Public works.....	.4	.7	.9	.7	1.0	.8	1.0	.9
Aid to agriculture.....	.2	.8	1.1	.9	1.0	.9	1.2	1.6
Relief and work relief.....	.4	1.8	2.3	2.3	2.4	1.9	2.6	1.9
Other departmental.....	.4	.3	.3	.3	.4	.4	.5	.6
Interest on public debt.....	.7	.8	.8	.7	.9	.9	.9	1.0
Other ².....	.3	.5	.3	.3	.3	.5	.4	.5
Grand total ³	3.9	6.0	7.0	8.7	8.2	7.2	8.7	9.0

¹ Less than \$30,000,000.

² See annual reports of the Secretary of the Treasury for breakdown of this item.

³ Adjustments of some of these data have been made in more recent annual reports. Some figures do not total because of rounding.

Source: Annual Report of the Secretary of the Treasury on the State of the Finances, 1940.

TABLE 6.—Expenditure by major functions, fiscal years 1941-47

(In billions of dollars)

	1941	1942	1943	1944	1945	1946	1947
National defense and related activities.....	6.7	28.3	75.3	89.7	90.5	48.9	17.3
International finance.....						.7	4.4
Veterans.....	.6	.6	.6	.7	2.1	4.3	7.3
Interest on the public debt.....	1.1	2.3	1.8	2.6	3.6	4.7	5.0
Refunds of taxes and duties ¹.....	.1	.1	.1	.3	1.7	3.0	3.0
All other.....	5.4	4.2	1.9	2.2	2.5	2.1	5.5
Total.....	13.8	34.4	79.7	95.6	100.4	63.7	42.5

¹ In table 4 this item is excluded.

Source: Annual Report of the Secretary of the Treasury on the State of the Finances, 1947.

TABLE 7.—*Budget expenditures by major classifications, fiscal years 1948-57*¹

[In billions of dollars]

	1948	1949	1950	1951	1952	1953	1954	1955	1956
Major national security.....	11.8	12.9	13.0	22.4	44.0	50.4	46.9	40.6	40.6
International affairs and finance.....	4.6	6.1	4.7	3.7	2.8	2.2	1.7	2.1	1.8
Veterans' services and benefits.....	6.7	6.7	6.6	5.3	4.9	4.3	4.3	4.5	4.8
Labor and welfare.....	1.3	1.6	2.0	2.1	2.2	2.4	2.5	2.6	2.8
Agriculture and agricultural resources.....	.6	2.5	2.8	.6	1.0	2.9	2.6	4.4	4.9
Natural resources.....	.6	1.0	1.2	1.3	1.4	1.5	1.3	1.2	1.1
Commerce and housing.....	1.4	1.9	2.0	2.2	2.6	2.5	.8	1.5	2.0
General Government.....	1.3	1.1	1.2	1.3	1.5	1.5	1.2	1.2	1.6
Interest on public debt.....	5.2	5.4	5.7	5.6	5.9	6.5	6.4	6.4	6.8

¹ Details of expenditure within these classifications are shown in each annual report of the Secretary of the Treasury on the state of the finances, 1948-56.

Source: Annual Report of the Secretary of the Treasury on the State of the Finances, 1956.

Two broad generalizations may be made at this point. In the period 1933-40, Federal spending more than doubled, most of the increase being due to expenditure policies related to the great depression. Thereafter until the present time defense spending has dominated, but in markedly different amounts and at quite different ratios to all other expenditure in the annual budgets.

It does not seem conceivable that huge expenditure for war and defense can be conducive to long-run economic growth and stability. Some people hold that a modicum of such expenditure at certain times can be, but there is certainly room for argument. As for the other expenditures of the Federal Government, some are productive, some are wasteful and uneconomic, and some are merely transfer payments. The assignments to other panelists indicate that these various kinds of expenditure are to be considered elaborately and thoroughly for their implications with respect to economic growth and stability.

ECONOMIC GROWTH, 1790-1957

National-wealth data are, at best, rough estimates. The latest year for which they are available is 1952. Since between 1940 and 1952 the purchasing power of the dollar (as measured by consumer prices) had fallen by 47 percent, the 1952 figure of \$1,128.4 billion in total national wealth would be \$597.8 billion when adjusted to 1940 dollars.

TABLE 8.—*Estimates of national wealth, in current dollars, selected years, 1790-1952*

[In billions of dollars]

1790	1. 2	1910	152. 0
1800	2. 4	1920	374. 4
1825	3. 3	1930	410. 1
1850	7. 1	1935	344. 9
1860	16. 2	1940	424. 2
1870	¹ 26. 5	1945	570. 6
1880	43. 3	1949	898. 2
1890	65. 0	1952	² 1, 128. 4
1900	87. 7		

¹ This figure has been reduced to a gold basis.

² This total for 1952 includes land valuation as of 1949, the latest year for which such data is available.

Source: U. S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States, 1789-1945, and Statistical Abstract of the United States, 1956.

Estimates of gross national product—the total national output of goods and services at market prices—go back only to 1869. Table 9 shows total and per capita gross national product in constant (1947) in the purchasing power of the dollar. In table 10, however, are shown total and per capita gross national product in constant (1947) dollars for the period 1929–56.

TABLE 9.—*Gross national product or expenditure, in current dollars, selected years, 1869–1957*¹

[In billions of dollars]

1869–78	7.0	1941	125.8
1874–83	8.9	1942	159.1
1879–88	10.7	1943	192.5
1884–93	11.9	1944	211.4
1889–98	12.7	1945	213.6
1894–1903	15.7	1946	209.2
1899–1908	21.6	1947	232.2
1904–13	28.8	1948	257.3
1909–18	40.1	1949	257.3
1914–23	61.9	1950	285.1
1919–28	81.2	1951	328.2
1924–33	79.1	1952	345.5
1929	104.4	1953	363.2
1930	91.1	1954	363.2
1933	56.0	1955	391.7
1935	72.5	1956	414.7
1940	100.6	1957 (March)	429.1

¹ The figures prior to 1929 are averages per year by decades, as calculated by Kuznets.

Sources: Historical Statistics of the United States, 1789–1945, and Department of Commerce, Office of Business Economics, Survey of Current Business, July 1957.

TABLE 10.—*Total and per capita gross national product in constant (1947) dollars, selected years, 1929–56*

Year	Total	Per capita	Year	Total	Per capita
	<i>Billions of dollars</i>			<i>Billions of dollars</i>	
1929	\$149.3	\$1,225	1952	\$293.7	\$1,868
1933	103.7	825	1953	305.3	1,920
1940	171.6	1,299	1954	301.3	1,850
1945	263.1	1,880	1955	322.8	1,954
1950	264.7	1,745	1956	332.0	1,973
1951	282.9	1,833			

Source: Data for gross national product, 1929–56, and for per capita gross national product 1929–54, Statistical Abstract of the United States, 1956 and Survey of Current Business, July 1957; per capita calculations for 1955 and 1956 are based on data in Survey of Current Business, July 1957.

Although gross national product is commonly used to measure or suggest the level of prosperity, its size could quite conceivably bear an inverse relationship to national well being. If, for example, Germany had used such calculations in the period 1920–23 when its currency depreciated to one-trillionth of its 1914 value and the nation was sinking deeper into poverty, the figures on gross national product would have reached very high levels. Even when gross national product is adjusted to changes in the price level it reflects a variety of activities which do not add to national well being: that part of government spending which is wasted or goes for war or for armament, giveaway programs, that part of private domestic investment and net foreign investment that may eventually be lost, indirect taxes, personal consumption expenditures which rest on debt that must be paid out of future income.

If we could reduce our defense program, eliminate waste and loss, and prevent further depreciation in the purchasing power of the dollar, the figures on gross national product would certainly decline, assuming no compensatory increase in the volume and value of goods and services produced for civilian use. Under such conditions it would certainly be erroneous to say that national economic well being had declined along with the decline in gross national product. Economic growth, although indicated by the rise in gross national product as expressed in constant dollars, was probably not as great as the figures suggest.

THE INCREASE IN THE FEDERAL DEBT

Due to deficit budgetary policies which were at first associated with depression and then with the prosecution of wars and with defense preparations, the Federal debt has risen astronomically since 1930. Simply stated, most of the present debt represents the excess of Federal expenditure over revenue during that period of time. Although consideration of the Federal debt and its management must here be ancillary to our study of Government expenditure, the role of the debt in its present largely unfunded form may be of even more significance—in an adverse way—for economic growth and stability than future expenditure policies, good or bad, which are carried out within a balanced budget.

The problem of the debt ties in closely with monetary policy, and it is quite technical. Suffice it to say here that a very large part of a huge debt is payable on demand and within a short period of time. That is, much of the debt can be converted into currency, bank deposits, and bank reserves at the whim of the holders. Thus, any general expectation of fiscal (or monetary) policy that is conducive to further depreciation of the dollar would increase the preference for goods and other property over dollars and fixed-dollar obligations, with the likelihood of a resulting inflationary price rise of such violence and dimension that only the most rigid overall controls could repress it. The present unfunded debt has a tremendous inflationary potential. It is, of course, the result of a long period of unfunded deficit expenditures.

TABLE 11.—*Principal of the public debt and gross debt per capita: Selected years, 1900-57*

Year	Total gross debt	Gross debt per capita (to nearest dollar)	Year	Total gross debt	Gross debt per capita (to nearest dollar)
	<i>Billions of dollars</i>			<i>Billions of dollars</i>	
1900.....	\$1.3	\$17	1946.....	\$269.4	\$1,905
1910.....	1.1	12	1947.....	258.3	1,792
1920.....	24.3	228	1950.....	257.4	1,697
1930.....	16.2	132	1955.....	274.4	1,660
1935.....	28.7	226	1956.....	272.8	1,623
1940.....	43.0	325	1957 ¹	270.5	1,582
1945.....	258.7	1,849			

¹ Preliminary.

Source: Annual Report of the Secretary of the Treasury on the State of the Finances, 1956; per capita gross debt figure for 1957 is derived from Treasury Bulletin, 1957.

FULL EMPLOYMENT AND THE PURCHASING POWER OF THE DOLLAR

Since the United States entered World War II the only important element in our economy that has shown stability is employment (or unemployment). Although the total civilian labor force has increased from year to year it has been almost fully kept at work. The percent of that force which has been unemployed at any one time since 1945 has ranged from a high of only 5.5 in 1949 to a low of 2.5 in 1953. These figures may be contrasted with the 24.9 percent unemployed in 1933.

War and defense expenditures have undoubtedly had much to do with this phenomenon of long-run relatively full employment. When wars ended or defense expenditures were reduced, however, consumer and business spending and increased outlays by State and local governments took up much of the slack. In this period the marked increase of all debt, public and private, appears to have been an important sustaining influence on the high level of employment. With the Nation's productive resources continually and practically fully used, and with the purchasing media of the country augmented by monetized debt and an easy-money policy, increasing demand for goods and services pushed against a supply that could not so rapidly be increased. The result was the inflationary phenomena of rising prices and a decline in the purchasing power of the dollar, as well as continual full employment.

TABLE 12.—Unemployment, 1941-57

Year:	Percent of civilian labor force unemployed	Year:	Percent of civilian labor force unemployed
1941	9.9	1950	5.0
1942	4.7	1951	3.0
1943	1.9	1952	2.7
1944	1.2	1953	2.5
1945	1.9	1954	5.0
1946	3.9	1955	4.0
1947	3.6	1956	3.8
1948	3.4	1957 (July)	4.3
1949	5.5		

Sources: Data for 1946-55, Statistical Abstract of the United States, 1956; calculations for 1956 and 1957 are based on data in Federal Reserve Bulletin, August 1957.

TABLE 13.—Purchasing power of the dollar, 1939-57

[1947-49=100. Obtained by computing reciprocals of Consumer Price Index compiled by Department of Labor, Bureau of Labor Statistics; these reciprocals are expressed as percentages with average of base period 1947-49=100]

Year:	Monthly average	Year:	Monthly average
1939	168.4	1949	98.2
1940	166.9	1950	97.3
1941	159.0	1951	90.1
1942	143.5	1952	88.1
1943	135.1	1953	87.4
1944	133.0	1954	87.1
1945	130.0	1955	87.3
1946	119.9	1956	86.1
1947	104.7	1957 (June)	83.2
1948	97.2		

Sources: Data for 1939-55, Statistical Abstract of the United States, 1956; calculations for 1956 and 1957 are based on data in Federal Reserve Bulletin, August 1957.

In the years between 1941 and 1957 the conjunction of circumstances which stimulated public and private spending was consonant with the provision of the Employment Act of 1946 "to promote maximum employment." Except, however, as the full employment concept made deficit spending (and the inflationary way in which it was financed) more acceptable than it otherwise would have been, most of the pressure for spending by the Federal Government came from other sources, which, nevertheless, put heavy demands on the labor market. Elsewhere in the economy the full employment doctrine was being implemented automatically by the increasing amount of purchasing media which flooded the economy.

If one is willing to believe that war and defense expenditures have been for those purposes only, then we must look to other parts of the budgets of this period for any deliberately intended "full employment" spending. Other papers in this compendium will undoubtedly do that. The point to be made here is that the Federal spending and the kind of financing that took place brought and helped to sustain relatively full employment, but it was accompanied by a depreciation in the value of the dollar to less than half of what it had been at the beginning of the period. Let us observe just one aspect of that depreciation—its effect on savings.

The effect of the depreciation of the dollar on certain kinds of savings is vividly illustrated in a recent study made by Prof. Walter E. Spahr.³

Although the following portion of it is offered to show only one aspect of the overall effect of inflationary policies, its implications are broad. Moreover, just since December 1956, the terminal point for most parts of the study, some further loss in purchasing power has occurred.

The losses in purchasing power of the following sample items of savings should constitute an arresting illustration of the subtle and far-reaching destructive powers of a depreciated currency while it contributes to high prices and expansion in productive activity and profits (often paper profits) in various other kinds of activities. This economic disease is analogous to a cancerous growth and is not widely understood, partly because people's savings are remote as compared with considerations relating to immediate income.

Instead of computing the purchasing power of the savings in these six categories as of December 1956, in terms of the dollar of 1939, the computation rests upon a much smaller item—the average holdings in each 6 categories—4 for the period December 1939 to December 1956, and 2 for the period December 1939 to December 1955.

The loss in the purchasing power of these six items alone—losses of over \$184 billion—is approximately 97 times the loss of \$1,901 million of depositors in banks for the years 1921–33.

³ Losses in Purchasing Power Arising From Our Depreciated Dollar, Economists' National Committee on Monetary Policy, New York, 1957.

TABLE 14.—18- and 17-year average holdings

United States savings bonds (18 years)-----	\$42, 180, 000, 000
Time deposits, all banks (18 years)-----	50, 704, 600, 000
Savings capital, savings and loan associations (18 years)----	13, 786, 100, 000
Life insurance in force (17 years)-----	203, 424, 900, 000
Annuities in force (17 years)-----	1, 112, 600, 000
Social-security trust and unemployment funds (18 years)----	17, 834, 200, 000
<hr/>	<hr/>
Total average holdings-----	329, 042, 400, 000
<hr/>	<hr/>
Loss in purchasing power on these average holdings-----	\$184, 263, 744, 000
Percentage loss-----	56
Bank deposit loss, 1921-33-----	\$1, 901, 000, 000

CONCLUSION

Granting that there has been substantial economic growth in the past two decades, even though in actuality it was not as great in amount as the adjusted gross national product figures indicate (see table 10), it is valid to question (1) whether the real growth of wealth and income would not have been greater under some other set of conditions of Federal expenditure, and (2) whether the conditions under which the growth has occurred have been such that some of their effect will carry over to impede growth in the future.

Further study is needed to determine whether, in an unregimented society, we can have maximum long-run growth without the cleansing function of the downward phases of the business cycle, however they may be modifiable by sound policies and practices and by financial self-restraint on the part of both the Government and the people. Expectation that markets will go down as well as up is itself a powerful restraint upon financial excesses.

The continual desirability of full employment has been emphasized under the assumption that it is essential to stability and long-run growth. This assumption must now be questioned. Full employment may be a wholesome phenomenon or an unwholesome one, depending upon many circumstances. How that level of employment is reached and maintained is an important consideration. Perhaps we should look upon full employment as a worthwhile incidental goal to be sought in every sound way, but, when reached, to be regarded as a signal for great caution.

Because at times in the past there have been great suffering and loss due to unemployment, it does not necessarily follow that continual full employment is the measure most conducive to long-run growth. The prospect, in the coming decades, of great employment transitions and fewer working hours for almost everyone, due to automation and other technological advances, should help to reconcile us to some unemployment as well as to governmental aid to those on whom the brunt of it will fall.

The real goal is maximum long-run growth. How much long-run stability we can expect in a dynamic, growing economy is still a question, but we are now seeing evidence that full employment induced by inflationary Government spending and borrowing is not the way to achieve it. Under the conditions that have developed, the prospect for any real stability is small compared with the likelihood of either severe deflation or marked further inflation, an alternative being rigid, overall, governmental control of the economy.

Another, and far more desirable, alternative is the development and application of fiscal and monetary policies of a kind that will prevent severe deflation while requiring the funding of near-money forms of public debt and encouraging public and private thrift and a high level of business investment.

THE GROWTH OF GOVERNMENT OVER THE PAST 50 YEARS: AN ANALYTICAL REVIEW

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INTRODUCTION

Although American citizens are largely inured to the colossal and spectacular, they are acutely aware of the spectacular growth of government in recent decades—higher taxes, increased spending, more government regulation, and so forth. The statistics of growth, however expressed, are always overwhelming, and it has already become a cliché to point out, for example, that today's interest charges on the national debt are more than four times total government spending only 50 years ago.

Only slightly less obvious is the fact that our whole conception of government's responsibility is far different today from what it was in 1900. Compare, for example, the following excerpts from two messages to Congress:¹

* * * I do not believe that the power and duty of the General Government ought to be extended to the relief of individual suffering which is in no manner properly related to the public service or benefit. A prevalent tendency to disregard the limited mission of this power and duty should, I think, be steadfastly resisted, to the end that the lesson should be constantly enforced that though the people support the Government, the Government should not support the people (Grover Cleveland, February 16, 1887).

The human problems of individual citizens are a proper and important concern of our Government. One such problem that faces every individual is the provision of economic security for his old age and economic security for his family in the event of his death. To help individuals provide for that security—to reduce both the fear and the incidence of destitution to the minimum—to promote the confidence of every individual in the future—these are proper aims of all levels of government, including the Federal Government (Dwight D. Eisenhower, January 14, 1954).

The overall growth of government in the United States implied in this contrast of views, and the distribution of that growth among all three levels of our government—Federal, State, and local—have had tremendous impact on the whole economic climate. It is the purpose of this paper to examine (1) the aggregate growth of government in the United States over roughly the past 50 years; (2) the basic causes

¹ Cited in *Social Welfare in the United States*, Poyntz Tyler, editor, the Reference Shelf, vol. 27, No. 3, H. W. Wilson Co., New York, 1955, p. 10.

of government's growth; (3) the relative growth of Federal, State, and local governments.

This analytical review will, it is hoped, provide some strong implications, if not conclusions, about the future course of government activity in the United States.

MEASURES OF GROWTH

There are a number of different indexes by which the growth and importance of government in the total economy can be gaged.² One such measure is government's absorption of productive resources—labor and capital. With respect to labor, in 1900, Federal, State, and local governments together employed less than 1.2 million people, about 4.2 percent of all employed workers. In 1956, total government employment was just under 10 million, roughly 17 percent of total full-time employment.³ Thus, government growth, as measured by increased direct employment, was over 700 percent. It can also be summarized as follows: In 1900, 1 out of every 25 employed workers worked for the government; in 1954, 1 out of every 5.9 employed workers worked for the government.

The growth of government's share of the national stock of capital goods has been little less impressive than its growth in direct employment. Government's share of total investment from 1902 to 1946 was 32 percent, almost one-third, and its share of total national capital asset value increased from 6.6 percent to 20.6 percent.⁴ Thus, while in 1902 the total value of government property, excluding military assets, roads and streets, and land was \$6.7 billion, by 1946, the latest year for which data are available, such property was valued at \$45.3 billion (1929 prices).⁵ Measured in constant prices, from 1902 to 1946 government's capital asset holdings, including land, grew by 326 percent.⁶

In addition to the labor and capital government employs directly, it also absorbs great amounts of these resources through its purchases of goods and services from the private sector of the economy. To measure the total volume of resources absorbed by government, we must add to the labor and capital directly employed the value of government's purchases of goods and services from the rest of the economy.

In 1903, government purchases of goods and services from the private sector were about \$752 million, and in 1956 they were some \$80.2 billion.⁷

² Great contributions to the understanding of the growth of government have been made recently in: *The Trend of Government Activity in the United States Since 1900*, Solomon Fabricant, National Bureau of Economic Research, Inc., New York, 1952; *America's Needs and Resources, a New Survey*, Dewhurst and Associates, Twentieth Century Fund, New York, 1955, ch. 18; *A Century and a Half of Federal Expenditures*, M. Slade Kendrick, National Bureau of Economic Research, Occasional Paper 48, New York, 1955.

³ Government employment and total employment for 1956 are in full-time equivalent numbers, but, for 1900, we used the census figure for "Employed," cf. Fabricant, *op. cit.*, appendix B; series D-62-76, *Historical Statistics of the United States, 1789-1945*, a supplement to the *Statistical Abstract of the United States*, Census Bureau; *Survey of Current Business*, July 1957.

⁴ Fabricant, *op. cit.*, table 4, p. 20.

⁵ *Ibid.*, table 3, p. 19. Military assets, roads, streets, and land are excluded from these comparisons except as noted.

⁶ This figure includes land, but excludes roads, streets, and related assets, and assets of defense corporations. *Ibid.*, table 6, p. 24.

⁷ Government purchases of goods and services prior to 1929 are estimates derived from Fabricant, *op. cit.*, table 5, p. 22; gross national product for 1913 is Kuznets' estimate; other data computed from *Survey of Current Business*, July and August 1955.

As a share of gross national product, government purchases of goods and services rose from 3.6 percent in 1913 to 9.7 percent in 1956. Thus, the fraction of total national output (GNP) absorbed by government through its purchases from the private sector of the economy was almost 3 times greater in 1956 than it was in 1913. The magnitude of the absolute increase again looms clearly when we recall that in the same period the gross national product itself grew 10 times larger, from \$40 billion in 1913 to over \$414 billion by 1956.

The inputs of labor and capital for the production of government services together give a total measure of government's absorption of productive resources. It is estimated that total real resources put into government's nondefense activity rose over 400 percent between 1900 and 1949; and into all government activities, "probably over 700 percent".⁸ Even with a most liberal allowance for error, it is patently clear that the growth of government measured by its absorption of productive resources has been very great indeed; but, at the very best, this measure alone is too restricted for our purpose. We are here concerned with the growth of government in a broader sense than that which measuring only inputs of labor and capital affords.

Total government expenditures is a more inclusive measure because it includes expenditures for transfer and net interest payments in addition to the value of government's absorption of productive resources.⁹ Although transfer and net interest payments do not represent additional absorption of real resources, they reflect, just as much as any other expenditures, increases in government activity called forth by the complex of national circumstance. Therefore, total government expenditure is, for us, a more useful index of government growth.

Total government expenditure in current dollars rose from \$1.5 billion in 1902 to \$104 billion in 1955, an increase of 69 times, while the gross national product increased by roughly 20 times in the same 54-year period.¹⁰

Although government expenditure provides the most inclusive index of the quantitatively measurable growth in government, obviously it falls far short of measuring the full growth of government's impact on the Nation's economy. The effects of new legislation, court decisions, and administrative regulations, in such fields as labor relations, industrial organization, agriculture, natural resources, and transportation, is not easily measured in dollar terms.

For a full evaluation of government's growth, however, these aspects of government activity should be considered along with the growth in government expenditure. Although we cannot give them quantitative significance we shall have them in mind as we turn to a brief analysis of the underlying causes of governmental growth.

⁸ These estimates are given, and should be taken, only as rough approximations. Aside from the many statistical problems inherent in the construction of such a broad index over so long a period, some of the vital data—value of military assets used by Government, for example—are not available. For our purpose, however, the possible margin of error involved in these estimates is of little consequence.

⁹ Fabricant's expenditure figures include an imputed net rent of 4 percent on the 1939 book value of government nonmilitary capital assets, but in most calculations, as he points out, interest on the public debt is taken as the measure of the services of government capital, or these services are ignored (pp. 12, 26). We are following conventional procedure and using the Department of Commerce figures for total government expenditures, which, therefore, will exceed Fabricant's measure of total input by the difference between his imputed rent and net interest payments on the public debt, and by the addition of transfer payments.

¹⁰ The gross national product for 1902 is estimated at some \$20.7 billions on the basis of Kuznet's figures for annual average gross national product in current prices for the decades 1894-1903 (\$15.7 billion) and 1899-1908 (\$21.6 billion). Cf. Kuznets, S., *National Product Since 1869*, National Bureau of Economic Research, New York, 1946.

SOME MAJOR ELEMENTS UNDERLYING THE GROWTH IN GOVERNMENT EXPENDITURES

Population growth

Between 1900 and 1957 the population of the United States grew from 76 million to 170 million. Although a larger citizenry does not ordinarily require an equal proportionate increase in expenditures for all types of government activity, this population increase of 217 percent obviously would itself call forth a sizable increase in aggregate government expenditures. For the period 1913-50, for example, it is estimated that population growth alone was responsible for \$4.6 billion; or 6.9 percent, of the total government expenditure increase of \$66.4 billion (1950 prices).¹¹ This estimate, however, does not take into account important changes in population characteristics and therefore understates the effect of population changes on government expenditure.

Among the changes in population characteristics which also imply greater government expenditures there is, for example, the fact that the median age of the population rose from 22.9 years in 1900 to 30.9 years in 1950. The greater proportion of older people in the 1950 total is underscored by the fact that the percentage of those over 65 years of age almost doubled—from 4.1 percent in 1900 to 8.1 percent by 1950. Although the proportion of school-age people—5 to 19—dropped from 36.7 percent in 1900 to only 23.3 percent in 1950, the actual number rose from 27.9 million persons to 35.1 million persons, and the proportion attending school rose from 62.6 percent to 79 percent.

Even more significant than the change in age distribution in terms of its effect on government costs, was the shift of population from rural to urban status. In 1900, the population of the United States was divided 60 percent rural and 40 percent urban. By 1950, the proportions had more than switched: 64 percent urban and only 36 percent rural.¹² The move from a dominantly rural status also involved a multiplication of urban centers, and while in 1900 we had only 38 centers of more than 100,000 population, by 1950 we had 107. Similarly, the proportion of people living in communities of more than 10,000 grew from 31.7 percent in 1900 to 49 percent by 1950.

A related factor with definite cost implications for government is that the growth of population was not evenly spread through the Nation. From 1900 to 1950 the Northeast lost 1.5 percent of its proportion of total national population; the South lost 1 percent; the North Central region lost 5.2 percent; and the West gained 13.1 percent. Although the day of the Indian wars and two-gun desperadoes had passed by 1913, it would seem that the growth of population in the relatively newly settled West called forth larger amounts of government expenditure than would have been required had population growth been restricted to the older, established areas of the country.

Price level changes

The secularly rising price level has been another obvious influence raising the dollar volume of government expenditure. The long-period decline of the purchasing power of the dollar, in evidence

¹¹ Dewhurst, *op. cit.*, p. 595.

¹² New census definition. All data in these comparisons from Census of Population.

since about 1850, has continued through the present. There has been some irregularity, occasioned by cyclical ups and downs, but, for the period as a whole, the purchasing power of the dollar has moved in a downward direction. For example, a 1939 consumer dollar had the purchasing power equivalent of \$2.58 in 1850, \$1.80 in 1900, and only \$0.52 in 1953.¹³ The wholesale dollar moved somewhat less dramatically over the past 100 years but it, too, has definitely tended downward—from a 1939 purchasing power equivalent of \$1.23 in 1850 to \$0.45 in 1953.

Neither the consumer nor wholesale price index is completely adequate, however, for accurately translating government expenditures into dollars of constant buying power and thus making expenditures in different years comparable without distortion from price changes. This is so because the effect of price changes on government expenditure varies with the different proportions of special kinds of goods and services which make up the government expenditure total. For example, a 1913 dollar spent on education would have bought \$3.94 worth of service in 1950, but a 1913 dollar for interest on the debt would have purchased only \$0.86 worth in 1950. Similarly, a 1913 dollar for current supplies would have bought \$4.72 worth in 1950, but a 1913 dollar for construction would have bought only \$2.32 worth in 1950.¹⁴ Because of such variations a composite index is not an accurate guide for deflating government expenditures. Fortunately, however, separate price indexes for 27 major categories of government expenditures have been computed for several benchmark years with 1950 as the base year.¹⁵

Using these indexes, government expenditures in 1950 dollars increased 7.2 times from 1913 to 1950, while in current dollars the increase was 22.4 times. It is estimated also that 31.2 percent of the total dollar increase (of \$66.4 billion) of government expenditures between 1913 and 1950 was due to price level changes alone.¹⁶ That is, some \$20.7 billion of a total 1950 expenditure of \$69.5 billion was due solely to the upward movement of prices since 1913.

Increased services

Increased services was the greatest single cause of the rise in government expenditure over the past half century. The expansion of existing services and the introduction of new services alone caused a rise of \$27.1 billion (1950 dollars) in government expenditure between 1913 and 1950.¹⁷ Thus, while population increase accounted for 6.9 percent, the expanded scope of government services accounted for 40.9 percent. The remaining 21 percent of the increase in government expenditure is attributed to the interaction of all three causes: population growth, price-level change, and increased services.

Increased services is not only the most important single cause of the growth in government expenditures over the past decades, it is also much the most interesting.

¹³ Estimates from Department of Labor, Bureau of Labor Statistics, and the Industrial Conference Board.

¹⁴ Cf. Dewhurst, *op. cit.*, pp. 590-593. All following estimates are also from this.

¹⁵ These indexes were constructed by Owen C. Gretton of the Census Bureau, in consultation with Kilpatrick & Drury. Cf. Dewhurst, *op. cit.*, p. 590.

¹⁶ *Ibid.*, p. 592.

¹⁷ *Ibid.*, p. 597.

THE PUBLIC DEMAND

When we study people's behavior in the private sector of the economy we use certain concepts, such as consumer demand and consumption function, which help us to understand why people spend their money as they do. We have learned, for example, that the proportion of an individual's income which he will spend on consumption goods and services is related, among other things, to his present level of income, his past income, experience, and his future expectations. We know, too, that as a person's income increases he spends a greater absolute amount on consumption goods. He not only buys more clothing, entertainment, and medical care, but he also tends to buy better quality products. Also, as income rises, people spend more on new kinds of purchases. They carry more and different types of insurance, they increase the amount of their charitable contributions, and in general they tend to exploit more fully the opportunities of life in an advanced society.

Much of what the study of consumer demand in the private economy has taught us about people's private behavior is also applicable to their communal behavior. The spending patterns of private individuals are not determined by influences which are restricted uniquely to the private sector of the economy. Indeed, not only is the public spending pattern largely determined by the same general influences, but public and private spending often are complementary in a high degree. There would be little sense, for example, in spending a large amount privately for a high-speed, low-slung, 304-horsepower automobile if we did not also spend publicly for the superhighway on which it could be driven.

What, then, were the major influences on spending—public and private—over the past half century?

The single most pervasive economic fact of the past 50 years has been the great rise in our national output. The value of goods and services produced per man-hour of labor in the private sector of the economy rose from 75.5 cents to 203.1 cents (1950 dollars) between 1900 and 1952.¹⁸ This 170-percent increase in man-hour productivity is reflected in the growth of national income from 79.7 billion in 1909 to \$274.7 billion in 1953 (1950 dollars).¹⁹ Per capita disposable income rose from about \$775 in 1909 to about \$1,350 by 1953 (1950 dollars). There is also ample evidence of a marked upward shift in the income distribution of family units, particularly since the 1930's.²⁰ All of this means that increased output has made us collectively, as a nation and as individual and family consuming units, much richer now than we were at the turn of the century.

It was not possible for our society to become so much richer without experiencing, at the same time, other significant changes. We could not have our increased productivity and keep everything else as it was. In the process of becoming richer, life in our society, and for us as individuals, became more complex. Today's techniques of production in industry and agriculture require bigger, more complicated,

¹⁸ Dewhurst, *op. cit.*, p. 89, table 30.

¹⁹ *Ibid.*, appendix 4-2, table B, pp. 959-960.

²⁰ Cf. Goldsmith, Jaszi, Kaitz, Goldenburg, *Size Distribution of Income Since the Mid-Thirties*, Review of Economics and Statistics, February 1954, also for 1944 to 1954, *Income Distribution in the United States, A Supplement to the Survey of Current Business*, U. S. Department of Commerce, Office of Business Economics, Washington, D. C., 1953.

and more expensive machinery. To organize efficiently production and distribution of the things we produce, we use larger plants and business units today than we did in 1900. From the standpoint both of the supply of labor and the provision of concentrated market areas for our increased output we had to leave the pastoral countryside and move to congested urban centers. Urbanization was in this respect basic to the great technological progress we have had; but, in fact, the whole technology of life has changed.

The greatly increased volume and variety of goods and services we consume not only have raised our standard of living; they have also changed our way of life.

Another major, though not unrelated, influence on the national spending pattern is the fact that we have become a high-preparedness nation. From 1952 through 1955, for example, we spent annually, on the average, about \$45 billion on Government purchases of goods and services for national-security purposes. If this was only a short-period budgetary phenomenon, it would still exert great influence on the Nation's spending, but there is considerable likelihood that this is a condition which will be with us for many years to come. As part of the indefinite future, it will continue to shape a large part of our private as well as public life, even though military spending is cut back a few billions or stretched out over a longer period. No important economic or political issue is unaffected by the need for maintaining a high state of national preparedness over the coming years.

How have our increased wealth and income, urbanization, technological advances, and national-security requirements influenced public and private spending?

The evidence is clear that as we grew richer we spent privately a smaller proportion of our income on necessities and a larger share on luxuries and semiluxuries. Measured in constant dollars of 1950 buying power, per capita consumption expenditures rose from \$840 in 1909 to \$1,400 in 1952, or 66 percent. Spending increased on all major categories of consumption goods and services but the relative gains were substantially different for different classes of goods and services. Percentage gains, measured in current dollars, between 1909 and 1952, were as follows:²¹

Food, liquor, and tobacco.....	695
Clothing, accessories, and personal care.....	535
Housing and utilities.....	360
Household equipment and operation.....	810
Consumer transportation.....	1,500
Medical care and insurance.....	1,100
Recreation.....	1,060
Education (private).....	750
Religion.....	330
Welfare (private).....	100

The large percentage increases in expenditure for consumer transportation, that is, the automobile, and for medical care and insurance, and recreation, are clearly consistent with our increased income and wealth status. Within the categories where percentage increases were not as outstanding, however, there were also substitutions of more

²¹ Dewhurst, *op. cit.*, pp. 101-105. This volume contains a comprehensive analysis of consumption trends. See chapters 4 through 13, especially table 33, and appendix tables 4-4 and 4-5, from which most of the following data is taken.

luxury-type expenditures for traditional necessities. The composition of food purchases changed, for example, so that while the annual per capita consumption of potatoes and grain products went down from 473 pounds in 1910-14 to 270 pounds in 1951-52, the consumption of dairy products, eggs, citrus fruits, leafy vegetables, sugar, coffee, tea, and cocoa, all rose. The rise in real incomes has increased the relative consumption of more expensive foods (although part of the increases was also due to urbanization, education-induced changes in our eating habits and other factors).²² Similarly, while expenditures on clothing, accessories, and personal care have remained much the same as a proportion of total consumption expenditures, there has been a relative rise in spending for sports clothes, cosmetics, and beauty-parlor services, and a mild decline in the demand for staple articles of clothing. The same general pattern is in evidence for virtually all the major fields of consumption expenditure. As we grew richer, we consumed more "rich man's" goods and services.

The combined effect of increased wealth, urbanization, and technological advances, on private-consumer spending patterns has been profound, and is in general quite obvious. We now have different standards of "necessity," and as a nation we have higher consumption aspirations than we had in the past.

The same facts, not surprisingly, also hold with respect to our public spending. Just as we have come to demand more and better quality products from the private sector of the economy, we have come to demand more and better quality "products" from government—the public sector. We want more and better quality schools, roads, hospitals, and recreational facilities, more adequate provision for the aged, unemployed, infirm, and needy children, increased attention to our natural resources, more provision for public safety, etc. As a consequence of this growth in public demand, virtually every government function has been expanded since 1900. This is true whether the expansion is measured by workers employed, capital assets, or expenditures (allowing even for price changes).²³ Furthermore, the composition of the expansion by government functions clearly reflects the influence of increased income and wealth, urbanization, technological advances, and defense requirements. Government's per capita expenditure on education, for example, measured in 1950 dollars, increased by almost 200 percent between 1913 and 1950.²⁴ It is significant, too, that spending for higher education grew by 29 times, in current dollars, while expenditure on elementary and secondary schools grew less than 12 times. The public demand has been for more and better physical plant, for better trained teachers, and for expansion of public education at the college and professional school level as well as for vocational training, kindergartens, and other special educational services. We want these added educational services because we are richer, but we also need them to insure the supply of adequately trained personnel for our complicated production machine. We need people also to man our Defense Establishment, who cannot only read and write, but who are technically trained. In-

²² *Ibid.*, table 44, p. 131, and ch. 5.

²³ Fabricant, *op. cit.*, pp. 82-83.

²⁴ Dewhurst, *op. cit.*, table 263, p. 632. Following data also from this source, pp. 625 to 637.

creased income and technological progress in peace and war activities together underlie the public demand for more and better education.

Similarly, measured in 1950 dollars, per capita expenditure on health and community facilities increased by 176 percent between 1913 and 1950. In this category, increased expenditures for health, hospitals, and public housing, reflect an increased sense of social responsibility which grew with our wealth. It also reflects, as do more clearly our increased expenditures on public water supply, local utilities and sanitation, the growth of public demand stemming from urbanization. These last items, and other local services, would not have figured as heavily in the growth of public demand had we remained primarily a rural people. Sanitation, sewerage, water supply, even the protection of life and property, are problems which a farmer largely meets by himself, but the conditions of city life are such that government must take the responsibility in order to safeguard the general health and well-being of the people.

Without laboring the point unnecessarily, it should be apparent that the same set of related influences—increased wealth, urbanization, technological advances, defense requirements—have caused us to increase also our expenditures for public welfare (397 percent), regulation of business and labor (149 percent), transportation (115 percent), agriculture and natural resources (more than 1,000 percent), social insurance (more than 1,000 percent) and national defense (865.1 percent).²⁵

This upward trend of government expenditure has not, of course, proceeded at an even annual rate. Like the growth of our national product, it has been sporadic or steplike. Wars and depressions, though they have been most important through their influence on Federal expenditures gave the total upward movement some strong boosts in particular years.²⁶ Despite some irregularity, however, the increased interdependence of all groups and individuals in the economy, a hallmark of our economic growth, and the high state of international tension, now presumably a fixture in our daily lives, have added directly and indirectly to the demand for an expanded scope and scale of government.

In brief, the growth of the public demand which underlay the growth of government stems from the same basic causes that led to the growth of big business, big labor, big agriculture, big wars—and big depressions.

This, then, is the essence of the public demand which has brought about the great growth of government over the past half century. But, the general tendencies which we have explored were not something new to America, or to the 20th century.²⁷ Although we have

²⁵ All percentage increases refer to the period 1913–50. They are on a per capita basis computed in 1950 dollars. Cf. Dewhurst, *op. cit.*, table 263, p. 632.

²⁶ Cf., for example, *A Century and a Half of Federal Expenditures*, M. Slade Kendrick, Occasional Paper 48, National Bureau of Economic Research, Inc., New York, 1955.

²⁷ Charles J. Bullock, *Selected Readings in Public Finance*, 3d edition, Ginn & Co., 1924, ch. III, includes summaries of studies by other writers on the growth of government expenditures in England, France, Belgium, Switzerland, Russia, Italy, for the 19th century and sometimes earlier. The relative growth of government and the private economy are not clear, however, because we lack data on the measures of total economic growth as well as other elements such as we discussed above. The data are useful and interesting, nevertheless, and provide some greater historical perspective on the issue. Bullock's own estimates of the growth of Federal Government expenditures in the United States show a rise in per capita terms from \$1.17 in 1800 to \$6.36 in 1900, with definite acceleration of the rate of increase in the post-Civil War period.

There is also an increasing flow of data from other countries for relatively recent times. One study, *The Trend of Public Employment in Great Britain and the United States*, Moses

no comparable statistical measures for earlier times or other countries, there is considerable evidence that the growth of government has been a regular concomitant of general economic progress.

For example, as table IV indicates, for 14 countries for which we have data, in the fiscal year 1951, there was a distinct correlation between per capita national product and per capita national government expenditures; the wealthier countries spent more per capita and the poorer countries spent less.²³ That the United States is not far out of line with other nations' experience is also clear. The ratio of National Government expenditures to gross national product was lower in the United States at 15.1 percent than it was in 11 of the 14 countries cited. The exclusion of State and local expenditures, however, understates government spending more in the United States than in other countries. Inadequate data for many of the countries preclude comparing other than national government spending, but using per capita total taxes of all levels of government the same general conclusion emerges. Taxes relative to gross national product were lower than in the United States only in those countries (Denmark, Iceland, Portugal, Greece, and Turkey) having either very small defense expenditures or very low income.

Wagner's celebrated "law of the increase of state activities":²⁴

Comprehensive comparisons of different countries and different times show that, among progressive peoples, with which alone we are concerned, an increase regularly takes place in the activity of both the central and the local governments. This increase is both extensive and intensive; the central and local governments constantly undertake new functions, while they perform both old and new functions more efficiently and completely. In this way the economic needs of the people, to an increasing extent and in a more satisfactory fashion, are satisfied. * * *

assumes real meaning when the emphasis is placed on "progressive peoples"—which implies economic growth—and on the influence, especially in a political democracy, of the "needs of the people."

THE RELATIVE GROWTH OF FEDERAL AND STATE AND LOCAL GOVERNMENTS

At the beginning of this century, the Federal Government collected 38 percent of all tax revenues, the States, 11 percent, the local governments, 51 percent; and, the distribution of government expenditures corresponded closely to these relative shares of tax receipts. In 1956, the Federal share of all taxes was about 71 percent and its share of total government expenditures was 65 percent. The States and local governments shared almost equally the remaining 29 percent of tax collections and spent 35 percent of the government total.

Abramovitz and Vera Eliasberg. *American Economic Review*, vol. XLIII, No. 2, May 1953, finds, for example, that in Great Britain, "toward the end of the 19th century, not 1 worker in 25 was on the Government payroll. In the middle of the 20th century, 1 in 7 was working in a regular Government agency and nearly 1 in 4 either in such an agency or in a nationalized industry or service" (p. 205). Cf., also in the same journal, Lyle C. Fitch. *Trends in Federal, State, and Local Government Expenditures Since 1890*, pp. 216-233.

²³ Dewhurst, *op. cit.*, table 236, p. 579.

²⁴ *Grundlegung der politischen Oekonomie*, book VI, ch. 3 (3d edition, 1893), cited in Charles J. Bullock, *ibid.*

The changeover from a State-local to a Federal dominated public fisc did not follow a smooth or consistent trend line. Two World Wars and the great depression gave dramatic boosts to the Federal role, but wars and depression alone fall far short of adequately explaining the changing pattern of intergovernmental relations. For an understanding of the growth of the role of the Federal Government it is hardly sufficient only to point to the great rises in Federal expenditures which occurred under war and depression stimuli. Why, for example, did the Federal Government grow so much in power and prestige in the depressed thirties and State and local governments lag so far behind? The depression alone, though it was the most serious in our history, did not resolve the course of intergovernmental events in that unhappy decade.

Throughout these past 50 years there was at work, as there is now, a complex of economic and political forces which, though subject to alteration by great events, are fashioned fundamentally by more consistent threads of the historical process. Improved communication and transportation, the growth of a national economy, urbanization, increased wealth, all the elements which led to the growth in the public demand, were part of this historical process.

The great events, wars and depression, give us, however, some convenient focal points for analysis. Accordingly, to facilitate our discussion we have divided the period roughly as follows: 1900-29, 1930-40, 1941-46, 1946-56. The major breaks after the turn of the century come, therefore, at the start of the great depression, the start and the end of World War II.

Federal Government expenditures: 1900-1929

The United States emerged as a full-fledged great power during this period, particularly after World War I, but the rise in Federal Government expenditures only partially reflected the tremendous economic and population growth of the Nation in the same years. Total Federal expenditure increased from about \$521 million in 1900 to \$2,900 million in 1929, but as a fraction of gross national product remained virtually the same: 2.9 percent in 1900 and 3.0 percent in 1929.³⁰ Total per capita expenditures, measured in 1926 prices, roughly doubled, from \$12.31 in 1900 to \$24.76 in 1929.³¹

World War I contributed more by far than any other factor to the expenditure rise. Total Federal spending in 1914, for example, was on the order of \$735 million; in 1919 it was 25 times greater at \$18,448 million, and although it fell sharply in the next decade the lowest point it ever reached was \$2,774 million—in 1927—still some 3.8 times higher than prewar. Increased spending for defense and on war-connected charges—mainly veteran's benefits and services and interest on the debt—accounted for about 85 percent of the total expenditure increase between 1900 and 1929. But, aside from defense

³⁰ These percentages are from Kendrick, *op. cit.*, but they apply to a somewhat different year than the rest of our data. Actually, total expenditures for this computation represent an average of the two fiscal years which include the calendar year. This adjustment does no violence to our comparisons, however, because of the time interval involved.

³¹ Expenditure figures in this section are also from Kendrick, *op. cit.*, except as otherwise noted. Deflation to constant 1926 dollars was accomplished by Kendrick with the use of the B. L. S. Wholesale Price Index. Although we have previously indicated the inadequacy of such a composite index, it does serve as a crude measure of price-level changes and is acceptable for the work at hand which does not require a high degree of accuracy. Tables 1 and 4 (below) were constructed by applying the same index to State and local government expenditure data.

and war charges there was little change in the volume of Federal spending.

Expenditures for civil purposes, i. e., other than defense, veteran's benefits and services, international affairs and interest on the debt—increased in all only by some \$657 million. In constant 1926 prices this amounted to a rise of \$3.13 per capita. Most of this increase went for transportation and communication facilities—mainly the provision of navigational aids, and grants-in-aid to the States for highway development—and general government. Somewhat more attention was being paid to the development and improvement of agriculture and natural resources, aid for the aged and infirm, the promotion of public health, and crime prevention and control. But for civil functions, clearly, Federal expenditure was not very much different in 1929 from what it had been at the dawn of the century.

Furthermore, the bulk of the Federal Government's growth took place in the first 20 years of the period. After World War I, the return to normalcy was accompanied by a drop in total Federal spending during most of the twenties as debt charges and veterans' costs incident to the war decreased.

Grants-in-aid

Although Federal Government expenditure in this period was characterized by an extension of regular Government services and there was little innovation of quantitative budgetary importance, there were clear indications that the forces of change were strongly affecting its role. Federal aid to the States for highways increased under the Federal Aid Road Act (1916), from nothing in 1900 to \$81 million by 1927; for education, from less than \$1 million to \$11 million, including assistance to States in paying the salaries of teachers of vocational education (Smith-Hughes Act of 1917); and there were also small increases for other purposes as well as some aid paid directly to the local governments. Small as these aid programs appear in retrospect, they mark a growing realization of the national nature which some of the traditionally State and local functions were assuming under the pressure of general economic growth. Similar signs were evidenced by the participation of the Federal Government in the cost of agricultural extension work (Smith-Lever Act of 1914) in addition to the annual cash payments already offered land-grant colleges under the second Morrill Act (1890); the extension of Federal assistance to States for forest-fire protection (Weeks Act of 1911); and in the years from 1916 to 1921, by aid offered the States to combat venereal disease, for the rehabilitation of persons injured in industrial accidents, and for maternal and child health.

In summary, Federal aid to the State and local governments rose from some \$7 million in 1902 to \$12 million in 1913. From 1913 to 1922 there was a much more substantial rise, to \$108 million, and then a period of consolidation but little expansion so that by 1927 the total of aid payments to State and local units was \$116 million. It is clear, too, that the increased flow of aid payments closely paralleled the rising need for highways as the automobile transformed our national transportation system. All other aid programs, especially public welfare, did not fare nearly as well as the highways.³²

³² For a full discussion of the development of the grants-in-aid program see James A. Maxwell, *The Fiscal Impact of Federalism in the United States*, Harvard University Press, 1946.

State and local government expenditures: 1900-29

State and local government expenditures increased more than Federal expenditures, both in absolute amount and relatively, for the first three decades of the century. Per capita State and local expenditures, measured in 1926 prices increased by \$44.85 from 1902 to 1927 (in contrast to Federal increases of \$13.21). As a fraction of gross national product State and local expenditures grew from 5.2 percent in 1902 to 8.7 percent in 1927 (in contrast to Federal growth from 2.3 to 3.1 percent).

The greatest increases in State and local expenditures were for education and highways which together accounted for more than half the total increase. The impact of the automobile on government finances is clearly indicated by the more than tenfold increase in highway expenditures during the 25 years from 1902 to 1927. The increased expenditure on education was a function of the population increase and the demand for more and better schools which we have discussed above. There were also substantial additions to expenditure on hospitals, sanitation, police, and fire protection—on almost every established function of State and local governments. And as urbanization progressed, other local functions such as the provision of utilities and transit facilities emerged with new importance.

In brief, increased expenditure on schools, highways, and local services were the most important cause of increased government expenditure—Federal, State, and local—during the period 1900 to 1929, and the role of the State and local governments, measured by expenditures, significantly increased relative to that of the Federal Government during this period. From 1902 to 1927, for example, the State and local share of all government expenditures rose from about 69 percent to 74 percent; and for civil functions only, from 88 percent to 92 percent. The State and local governments clearly dominated the public fiscal scene.

Beyond expenditures

In addition to participating in the costs of more State and local functions through the use of grants-in-aid, the Federal Government established a number of agencies to deal directly with developmental and regulatory programs which had become important largely as a result of general economic growth and the increased interdependence which marked the development of a national economy. Some of the more significant were:

- Bureau of Standards (1901)
- Bureau of Reclamation (1902)
- Forest Service (1905)
- National Park Service (1906)
- Federal Bureau of Investigation (1908)
- Bureau of Mines (1910)
- Bureau of Foreign and Domestic Commerce (1912)
- Children's Bureau (1912)
- Federal Reserve System (1913)
- Conciliation Service (1913)
- Federal Trade Commission (1914)
- National Advisory Committee for Aeronautics (1915)

Farm Credit Administration (1916)
Women's Bureau (1918)
Federal Power Commission (1920)

There were, thus, significant changes in the scope of the Federal Government which tend to be understated somewhat in statistical time series, and especially by per capita comparisons of expenditure, because they did not loom large in the Federal budget. While there was little deviation from the traditional laissez-faire line in public pronouncements that the business of government was governing—in a narrow sense—there was considerable expansion in the actual range of government activity, and even more in the potential range for government action.

It is important, too, to observe the kinds of functions in which the Federal Government took a stronger hand. Although the Federal Reserve System, for example, had strong roots in our history, many of the other activities which the Federal Government entered into had been more exclusively the preserve of the State and local governments. Welfare activities, like those involved in the Children's Bureau, had been a traditionally local function since the time of the Elizabethan poor laws; labor conditions and industrial-relations problems had been a matter primarily for State or local action; law enforcement, likewise; and more or less similarly for the regulation of domestic trade, conservation—insofar as it was practiced—and power development. It is only fair to say, too, that none of these activities was undertaken by virtue of an autonomous decision on the part of the Federal Government. Strong pressures were required before the Government, under either political party, entered any of these fields. And underlying the pressures for extending the scope of Federal Government activity were some of the basic forces discussed above—the development of a national economy in which State and local boundaries had progressively less economic significance, rapid industrialization, and urbanization, a growing sense of social responsibility, and so forth. For example, as communication, commerce, and industry became more interstate in character, the Federal Government was forced to expand its regulatory role—just as it did, through the establishment of the Federal Bureau of Investigation, as crime also became a serious interstate matter. In fact, the Federal Government stepped in mainly where there was strong public pressure to which the State and local governments could not, or would not, give effective satisfaction.

Actually, the importance of these extensions of Federal Government activity was perhaps greatest in that they represented cumulatively a considerable expansion of established limits for Federal Government concern. Court decisions subsequent to cases arising from instances of Federal Government action also added markedly to the recognition of Federal powers—and their potential.

Thus, while the expenditure comparisons for this period show a much greater growth for the State and local governments, the Federal Government was having initiative forced upon it for the assumption of new functions, many formerly State or local.

As we have previously noted, however, the development of both increased expenditure and increased scope took place prior to the twenties. In fact, from 1923 to 1929, the Federal Government not only cut

expenditures, but also reduced its debt by about \$1 billion, on the average, each year. Andrew W. Mellon, Secretary of the Treasury, summarized general policies when he wrote in 1924:

Since the war, two guiding principles have dominated the financial policies of the Government. One is the balancing of the budget, and the other is the payment of the debt.³³

Thus, while the Federal Government was enjoying prosperity—taking in more than it spent—the State and local governments were already caught in a squeeze between burgeoning expenditure requirements and limited fiscal capacity. The growth of public demand—for schools and highways, especially—was so rapid in the first half of this century that public adjustment to the concurrent need for higher taxes apparently could not keep pace. This was particularly true for the local governments. As school and local service expansion necessitated large outlays for plant and equipment, they were forced to borrow more heavily. Total State and local debt rose from \$2.1 billion in 1902 to \$14.9 billion by 1927, and the local share of that total went from roughly 80 to 87 percent. School districts, special districts, and cities shared the bulk of the increase³⁴ as they did the bulk of functional responsibility. Many were faced by serious financial problems before 1929.

Summary—The background for crisis

Federal, State, and local relations. For the period under review as a whole, and particularly after World War I, there was a disproportionate growth of expenditures and revenues for the Federal and State and local governments. The Federal share of total tax receipts went up, while its share of total expenditures went down, and, conversely, as the State and local share of all taxes went down, their share of all expenditures went up. Consequently, during the twenties, the Federal Government was able to reduce its indebtedness by about \$1 billion, on the average, annually. Its credit position, always good, was made even better. The State and local governments, whose credit was never as good as that of the Federal Government, increased their indebtedness by about \$1 billion annually, causing the total of Government obligations outstanding to remain about the same with a shift toward more State and local debt in the total, local debt particularly.

The Federal share of tax receipts went up as a result of the Federal Government's exploitation of income and profits taxes after 1913. The prosperity of the twenties caused increased yields for these taxes, even after wartime rates were cut. The State and local governments, on the other hand, still depended mainly on property taxation for their revenues. The States also drew heavily on vehicular taxes during the twenties, but in that otherwise prosperous decade the value of farm-lands and buildings declined substantially and, in the aggregate, the property tax lost much of its yield elasticity. In a great many localities, it was already proving to be overburdened.

³³ Cited in *Main Currents in Modern Economic Life*, vol. II, Horace Taylor, editor, Harcourt, Brace & Co., New York, 1941, p. 280.

³⁴ From 1902 to 1922, school-district debt rose from 2.1 to 11 percent of total State and local debt; special-district debt from 0.2 to 6.2 percent; county debt from 9.3 to 13.5 percent; and city debt, though it fell from 73.2 to 50.6 percent, had by far the largest dollar increase—about \$4.2 billion. Cf., *Historical Review of State and Local Finances*, Special Study 25, Bureau of Census, Washington, 1948.

Despite revenue surpluses, the Federal Government avoided any significant increase in functional responsibility and expenditure after World War I. From 1922 to 1929, in fact, it was able to reduce expenditures as war-connected charges declined. The State and local governments, on the other hand, were unable to resist a substantial expansion in expenditures for their traditional responsibilities—mainly highways and education. During the twenties, therefore, the Federal Government hewed closely to a laissez-faire financial policy, while the State and local governments, often against strong opposition from tax-conscious groups, increased their involvement in basic governmental services.

State-local relations.—The big difference between the situation of the States and that of most local governments was that the States, by tradition, were one step further removed from the demand for most governmental services. Outlays by the States for education and highways, which accounted for more than 70 percent of the growth in total State expenditures (including aid to localities) between 1902 and 1927, remained small compared to local outlays (less than one-half in 1927) for the same purposes. The local governments also had to face the great bulk of increased costs for public welfare, sanitation, recreation, police, and fire protection, etc. The States, insofar as they were able to disassociate themselves from local problems, had no pressing financial problem. Revenues from motor-vehicle taxes met the greatest part of highway requirements, and other revenue resources more than took care of other direct State expenditures. Despite their parental obligations, the States, in fact, generally did resist local demands for more aid and even for more "home rule." They showed great restraint in the use of the State tax power and left local responsibility largely intact.

The local governments were severely limited in the kinds of revenue sources they could tap, not only because (a) most State constitutions or statutes restricted local tax and borrowing authority, but also because (b) the growth of a truly national economy made it more difficult for smaller jurisdictions to use new taxes on business and persons whose activities were not restricted by political boundaries. The result was that the local governments faced an ever bigger job with relatively little additional help. Thus, while, from 1900 to 1929, the number of pupils enrolled in public schools increased by 10 million, motor-vehicle registrations grew from a few thousand to more than 26 million, and urbanization multiplied the need for local services, the local governments still depended on the property tax for more than two-thirds of all their revenue. The aid they received through grants from the States, and a little additional from the Federal Government, grew, but never even approximated the volume that would have been required to balance local budgets. So, the local units continued to borrow heavily, even during the prosperous twenties, and found themselves, even here, restricted by assorted local debt limits in State statutes.

By 1929, therefore, as the country stood on the brink of what we call now, somewhat optimistically, the great depression, the maladjustment of governmental functions and financial resources was already clear. The obverse to the financial problems we have explored is the matter of the Government spending which never took place and which, now it is generally agreed, would have well served the national inter-

est. Before one-third of the Nation also became "ill clad and ill nourished," it was already ill housed, ill schooled, and ill protected from sickness and disaster.

The great depression, 1929-40

The "great crash" of the New York stock market in October 1929 resounded throughout the financial world. Although it heralded greater tragedy to come, the financial panic and the downward spiral of employment and income took a little time to gather full momentum. But by 1932 the situation was tragically clear to the country at large. Unemployment had risen from 1.5 million in 1929 to 12.1 million by 1932, so that one-fourth of the civilian labor force was without work. Personal consumption expenditures had dropped by more than one-third in actual dollars, and by almost one-fifth in constant (1947) dollars. Gross private domestic investment had gone down from over \$16 billion to less than \$1 billion, and the Federal Reserve Board Index of Industrial Production showed a drop from 110 to 58 (1935-39=100). The gross national product had fallen from \$104.4 billion to \$58.5 billion, and per capita personal income from \$684 to \$320. Even correcting for the 20-percent drop in consumer prices, per capita incomes had fallen by more than 40 percent. In that brief span, from 1929 to 1932, the forced sales of farms—foreclosures—doubled, personal savings turned negative, even the marriage rate went down by more than 20 percent, and the birth rate also dropped noticeably.

The depression, obviously, also had devastating effects on Government revenues. All Government tax collections dropped, between 1929 and 1932, by 17.3 percent. Federal tax receipts, heavily dependent on cyclically responsive income and profits taxes, fell most sharply, by 47 percent. The States, whose income came largely from motor vehicles and property taxes, lost 3.1 percent of their tax receipts; and the local governments, depending almost exclusively on property taxes whose yield is relatively insensitive to changes in business conditions, lost less than one-half of 1 percent of their tax receipts. Even with this drop in receipts, tax collections in 1932 amounted to 19 percent of the national income as opposed to 12 percent in 1929—an increase of more than 50 percent in the tax burden relative to the national income.

In previous depressions, when it was felt that conditions were sufficiently bad, local governments had supplemented private charity with work relief and small amounts of poor relief. The States did very little, if anything, and the Federal Government had abided by Grover Cleveland's admonition that "though the people support the Government, the Government should not support the people."

This was a new kind of depression—much more severe and much more persistent than any the Nation had known. Great changes which had marked our growing output and wealth now became specters: industrialization and urbanization meant that most of the people now depended on wages and lived in cities, and when they lost their jobs, they were left without means to obtain food, shelter, and other necessities; the growth of a national economy and technological progress meant, among other things, the commercialization of agriculture and consequently a crucial relationship between farm product prices and costs of production, in which fixed mortgage payments and interest figured heavily and led to so much hardship. In general, greater

economic interdependence spread the deepening blight more widely throughout the economy, and the need for emergency relief alone was beyond the capacity of most State and local governments to meet.

For the State and/or local governments to cope with the new kind of depression emergency they would have had to have greatly increased financial support from either much higher tax collections or increased borrowing. In fact, neither was really possible.

The tax structure of most of the States, as we have seen, had not been strongly developed by 1929, and with the onset of depression conditions it became more difficult to apply effectively new levies or strengthen old ones. Between 1929 and 1932, 4 States added moderate income taxes, 2 States added death taxes, some scattered excises appeared, but the several motor-vehicle taxes were the only ones whose revenue yield grew at all and, as we have observed, total State tax revenues fell by some 3 percent. Conditions were such that even had the States possessed the ability to levy new taxes, the total economic base was shrinking so rapidly that there was hardly a spot which could conceivably carry increased taxation without adding to the disaster. With income, employment, sales volume, inventory, and property values all spiraling downward, where could additional taxes be placed? Even with a determination born of ignorance and obstinacy, which was at times evidenced, the States could not meet large-scale emergency fiscal needs by raising additional revenues from tax sources while the economy was still moving down into the deep trough of the depression.

Clearly, too, the local governments were in an even more difficult situation than the States with respect to tax-raising capacity. Although the property tax had the most stable yield record of any tax, it had become terribly burdensome as personal and business incomes fell. Even though the total assessed value of all taxable property had been reduced by \$28 billion—from \$169.3 billion in 1930 to \$141.3 billion in 1933—market values of property and, more important, the capacity of property owners to pay taxes had fallen much more. In fact, tax delinquency became a major problem, rising for 150 of the largest cities from 10.1 percent in 1930 to 26.3 percent in 1933.³⁵

What about increased borrowing to meet emergency needs?

Both the State and local governments were relatively eager to increase their debt obligations to meet emergency relief costs despite the prevalence of orthodox views on the need for annually balanced budgets. Throughout most of the previous decade they had sold debt obligations on the security market at the rate of roughly \$1 billion annually, and through 1931 they were able to continue borrowing at about the same level. But then they were brought up short by two important barriers: (1) Since 1842, when Rhode Island wrote a borrowing limit into its constitution, the practice had grown so that some form of debt limitation was a part of nearly all State constitutions.³⁶ The result was that most of the States could not borrow on the necessary scale without referral to the public or other difficult and time-

³⁵ Cf., *State and Local Finances in the National Economy*, Alvin H. Hansen and Harvey S. Perloff: W. W. Norton & Co., New York, 1944, p. 51. This pioneering work is still, to a remarkable extent, considering all that has happened since it was written, timely and instructive.

³⁶ Cf., *Constitutional Debt Control in the States*, The Tax Foundation, Inc., New York, 1954. At present all but 5 States have such limitations: Connecticut, Mississippi, New Hampshire, Tennessee, and Vermont.

consuming preliminaries. Local government borrowing was also sharply limited by State jurisdiction. Not only was new borrowing thus restricted, but the decline in assessed values forced localities to contract existing debt margins and undermined their credit standing.³⁷ (2) The State and local governments were dependent for their borrowing, in the main, on the willingness of banks and private investors to accept their debt obligations. There were established criteria of soundness set up in the security market and "adequate" security usually meant a favorable economic background, good tax collections, a low volume of tax delinquency, balanced budgets, and self-liquidating projects. Although these criteria were more strictly held for local governments, the States had to meet substantially the same requirements and it became almost impossible to borrow even under very costly terms. By 1932, in fact, 78.7 percent of all State and local issues bore interest rates of 4.5 percent and higher.

Even with these high interest rates the localities, in particular, had to meet additional rigorous requirements set up by the banking community. These usually involved economy provisions cutting back activities and expenditures, agreements on tax collection and tax delinquency policies, etc. All of these provisions were made, for example, in the so-called bankers agreement under which New York City was enabled, after some difficulty, to fund its pressing short-term debt obligations. The New York State Legislature also obliged the city by reducing the mandatory pay scale for teachers so that the city's expenses could be more readily reduced. In Detroit, Chicago, and other cities, heavy cuts were forced in relief payments and other city expenditures in order to enable them to place loans and qualify for temporary credit in the financial market.

High interest rates, short-term maturities, and severe contractual agreements for the borrowing governments were still inadequate for enticing an adequate supply of private funds into the security market during the rough years of the depression, 1932 to 1934. Investors had become ultraconservative and were even leery of State and local government obligations, especially after 3 States, Arkansas, Louisiana, and South Carolina, and 37 large cities, were forced to default on their debts. At one point, in fact, defaults reached approximately 15 percent of outstanding local debt issues. Not surprisingly, therefore, in 1932, 697 issues totaling \$260 million could not be sold; in 1933, 528 issues totaling \$212 million failed to find buyers—even though these issues included debt obligations of such governments as Buffalo, Philadelphia, Cleveland, Toledo, Mississippi, and Montana.

In summary, then, the State and local governments could not, in general, muster large additional revenues during the trough years of the depression either by taxation or borrowing. Local governments, carrying the greatest part of the unemployment relief burden, were forced to slash public services to meet emergency needs, and the States, too, were forced to adopt strong deflationary policies at a time when private spending was already hitting bottom. In addition to those States and localities which were forced to default on their debt obligations, many others came dangerously close to bankruptcy—a word which had become common currency with reference to public as well as private institutions.

³⁷ Much of this section on debt finance by State and local governments is taken almost verbatim from Hansen and Perloff, *op. cit.*

Why the Federal Government grew

The Federal Government, as opposed to the State and local governments, was sheltered for a brief time (1929-30) from the effects of the deepening depression. It was not immediately faced with rapidly rising emergency relief demands—those were still local matters—nor were there any other sizable increases in expenditure impending in the proximate future, and anticipated tax receipts remained high. The Federal surplus for the fiscal year 1929 had been about 185 millions, and Andrew Mellon, the Secretary of the Treasury, expected higher Treasury receipts in the following year.³⁸ President Hoover, acting on the advice of his Secretary of the Treasury, accordingly suggested to the Congress that income tax rates on 1929 income, payable in 1930, be cut in order to relieve the taxpayers. Within a month, on December 1929, Congress enacted a new tax bill which followed the President's recommendations and cut the normal tax rates on individual income from 1.5 percent, 3 percent, and 5 percent to 0.5 percent, 2 percent, and 4 percent, respectively, and the corporate tax rate from 12 to 11 percent. Even with this tax cut, Federal revenues at \$3.6 billion for the fiscal year ending June 1930 were higher than those of previous years and the surplus, \$184 million, was only slightly below the level of the year before.³⁹ Within 1 year, however, the picture was completely changed. For the fiscal year 1931 the Federal Government showed a gross deficit of \$902 million, and it was clear that the unexpected decline in business and personal incomes had cut the Federal tax base much more heavily than had been anticipated.

Despite the deficit, Federal expenditures were allowed to move upward during 1931 as aid to agriculture and veterans was somewhat increased and public-works enterprises were moderately expanded in the hope that they would stimulate business and help rebuild confidence in the economy's future.

The economy continued downward, however, and the pressure for increased Federal action to speed relief and recovery grew rapidly. Faced with a prospective deficit of almost \$3 billion developing for the fiscal year 1932,⁴⁰ the Hoover administration, following accepted doctrine, moved to return to a balanced budget by raising taxes and cutting expenditures. President Hoover concisely summarized his administration's point of view when he declared, in January 1932, that "we cannot squander ourselves into prosperity."⁴¹ But, in the same month, the Reconstruction Finance Corporation was created with a Government-subscribed capital of \$500 million. Under the RFC, home-loan banks were organized, the Federal farm-loan system was expanded, and relief and public works activities were somewhat en-

³⁸ Cf., *American Taxation, Its History as a Social Force in Democracy*, Sidney Ratner, W. W. Norton & Co., New York, 1942, pp. 437 ff.

³⁹ I. e., the surplus of Treasury receipts over Treasury expenditures, including debt retirement expenditures. This is the "gross" surplus as contrasted to "net" surplus (or "net" deficit) where public-debt retirements are deducted from total expenditures.

⁴⁰ The deficit for 1932 was \$2,885.4 million, or almost \$2 billion more than for 1931. Ordinary receipts declined by about \$1.2 billion, and expenditures increased by \$787 million. The increased expenditure was accounted for largely by a \$500 million subscription to the capital stock of the newly formed Reconstruction Finance Corporation, and a subscription of \$125 million to the capital stock of the Federal land banks. These expenditures were made in the effort to expand credit facilities and represented the great bulk of recovery and relief spending for the time, although the Emergency Relief Act (July 1932) also provided for Federal loans to help local governments carry their relief loads. An \$803 million drop in income-tax collections was the most important factor in the decline of ordinary receipts. Cf., *Federal Finance, 1923-32*, National Industrial Conference Board, Inc., New York, 1933, pp. 60-64.

⁴¹ Mitchell, *op. cit.*, p. 37.

larged. To compensate for the Government's depression spending activity, however, the Revenue Act of 1932, which became law on June 6, 1932, sharply raised all income-tax rates, lowered exemptions and deductions for individuals and corporations, doubled the estate-tax rates, restored the gift tax, and imposed excise taxes on a wide variety of goods and services. This tax legislation represented one of the sharpest increases in tax rates and liabilities ever enacted in time of peace—so great was the drive for a balanced budget even as the national economy plummeted downward.

In the ensuing fiscal year, 1933, receipts from income and profits taxes fell, nevertheless, by about one-quarter of a billion dollars to one-third of their 1930 level, and were not quite offset by increased receipts from the excises and other special levies, so that total tax revenues dropped by about \$15 million.⁴² Even though expenditures for the same year were reduced, there was another deficit of over \$2.6 billion, and the Federal debt grew to \$22.5 billion. The Hoover government, unhappy though it was with unbalanced budgets, also could not raise large, additional tax revenues during the downswing of the depression while the national income was being cut in half.

The New Deal, 1933-40

The spring of 1933 marked the lowest point of the great depression. State and local governments, as we have seen, were largely without resources to meet emergency relief needs, and the Congress, after the November 1932 elections, was dominated by "lame ducks" who refused to take any vigorous action to ease the crisis. Not only was a fourth of the work force unemployed and essential credit for farmers and businessmen unavailable, but the whole banking system was in danger of imminent collapse as bank after bank was forced to close its doors during the month preceding Franklin D. Roosevelt's inauguration. A sense of extreme national crisis pervaded the entire country.

Roosevelt assumed the Presidency on March 4, 1933, and the new administration moved with unparalleled speed in an effort to achieve "relief, recovery, and reform" through "the farflung, highly varied, sometimes contradictory program known as the New Deal."⁴³

The emergency relief nature of the expansion of Federal Government activity in the first years of the New Deal is amply clear from the titles and purposes of the principal agencies created to handle the job: (1) The Federal Emergency Relief Administration (May 1933) was established by Congress for the purpose of assisting the States and localities in furnishing outright relief to the needy. The States were given grants of Federal funds to supplement relief funds available from State and local sources, with the provision that one-half of the funds was to be matched on the basis of \$1 Federal for every \$2 from State and local sources. By the end of 1935, when liquidation of the agency was begun, the FERA had funneled more than \$3 billion to the States. (2) The Civil Works Administration (November 1933) was designed to employ 4 million jobless men on work projects which could be promptly organized. Appropriations for this program came entirely from the Federal Government, while State CWA authorities passed on projects which were generally sponsored and supervised by

⁴² Cf. *Cost of Government in the United States, 1933-35*, National Industrial Conference Board, Inc., New York, May 1936, p. 41. This drop in tax receipts takes into account subsequent refunds of income and profits tax receipts.

⁴³ Ratner, *op. cit.*, p. 453 ff.

local governments. Repair and improvement of roads, streets, school buildings, and community facilities figured prominently in the work undertaken, as well as park, stadium, and airport construction. It was closed out on March 31, 1934, after having spent about \$1 billion on work relief. (3) The Federal Emergency Administration of Public Works, known popularly as the PWA, was established under the National Industrial Recovery Act (June 1933) to forward public-works activities as a means of offering employment to the unemployed and aid to State and local governments for their public-works needs.

Many of these measures were never intended to be anything more than temporary relief expedients. The speed with which they were established, revised, abandoned, or replaced stands in the legislative record book as a commentary on the vigor, if not the certitude, with which the Roosevelt administration met the worst period of the depression emergency. "It is evident," writes Professor Hansen, "that the major effort was directed toward salvaging human and capital resources."⁴⁴

The character and scale of almost all these emergency salvage activities were something new to Federal Government experience, and both administrative and policy shifts were, in the early years, inevitable. Along the line, too, the fiscal commandment for an annually balanced budget lost much of its sanctity, and new ideas on the role and method of Government finance in the economy came to the fore.⁴⁵

Beginning with the 1934 budget, the first New Deal budget, the Federal Government's role in the national economy assumed a significance which had been visible previously only briefly during severe war emergencies. From 1933 to 1934, Federal spending increased by over \$2 billion, most of the increase coming through grants to the States and localities under a variety of emergency relief programs. These grants jumped by more than 9 times in 1 year, from \$201 million in 1933 to \$1,848 million in 1934, and accounted for almost 30 percent of total State and local expenditures. Approximately 60 percent of all Federal appropriations were for "recovery and relief,"⁴⁶ and Federal appropriations, exclusive of those for the Reconstruction Finance Corporation, conservation, flood control, public works other than through the Public Works Administration and work-relief programs, amounted to 43 percent of total Federal expenditures. The Federal deficit for 1934, at \$3.6 billion, was a billion dollars higher than in 1933, and the public debt at the close of the year stood at a record height of \$27.1 billion—higher even than in 1919.

In 1935, Federal expenditures rose by about \$1 billion, grants to States and localities accounting for somewhat less than half of the rise, and the "relief and recovery" programs, even with the exclusions noted above, took an even greater share—almost 58 percent of total expenditures. By 1935, however, the national income was well on its

⁴⁴ Hansen, *Fiscal Policy and Business Cycles*, op. cit., p. 89. Professor Hansen categorized as chiefly a "salvage" operation the bulk of Federal policies during the thirties.

⁴⁵ The effect of J. M. Keynes' influence, especially after his visit to Washington in July 1934, and the American proponents of the "new economics," particularly Professor Hansen, is too well known to require even a footnote reference.

⁴⁶ Horace Taylor, op. cit., p. 229.

way back up," and Federal revenues increased, so that the deficit was some \$0.8 billion smaller than in the preceding year; 1935 was also an important year for reappraisal and consolidation of Federal relief activities. First, on April 8, Congress passed the Work Relief Act, which substituted the Works Progress Administration (WPA) for the Federal Emergency Relief Administration (FERA). With the establishment of the WPA, the Federal Government took responsibility for the unemployed who were employable, but left to the States and localities responsibility for all other relief programs.

State and local government relief responsibilities were promptly and substantially modified by the passage of the Social Security Act on August 14 of the same year.⁴⁸ This was the most significant piece of welfare legislation in the Nation's history, but at the time it was adopted it was closely related to the new work-relief program.

While the Social Security Act of 1935 was a major New Deal achievement, it was largely a synthesis of earlier proposals, antecedent State laws, and similar programs long established in other countries. The British compulsory unemployment insurance law dated from 1911; during the twenties unemployment compensation was adopted in many other countries; and Wisconsin had enacted an unemployment-compensation law in 1932. Also, by 1925, 22 foreign countries, among them France, Germany, Italy, Russia, and Argentina, had compulsory old-age insurance and, following Arizona's 1915 act, by 1933, 46 States had some form of old-age pension program. Other parts of the social-security program enacted in 1935 and adjusted in 1939 had similar historical precedents.

In retrospect, it was only to be expected that the adoption of unemployment and old-age insurance and the other welfare-aid programs would come with the great depression. For the first time in our national history, we were faced with persistent mass unemployment, and the depression forcefully highlighted basic economic changes which had been underway for many years and which mandated a new conception of personal and family security requirements.⁴⁹ It was not by accident that the original Social Security Act was intimately connected with the Work Relief Act passed a few months earlier, and neither was the great depression merely a historical accident.

Actually, the Social Security Act was the second major depression-

⁴⁷ National-income estimates by the Department of Commerce for the years 1929-41 are as follows:

[Billions]					
1929-----	\$87.8	1934-----	\$49.0	1939-----	\$72.8
1930-----	75.7	1935-----	57.1	1940-----	81.6
1931-----	59.7	1936-----	64.9	1941-----	104.7
1932-----	42.6	1937-----	73.6		
1933-----	40.2	1938-----	67.6		

⁴⁸ For an excellent brief summary of the Social Security Act, cf. William Anderson, *op. cit.*, pp. 30-39. For a detailed analysis of the grants programs, particularly their cyclical aspects, cf. J. A. Maxwell, *Federal Grants and the Business Cycle*, *op. cit.*

⁴⁹ Speaking of the social-security legislation which initiated the system of grants to the States and for old-age assistance, dependent or crippled children, the blind, etc., and the old-age and survivors insurance programs, the railroad retirement program, and the unemployment insurance programs, Professor Kendrick states: "In view of the progress that had already been made in this country toward public acceptance of the purposes served by such legislation, and in view of the actual application of similar legislation in various foreign countries, it appears fairly certain that, irrespective of the state of employment and trade, social legislation of the character described would, at some time, have been enacted. The depression, however, caused the passage of these measures to come sooner than otherwise, and, almost certainly, operated to increase the financial provision for their implementation." Cf. Kendrick, *A Century and a Half of Federal Expenditures*, *op. cit.*, pp. 35-36.

stimulated program which was to have lasting impact on the budget of the Federal Government.

The first such program was embodied in the Agricultural Adjustment Act of 1933, which, when it was declared unconstitutional in 1936, was immediately followed by the Soil Conservation Act (1936) and, in 1939, by the Agricultural Adjustment Act. All of these acts were designed to provide (a) temporary subsidies through income supplements, and (b) long-range output readjustment by subsidies and production restrictions.⁵⁰ The support of farm income through income supplements was adopted as an emergency measure, but it became a regular feature, and in many instances the main issue, in subsequent agricultural legislation. Long-range readjustments were to be obtained by subsidizing the shift from cotton growing to dairying or grasslands farming, for example, and although some success was achieved in the conservation aspects of the program, later developments, notably World War II requirements, reversed much of the movement.

The agricultural legislation of the New Deal firmly established broad-scale Federal responsibility for the economic welfare of a sizable portion of the agricultural population, but the approach here, too, was not at all revolutionary. The agricultural sector of the economy had been in a sad state since 1921. During World War I, agricultural output had been greatly increased, mainly to meet the demand for foodstuffs from the warring nations whose own output had been sharply cut. Farmers borrowed in order to bring more land under cultivation and to use the new equipment which the continuing agricultural revolution produced. Commercial farming became increasingly more important, and, after the war was over, agricultural production continued to rise as the tractor replaced the horse and electrical and mechanical innovation accompanied general scientific progress in soil chemistry, animal husbandry, seed selection, etc. While farm-capital requirements and production kept rising, the market for output constricted. Foreign purchases of United States farm surpluses fell off sharply as European production was restored, and as Europe's purchasing power in the United States was cut when United States loans abroad were reduced, and our tariff barriers against foreign imports were raised. After 1925, because of the disparity in price movements between agricultural goods and manufactured goods, farm costs increased relative to farm prices, and the condition of agriculture worsened even more.

The "farm bloc" in Congress was actively engaged in the pursuit of aid for agriculture from the early twenties on.⁵¹ Emergency agricultural tariffs, marketing regulations, increased farm credit and aid to farm cooperatives all figured in legislative proposals and were all defeated. The McNary-Haugen bills vetoed by President Coolidge in 1927 and 1928 proposed the establishment of an "equalization fee" which would compensate farmers for losses sustained in selling surpluses abroad at low prices while they obtained higher prices from segregated domestic sales. The domestic prices were to be raised at least high enough to restore the purchasing power parity between ag-

⁵⁰ Mitchell, *op. cit.*, ch. VI, presents a thorough and lively discussion of this part of New Deal policy.

⁵¹ Cf. H. G. Halcrow, *Agricultural Policy of the United States*, Prentice-Hall, New York, 1953.

ricultural and industrial prices which had existed in 1909-14. The National Grange supported another scheme which provided, in effect, for a Federal subsidy on agricultural exports to be paid out of tariff receipts. Another plan, backed by the Farmers Union, provided for a reduction of farm output through "domestic allotment."

Despite the spate of suggestions and recommendations, no action was taken, except for some small aid to cooperatives and an extension of farm credit, until President Hoover established the Federal Farm Board in 1929. This agency undertook to stabilize prices of some farm products through a subsidized-storage system for surpluses, but it soon proved inadequate in the face of mounting difficulties which followed the crash of 1929. Experience with the Federal Farm Board indicated that a surplus-storage program could not effectively control farm prices unless it was coupled with production controls. When the New Deal Congress undertook to meet the farm problem, it adopted the previously proposed principle of domestic allotment through acreage and output adjustments in the first Agricultural Adjustment Act, and, by Executive order, the President established the Commodity Credit Corporation (CCC) to loan money on farm commodities held in storage.

Without going into all the details of the first and subsequent New Deal agricultural programs, it is clear that the basic outlines of its policy had strong antecedent roots. The whole field of agricultural aid had become a matter of Federal concern during the twenties, and, while it was the intensified misery of the depression that forced vigorous Federal action, it seems clear that long-range maladjustments in the agricultural sector would ultimately have brought Federal participation anyway. It had long since been clear that no independent State or local action would suffice, and the "farm problem" thus achieved a lasting importance in Federal Government operations, just as the industrial sector was provided for under the Social Security Act.

In fact, the agricultural-aid and social-security programs (plus the Railroad Retirement Act of 1939) together represent the bulk of New Deal legislation which has had a lasting impact on the Federal budget, and, though both programs were induced by the depression, they had longer run justification in the great changes in the American economy as well as previous histories here and abroad.

In much the same way, we could trace through the history of virtually every New Deal program. The TVA, for example, was made more expedient by the need for public-works projects in 1933, but agitation for such a Government program dated back at least to Senator George W. Norris' proposals from 1921 on, and similar development for the St. Lawrence seaway, Boulder Dam, and the Columbia River also had all been widely discussed well before the New Deal came to power.

The pattern of government expenditures

The outstanding fiscal development of the depression period was, of course, that Federal spending on civil functions—direct and through grants-in-aid—increased eightfold between 1929 and 1940. Total Federal spending rose from \$2.9 billion in 1929 to \$4.8 billion in 1932 and then doubled to \$9.6 billion in 1940. Of this overall increase of \$6.7 billion, civil spending accounted for more than \$5.7 billion. The Fed-

eral Government in 1940 spent \$1.9 billion on relief and work relief, \$1.4 billion on aid to agriculture, \$1 billion on social-security programs, interest on depression debt, and public-works administration.⁵² Other sizable amounts went for conservation, flood control, and other programs which also had been initiated during the depression.

In contrast to the great rise in Federal spending, State and local government spending remained below the 1932 level of \$8.4 billion until 1935-36, and then rose gradually to \$11.2 billion in 1940. A considerable part of this rise was made possible, however, by the expansion of Federal aid to State and local governments, and State and local government spending exclusive of Federal aid did not recover to the 1932 level until 1937-38, and by 1940 stood at \$10.3 billion.

By 1940, total State spending was higher than in 1932 by \$2.4 billion. But the greatest part of this rise, some \$1.4 billion, was accounted for by expenditures under the unemployment-compensation programs of the social-security system, increased spending for public welfare by the States directly, and increased aid to localities for their relief and welfare activities.

State aid to localities for education also ran higher by \$300 million in 1940, but it was mainly expenditure on relief and welfare that brought State spending up. The States themselves had not undertaken any other significant programs and, aside from their direct and contributory relief activities, they had left local responsibilities virtually unaltered.

Total local government spending was \$1.3 billion higher, at \$7.7 billion, in 1940 than in 1932, but net of Federal and State aid which had been increased by \$1.1 billion, it barely exceeded its 1932 level in 1940. For most of the regular local-government functions—police, fire protection, sanitation—expenditures had been cut during the worst years of the depression and recovered only gradually after 1935. Highway expenditure, which had amounted to \$1.3 billion in 1927, had fallen to \$398 million in 1932 and remained below that level until 1946. The only important rise in local government general expenditures, especially for the large cities, came in public welfare. There was also increased spending on such things as housing and community redevelopment, natural resources, electric power services, and transit facilities, but this spending also was largely a function of emergency aid programs developed by the Federal Government and drew special revenues through service charges. The chief strain on local budgets continued to come from the relief and welfare needs of a large number of depression victims and the indigent who were not covered by the several programs of the Social Security Act. The local governments still carried the great bulk of the general assistance relief burden as well as their traditional functional responsibilities.

In brief, by 1940, Federal spending had advanced very much more than State and local spending and reflected the new quantitative importance of Federal Government activity in public works and welfare activities—which previously had been primarily the preserve of the States and localities—and in agricultural aid—which had been relatively unattended. Other than for these changes which were, of

⁵² Public-works administration took \$348 million; social-security grants to States took \$369 million; old-age retirement took \$28 million; railroad employees' retirement and unemployment payments took \$136 million; and interest on depression debt was \$247 million. Cf. Kendrick, *op. cit.*, p. 32.

course, quite considerable, the spending pattern and functional responsibilities of all three levels of government were not significantly altered.

With respect to a quantitative measure of the changed relative importance of Federal and State and local expenditures, however, there is no clear line along which a completely unambiguous conception of relative growth can be drawn. That part of the growth in Federal Government spending which developed via the expansion of grants in aid to the States and localities should not, for example, be considered solely as a measure of Federal growth. Although in most cases Federal action was critical in the establishment of grants programs, and Federal controls were exercised in their administration, the use of grants also enhanced the powers and responsibility of the States and the localities. For many purposes the final spending units—the States and localities in the case of Federal grants—gained as much effective power as did the Federal Government. Public-assistance grants under the social-security system, for example, are handled through the States. The needy aged, dependent children, the blind, and since 1950 the permanent and totally disabled, deal directly with their State governments and not with Washington, D. C. Similarly, grants which make possible improved public works, highways, housing, and community redevelopment, etc., add to the governing capacity and to the effective authority of State and local governments as well as to that of the Federal Government.

In summary, increased Federal spending was the outstanding feature of depression period finance, and the consequent growth in relative importance of the Federal Government was most striking. But, in absolute terms the State and local governments also emerged with increased expenditure budgets and with a broader range of responsibilities—particularly in the field of public welfare.

From the vantage point of historical perspective it might appear that alternatives could or should have been developed allowing for more independent State and local fiscal action in the latter thirties. But, whatever alternatives might have been developed were inhibited by a postcrisis lethargy among State and local governments. The impress of the depression was fresh upon them, indeed they were not yet free of emergency needs, and their major effort was in striving to regain their sense of fiscal security by a return, in general, to stricter practices of fiscal orthodoxy. Their alleged profligacy during the fat years of the 1920's was not to be a charge which could be brought against them in the lean years of the 1930's. At the same time the Federal Government was able and willing to expand its own efforts—and it was infinitely easier to supplicate Washington for help than it was to provide it from resources within most State and local jurisdictions.

The great growth of the Federal Government during the decade of the thirties frequently is referred to as the start of "the march of power to Washington."⁵³ The growth of the Federal Government during the depression epic might be described at least as accurately as "the flight of responsibility to Washington." Any lasting significant increase in Federal activity or power came about as a corollary to its assumption of responsibility for functions which the States and

⁵³ Cf., for example, White, *The States and the Nation*, op. cit.

localities could not by themselves, or would not, undertake—and which the public demanded from government.

WORLD WAR II DEVELOPMENTS: 1940-46

Federal Government finances

The absolute and relative growth of the Federal Government during the depression decade appears very small, indeed, when compared with what happened in the war years: total Federal spending rocketed from \$9.6 billion to a high of \$95.2 billion in 1945; net budget receipts jumped from \$5.4 billion to \$46.5 billion; Federal debt outstanding went from almost \$43 billion to over \$279 billion in 1946. Just the change in sheer money magnitudes should be enough to give a sense of the impact of (then) modern warfare on the national economy. But dollar volumes alone actually understate substantially the war-time participation of the Government in the daily life of the Nation. Aside from spending, taxing, and borrowing on a plane that would have defied imagination even as late as 1940, the Federal Government had to undertake to control virtually everything that was controllable. Prices, wages, rents, profits, the distribution of consumer goods, and the allocation of productive resources—all came under the purview of the Federal Government because they were critical factors in the prosecution of full-scale warfare.⁵⁴

Federal spending

The war effort completely dominated the Federal budget from 1941 through 1946. The height of the war effort came in fiscal 1944 and 1945, but the budget for fiscal 1946 was still primarily a war budget. Through these years civil expenditures only advanced some \$1.6 billion, and much of this rise was due to the effects of inflation and to the extension of services which, although they are classified as civil, were closely related to the war effort. In constant (1926) prices, per capita expenditures on the civil functions actually fell from \$63.40 in 1940 to a low of \$41.03 in 1945—but recovered to \$53.56 in 1946. Similarly, as a percentage of the gross national product, spending on civil functions dropped from 6.5 percent in 1940 to 3.9 percent in 1946. The major reductions came, of course, in spending for relief and work relief, public works, aid to agriculture.

Because so much of Federal welfare spending was in the form of grants-in-aid established during the depression, the grants programs underwent substantial alteration as first the defense, and then the war boom brought the economy out of the persisting doldrums of depression. Unemployment, still above 8 million in 1940, dropped to 670,000 in 1944, and Federal spending for emergency grants was sharply cut. Total Federal grants had reached their peak at \$2.9 billion in 1939, were cut to \$2.4 billion in 1940, and petered down to \$900 million in 1946.⁵⁵

The emergency grants—those instituted to provide relief and welfare aid during the depression—brought the total down as they fell

⁵⁴ However, while the major policy decisions and regulations were formulated in Washington, State and local governments carried considerable responsibility for the administration of many war programs. Civil defense, selective service, rationing, and price control were among the programs undertaken cooperatively by Federal and State and local governmental agencies.

⁵⁵ Data from Maxwell, *Grants in Aid and the Business Cycle*, op. cit.

from \$2.3 billion in 1939 to \$151 million by 1946. The regular grants, on the other hand, ran substantially higher during the war years—averaging about \$743 million from 1941 to 1946 as compared with \$488 million in 1938 and \$616 million in 1939.

Spending through grants was increased mainly for such things as defense housing and transportation and the training of defense workers. National-defense requirements governed Federal spending through grants just as they did direct Federal spending, and the expansion of grants which resulted from the exigencies of war was essentially of a temporary nature.

It is unnecessary to detail the other wartime expenditures of the Federal Government, the bulk of which obviously was for direct military needs. But the magnitudes are interesting. Spending for war activities, as defined in the annual statement of the Secretary of the Treasury, rose from \$1.7 billion in 1940 to a high of more than \$90 billion in 1945. In constant (1926) dollars, per capita spending for military purposes, interest on the debt, and international affairs, rose from \$14.49 in 1940 to a high of \$585.39 in 1944, and tapered down to \$285.93 in 1946. Again, as a proportion of the gross national product, spending for these functions rose from 3 percent to almost 26 percent.

The tremendous rise in purely military expenditures deserves special mention. In constant (1926) prices total military spending increased from under \$2 billion in 1940 to over \$80 billion in 1944 and 1945, and the cost per serviceman rose from almost \$5,000 in 1940 to an annual average of \$8,741 for the years 1941 through 1945.⁵⁶ Actually the sharp upward movement of military spending measured by cost per serviceman, or by any other index, was part of a trend that started at least a century and a half earlier. Toward the latter part of the 19th century the upward movement became more pronounced and the cost per serviceman (in 1926 prices) moved from the vicinity of \$1,500 after the Civil War to over \$2,500 by the early 1900's. World War I boosted the figure to over the \$3,000 mark, and during the 1930's the annual average was close to \$4,000. Professor Kendrick writes as follows:

* * * the great increase * * * in the cost per serviceman over the century and a half cannot be explained by rising prices. Doubtless part of the upward movement is accounted for by a trend toward higher pay and better clothing, food, and medical care. But by no means all the increase can be so explained. * * * Rather, the chief reason lies in the mounting and ultimately immense technological advance in the weapons and equipment of the Armed Forces. * * * It is clear that an important, and probably the major, explanation of the rising cost per serviceman over our history has been the continuing increase in the quality, kinds, and quantity of weapons and equipment, and of ammunition and supplies. The rate of this increase, slow at first, has mounted from period to period with the rising tempo of research and invention. And as the improved and more expensive military goods have been adopted, the old have been discarded. Thus not only has the cost of the original equipment been increasing, but the useful

⁵⁶ Data from Kendrick, *A Century and a Half of Federal Expenditures*, op. cit.

life of the units acquired has been becoming shorter. Military expenditures have increased on both counts.⁵⁷

This particular aspect of technological advance obviously holds important implications for the future of Federal-State-local fiscal relations.

*State and local government finances*⁵⁸

Spending.—The relative fiscal decline of the State and local governments, as opposed to the increased importance of the Federal Government, which began during the depression period, was sharply accentuated during the war years. Despite wartime price inflation, civil-defense programs, and other war-related expenses, actual dollar spending by State and local governments was lower for most of the war period than it had been in 1940. The great drop came in expenditures for capital outlay. Highway and school construction, for example, were cut to the lowest possible amount, except where they were directly related to needs arising from the relocation of labor and other aspects of the defense effort. Total capital outlay fell, therefore, from over \$2.5 billion in 1940 to \$379 million in 1944—the lowest level by far since World War I. Other than for the cutback in capital outlay, however, total spending on almost every function increased somewhat between 1940 and 1946, but not enough to make up for the drop in capital expenditure. Although the war brought a tremendous economic revival, even public-welfare spending by States and localities was a little higher through most of the war period. Welfare spending was increased to match Federal public-assistance grants, nullifying a drop in the need for general relief expenditure. By 1946, however, with capital expenditures again rising to \$937 million, and with the enactment of long-deferred increases in government pay scales to compensate, at least in part, for the price inflation, State and local spending took a sharp jump to \$14 billion—some \$3 billion higher than in 1940. In constant (1926) prices, however, per capita expenditures were still more than 20 percent below the 1940 level. State spending per capita in 1926 prices dropped from \$50.16 in 1940 to \$35.86 in 1944, and recovered to \$41.27 by 1946. Local-government spending was cut proportionately more—from \$74.01 in 1940 to \$49.89 in 1944, recovering only to \$53.10 in 1946. In short, State and local spending in real terms, particularly local spending, was cut substantially during the war, and only partially recovered in 1946. With respect to the gross national product, State spending dropped from 5.2 to 3.4 percent, and local spending from 7.6 to 4.4 percent.

Taxation.—While the cutback in capital outlays kept total dollar spending down during the war, tax receipts increased steadily. General revenues ran well above general expenditures and, for the first time in many years, State and local governments experienced budgetary surpluses instead of deficits. Between 1941 and 1946, the only important new tax adoptions occurred when 3 States enacted gift taxes and 5 States added cigarette taxes. There was, in fact, considerable pressure for reduction in State taxation as receipts from established taxes increased with the economic revival. A number of States did

⁵⁷ *Ibid.*, pp. 45 and 48.

⁵⁸ For a more complete review of the nature of wartime problems, cf. the symposium, *Wartime Problems of State and Local Finance*, Tax Institute, Philadelphia, 1943.

reduce taxes,⁵⁹ and the increase in aggregate tax yields resulted almost entirely from the rise in incomes and consumer spending. For the local governments, the property tax brought in moderately higher yields, but the greatest increase came from charges and miscellaneous revenues. In brief, State and local tax effort was not inordinately strained during the war—mainly because tax collections grew with prosperity, and war conditions precluded spending on capital improvements which otherwise would have been undertaken. Also, of course, States and localities, for the most part, were able to resist maintaining their wage scales in parity with the inflationary rise of consumer-goods prices. Civil servants as a group were among the hardest hit by the wartime inflation.

Debt policy.—Because capital-investment programs were restricted by war priorities, and revenues exceeded expenditures, from 1940 to 1946 State and local governments were able to effect substantial debt reductions. Outstanding State debt was reduced by one-third, from \$3.6 billion to \$2.4 billion, and local debt by about one-fifth, from \$16.7 billion to \$13.6 billion.⁶⁰

Also, because the interest rate continued to decline, States and localities were able to refund some of their higher rate obligations with new issues carrying lower interest charges. The rate on triple A securities, for example, according to Moody's index, dropped from 2.84 percent in 1940 to 2.53 percent in 1946, and the annual interest cost on combined State and local debt outstanding was cut by about 29 percent—in greater proportion than the actual reduction in the capital amount of the debt.⁶¹

Postwar Federal finances

When the war ended, there was intense pressure for immediate relaxation of wartime restraints and controls. Although there were already threatening signs of growing international tension, public pressure to return to peacetime living was so great that the decision was made to demobilize the Armed Forces and to pursue as rapid a transition to a peacetime economy as could be accomplished without engendering severe economic dislocations. Once again, and quite understandably, the Nation wanted a "return to normalcy." But, clearly, not to the prewar normalcy of many millions unemployed and relief or make-work programs. Even during the years of extreme war effort, national consumption of consumer goods and services in real terms had increased by over 16 percent, and there was no disposition to allow military victory to diminish the glory or dimension of national prosperity. Both major political parties joined in enacting the Employment Act of 1946, which set forth the following declaration of policy:

The Congress declares that it is the continuing policy and responsibility of the Federal Government to use all practicable means consistent with its needs and obligations and other essential considerations of national policy, with the assistance and cooperation of industry, agriculture, labor, and State and

⁵⁹ As early as 1942, for example, New York reduced its personal-income tax by 25 percent; in 1943, Iowa followed with a 50-percent cut, Maryland with a one-third cut, South Dakota and West Virginia eliminated their personal-income taxes completely, while Illinois lowered its general sales tax, Indiana its gross-receipts tax, etc. Cf. Hansen and Perloff, *op. cit.*, pp. 8-9.

⁶⁰ These figures include enterprise debt.

⁶¹ Combined State and local debt outstanding dropped from \$20.3 billion to \$15.9 billion, or by about 22 percent.

local governments, to coordinate and utilize all its plans, functions, and resources for the purpose of creating and maintaining, in a manner calculated to foster and promote free competition enterprise and the general welfare, conditions under which there will be afforded useful employment opportunities, including self-employment, for those able, willing, and seeking to work, and to promote maximum employment, production, and purchasing power.⁶²

Only a brief moment of reflection is all that is required to recognize how much different is this bipartisan view of Federal responsibility for national economic welfare from the view that prevailed prior to 1933. The specter of a possible postwar depression was perhaps a more powerful influence than systematic economic logic in obtaining almost unanimous support for the Employment Act, but, nevertheless, the result gave clear, statutory voice to the universal postwar question: If we can have high-level prosperity in time of war, why not in time of peace?

Actually, the fear of depression in the immediate postwar situation was quite misplaced. The problem was inflation. There was a huge backlog of pent-up demand for consumer goods, particularly automobiles, household appliances, and other durables whose production had been eliminated or severely curtailed during the war; similarly, for housing to meet the requirements of a population grown by 9 million since 1940, and showing new high rates of family formation and births; for public works, especially roads, hospitals, schools, etc.; and, in greater or lesser degree, for the whole range of private and public goods and services which constitute our proud standard of living.

To back up their material wants, the consuming public had large accumulations of buying power in the form of wartime cash savings, convertible Government securities, and high current incomes from employment and investment. State and local governments had improved tax yields, strengthened credit positions, and a receptive market for their debt obligations. And, while money and credit were plentiful, it took time for industry to retool and reorganize to meet peacetime demands. Consequently, we experienced an inflationary disturbance in postwar years that heightened the trend begun in 1940, when we had started seriously to prepare for war. The buying power of the dollar, which had dropped by 35 percent, as measured by wholesale prices between 1940 and 1946, dropped by another 25 percent between 1946 and 1948. The buying power of the consumer dollar had dropped by 28 percent between 1940 and 1946, and it, too, dropped by another 25 percent in the 2-year span between 1946 and 1948.⁶³ The price rises which caused this depreciation of the dollar came despite the temporary extension of many price and wage controls—some in attenuated form—and the maintenance of fairly rigid rent controls. But the new, almost refreshing, experience with inflation added another dimension to Federal responsibility for the economic welfare; stability in the relationship between prices, wages, and other costs, was recog-

⁶² The Employment Act of 1946, approved February 20, 1946, sec. 2, 15 U. S. C. 1021. The act also provided for the establishment of the Council of Economic Advisers in the Executive Office of the President, the submission of the President's Economic Report, the establishment of the Joint (Senate-House) Committee on the Economic Report, and provided for attendant staff needs, etc.

⁶³ Data from Statistical Abstract of the United States, 1955, op. cit., p. 316.

nized as another important objective of national, peacetime economic policy. Thus, in a very few years, as our perspective fought free of narrow concentration on deep depression, fiscal and monetary measures were turned increasingly on the threat of inflation. In sum, the Federal Government now carries a more general responsibility for maintaining a sound and healthy economy—to avoid excessive inflation as well as depression—by the use of all the fiscal and monetary means which such a complete objective required.⁶⁴ But inflationary pressures in the postwar years caused considerable difficulty for all three levels of government. And, obviously, the degree of difficulty varied inversely with the intensity of demand for expenditure and increases in responsiveness of their respective tax structures to price and income changes.

Spending

Once actual hostilities ceased, the first order of Federal fiscal business was a sharp cutback in military spending. From a high of almost \$85 billion in 1945, military spending was cut to \$45 billion in 1946 and down to \$12 billion in 1947 through 1950. But even with this sharp drop in military spending, the Federal budget was to remain many times larger than ever before in time of peace. Arthur Smithies writes:

With the end of hostilities, the President's budget returned to the center of the stage. In fact, in a different political context the attitudes toward the budget in the late forties were not unlike those of the twenties. Demands for cuts in expenditures and taxes were insistent, but this insistence was to yield more frustration than it did in the twenties. The President discovered that much of the budget was uncontrollable. The interest bill was of course regarded as a contractual obligation. Expenditures under the GI bill were considered in much the same light and were likewise exempted from the competition of the budgetary process. Aid to agriculture was largely determined by the price-support legislation. A large backlog of public-construction authorizations made it impossible for the President to resist expansion in that area. The main areas left for budgetary debate were the international programs and national defense.⁶⁵

The decision to demobilize and the concurrent reduction of military spending were effectuated, as we have already noted, almost simultaneously with the end of actual fighting. The international programs were increased almost fourfold, however, and rose from just under \$1.5 billion in 1946 to an average of over \$5.8 billion for the years 1947 through 1950. Veterans' benefits became a major budgetary factor and took slightly less than \$7 billion in each year from 1947 through 1949, and were up to \$9.3 billion in 1950. Interest charges went from \$2.8 billion in 1945 to about \$3.8 billion until 1950, when they reached \$4.3 billion. Taken together, expenditures on the military, international affairs, interest, and veterans accounted for over three-fourths of total

⁶⁴ For a measure of the announced devotion to this responsibility see, for example, any of the letters of transmittal accompanying the Economic Report of the President since 1947—and enduring past the change of administration in 1952.

⁶⁵ Arthur Smithies, *The Budgetary Process in the United States*, McGraw-Hill Book Co., New York, 1955, p. 121.

Federal spending from 1946 through 1950. But in each of those years the relative share taken by these categories of expenditure declined as follows:

	Percent		Percent
1946-----	87	1949-----	73
1947-----	80	1950-----	71
1948-----	78		

Civil expenditures thus increased in relative importance in each of the postwar years through 1950. But, actual spending, as opposed to budgetary authorization, for civil functions was below the 1946 level of \$8.2 billion until 1949, when it jumped to \$11 billion, and then to \$12.5 billion in 1950. The more important increases in civil spending between 1946 and 1950 came in support of agricultural prices and farm income—which fluctuated widely depending on farm prices and in the years cited went from \$452 million to \$1.8 billion; natural resources—from \$251 million to over \$1 billion; social security, welfare and health—from \$738 million to \$1.6 billion, and transportation and communication, particularly increased highway aid and a larger postal deficit, from \$817 million to \$1.8 billion. Much of this increased spending came in the form of increased grants to the States and to local governments—grants-in-aid rose from \$900 million in 1946 to \$2.3 billion in 1950, and shared revenues from \$12.4 million to over \$20 million⁶⁶—with the localities getting direct help for such things as hospitals, airports, housing and redevelopment, and the States the great bulk of the aid for education, highways, social welfare, health and security.

Although civil spending in dollar terms showed a 50 percent jump, from \$8.2 billion in 1946 to \$12.5 billion in 1950, in constant (1926) dollars the change was only from \$7.6 billion to \$8.1 billion; and, in constant per capita dollars there was virtually no difference—from \$53.56 to \$53.60. In fact, civil spending in constant per capita dollars was less in 1947 and 1948 than it had been for most of the 1930's. As a percentage of the gross national product, however, civil spending rose from 3.9 percent to 4.4 percent, less than its proportion in the thirties, but roughly six times greater than in the twenties, while in the same terms other Federal spending dropped from 26 percent to under 11 percent, still a substantial share of the national product.

The tendency of civil expenditures to increase, and military expenditures to decrease, both absolutely and relative to total spending, after major wars has been established as part of the historic pattern of expenditure growth.⁶⁷ But, such budgetary adjustments were never fully accomplished until after several years of transition to peace. Although there was a very sharp drop in purely military spending immediately after World War II, there really was no adequate period of time within which a new peacetime budgetary philosophy could be developed. The initial drive was "to reduce the budget total to some figure that was tolerable."⁶⁸ The administration was in accord with

⁶⁶ Data are from annual budgets.

⁶⁷ Cf. Kendrick, *A Century and a Half of Federal Expenditures*, op. cit.

⁶⁸ Smithies, op. cit., p. 122. Smithies continued: "During the entire discussion no one produced any definition of tolerable, and it rested on no economic analysis worthy of the name. But the combination of intuitions and prejudices of those in authority produced the conviction that \$40 billion of expenditures was definitely too high." And later he states: "The methods employed (to cut the budget) would have delighted Presidents Harding and Coolidge, although they would have been stupefied by the size of the budget after all cuts had been made." *Ibid.*, p. 122.

the Congress and the business community on the imperative nature of cutting Federal spending.

But the shape of postwar events hardly allowed enough time for a full reduction of military spending to a stable peacetime level. International tension between the Soviet Union and the Western Powers began to mount even before final peace had been established, and with the crisis in the spring of 1948 the United States decided to rearm immediately. Although budget authorizations for 1950 were raised, actual spending was not substantially increased until later, when we were already involved in the Korean war, because of the lags between authorization, programing expenditure, and actual production of material.

In brief, although we were not in a shooting war between 1946 and 1950, the United States never got back to a peacetime budget. From cold war we went to Korea and hot war, and any potential long-run budgetary readjustments to a stable peacetime situation were thus foreclosed. Aside from the rise in military spending which came mainly after 1950, there were other factors which operated against expenditure reduction.

First, there were the fixed costs and contractual obligations we mentioned above; second, inflation raised the cost of Government purchases of goods and services as well as consumer goods prices; third, even aside from inflation-caused price increases, the rate of technological advance in the weapons and other equipment of war was so great in the short span between 1946 and 1950, that military costs moved higher than ever. For example, the outfitting of an infantry division cost \$40 million in World War II and \$200 million in 1950.⁶⁹ Jet planes, rockets, atomic bombs—all added to the cost of waging war and maintaining peace. In sum, despite a deep and widespread conviction that the level of Federal spending should be reduced more than it was actually at any time after World War II, it seems clear that a conspiracy of events with the fiscal heritage of the past war combined to frustrate efforts at further large budget reductions.

Although the Korean war, which lasted roughly 3 years, was on a much smaller scale than World War II, its effects on the economy and on Government finance were quite profound. Unemployment, which had mounted to a postwar high of 3.4 million in 1949, declined to 3.1 million in 1950, 1.9 million in 1951, and to 1.6 million in 1953. Industrial production (1947-49=100) rose from 97 in 1949 to 134 in 1953.⁷⁰ The national income rose from \$216.2 billion in 1949 to \$303.6 billion by 1953, and after their brief respite in 1949-50, inflationary pressures resumed and the price level climbed again.⁷¹

Underlying the renewed upward surge of the economy was the sharp increase in spending for national defense. Defense spending was budgeted at \$13 billion for 1950, but was raised to \$22.3 billion in 1951, \$43.9 billion in 1952, and \$50.3 billion in 1953. Also, although spending on international programs and for veterans' services and benefits

⁶⁹ Kendrick, *op. cit.*, p. 60.

⁷⁰ Data from the Economic Almanac, 1956, the Conference Board, T. Y., Crowell & Co., New York, 1956, pp. 316-317.

⁷¹ The Bureau of Labor Statistics index (1947-49=100) showed wholesale commodity prices up from 99.2 in 1949 to 103.1 in 1950, 114.8 in 1951, down to 111.6 in 1952, and relatively stable between 110 and 112 through 1955. Consumer prices advanced from a 1949-50 level of roughly 102 to a 1953-55 level of about 114.5—with a mild upward tendency since mid-1955.

dropped off rapidly, Federal spending for almost every civil function of government increased steadily during the Korean war years. By 1953 total Federal expenditures stood at \$76.6 billion.

With the end of the Korean war in early 1953, spending for national security was again cut back. But, unlike the situation immediately after World War II, when military spending was cut from a war-year level of \$85 billion in 1945 to only \$12 billion in 1947, major national security spending was only reduced from \$50.3 billion in fiscal 1953 to \$46.5 billion in 1954 and has since kept in the vicinity of \$40 billion. And, of course, there is little prospect that national-security spending can be cut in the proximate future. Civil spending, since 1954, has also reached new highs. From about 20 percent of the budget in 1954, civil spending grew to 27 percent in 1956, and is estimated to reach about 30 percent in fiscal 1958.

In the decade of the 1930's civil spending took 61 percent of the total budget, but national defense expenditure, of course, was very small.

At our new high budget levels, the high proportion of defense and defense-connected spending relative to civil spending represents a situation unlike any this Nation has faced before. Although civil spending accounted for only 20 percent of the Federal budget for the decade of the 1920's, the proportionate difference then was due not nearly as much to the large volume of defense spending as it was to the extremely low level of nondefense spending. With present high levels of military spending superimposed on civil spending, which has itself grown greatly since the thirties, we are actually in a new budgetary epoch.

Postwar State and local finances

To many observers the financial position of State and local governments at the close of the war appeared better than it had been for many decades. Tax collections reflected full and overtime employment at high wages, rising real property values, high consumption levels for taxed commodities and services. The States had a combined cash surplus of about \$3 billion, which exceeded their gross indebtedness by more than \$500 million, and the cost of borrowing for States and localities was down to a point where, in January 1946, the net interest cost to the borrower was less than 1 percent.⁷²

It was clear, of course, that State and local governments would have to make large expenditures on capital plant and equipment to catch up on public improvements put off during the war years. In anticipation of their postwar needs many States and localities had reduced their outstanding debt or set aside a wartime revenue surplus; and in 1945, when the end of the war seemed reasonably close at hand, there was a concerted rush of planning and preparation for large-scale capital investment programs. Even the foreseeable heavy expenditure needs of the States and localities did little to dampen the optimism of most observers. State and local government capital expenditures would help cushion the widely expected postwar economic decline, the Federal Government was expected to assist generously in financing these expenditure programs, and the market for State and local debt obliga-

⁷² Cf. Monthly Newsletter of the National City Bank of New York, February 1946, p. 22. Also, the gross debt of States and localities had been reduced by over 18 percent since 1940, and troublesome short-term debt had been cut from \$315 million to about \$25 million. The States had contributed only about 30 percent of the total reduction in dollar terms, but percentagewise had made about twice the progress of local governments.

tions was more than receptive—especially since these issues carried exemption from Federal income taxation and income tax rates were so high. Furthermore, the financial position of the States, particularly, was felt to be so strong that in their financial estimates they anticipated meeting upward of 80 percent of their capital needs from accumulated surpluses, another 11 percent was to come from Federal aid, and only 5 percent from bond financing.⁷³ “Pay as you go” seemed to have a ring as true as it was pleasant, and the financial community was concerned more than a little lest there be a dearth of State and local bonds offered in the market.

But, almost as soon as the cheers on VJ-Day joined the historical echoes, it became apparent that the contented look of State and local affairs was largely unwarranted. Prices, and consequently government costs, rose substantially in 1946 and 1947. Wage scales, including now—with some vengeance—government wage scales, were forced upward, labor remained scarce instead of unemployed, and construction materials were so vigorously bid for by private enterprise in gray or black markets, as well as through normal channels, that they were hard to obtain and far more costly than had been anticipated. In many cases costs rose so rapidly during the inevitable interval between project planning and project authorization that the whole process had to be repeated and scaled down on the basis of new cost estimates, with the result that heavy expenditures to meet the backlog of capital needs were delayed. Also, State bonuses to veterans caused a sharp increase in the need for cash, and, for this and other purposes, as early as 1947 State and municipal bond issues for new money totaled over \$2.3 billion—approximately double the \$1.2 billion in 1946 and by far the highest volume ever recorded in any one year.⁷⁴ The interest rate on State and municipal bonds also rose sharply during the years from 1946 through 1948, and, according to the Dow-Jones service and other such agencies, the rise amounted to about 85 percent of the average rate on tax-exempt issues. The interest cost was still low in a historical sense, but substantially higher than it had been.

In brief, the States and localities were not able to accomplish the capital improvements and additions which they needed as rapidly and as easily as they had hoped. The record high tax receipts which had nourished so much optimism during the war period soon appeared inadequate again in the face of postwar inflation and the magnitude of capital requirements. By 1947, State and local debt outstanding was growing again and accumulated wartime surpluses were being reduced year by year to meet general spending requirements.⁷⁵ And, as if to punish us for our earlier optimism, new expenditure demands appeared at a faster rate than the wartime backlog could be disposed of. By 1954, most States found their general fund balances dropping sharply, or depleted, as the upward climb of revenues slowed while increased needs for schools, highways, and other institutions were exerting even greater pressure on State and local budgets.

Thus, State and local expenditures are being forced upward (from \$37 billion in 1954 to \$43 billion in 1956, for example) by a complex

⁷³ *Ibid.*, p. 23.

⁷⁴ *Ibid.*, issue of March 1948, p. 34.

⁷⁵ The Korean war provided a revenue windfall to the States as tax receipts, which had been leveling off between 1948 and 1950, rose rapidly as a result of a renewed inflationary upsurge. The windfall allowed some further revenue surpluses, but its benefit was illusory in the long run.

of causes which are basically related to the following: The need to make up for the deficiencies in capital programs during the war period; the growth and shifts of population; and, of course, inflation. To these, we must add the influence of our increased real wealth. The public demand in the postwar period, as never before, had been for better as well as more public services. With personal income up from \$78.7 billion in 1940 to \$178 billion in 1946 and to \$327 billion in 1956, our tastes have become more expensive than ever. And, our tastes for publicly provided goods and services have reacted in essentially the same way as our tastes in private consumption. So far, although at rising interest costs, our State and local governments have been able to debt-finance much of their capital spending. But current operating costs, which account for two-thirds of the increased total State and local spending, have added huge pressures to State and local finance. There does not yet appear to be any substantial movement toward effective rationalization of their financial systems.

The problem today

The skeletal history presented in the preceding pages aimed at defining (1) the important underlying causes of the overall growth of government in the past half century; (2) the principal factors which determined the distribution of that growth between the Federal Government and the State and local governments; (3) the fiscal problems which developed in the course of events. Our major purpose was to document these summary conclusions:

The growth of government was a necessary concomitant to the overall growth of the country. That is, the rise in total government spending from an amount equal to roughly 7 percent of the gross national product in 1902 to almost 28 percent in 1956, and the consequent rise in taxes from something like 8 percent of the national income to about 25 percent, are best explained in terms of the basic factors which shaped our history: Population growth, technological advance, urbanization, increased productivity and wealth, increased interdependence in the national and world economies, the course of international affairs—a depression of unprecedented severity sandwiched between two world wars and followed by persisting cold war, a little hot war, and the ever-present threat of atomic and hydrogen annihilation.

The spectacular growth of the Federal Government since 1929, which brought such a striking shift in the relative magnitudes of Federal and State and local government operations, represents a necessary response to changed national circumstances. First, the depression dramatized the high degree of interdependence of all groups in the economy, the practical impossibility of developing local solutions, and, consequently, the need for a new national approach to problems of economic security. Second, World War II and the absence of real peace after victory brought the full cost of advanced military technology into a position of persistent dominance in the Nation's economic budget. Furthermore, the technological requirements of modern war, or preparing for defense against it, ramify quickly to all aspects of life in our society, and, hence, to almost all reaches of social policy. Only the National Government can handle this responsibility,

and it has had to expand its concern over a broad range of activities as they have become closely correlated with national defense and national security.

Despite the overwhelming impression of the increased importance of the Federal Government, domestic governmental functions are still handled primarily at the State and local level. In fact, more than four-fifths of the growth in Federal spending since 1929 is attributable to national defense and national security programs, and less than one-fifth to expanded civil functions.

Thus, while the Federal Government in 1956 spent an amount equal to 4.8 percent of the gross national product on civil functions, the States and localities spent an amount equal to 10.4 percent. Although the Federal Government's influence on internal functions may be greater than the proportion of its expenditure indicates—through controls over grants-in-aid and subsidy programs, for example—the States and localities are themselves doing more in both scope and scale than they have ever done before. In constant (1926) dollars since 1927, for example, their spending has increased by 2.6 times and their tax collections have almost doubled.

As a result of population growth, inflation, and higher standards of public demand, the burden of civil functions resting on State and local governments for education, highways, welfare, health, hospitals, housing, protection, etc., has grown faster than State and local revenue. Although disparity between spending needs and revenue sources has characterized almost the entire half century, the situation of the States and localities has been made more critical since World War II. The fact is that Federal financial requirements for the support of national defense and security programs have become so great they made increased State and local taxation more difficult.⁷⁶ States and localities, in addition to rising operating costs, still have a backlog of capital investment needs dating from depression and war years which is being augmented constantly at a rapid rate by new plant and equipment requirements.

On the basis of these conclusions, it seems clear that the future course of intergovernmental relations will depend in greatest measure on the degree of success the States and localities achieve in meeting their pressing fiscal problems. The issue, in purely pragmatic terms, is whether and how the States and localities can develop the fiscal resources they will need to finance a satisfactory level of service in the functions for which they are responsible. In other words, we know for certain that Government spending for most domestic purposes will have to go up by large amounts in the coming years, but we are not nearly so certain that the States and localities can meet the challenge. To the extent that they fail, the Federal Government will have to fill the breach.

⁷⁶ War-connected purposes required about 2 percent of the national income at the turn of the century and 4 percent in 1940, but in recent years have amounted to between 18 and 20 percent. Roger A. Freeman writes: "This prior claim on the output of goods and services and the concomitant tax burden inevitably depress our ability to support more liberally other public services. * * *". Cf., Crisis in School Finance, Part I, National Tax Journal, vol. IX, No. 1, March 1956, p. 4.

TABLE I.—Government expenditures, selected years, 1902–56

[In millions of dollars]

Year	Federal		State and local ³ total	State ⁴	Local ⁵
	Total ¹	Civil ²			
1902.....	455.2	149.1	1,095	188	959
1913.....	725.0	273.0	2,257	388	1,950
1922.....	3,296.0	677.0	5,652	1,397	4,567
1927.....	2,774.0	699.0	7,810	2,047	6,359
1929.....	2,900.0	821.0	(⁶)	(⁶)	(⁶)
1932.....	4,800.0	2,455.0	8,403	2,829	6,375
1938.....	7,200.0	4,684.0	9,988	4,598	6,906
1940.....	9,600.0	6,550.0	11,240	5,209	7,685
1944.....	93,956.0	7,237.0	10,499	5,161	7,180
1946.....	61,738.0	8,170.0	14,067	7,066	9,093
1948.....	36,524.0	7,926.0	21,260	11,181	13,303
1950.....	43,160.0	12,459.0	27,905	15,082	17,041
1952.....	67,968.0	12,602.0	30,863	15,834	20,229
1954.....	71,868.0	13,953.0	36,607	18,686	23,814
1956.....	72,611.0	19,792.0	43,152	21,686	23,273
1956 ⁶	82,970.0	25,331.0			

¹ Totals for fiscal years 1902 through 1952, from M. Slade Kendrick, *op. cit.*, table B-1, pp. 76–77. Kendrick's figures are adjusted from Treasury data to come as close as he could make them to the measure of actual cash payments to the public. See his appendix B for detailed notes on sources and method, pp. 63–73. For later fiscal years Special Analysis A, Receipts From and Payments to the Public, Budget of the United States, 1955 and 1958.

² Residual after deducting sum of expenditures for military purposes, veterans, interest, and after 1915, foreign affairs.

³ Direct expenditure, as defined by the Bureau of the Census, includes all general government expenditure plus utility, liquor store, and insurance trust expenditures. These figures are not completely consistent with the actual cash payments measure used in the Federal Government column, but they represent the best comparable long series for State and local governments. Cf., Historical Statistics on State and Local Government Finances in 1954, 1956, U. S. Department of Commerce, Bureau of the Census, Washington.

⁴ Total State expenditure including payments to local governments. Note that totals of columns 5 and 6 exceed column 4. This is due to the inclusion of State payments to local units in both expenditures of State and local governments.

⁵ Not available on census basis.

⁶ Estimate from the Budget of the United States, 1958.

TABLE II.—Government expenditures as percent of gross national product—selected years 1902–56

Year	Gross national product in current prices (billions of dollars)	Percent of gross national product				
		Federal	Civil	State and local	State	Local
1902.....	20.7	2.34	0.72	5.29	0.91	4.63
1913.....	40.1	1.81	.68	5.63	.97	4.86
1922.....	68.4	4.82	.99	8.26	2.04	6.68
1927.....	89.6	3.10	.78	8.72	2.28	7.10
1929.....	104.4	2.78	.79	(¹)	(¹)	(¹)
1932.....	58.5	8.20	4.20	14.36	4.83	10.80
1938.....	85.2	8.45	5.50	11.73	5.40	8.11
1940.....	100.6	9.54	6.51	11.17	5.18	7.64
1946.....	209.2	29.51	3.91	6.72	3.38	4.35
1950.....	285.1	15.14	4.37	9.79	5.29	5.98
1952.....	345.5	19.69	3.65	8.94	4.59	5.85
1954.....	361.2	19.94	3.87	10.15	5.18	6.61
1956.....	414.7	17.5	4.8	10.2	5.2	5.6

¹ Not available.

² Sources: Gross national product for 1929–56, Survey of Current Business, Department of Commerce. Gross national product for 1922–27, National Product Since 1869, Kuznets, N. B. E. R., N. Y., 1946, p. 51, and gross national product for 1902 and 1913 were estimated from p. 119. (The 1902 figure was found by interpolation of the 2 overlapping 10-year estimates, 1899–1908 average equal to \$21,580,000,000, and 1894–1903 average to \$15,700,000,000.)

TABLE III.—Percentage distribution of all government taxes—selected years 1902–56

Year	Federal	State and local	State	Local
1902	38.0	62.0	11.3	50.8
1913	29.2	70.8	13.2	57.6
1922	46.9	53.1	12.5	40.5
1927	36.3	63.7	16.8	46.9
1929	35.5	64.5	19.6	45.0
1932	23.4	76.6	23.5	53.1
1934	33.5	66.4	22.2	44.2
1936	36.7	63.3	24.7	38.6
1940	38.2	61.8	26.2	35.6
1946	79.6	20.4	10.0	10.4
1950	69.8	30.2	15.1	15.2
1952	76.0	24.0	12.3	11.8
1954	73.9	26.1	13.6	13.5
1956	71.2	28.8	14.6	14.2

Sources: Annual Reports of the Secretary of the Treasury on the State of the Finances. Historical Statistics of the United States 1789–1945, U. S. Bureau of the Census, Washington, 1945, Series P 90–131, pp. 298–304. Summary of Governmental Finances in the United States: 1956, U. S. Bureau of the Census, Washington, 1957.

TABLE IV.—International comparisons of public finance and gross national product, fiscal year 1951

Country	Gross national product per capita	Percent of gross national product				
		Taxes of all governments	National government expenditure ¹	Defense expenditure	National government gross debt	
United States	\$2,023	22.3	15.1	7.1		83
Canada	1,432	23.1	² 17.0	4.7		
Denmark	800	19.7	12.4	1.6		(³) 42
Iceland	792	² 19.0	14.9			21
Great Britain	779	34.4	27.3	6.7		188
Belgium	760	25.0	24.0	2.9		75
Norway	736	26.1	16.0	2.8		65
France	690	29.8	25.5	7.8		47
Netherlands	529	29.0	24.7	4.2		130
Germany	509	31.0	21.7	4.9		23
Italy	324	20.7	19.3	4.2		34
Austria	308	30.9	34.0	.9		31
Portugal	285	9.7	7.6	2.1		16
Greece	243	16.7	33.7	9.8		10
Turkey	161	17.9	20.1	6.5		18

¹ "National" refers to the central governmental authority; in the United States it refers to the Federal Government.

² Preliminary figure.

³ Not available.

Source: Division of Statistics and Reports, Mutual Security Administration (table IV, Dewhurst, op. cit., table 236, p. 579).

SOME HISTORICAL ASPECTS OF FEDERAL FISCAL POLICY, 1790-1956

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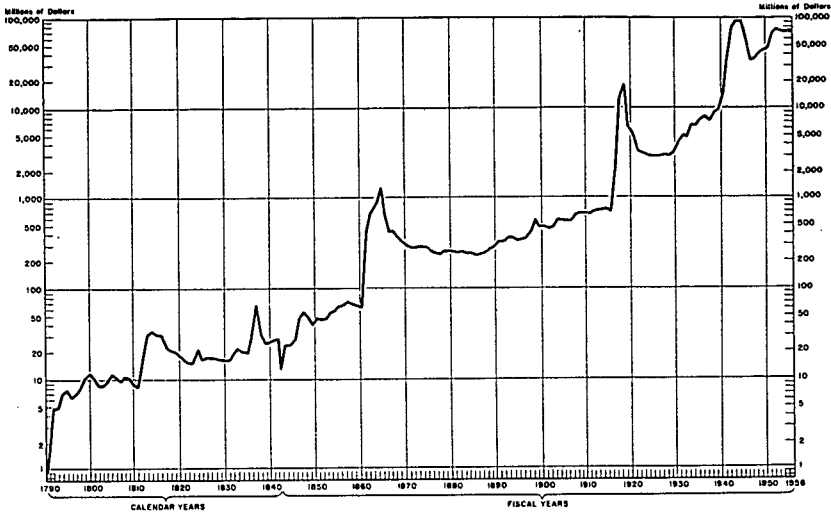
Traditional views of fiscal policy tended to treat Government expenditures as the means to the performance of Government functions, and to regard revenue measures as a means to both. Modern income analysis, by contrast, has tended to stress the money-flow aspects of aggregate Government financial transactions in relation to national levels of spending, output, and prices. This paper will deal with both aspects. It will describe and analyze briefly the historical development of Federal expenditures by function and of the attending revenue structure. The relations between fiscal policy and wartime inflations will be investigated, also the reciprocal interaction of fiscal policy with peacetime economic fluctuations. The fiscal ideas underlying such policies will also be treated. The possible effects of the tax structure and public debt policy on economic growth will receive some attention. Discussion of some of the conceptual problems and statistical sources encountered in a historical treatment of this sort will conclude the paper.

THE GROWTH OF FEDERAL EXPENDITURES, 1790-1956

During the first full year of its existence, the Federal Government spent less than \$1 million. In fiscal 1956, Federal cash payments to the public totaled more than \$70 billion. Current levels of Federal spending are about 10,000 times as large as those of the 1790's and about 200 times as large as those of the 1890's.

The pattern of this vast growth over time is shown in the accompanying chart. A cursory examination will reveal its most striking feature to be the influence of wars on the pattern of increase. The large eruptions reflect the War of 1812, the Civil War, and World Wars I and II. Instead of a gradual, even, upward movement, Federal expenditures have shown a series of plateaus. Wars have pushed expenditures to high levels. With the return of peace, spending has fallen, but never to prewar levels. Usually the war has left a heritage of increased expenditures for interest and veterans. Between wars, expenditures show several long periods of relative stability or even decline, until the next war forced them to still higher levels. Such

FEDERAL EXPENDITURES, 1790-1956



Sources: 1790-1860, author's estimates; 1861-1916, author's preliminary estimates: pp. 81-83; 1917-52, Kendrick, a century and a half of Federal expenditures, National Bureau of Economic Research, 1955, p. 77; 1953-56, annual budget volumes for 1955-58.

periods have been lacking in recent years. Since 1900 there has been a stronger upward tendency in "normal" Federal expenditures, and since 1945 the earlier distinction between wartime and peacetime periods has largely evaporated.

Table I summarizes the growth of expenditures in absolute terms and also gives some information on the composition of expenditures and their relation to other economic magnitudes. It shows that expenditures for defense and for interest, veterans' benefits, and other war-related items have usually dominated Federal spending. In only one of the selected periods, that of the 1930's, do the other items account for more than half. This does not obliterate the fact that these civil expenditures in each period were larger than in the previous one. In 1956, this civil category accounted for nearly \$20 billion of Federal spending.

TABLE I.—*The growth of Federal expenditures and their relation to other economic magnitudes, 1790–1956*

Period	Number of years	Average annual expenditures			Average per capita 1926 prices	Average ratio to gross national product
		War-related	Other	Total		
Millions of dollars						
						<i>Percent</i>
1790-1811.....	22	6.0	2.0	8.0	1.60	1-2
1812-15.....	4	26.7	2.8	29.5	3.25	3-5
1816-36.....	21	13.7	6.1	19.8	2.45	1-2
1837-61.....	24½	27.3	18.4	45.7	2.95	1-2
1862-65.....	4	708.0	19.0	727.0	24.40	10-14
1866-90.....	25	227.0	66.0	293.0	7.60	3-4
1891-1916.....	26	357.0	171.0	528.0	10.0	2-3
Billions of dollars						
						<i>Percent</i>
1917-19.....	3	10.6	0.4	11.0	82.0	17-18
1920-29.....	10	2.8	.7	3.5	28.0	4
1930-41.....	12	2.9	4.2	7.1	71.0	10
1942-45.....	4	70.0	6.0	76.0	461.0	40
1946-56.....	11	45.0	12.0	57.0	225.0	18

NOTES.—Figures are for calendar years through 1842, 6 months of 1843, thereafter fiscal years ending June 30.

War-related expenditures include military, veterans, foreign, and interest.

Averages relative to population are means of annual estimates, as are those for gross national product since 1861. For earlier years, relation to gross national product indicates probable range.

Sources: 1790–1916 based on author's annual estimates, discussed at end, 1917–52, M. Slade Kendrick, *A Century and a Half of Federal Expenditures*, National Bureau of Economic Research, 1955; 1953–56, *Budget of the United States*, annual volumes for 1955–58.

We can better obtain perspective on the magnitudes and growth of Federal outlays by comparing them with some measures of the size of the economic system. We should also allow for the fact that the value of the dollar has not remained constant. Since 1790, the population of the United States has increased from about 4 million to about 170 million—more than fortyfold. The purchasing power of the dollar, as measured by wholesale prices, has fallen to about one-third of its 1790 value—although such long-run comparisons are virtually meaningless because of changes in the composition of output. In our table, figures showing Federal expenditures per capita, in 1926 prices, take account of the changes just noted. These show that the increase in spending was not great relative to price and population change in the peacetime periods through 1929.

The type of comparison most dear to the economist is that between Government expenditures and some measure of national income or output. Precisely what such comparisons show and how they should be made are questions we will sidestep. We will merely take gross national product as a measure of the size of the Nation's economy. Gross national product (GNP) has grown more rapidly than population as a result of increased productivity stemming from improved organization, technological advance, and an increasing stock of capital goods. Output per capita in the United States has risen to more than 10 times what it was in the first part of the 19th century. Table I contains a column of data relating Federal spending to GNP in each period. This comparison reduces the growth of Federal spending to

somewhat more modest proportions. If we concentrate on peacetime periods, we find an increase in the ratio from something under 2 percent before 1812 to something under 20 percent in most recent times.

These statistical relationships do not go very far to explain why the increases in spending have occurred. Some economists have suggested that there is a kind of law of increasing Government activity—that as the living standard of an economy rises, public opinion will bring about a larger relative amount of Government activity. Most Government services are not vital for subsistence, but higher living standards bring more desire for Government services, while increasing people's willingness and ability to pay for them. To use a modern idiom, Government activities may be purchased out of supernumerary income—income above that needed for necessities, which rises faster than total income.

This explanation, usually advanced to account for increases in desirable Government activities, may paradoxically help explain the relative increase in war expenditures. In part the increasing costs of American wars reflect the higher emotional involvement of the population in total war. Another contributing factor, as Professor Kendrick has pointed out, has been changes in military technology.¹ But part of the explanation is that a wealthy, highly productive nation can devote a larger proportion of its resources to military purposes without infringing on the necessities of life. The high proportion of our output devoted to military uses during World War II was more readily achieved because the economy had been in a period of depression, which kept people's accustomed standard of necessity fairly low, and also permitted a great increase in total output.

But to deal adequately with the peacetime growth of Federal expenditures, whether war-related or not, one must be more specific about public attitudes toward Government actions, the political structure, and the revenue base.

Federal expenditure policies in the 19th century

Our figures show that the growth of Federal expenditures in peacetime periods was relatively slow in the 19th century—indeed, down through the 1920's—relative to the growth of the economy. Government spending seemed to approximate a normal level of somewhat under 5 percent of GNP. The activities on which the Government spent most of its money showed a remarkable degree of stability throughout the 19th century. In the years 1789 through 1860, about five-sixths of Federal expenditures went for defense, general government, Indian affairs, veterans' pensions, interest, and postal service deficits. In 1890 these activities accounted for virtually the identical percentage, although the relative shares were different. In 1789–1860, about 5 percent of Federal spending went for aids to commerce and transportation, chiefly lighthouses and river and harbor improvements. In 1890 this percentage was also practically identical. Only about 10 percent of total spending in each case fell outside these activities, and some of that reflected such common items as surveying and selling the public lands, and District of Columbia expenditures.

¹ M. Slade Kendrick, *A Century and a Half of Federal Expenditures*, National Bureau of Economic Research, New York, 1955, pp. 42–48, 57–62.

By 1910, the share of the first group of activities had fallen below 80 percent. In the category of transportation facilities, expenditures on rivers and harbors were exceeded by those on the Panama Canal, pushing the total for the category above 10 percent. Conservation-oriented activities in the Interior Department, agricultural expenditures (which had been minute in 1890), and the outlays of the newly formed Department of Commerce and Labor accounted for another 7 percent. Since 1910, the increase in the dollar volume of Federal expenditures has been accompanied by the proliferation of Federal activities. We might say that in the 19th century expenditure growth increased the scale of Federal activities, but that during the 20th century, their scope has increased also.

We may be able to throw light on the reasons for these divergent patterns by adopting an unconventional approach. Instead of asking why expenditures grew, let us ask why they did not grow more in both scale and scope before, say, World War I. We can dismiss at the outset one possible explanation—that there was no pressure from the public for Government services and actions. Recent research in economic history has produced a mass of evidence that demands for Government action were widespread and strong throughout the 19th century, particularly from businessmen.² There are a number of specific factors which account for their slight effect on Federal spending:

1. The Federal system. The greater part of the demand for Government action involved State and often local governments. State aid, participation, and regulation were very evident in the development of roads, canals, railroads, and banks before 1860.

2. The separation of powers in the Federal Government. Members of Congress have typically been most sensitive to demands for services from particular constituent groups. The President and other executive officials are, however, more at liberty to pattern their conduct after a general theory of government. In the 19th century most Presidents, strong or weak, held pronounced views about the proper role of the Federal Government relative to the States and to the private economy. In particular, they shared a general sense of the limitations imposed by the Constitution on Federal activities. Not only was Presidential leadership lacking on behalf of spending increases, but strong Presidential pressure was often exerted to keep Federal activity limited. The history of this can be read in part in the sequence of Presidential vetoes, from Madison's veto of the bonus bill of 1817 through Coolidge's veto of the McNary-Haugen bills in the 1920's.³ We will also find evidence of it in the attitude of officials toward fiscal policy during economic depressions. One might note that the strong pressures against spending came from the Executive more than from the judiciary. No Federal spending program of consequence fell afoul of the courts until the 1930's.

² This literature is excellently summarized in Robert A. Lively, *The American System: A Review Article*, *Business History Review*, March 1955.

³ Other notable items in the series should be Monroe's veto of a bill to charge tolls on the Cumberland road, Jackson's veto of bills to buy stock in the Maysville turnpike and Louisville and Portland Canal corporations, Polk's and Arthur's vetoes of river and harbor bills, Johnson's veto of the Freedmen's Bureau bill, and Cleveland's vetoes of pension, river and harbor, and drought-relief bills. Others which involved the scope of Federal activity were those of Jackson and Tyler on bills to charter a national bank, and those of Pierce and Buchanan on bills to distribute public lands for certain welfare purposes.

3. The Federal Government was able to meet demands on it by actions which involved little or no expenditure of money or which even brought revenue. Major programs which involved little expenditure would include the national banking and Federal Reserve systems, antitrust and the Federal Trade Commission, and the regulation of railways and other industries. In the 19th century, the Government also was able to take substantial actions with its great nonmonetary asset, the public lands. In part, the low level of veterans' pension payments prior to the Civil War reflected the use of land bounties to servicemen. Federal land grants for aid to railways and education were vastly more important than the cash expenditures for such purposes. And of course in the case of the tariff, the Government was able to meet demands for assistance to business in a manner which brought revenue. These factors indicate that a study of expenditure patterns alone is seriously inadequate for an understanding of the general economic role of the Federal Government before 1900.

4. Federal expenditures were inhibited at times by the nature of the tax structure and the abhorrence of debt. Prior to the Civil War, the tariff was the chief source of Federal revenue, but its revenue aspect was never the sole consideration. During the years 1833-60, the political power of southern interests made it impossible to increase rates (except in the face of large depression deficits in 1842), and in fact created a strong pressure to reduce them as imports grew. Abhorrence of debt manifested itself in a strong priority for debt retirement in times when revenues were abundant (1825-36, 1850-56), and in determination to reduce expenditures in times of depression and low revenue.

5. Although there emerged in the latter part of the 19th century two large "underprivileged" groups, the farmers and the industrial working class, the farmers tended to concentrate their attention on such Government actions as monetary reform, lower tariffs, and antitrust. The working class was in large measure politically impotent, because of the high proportion of immigrants, but even the sector of labor with the highest political potential preferred to seek gains through craft organization and collective bargaining rather than through Government action.

The increases in Federal expenditures prior to 1900 took place in well-established channels and at times when the limitations noted were relatively weak. One major influence toward growth was the territorial expansion of the United States under the stimulus of population increase. A large part of defense expenditure went for frontier protection against Indians, and was greatly in demand especially after the territorial increases of the 1840's. Expenditures for Indian affairs, postal service, and transportation facilities were all linked to territorial expansion.

The successive periods of war also tended, to some extent, to create the revenue necessary for higher subsequent expenditures such as veterans' benefits. The high tariff rates and belated internal duties of the War of 1812 brought a flood of revenue after the war, and the tariff was never restored to its prewar level, although the internal duties were soon repealed.⁴ The Civil War created a revenue base

⁴ Paradoxically, the large relative increase in pension expenditures after 1816 went almost entirely to Revolutionary veterans and their survivors. Army veterans of 1812 received no pensions until after the Civil War, nor did those of the Mexican War.

of excise taxes on tobacco and alcoholic beverages which were not removed after the war, and which had a sumptuary aspect which made reduction unpopular in some quarters. Pension increases after 1865 were also attractive to Republican politicians because of their geographic distribution. But the big increase in pension payments came some 25 years after the Civil War, when the tariff was bringing in high revenues at a time when the political pressures for protection were too high to permit rate reductions.

Federal expenditure policies in the 20th century

The large increase in Federal expenditures relative to GNP has taken place in the 20th century, particularly the years since 1930. This has been a growth in both the scale and scope of Federal action, with an enormous proliferation in the number of Federal activities and the assumption of responsibilities previously left either to States and localities or regarded as private concerns.⁵

This change can be explained to a large degree in terms of modification in the forces formerly limiting expansion. The economy has become a national unit, which State and local governments have been less able to cope with. The Federal Government has tapped phenomenal new revenue sources which have completely eclipsed the relatively cumbersome resources of States and localities and have increased Federal spending capacity. In addition, during the 1920's and 1930's, these new taxes on personal and corporate incomes were largely imposed on a wealthy minority, so that they did not have the political unpopularity which has increasingly attached to the personal tax in its more recent role as a mass levy. By the 1920's farmers had become a more effective political power and were demanding positive Federal action rather than regulation of alleged "exploiters." The curbing of immigration in the 1920's helped pave the way for the more effective integration of the working class into the political structure. The process of Federal expansion was given considerable impetus by positive Presidential leadership from Theodore Roosevelt and Woodrow Wilson.

But the structural and psychological changes just listed took on effective significance as forces promoting Federal expansion chiefly under the influence of the economic depression of the 1930's. Although President Hoover's ideological commitment to a limited role of Federal action was flexible enough to accept the Farm Board and Reconstruction Finance Corporation, he balked at Federal assumption from the States and localities of responsibility for direct relief. But the debility of State and local revenue and credit resources led them to default on this and other responsibilities. Federal expansion into this and other areas found a politically effective champion in Franklin Roosevelt. Hoover's defeat in the midst of economic chaos represented a thorough discrediting of the traditional ideology of rigidly limited Federal activity, although some of the worst parts of that ideology were the last to be discarded.

⁵ A good idea of this proliferation is conveyed by Solomon Fabricant, *The Trend of Government Activity in the United States Since 1900*, National Bureau of Economic Research, New York, 1952, pp. 61-72, 242-247. See also Paul Studenski and Herman Krooss, *Financial History of the United States*, McGraw-Hill, New York, 1952, pp. 263-270.

The largest portion of depression-inspired expenditures under the New Deal went into such straightforward and necessary objectives as relief (chiefly FERA and WPA) and public works.⁶ If anything, these were too small relative to the task. In any case, they were temporary and went out of existence during the war.

However, the depression was also the occasion for the inception of programs of farm-price supports and other subsidies, and for the social-security program. Both of these were originally very badly designed as part of fiscal policy to relieve depression, but have become, paradoxically, important parts of the Government's standby protection against any subsequent depression.

Many of the most controversial expansions of Federal functions in the 1930's did not entail great expenditure increases. Monetary and banking reconstruction, the National Labor Relations Act, the wage-hour law, the NRA and its unwholesome progeny—none of these required great financial expense, but each extended Federal influence drastically. It is very doubtful if any of them made any appreciable contribution to recovery, just as it is unlikely that any of them could have been adopted without the depression as background.

The high level of expenditures in the past decade reflects the assumption by the Federal Government of a degree of responsibility for maintaining world peace and order far greater than before 1940. Paralleling this has been the continued responsibility assumed during the 1930's to maintain and increase domestic living standards. The bulk of Federal spending continues to reflect military outlays. But our expenditure classification should not cause us to overlook the great contribution made toward the "welfare state" by the postwar veterans' program.

With these responsibilities, there has developed no philosophy of the proper role of the Federal Government relative to the States or to private activity as rigorous or widely accepted as the old. This is as true in judicial constitutional interpretation as elsewhere. In many respects, the traditional view was obsolete, particularly in its dedication to an automatic monetary mechanism and its rejection of depression deficit spending. But the lack of some such standard raises the danger that Federal spending programs will deteriorate into mere acts of vote buying. There is also the danger that the Government will exercise its responsibilities toward individual's living standards in such a manner as to create a "rich man's welfare state," in the phrase of Blair Bolles. Many Government programs have created vested interests who were not intended as the beneficiaries but whose welfare is heavily dependent on the program—the construction and farm-implement industries, for example. At the same time, as the investigations of the Joint Economic Committee have brought out, the programs of the welfare state may be of little benefit to the really depressed members of the economy whose needs are most urgent.

The great increases in Federal spending have reflected in part a growing role for Government in general relative to private activity in the economy, and in part a shift in the magnitude of Federal activity relative to other Government units. These changes are described and analyzed in detail by Fabricant. We shall do no more than set forth some of his data which measure them.

⁶ See Kendrick, *op. cit.*, pp. 31-36.

TABLE II.—Some measures of the changing role of governments since 1900

	Expenditures (billions)		Purchases (billions)		Employment (thousands)	
	1903	1949	1903	1955	1900	1949
Federal.....	\$0.6	\$36.2	\$0.2	\$46.7	312	3,608
State and local.....	1.1	23.6	.6	30.1	852	3,478
Total.....	1.7	59.8	.8	76.8	1,164	7,086
Ratio of total of total government to total United States (percent).....			4	20	4	12

Sources: Solomon Fabricant, *The Trend of Government Activity in the United States Since 1900*, National Bureau of Economic Research, 1952; 1955 figures from Economic Report of the President, 1957. For a similar attempt at measurement, see R. A. Musgrave and J. M. Culbertson, *The Growth of Public Expenditures in the United States, 1890-1948*, National Tax Journal, June 1953.

EVOLUTION OF THE FEDERAL REVENUE STRUCTURE, 1790-1956

Table III presents the general magnitudes and composition of Federal revenues for the same time periods used for expenditures. Since revenue growth has roughly paralleled that of expenditures, we will not devote separate attention to comparisons of tax levels with output, population, or prices. Our concern will be with some of the influences on revenue development, and its implications.

TABLE III.—The Federal revenue Structure, 1790-1956

Period	Number of years	Average annual tax revenue				Land sales	Other	Total
		Customs	Income and profits	Other	Total			
Millions of dollars								
1790 to 1811.....	22	9.3	(¹)	² 0.4	9.7	0.3	0.1	10.1
1812 to 1815.....	4	9.5	(³)	² 2.9	12.4	1.1	.4	13.9
1816 to 1836.....	21	22.8	(³)	4.8	23.6	4.1	.2	27.9
1837 to 1861.....	24½	35.8			35.8	3.5	1.4	40.6
1862 to 1865.....	4	121.0	⁴ 22	71.0	213.0	1.0	9.0	223.0
1866 to 1890.....	25	200.0	⁵ 12	136.0	348.0	6.0	4.0	358.0
1891 to 1916.....	26	235.0	⁶ 15	245.0	495.0	7.0	15.0	517.0
Billions of dollars								
1917 to 1919.....	3	0.2	1.9	0.9	3.0	(⁷)	0.2	3.2
1920 to 1929.....	10	.5	2.3	1.0	3.8	(⁷)	.5	4.3
1930 to 1941.....	12	.3	⁸ 2.7	1.2	4.2	(⁷)	.6	4.8
1942 to 1945.....	4	(⁷)	⁹ 29.0	5.0	34.0	(⁷)	1.0	35.0
1946 to 1956.....	11	1.0	⁹ 46.0	9.0	55.0	(⁷)	2.0	57.0

¹ Tax on bank dividends, 1796-1802—no separate data.

² Levied 1791-1802 only.

³ Tax on bank dividends yielded about \$0.1 million annually, 1815-18.

⁴ Levied 1814-17 only.

⁵ Levied 1863-72 only.

⁶ Beginning 1910.

⁷ Less than significant minimum at this level of rounding.

⁸ Includes social-security taxes for old-age and unemployment insurance.

NOTES.—Totals are net of refunds, but customs and land sales include certain related fees.

Sources: See end of paper.

Choice of Federal revenue sources, within the limits imposed by the Constitution, has always represented a compromise between the political problem of distributing the burden, the administrative problem of collection, and the economic problem of the size and stability

of the revenue source. In the early 19th century the tariff met these needs to a higher degree than other feasible taxes, and served as the main, or, in many years, the only source of tax revenue. Hamilton's excise program was widely disliked. Objection to the whisky excise (even then the chief revenue producer) came from the large number of small western farmers who relied on the still to furnish a readily marketable cash crop. Thomas Jefferson regarded it as a major achievement of his presidency that all the internal taxes were terminated and exclusive reliance placed on the tariff. This was preferred because of its relative invisibility to consumers, because some protectionist sentiment already existed, and because it was levied at one of the few points in the economy where transactions in money predominated.

Extensive reliance on the tariff had several important implications. First, because of the waxing and waning of effective protectionist sentiment, tariff rates were likely to be determined partly for reasons unrelated to revenues and expenditures. Second, the money-flow effects of tariff changes were ambiguous. Higher rates would tend to lower money incomes by diverting more money to the Government (assuming expenditures unchanged), but this might be offset by a shift in private expenditures from imported to home products. Third, the tariff proved a poor revenue source during wars, which usually interfered with trade. Fourth, revenues from the tariff (and from its chief supplement before 1860, sales of public lands) were very sensitive to economic fluctuations. In periods of recession, imports usually fell sharply, cutting revenues, and resulting in deficits since expenditures were reduced only gradually. This gave the Federal fiscal system a degree of "built-in flexibility."

During the Civil War, a comprehensive program of excise and related taxes was reinstated. Many of these were repealed at the end of the war, but taxes on tobacco products and alcoholic beverages were retained, and furnished a large share of Federal revenues down through World War I. The liquor producers were no longer numerous enough nor able to muster sufficient sympathy to escape taxation. The Civil War also brought the first Federal income tax, but this was repealed in 1872.

Tariff controversy over protectionism continued in the post-1865 period, with the protectionists generally having more success than in prewar years. They suffered an embarrassment of riches in the 1880's, when revenues rose rapidly at a time when it was difficult to retire much of the Federal debt. The solution, as noted above, was chiefly a great increase in pension spending.

The revenue pattern of the post-Civil War period, with its heavy reliance on indirect taxation, probably produced a regressive incidence of burden. However, it was generally favorable to saving and investment while bearing relatively hard on consumption. The excise taxes demonstrated more stability of yield in economic fluctuations, and thus reduced the degree of automatic flexibility.

The progressive era and World War I worked a revolution in Federal revenues. A constitutional amendment opened the way for a personal income-tax law in 1913, while a tax on corporation profits was imposed in 1910. The war emergency brought drastic increases in rates, and the income and profits taxes leaped into the dominant position which they have held ever since. During the war, the

personal tax approached the character of a mass tax, but the subsequent exemptions restored it to the status of a tax on the wealthy minority, which it remained, with modifications, until World War II.

During the depression, tax rates were drastically increased, in direct contravention of modern fiscal thinking. The increases offset in considerable measure the beneficial effects of increased expenditures. The principal innovation of permanent significance came in the social-security program, which imposed wage and payroll taxes. By 1956 these taxes (including State payments into the Federal Treasury) accounted for more than 10 percent of Federal revenue.

Revenues from personal and corporate income taxes have continued to dominate the Federal revenue structure during the past decade. In recent years, the personal tax has alone furnished about two-fifths, and the corporate tax about one-fourth, of Federal revenue. Excise taxes have yielded about one-sixth. Public policy toward the tariff and the public lands has lost any relation to Government revenues.

A number of circumstances influenced the rapid shift from indirect to direct taxation. Necessary prerequisites were the rise of the corporation as the dominant form of business organization, the shift in the labor force toward occupations paying money incomes for services, and a relatively high degree of efficiency in administration and of voluntary compliance by the public. Probably current levels of personal tax collection would be difficult without withholding at the source. There have also been changes in effective public opinion on the subject of proper tax burdens, but these are not as easy to trace as the development of actual tax policy might suggest.⁷ Probably more important has been the changing political potency of high-versus low-income groups.

At present the Federal tax burden is much more progressive with respect to income than it was in the latter part of the 19th century. This probably also means that it falls more heavily on sources of funds for saving and investment (not assumed to be identical), whatever the effects on incentives. The present system also possesses a relatively high degree of automatic flexibility in response to economic fluctuations. This flexibility is more significant than that of the 19th century because of the larger absolute level of tax revenues.⁸

THE PATTERN OF FISCAL POLICY AS A WHOLE

Modern income analysis has thrown much more attention on the relation between the total money flow into and out of the Government and the level of national money income. Analysis of fiscal policy has given particular emphasis to two situations: wars and depressions. In wartime, Government fiscal policy may be excessively inflationary, whereas in depressed times an upward influence on incomes and spend-

⁷ There was considerable sentiment favoring progressive rate structure in the early 19th century, and the Federal direct tax of 1798 imposed a progressive rate on real property.

⁸ Recent attempts to measure the flexibility of the revenue system indicate that the decrease in Federal cash receipts would range between 20 and 35 percent of any decline in gross national product. The effect on private spending for consumption and investment would probably be less, especially where the corporate tax is involved. See Everett E. Hagen, *Federal Taxation and Economic Stabilization, Federal Tax Policy for Economic Growth and Stability*; Papers Submitted by Panelists, Joint Committee on the Economic Report, Washington, 1955, pp. 58-60; papers and comments by David W. Lusher, Samuel M. Cohn, Gerhard Colm, A. G. Hart, Joseph A. Pechman, Richard Goode, Ida C. Merriam, and Karl A. Fox in *Policies To Combat Depression*, National Bureau of Economic Research, New York, 1956.

ing is desired. We will examine each of these aspects of fiscal policy historically.

Fiscal policy in wartime—Deficits and inflation

During the period under study, the Federal Government engaged in four major wars. In table IV are summarized some of the important aspects of aggregate fiscal policy in these periods. The data indicate that substantial deficits have been the rule, although revenues as well as expenditures have usually been higher than before the war. In no case did the Government succeed in covering as much as half of its expenditures by current revenues. Further, each of the four wars was a period of substantial price inflation. The figures suggest some improvement in recent times, but the price figure for World War II probably overstates the value of the dollar (because of quality deterioration, shortages, etc.) and does not take account of continuing price increases after 1945.

TABLE IV.—*Federal fiscal policies and wartime inflation*

Period	Average revenues	Expenditures			Share of gross national product taken by United States	Increase in prices over last prewar year	
		Average	Ratio to average of prewar 5 years	Ratio to gross national product		Wholesale prices	Consumer prices
1812 to 1815...	\$14, 000, 000	\$30, 000, 000	300	3- 5	2- 4	50	-----
1862 to 1865...	225, 000, 000	727, 000, 000	1, 100	10-14	9-11	100	75
1917 to 1919...	3, 200, 000, 000	11, 000, 000, 000	1, 570	17-18	14-16	60	60
1942 to 1945...	35, 000, 000, 000	76, 000, 000, 000	800	40	38	35	30

NOTE.—Calendar years 1812-15; fiscal years ending June 30 thereafter.

Price data are those of Bureau of Labor Statistics, including unpublished consumer price data for Civil War. Calculation is based on annual averages for calendar year and results are rounded. Published data are from Historical Statistics of the United States and Federal Reserve Bulletin.

The four wartime periods have differed considerably in the proportion of expenditures covered by revenues, and in the general magnitude of Federal operations. The Federal Government's absorption of resources during the War of 1812 was less than 5 percent of the Nation's output, whereas World War II required about 40 percent.⁹ The Civil War appears to have involved a smaller share than World War I, but this result is questionable, since our figure compares Federal (northern) purchases with total national output. As a percentage of northern output alone, Federal purchases would probably have amounted to about 15 percent.

Although abhorrence of debt was a fairly constant factor in peacetime fiscal policy, Government officials were relatively tolerant in their attitude toward wartime deficits.¹⁰ There was no recognition of the

⁹ The inflation during the War of 1812 was completely out of proportion to the expansionary force of Government deficit spending. In part, it reflected additional credit creation by the banks, but chiefly it resulted from the drastic dislocation of international and interregional trade by both American and British policies. Prices of imported products rose far more than those produced at home.

¹⁰ Albert Gallatin's maxims undoubtedly helped strengthen a tendency in fiscal policy which would have existed anyway. In 1807 he argued that "the losses and deprivations caused by * * * war should not be aggravated by taxes beyond what is strictly necessary." Loans should be the chief source of funds, with increases in taxation only sufficient to cover "the annual expenses on a peace establishment, the interest on the existing debt, and the interest on the loans which may be raised" (American State Papers: Finance, II, 248). Half a century later Secretary Salmon P. Chase advocated the same program for Civil War finance.

function of taxes to curb excessive private spending. The chief argument for them was that they would improve the Government's credit standing by assuring a secure basis for interest payments and debt redemption.¹¹

While 19th century officials ignored the inflationary consequences of deficits per se, they were not indifferent as to the manner in which the deficits were financed. Efforts were usually made to cover them through loans, but these were never sufficient. During the War of 1812 the Treasury issued interest-bearing Treasury notes which were designed to circulate as a close substitute for currency. During the Civil War, the Government created the first Federal paper currency to become a permanent part of the Nation's monetary system. Half a million dollars of paper currency was issued, which directly covered about one-fifth of the total deficit, and also made it easier to finance the rest by borrowing back some of the currency. But in addition to these actual issues of currency or near-currency, the war loans drew heavily on expanded bank credit in notes and deposits, which also increased the money supply. Although official understanding of the inflationary nature of monetary expansion was not lacking, there was a strong tendency to concentrate on the maintenance or resumption of convertibility into specie, assuming that prices and other economic factors would automatically achieve satisfactory levels.

The crude device of direct currency issues on a large scale has been rendered obsolete by the establishment of the Federal Reserve System. During World War I, sale of Federal securities was facilitated by the expansion of Federal Reserve credit in rediscounts and loans to banks. Individuals and business firms were encouraged to borrow from banks in order to buy war bonds, and banks themselves purchased substantial amounts. During World War II, the Federal Reserve itself purchased large amounts of securities in the open market, enabling the banks to purchase a still larger quantity with the resulting reserves.

In every war, except that of 1812, the Government made substantial efforts to achieve wide distribution of ownership of war securities among individuals. In general, however, wartime borrowing has been chiefly a disguise for money creation. It is not obvious that the issue of interest-bearing securities which do not serve to divert funds out of private spending is really the most rational technique of war finance.

One of the first fruits of national income analysis was the better recognition during World War II of the merits of high taxes in curbing inflationary pressures, as well as of the dangers which inflation might entail. This improved attitude toward taxation was also very much in evidence during the Korean emergency.

Wartime fiscal policies provide most of the direct historical evidence available about the potential effects of Federal deficits in raising national money incomes. Interpreting the evidence is complicated, however, by the association of deficits with money creation. One cannot disprove the arguments of convinced adherents of the quantity theory of money that it is the latter which really provides the expansionary push.

¹¹ See Henry C. Adams, *Public Debts*, 1888, p. 119.

Fiscal policy and economic fluctuations

The history of the American economy from 1790 to 1945 is a history of considerable instability in production, employment, prices, and incomes. Even in the agrarian days before 1860, wide fluctuations in farm prices on international markets, combined with the inevitable burden of farm debt, created widespread periodic farm distress to be added to the unemployment in the less developed construction and manufacturing sectors of the economy. Nineteenth century fluctuations stemmed in part from the balance of international payments, through changes in foreign demands for American goods and in the flow of foreign capital to this country. To these influences were added an unsound banking system, which received most of the blame, and a pattern of investment in fixed capital which was very unstable.

Table V shows in briefest outline the behavior of Federal surpluses and deficits during seven major business-cycle peaks and recessions. In each case there is a strong correspondence between fiscal policy and the phase of the cycle. With one exception, the Government shifted from a position of surplus at or before the peak to one of deficit during the recession. The one exception was in the high-surplus times of the 1870's, and then the surplus dropped off sharply in recession. This pattern was largely imposed on the Government by declining revenues in recession.

TABLE V.—*Federal surpluses and deficits during major cycle peaks and recessions, 1815-1932*

(Surplus or deficit (-) expressed as percent of average revenue and expenditure during the included cycle)

	Period						
	1815-21	1834-42	1854-60	1870-76	1890-96	1904-11	1926-32
1.....	63	12	32	36	30	-9	29
2.....	67	65	12	29	13	-6	32
3.....	40	83	5	16	34	4	27
4 (peak).....	6	-132	12	3	18	3	12
5.....	12	-19	-42	8	-20	-12	25
6.....	-5	-30	-27	5	-13	-17	-29
7.....	-10	-23	-15	8	-11	-3	-82
Average revenue and expenditures							
Millions of dollars.....	24.9	29.4	61.8	316	335	589	3,400
Percent of gross national product.....	1-2	1-2	1-2	4-5	2-3	2-3	4-5

NOTE.—Data for 1834-37 are on left side, 1838-42 on right side of the column for 1834-42, since both 1837 and 1839 are regarded as peak years.

When deficits resulted, they were usually financed through borrowing from banks, drawing on Federal cash balances, or issuing more currency or near-currency. Consequently they probably exerted some cushioning effect during recessions. It is not certain that surpluses exerted any check during boom periods, however, since repaying the public debt often channeled funds into an active capital market where they were in demand.

The cushioning effect of Federal deficits was limited by the tendency to cut Federal expenditures in response to declining revenues during 19th century recessions. However, expenditures were actually increased in the recession following 1907, chiefly for naval expansion.

And in the years following 1929, spending rose through programs aimed at the economic slump itself.

In all cases except possibly that of post 1929, the magnitude of Federal deficits relative to total GNP was so small as to render their possible income effects insignificant.

Contemporary official opinion disapproved of depression deficits, but generally tax rates were not increased to do away with them. The tariff increase of 1842 is somewhat of an exception, and a clearer exception was another tariff increase of 1875. In both cases, however, the increases were desired for protectionist as well as revenue purposes. Further, their effect on national money income was not necessarily deflationary. We conclude that tax increases did not impair the expansionary effects of Federal deficit spending in pre-1929 depressions.

The case of the recession years following 1929 is drastically different. Although minor tax reductions were made in 1930, in 1932 a Democratic House joined a Republican Senate and President Hoover in enacting the largest peacetime tax increase in history. This measure cut substantially into the beneficial effects of the increased Federal spending. We shall return to this shortly.

Public opinion in and out of the Government has always been painfully aware of economic depressions and articulate in search of a cure. But throughout the 19th century and well into the 20th, the discussion of the causes and possible remedies ran heavily in terms of money and the banking system. Emphasis in fiscal theory was placed on the monetary effects of Federal surpluses and deficits, rather than their direct relation to income flows.¹²

Nor was Treasury concern with money and banks merely a matter of thinking and talking. From the time of Hamilton, Treasury officials used their discretionary authority over the public debt and the Government's cash balance as methods of trying to alleviate depressions, panics, and stringencies. After the Civil War the Treasury was intimately concerned with this at all times, until the formation of the Federal Reserve System.¹³ When an occasional insight into the potential benefits of depression deficits did appear, it was usually accompanied by constitutional scruples against such action.¹⁴

Fiscal policy and depression, 1929-40

The management of Federal fiscal policy during the depression is still interesting and relevant to contemporary affairs. Numerous erroneous views about it still prevail. The student of stabilization policy must be especially concerned with two common assertions. One is

¹² Considering the relative magnitudes involved, this was perhaps the correct emphasis. In the years 1846-60, for instance, Treasury transactions were carried on chiefly in specie, and the scale of absorptions and releases of specie by the Treasury made a much larger impact on bank reserves than did fiscal policy on incomes. I have quoted some relatively sophisticated theories of this monetary relationship by contemporary writers both in and out of Government in *The Idea of "Built-In Flexibility,"* 1837-60, Public Finance/Finances Publiques, XI: 4, 1956.

¹³ See Esther Rogoff Taus, *Central Banking Functions of the United States Treasury*, Columbia University Press, New York, 1943.

¹⁴ In face of declining revenues during the panic of 1857, Secretary of the Treasury Howell Cobb wrote, "It is seriously urged that our expenditures should be increased for the purpose of affording relief to the country. Such a policy would undoubtedly furnish employment to large numbers of worthy citizens. It would require the use of large amounts of money, to be raised either by a loan or * * * Treasury notes, and would thus afford temporary relief to the country to an extent limited only by the discretion of the Government. * * *. But where shall we look for the power to do this in the Constitution?" Cobb did urge that expenditures not be reduced, even if deficits had to be incurred. Annual Report on the State of the Finances, 35th Cong., 1st sess., H. Doc. No. 3, p. 11. President Buchanan endorsed the principle of expenditure maintenance, and the extent of reductions was slight.

that such New Deal measures as agricultural supports, the NRA, the National Labor Relations Act, social security, the wage-hour law, and monetary and banking reforms restored the country to prosperity. The second, from a different quarter, is that the New Deal was an embodiment of Keynesian doctrine, that it engaged in large-scale deficit financing, and that the evident failure to cure the depression proves that deficit spending won't work.

Table VI summarizes some of the important economic magnitudes of the depression years.

TABLE VI.—*Statistical background of the great depression*

Calendar year	Gross national product	Output in 1929 prices	Consumption		Gross business investment	Government purchases	Percent of labor force unemployed
			Total	As percent of disposable incomes			
	<i>Billions</i>	<i>Billions</i>	<i>Billions</i>	<i>Percent</i>	<i>Billions</i>	<i>Billions</i>	<i>Percent</i>
1929.....	\$104	\$104	\$79	95	\$13.0	\$9	3
1930.....	91	95	71	95	8.0	9	9
1931.....	76	88	61	96	4.0	9	16
1932.....	59	77	49	101	.3	8	24
1933.....	56	73	46	101	1.0	8	25
1934.....	65	80	52	100	2.0	10	22
1935.....	73	90	56	96	5.0	12	20
1936.....	83	100	63	95	7.0	12	17
1937.....	91	108	67	95	10.0	12	14
1938.....	85	102	65	98	5.0	13	19
1939.....	91	110	68	96	7.0	13	17
1940.....	101	120	72	94	10.0	14	15

Fiscal year	Federal revenues	Federal expenditures	Deficit (-) or surplus	Fiscal year	Federal revenues	Federal expenditures	Deficit (-) or surplus
	<i>Billions</i>	<i>Billions</i>	<i>Billions</i>		<i>Billions</i>	<i>Billions</i>	<i>Billions</i>
1929.....	\$3.8	\$2.9	\$0.9	1935.....	\$3.8	\$6.3	-\$2.4
1930.....	4.0	3.1	.9	1936.....	4.2	7.6	-3.5
1931.....	3.2	4.1	-1.0	1937.....	5.6	8.4	-2.8
1932.....	2.0	4.8	-2.7	1938.....	7.0	7.2	-.1
1933.....	2.1	4.7	-2.6	1939.....	6.6	9.4	-2.9
1934.....	3.1	6.5	-3.3	1940.....	6.9	9.6	-2.7

Sources: Economic Report of the President, 1956; Department of Commerce, National Income, 1954; Historical and Descriptive Supplement to Economic Indicators, 1957.

The late 1920's were years in which, under the influence of the stock-market boom, industrial capital equipment was built up at a rate which could only have been sustained if total expenditures for goods and services increased more rapidly than they could be expected to. Once actual expansion ceased, as it did in the summer of 1929, business needs for additional capital goods fell. And when demand for output began to fall, many firms found themselves with excessive capital. The downswing was a reciprocal process in which business investment and personal consumption spending kept pushing each other further down. By 1932 business investment had nearly ceased altogether.

The figures indicate that the decline in consumer spending was wholly induced by declining incomes—in fact consumers spent a larger proportion of their incomes than in prosperous times. Much of the decline in investment can also be regarded as induced by falling demand. The reluctance of consumers to cut their spending in propor-

tion to their incomes—in fact, their willingness to spend more than their disposable incomes in 1932–33—probably did the most to prevent the decline from continuing further.

The Hoover administration was not indifferent to the distress around it. In fact, the President spoke truthfully when he asserted in 1931 that—

for the first time in history the Federal Government has taken an extensive and positive part in mitigating the effects of depression and expediting recovery.¹⁵

Emergency agencies were created; innumerable conferences were held. More important, Federal expenditures were increased substantially, with particular emphasis on construction. The Government had started from a position of substantial surplus, and for a time could spend more without a deficit. In combination with declining revenues, however, this increase produced large deficits in fiscal 1932 and 1933—larger on the average, in fact, than those of the 6 subsequent years of the New Deal. The deficits alarmed the President, and during the last 2 years of his administration he manifested a concern for cutting expenditures and increasing tax revenues which amounted to an obsession. This concern stemmed in part from a conviction that deficits were economically harmful.¹⁶ Unfortunately for the Nation's economy, most respectable opinion shared this view. Consequently Congress enacted in 1932 a substantial increase in income and excise taxes.

Hoover's defeat and the advent of the New Deal in 1933 opened the way for a drastic reorientation of Federal functions, but this did not extend to fiscal policy.

Our statistics drive home two important facts: First, the New Deal did not get the country out of the depression. Average annual employment did not fall below 14 percent in the years 1933–40 and was still 10 percent in 1941. Second, the New Deal did not engage in large-scale deficit spending. Federal expenditures rose substantially, but were matched by higher taxes. The experience of the 1930's gives us little evidence of the potential effectiveness of deficits in depression. The rapid expansion of output and unemployment under the stimulus of large deficits in World War II are much more indicative of their potential power.

There is ample evidence that President Roosevelt largely shared the fiscal views of his predecessor. During the campaign in 1932 he criticized Hoover for incurring deficits and promised to wipe them out through economy. Upon inauguration he took steps to reduce

¹⁵ William S. Myers and Walter H. Newton, *The Hoover Administration: A Documented Narrative*, Charles Scribner's Sons, New York, 1936, p. 20.

¹⁶ In 1932 he stated that "It is generally agreed that the balancing of the Federal budget and unimpaired national credit is indispensable to the restoration of confidence and to the very start of economic recovery * * *." Quoted in James A. Maxwell, *Fiscal Policy*, Henry Holt, New York, 1955, p. 13. For a history and analysis of this and related ideas, see Jesse V. Burkhead, *The Balanced Budget*, *Quarterly Journal of Economics*, May 1954, reprinted in Arthur Smithies and J. Keith Butters, eds., *Readings in Fiscal Policy*, Richard D. Irwin, Homewood, Ill., 1955; Sidney S. Alexander, *Opposition to Deficit Spending for the Prevention of Unemployment in Income, Employment, and Public Policy: Essays in Honor of Alvin Hansen*, W. W. Norton, New York, 1948.

Government salaries and veterans' pensions. In his budget message of January 1934, he stated :

we should plan to have a definitely balanced budget for the third year of recovery and from that time on seek a continuing reduction of the national debt.

Taxes were increased in every year from 1933 through 1937. The first agricultural adjustment program was financially based on a wickedly regressive processing tax, rather than deficits. The social security system was set up with a strongly deflationary reserve provision and a regressive tax-rate structure. New Deal deficits were, through 1937, the inadvertent and undesired result of expenditures undertaken for their own sake.¹⁷

President Roosevelt did not see the depression as a problem of inadequate spending, but rather of undesirable price declines. In aiming his recovery measures chiefly at prices, he failed to distinguish between higher prices as a symptom of strong demand and as a symptom of short supply. His administration also interpreted the depression largely in terms of the particular problems of particular distressed sectors, without perceiving their common difficulty. In consequence, the emphasis of the so-called "recovery" program was on measures essentially restrictionist in their nature, notably the NRA and the first AAA. Likewise, the revaluation of the dollar, the National Labor Relations Act, and the wages and hours law did not bring any net increase in the total income and spending capacity of the economy as a whole.

In 1937, expenditure cuts recommended by the President and the influx of social-security tax revenues reduced the Federal cash deficit almost to zero. Partly in consequence, the economy fell into a short but painful and disturbing recession. This finally brought the President to accept a positive role for fiscal policy as such, as evidenced by his "spend-lend" program and budget message of January 1939, and expenditure increases restored the cash deficit.

On the whole, New Deal fiscal policies made no strong contribution to recovery.¹⁸ Their shortcomings are measured by the slow and tortuous rise in consumption. Tax increases prevented the rise of Federal expenditures from producing any substantial increase in consumer disposable incomes. Had the latter risen, consumer spending would undoubtedly have gone higher and helped restore business investment.

Several relevant lessons may be derived from New Deal experience. Adherents of fiscal conservatism may note that public opinion will not tolerate Government inaction in the face of depression. Consequently, if the Government does not do the right things (increasing total spending), it will probably do the wrong things—things which in-

¹⁷ "There is no evidence that the administration, as distinct from some persons within it and some economists offering advice from outside, ever had a conscious interest in fiscal policy as an instrument of recovery prior to the new depression in 1938. Government spending was primarily for relief and was regarded only as the unavoidable accompaniment of unemployment until recovery could be achieved by other means." John H. Williams. *The Implications of Fiscal Policy for Monetary Policy and the Banking System, Papers and Proceedings of the American Economic System March 1942*, reprinted in *Readings in Fiscal Policy*, pp. 190-191.

¹⁸ This is the conclusion reached by E. Cary Brown, *Fiscal Policy in the Thirties: A Reappraisal*, American Economic Review, December 1956. Compare the more favorable view reached by Gerhard Colm, *Public Spending and Recovery in the United States*, abridged from *Social Research*, May 1936, in his *Essays in Public Finance and Fiscal Policy*. Oxford University Press, New York, 1955.

crease Government intervention in detailed production, price, and income decisions, or which give favored groups protection from the rigors of competition and change. Deficit spending may appear more attractive as an alternative to these. Latter-day liberals may be reminded that good intentions are not sufficient to produce good policies, even if wrapped in the finest rhetoric. And one should not accept uncritically the whole panoply of New Deal measures on the assumption that they really restored the economy to a prosperous condition. However, in all fairness, we must point out that many New Deal measures, while ineffectual in curing the depression of the 1930's, have become important parts of our defense against any future depression. This refers particularly to the structural reforms of the banking and financial system and to the automatic flexibility latent in the social security and agricultural programs.

Recent developments and contemporary problems

Fiscal policy since 1940 has been marked by a much higher degree of rationality than before, particularly since the Employment Act of 1946. The performance of fiscal policy, as measured by the maintenance of high production and employment, has been good. Recessions have been mild and have been met with appropriate responses in tax and spending policies. Closer examination may leave us uncertain as to what this experience proves, however.

First, high levels of demand in recent years have reflected continued high Federal defense spending and a relatively unflagging rate of business-capital formation. There has been no practical demonstration of what fiscal policy could do to reduce the adverse effects should either of these decline substantially.

Second, the good performance of fiscal policy in offsetting recessions has been partly good luck. This is notoriously evident in the case of the tax reduction of 1948, passed over a Presidential veto in the last stages of inflation, to go into effect just as the economy was sliding into unforeseen recession. More favorable in appearance was the willingness of the Republican administration to reduce taxes and incur deficits during the recession of 1953—but the recession itself stemmed largely from cuts in defense spending.

Third, fiscal policy has shown much less capacity for curbing inflation. This partly reflects the political difficulty that counterinflation measures reduce people's access to money and are therefore likely to be unpopular. But there are other limitations. It would have been undesirable to increase taxes in World War II sufficiently to drain off inflationary demands, although more could probably have been done safely than was. The Korean emergency indicated that fiscal policy probably cannot cope with a sudden outburst of private scare buying, although the flexible tax structure undoubtedly absorbed some of the pressure, and tax-rate increases were admirably strong.

Most recently, the outbreak of the "new inflation" in the last 18 months has raised the disturbing possibility that some inflation may come from costs rather than excessive demand. The actual importance of the Federal budget itself as an inflationary force in this period remains unclear, although it is easy to find fault with the view that the cash budget cannot be inflationary unless it shows a deficit. The proper role of fiscal policy in such an inflation is also unclear—can price increases be prevented by curtailing demand without producing

too much unemployment and loss of output? The contemporary challenge to fiscal policy seems to lie in the problem of inflation control, and particularly in controlling the expansion of Federal spending in the face of many legitimate demands and needs for increases.¹⁹

FISCAL POLICY AND ECONOMIC GROWTH

The relation between fiscal policy and economic growth takes many forms. Obviously Government functions and activities such as research, public capital formation, health and education programs, etc., can actively promote growth. This discussion will deal only with aspects which pertain to fiscal policy as a whole. Two chief types of influence can be distinguished. On one hand, a fiscal policy which promotes economic stability, high incomes and demands, and relatively full employment will undoubtedly help to stimulate the incentives of business firms to invest and to innovate.²⁰ But we have no real historical evidence on this as yet.

Fiscal policy can also influence the availability of funds for investment. Historically the important influences have been the tax structure and public-debt policy. The tariff-excise combination of the 19th century probably placed the burden primarily on consumption. The shift to personal and corporate income and profits taxes has undoubtedly increased the relative burden on saving, and through it, on investment. Probably the most serious aspect of this has been the disadvantage imposed on the investment capacity of small, growing firms. One's judgment on the relative loss to aggregate investment must certainly be conditioned by the enormous volume of capital formation which the economy has generated in the past decade.²¹

Public-debt policy may also exert a substantial influence on the volume of investable funds. Historically, Federal borrowing has generally occurred during periods of war or depression and has invariably drawn to a large extent on newly created money or idle balances, instead of diverting funds from private capital formation. Debt retirement, however, has generally occurred in prosperous times, when the demand for funds has been high for capital formation. Debt retirement has commonly placed funds in the hands of wealthy individuals and financial institutions, so that they were likely to move into other investments rather than consumption.

Together, the revenue and public-debt policies of the 19th century probably exerted an influence in the direction of "forced saving," diverting funds out of consumption into investment. However, the Government's revenues from land sales removed some funds from the capital market.

A rough estimate, making allowance for issue and redemption of currency and near-money, suggests that Federal finance shifted about

¹⁹ An excellent brief review of the period since 1930 is given in Gerhard Colm, *Fiscal Policy and the Federal Budget*, in Max Millikan, ed., *Income Stabilization for a Developing Democracy*, Yale University Press, New Haven, 1953, pp. 214-227. On the postwar period, see also Alvin H. Hansen, *The American Economy*, McGraw-Hill, New York, 1957, pp. 90-131.

²⁰ One must beware of the fallacy in the often-encountered argument that the Government must promote high consumption (e. g., through taxes which bear more on saving) in order to stimulate (induced) investment. Any kind of spending for the products of a capital-using firm can stimulate induced investment, and consumption may actually do so less than some other possible types. A high-consumption economy may be desirable, but hardly because it will produce a high rate of output growth. It is a high-demand, full-employment economy generally which is desired.

²¹ On these matters, see papers by R. A. Musgrave, J. K. Butters, and Paul W. McCracken in *Federal Tax Policy for Economic Growth and Stability*.

\$80 millions into the capital market from consumption in 1790–1860, most of it representing redemption of securities for which the Government received no money originally. During the period of heavy postwar debt retirement in 1866–90, about \$600 million was so shifted, but in the period 1891–1916, the Government was a net borrower of about \$250 million.

During the 1920's, the Government poured some \$9 billion into debt retirement, but the reduction in saving through progressive taxation may have been equally large. After World War II, net cash debt retirements in 1947–52 totaled about \$30 billion. Most of this passed through commercial banks and insurance companies (directly, or indirectly through shifts in remaining debt) into other financial assets and thus into the capital market.²² Again, the adverse effect of taxation on saving may have offset this. But one should certainly not look merely at that adverse effect without noting that the debt retirement may have offset it.

SOME CONCEPTUAL PROBLEMS UNDERLYING HISTORICAL ANALYSIS

The characteristic analysis of fiscal policy runs in terms of such aggregates as revenues, expenditures, surpluses and deficits. Definitions and computations of these have traditionally been determined by the information needs of government officials, which have not always coincided with the interests of economists.

One approach to fiscal data would follow the conventions of national income accounting. Government revenues and expenditures would be those included in the income and product accounts as computed by the Department of Commerce.²³ This particular compilation has several possible drawbacks. It gives taxes on the basis of accruals rather than collections, and it omits certain transactions which seem to fall economically in between income and product at one extreme and public debt at the other. These are mainly Government lending and repayment, and in the past, transactions in land. These drawbacks do not exist in the cash consolidated statement of receipts from and payments to the public which currently appears in the annual budget document. The figures used in this paper come closer to the latter basis of calculation.

Use of the term "cash" in the latter case is somewhat misleading—"current account" would be more nearly correct. A genuine cash-consolidated account for the Government is found in the money-flow analysis developed by Morris Copeland and now published by the Federal Reserve Board of Governors.²⁴ This approach has the advantage of incorporating public-debt policy, which may be significant even for short-term fiscal interpretations. It is generally assumed, for example, that a cash surplus is deflationary, but if the funds are used to repay publicly held debt in prosperous times, when the funds find their way promptly into private spending, the conclusion may be unwarranted.

²² See data in Federal Reserve Bulletin, August 1953, pp. 857, 865, 874.

²³ See National Income, 1954, pp. 170–173, for figures on this basis.

²⁴ See particularly their Flow of Funds in the United States, 1939–53, 1955. I have computed a set of money-flow accounts for the Federal Government for 1790–1860 which are in process of publication by the National Bureau of Economic Research in a volume of papers on 19th century economic growth.

As a rule, added refinements, with their costs in compiling and complications in using, are only as valuable as the uniformities of behavior on which they rest. What one really wants to know to analyze fiscal policy is, first, from whom did the money come and what would those people have done with it otherwise; and second, to whom did the Government pay it, and what did the recipients do with it? Variations in the response to one tax or one spending program may create a degree of indeterminacy which swamps added refinements in classification.

STATISTICAL SOURCES AND METHODS

The "official" figures on Federal receipts and expenditures as published in numerous Treasury and other documents contain certain deficiencies for the economist. In part these stem from the classifications, which are administrative rather than either functional or economic. In part they stem from capricious patterns of inclusion and exclusion. For the years since World War I, the official figures have been badly inadequate because of the existence of Government corporations and trust funds whose activities are not accurately reflected by summary data on receipts and expenditures in traditional form. For recent years, the problems have been recognized and met to some extent by the statistical devices noted above. They give data back as far as 1929, usually. Professor Kendrick has computed cash-consolidated expenditures data for earlier years, but they are not ideal for pre-1900 dates.

The defects in the official data exist for figures all the way back to the 1790's. One systematic distortion, more important before 1870, was the lack of conformity between the accounts of the Treasury, which the official data summarize, and the accounts of the collecting and disbursing officers who actually dealt with the public. During the Civil War, for instance, more than \$100 million shown by Treasury figures as spent was actually accumulated in disbursing officers' balances from which most of it was disgorged in 1866.

The transactions of the Post Office were also outside the ordinary Treasury summaries, and while this paper adheres to the convention of netting postal transactions, it does not imply unqualified approval. There have also been trust funds and/or Government corporations as far back as 1796. The security-holding trust fund was extensively used prior to 1860, with considerable investments being made in State government bonds. After the Civil War, this practice largely gave way to the use of bookkeeping trust funds not involving segregated accounts, but these gave rise to fictitious transactions in the summary accounts.

Treasury summary figures make some unsatisfactory inclusions and exclusions. Their totals for ordinary receipts sometimes include seigniorage charges and premiums on sale of gold or securities. Expenditure totals may include debt premiums paid, trust fund or other security transactions, and tax refunds. They do not show the payment of \$28 million surplus revenue to States in 1837.

The statistics on receipts and expenditures used in this paper were compiled in an effort to overcome these shortcomings. They consist of completed estimates for 1789-1860, fairly close preliminary estimates for 1861-90, and a relatively sloppy first approximation for

1891-1916. From that point I have used Kendrick's data, which merge into the contemporary official publications. For receipts, my approximations go to 1929.

Estimates through 1890 were constructed on the basis of the annual *Account of Receipts and Expenditures of the United States*, published by the Register of the Treasury. These present in vast detail the data which are the basis for the summary totals appearing in the Treasury annual reports. The detail is generally adequate to classify the items and remove undesirable ones.²⁵

For the period through 1860, separate financial accounts were compiled for all Federal agencies carrying on financial transactions. These were derived chiefly from the annual or other published reports of executive departments appearing in the series of *American State Papers* or the executive documents of Congress. From all these was computed a consolidated money-flow account of all transactions with the public.

For the period 1861-90, a sampling of sources indicated that the discrepancies arising out of collecting officers' accounts were negligible. The time lag in expenditures, reflected in changing levels of disbursing officers' balances was occasionally important, however. For the war period, these balances were ascertained as much as possible from detailed reports. For the peacetime periods, however, they were estimated to be a relatively constant and in the long run declining fraction of transactions.

One major adjustment was imposed on the data for 1862-79. During this period the Treasury conducted part of its transactions in coin and part in currency which was substantially depreciated relative to coin. In order to show all transactions in a common unit, customs revenues and interest payments (which were made in coin) were converted to currency values by multiplying them by the average gold premium of the year.

For the years after 1890, estimates were constructed from Treasury annual reports. For the entire period 1790-1916, data were adjusted to exclude tax refunds, interest receipts, sales of Government property, and certain fictitious trust-fund transactions from both receipts and expenditures. Revenues from seigniorage and securities issues were excluded, as were expenditures for securities. The postal account was modified to contain the actual difference between revenues and expenditures, rather than the payment to or from the Treasury.

The "official" cash-revenue figures for 1929-47 do not show the composition of revenues. I estimated these to be the same proportion of totals as the accrual data in *National Income*, 1954, pages 170-171. For the 1948-58 data were obtained from the annual budget documents for 1950-58. Refunds were excluded, their distribution being roughly estimated. I doubt that my revenue series is exactly commensurable with that for expenditures, particularly for 1920-29.

²⁵ Incidentally, it is clear that the data in *Receipts and Expenditures*, and therefore in the Treasury summary tables, reflect warrants actually paid by the Treasurer (through 1890, at least), and not merely warrants issued, as alleged in the explanations of the Treasury summary tables. For an explanation, see Secretary Eristow's statement in 44th Cong., 1st sess., Senate Reports, No. 371 (1876), pp. 36-37.

Other data used in table I were assembled in the following manner. GNP figures for 1790-1865 were based on my own estimates (expressed as a range). These were derived by adjusting the estimates of R. F. Martin to meet certain conditions suggested by Kuznets.²⁶ For pre-1861, Federal expenditures are so small that a wide range of indeterminacy in GNP figures does not change the percentage very much. For the Civil War period, I made annual range estimates, adjusting 1860 estimates with price data.

For all the data on per capita expenditures in 1926 prices, and for GNP comparisons after 1865, I adjusted Kendrick's figures in proportion to the discrepancy between them and mine. This somewhat piratical technique saved me a vast amount of work, and I am most grateful to the National Bureau of Economic Research for permitting the use of this material.

²⁶ Martin's estimates are given in *Studies in Enterprise and Social Progress*, National Industrial Conference Board, New York, 1939, p. 79. See Simon Kuznets, *National Income Estimates for the United States Prior to 1870*, *Journal of Economic History*, June 1952. I figured GNP to be 10 to 15 percent above national income.

II. CONSIDERATIONS IN DETERMINING
GOVERNMENT FUNCTIONS

CONSIDERATIONS IN DETERMINING GOVERNMENT FUNCTIONS

EXPANSION OF GOVERNMENTAL RESPONSIBILITIES

Solomon Barkin, director of research, Textile Workers Union of America, AFL-CIO

Concepts of the proper functions of government have been profoundly changed during the last few decades. Older shibboleths, which hailed the best government as the one which governed least, are now of little use in evaluating the propriety of new functions. They reflect the rear-guard defenses of dogmatists opposed to the Government's assuming any new functions no matter what the national need for such action.

Adam Smith defined the duties of government as being defense, internal justice, and the erection and maintenance of public institutions and public works, including roads and education. They long served as guides for the students of government. Except for unusual conflicts such as the present dispute over school integration, where people are ready to destroy historic educational institutions to frustrate the application of the Supreme Court orders, few have challenged the above definitions. But we have now gone far beyond this level of thinking. The major issues now center about the question of which positive functions the Government shall assume. Which gaps in our social and economic system and failings in our present operations should be met by assigning them to Government?

DEPRESSION AND WARTIME FUNCTIONS SHRUNKEN

In considering the current status of governmental operations and expenditures, the striking fact is that we have completed what many have characterized as the historic process of divestiture following a sharp upsurge in new governmental functions. During the last 10 years this country saw the Government scrap many functions; these primarily were institutions and organizations developed to solve the problems of the depression and to meet the needs of highly centralized controls during both World War II and the Korean war. As a result of the investigations conducted by the Hoover Commission, and the subsequent activities of the Director of the Bureau of the Budget and officials of the Defense Department, the Government abandoned many so-called commercial activities. The present administration has also been intent on limiting the area of governmental responsibilities, and has liquidated some activities and tried vigorously to limit others. These efforts have aroused considerable opposition in many areas, particularly in the field of power generation and multipurpose river

development. Our Nation has probably arrived at a balance of pressures, with the current functions representing the relatively new, more permanent basic level of governmental functions.

FORMS OF GOVERNMENTAL DISCHARGE OF FUNCTIONS

Recent developments have added new complexities to this problem of distinguishing public from private functions. When the government assumes direct responsibilities in a given area, it no longer automatically means direct operations therein. There is no necessary inference that an operating institution will be erected or that an army of employees will be necessary for the particular function. Governmental policy and interest may be implemented in the above traditional way, or it may be reflected through its program of purchases of goods and services, by the use of its credit position, the transfer of payments, or regulation and control of particular private operations. Many significant recent extensions in government interest in the operation of our private economy have required few additional employees. Moreover, the implementation of our monetary policy has called for little direct use of Federal funds. The assurance of proper minimum wages and working conditions has necessitated few employees or governmental expenses other than those required in the direct administration of the law itself. Economic policy directives are being used to implement government purposes.

The relative importance of these nonoperating governmental functions is well illustrated by the figures on government employment and expenditures. In 1956, 9.7 million persons were in the government service out of a national total of 65.7 million employed persons, or 14 percent. Of the government workers, 4.5 million were with the Federal Government, of which 2.8 million were military and 1.7 million civilian employees, and only one-half million were employed in Federal enterprise; 4.4 million were with State and local services, and one-third of a million were with local and State governmental enterprises.

The wages and salaries for compensating all government employees amounted to \$36 billion, representing only 36 percent of the net government expenditures. Governmental purchases from business amounted to \$40.3 billion, or about 40 percent of the expenditures. Transfer payments in the form of social-insurance benefits, military benefits, and direct relief amounted to \$17.2 billion. Interest payments would increase the above transfer payments by \$5.7 billion, bringing this area to 23 percent of governmental expenditures. These sums, of course, do not include the vast amount of outstanding governmental guaranties supporting private credit. The man-hours of work devoted by private industry to serving the government as purchaser of goods and services and stimulated by government action may far exceed those hired directly by the government (table I).

PRIVATE SOCIETY USES COLLECTIVE INSTITUTIONS AND PRIVATE EXPENDITURES ARE INFLUENCED BY GOVERNMENTAL POLICY

The essential characteristic of a governmental organization is that it is a community institution whose functions are prescribed and funds allotted to it by a governmental body. It is controlled through the

budget. The alternatives in our private economy and society have some similarities. True, the market more or less determines these operations. But we are no longer faced with the simple choice of large government versus the single individual. The latter has found it desirable to organize into voluntary groups which require no governmental authority or support, or to secure sanction from the government for forming such groups. The business corporation, the philanthropic foundation, and many trusts and membership organizations are creatures of the government administered by private authority.

The important fact for our present purpose is that the individual assigns some of his power over personal expenditures to these groups. They spend it for him. For example, instead of granting charitable aid himself, he is likely to give his money to a philanthropic institution. Incidentally, some of these organizations, like the community chests, collect funds on such a wide basis that it is tantamount to a voluntary levy upon the local citizens. Similarly, members pay dues to their unions, and in union shops all must pay, or to membership organizations for the realization of common purposes. Many of these groups operate on the budget rather than the market principle.

If the previous discussion highlights how much less appropriate is the use of the old dichotomy between the public and private economies, so the older contrasts may not be employed for the study of collective versus private expenditure. The latter is now significantly controlled and affected by governmental influences so it is more an instrument of public purpose than a completely independent agent. Personal expenditures are at all times a function of prevailing social patterns; new governmental controls have been developed to further restrict private choices of expenditures.

Besides the basic protective legislation related to cleanliness, pure goods and drugs, labeling, and other similar controls, and taxes on items such as alcoholic beverages, we have seen two major developments affecting private expenditures. The first is represented by the growth of welfare programs. Funds are transferred to people who would otherwise not have been able to purchase specific goods and services or proper amounts of them. Matching this so-called welfare state, which slogan became an issue of national concern some 5 years ago, is the relatively less-trumpeted development, the incentive state. Not only are governmental funds transferred to certain private business in the form of subsidies, and generous sales of government surpluses or properties, but the government has used various financial inducements to stimulate businessmen to engage in specific functions such as housing, construction, research activities, expansion of capacity for the production of vital war materials, and general industrial production. Even the individual has been provided incentives to spend his funds in governmentally approved ways. The Federal income-tax system allows generous exemptions to philanthropic contributions, which have led to the creation of thousands of foundations for the organized expenditure of funds for these purposes. These exemptions, in effect, allow the private administration of publicly taxable funds.

A review of this twofold development involving, on the one hand, the multiplication of the forms of government influence ranging from governmental enterprises to a positive system of economic policy implementation and the appearance of many collective institutions for

the spending of private funds, and, on the other hand, the striking growth in incentives guiding private expenditures and the transfer of purchasing power among private citizens, clearly unfolds the fact that any determination respecting a governmental function and responsibility does not automatically carry with it a decision on the form of governmental intervention in a particular area. The decision as to whether the influence is to be exerted through direction, operation as a public enterprise, or some less direct or completely indirect form of influence, is a moot question. Similarly, the fact that the forms of governmental operation and influence are most diverse, permits it more easily to extend its concern and to condition the behavior of individuals in a wider area of our private society and economy. Since the choice is not merely between governmental and private enterprise, various means can be devised to achieve public purposes. Where particular gaps or failings are recognized in our economic or social structure and performance, the government can intervene or influence the situation without necessarily establishing a public enterprise. The issue as to what is a public function must, therefore, be defined in terms of this concept of the wide range of choice of methods of exerting influence available to governmental authorities.

GOODS ARE NOT INHERENTLY PRIVATE OR PUBLIC

Beyond the areas of governmental responsibility set forth by Adam Smith, distinctions between public and private goods appear quite contrived. Physical characteristics as to divisibility are hardly germane. Many goods and services originally furnished by private enterprises have now become public goods and services. Governments have assumed the operation of services in some communities which remain private in others. Shifts have continued without basically changing the character of the goods or services.

What has happened in such transfers is that the community has determined through its legislative or executive bodies that the methods of distribution and the volume of goods or services, available to the people in a system built on the market principles, are not adequate. The benefits have been deemed so important to the community that the means of producing or distributing particular goods and services have become public. The determination has been made on the basis of the belief that the benefits should be widely shared. In other instances the conversion has been made because of the conviction that a public body might be more economic or might perform services not now considered worthwhile to private interests. Such has been the argument for multipurpose development of river valleys by those who have pressed for public enterprises in these areas. The public bodies have been established for other functions where private resources are considered inadequate or unwilling to take the risk.

In each case, therefore, the shift has occurred from private to public performance, or the particular good or service has been decided to be a public good because the legislative bodies have determined it to be necessary in the public interest. The merits and disadvantages must be argued specifically in terms of the particular project rather than on the basis of general assumptions and the preference for one form of enterprise or another.

The same approach needs also to be taken in connection with the proposals for establishing new public interest and concern in one or another area of our social and economic structure. The issue is primarily whether the currently available goods or services meet the public needs. Are the effects compatible with the public interest? Do the market influences assure an adequate total supply of goods and services? Are they being distributed among the population in proper amounts? Are prices compatible with the public interest? Are the types of goods and services needed in the society being produced and offered? Are we getting a desirable pattern of use of resources and manpower? Is economic power being adequately diffused?

A negative answer to these inquiries does not necessarily mean, as we have indicated, that the only alternative is government enterprise. The gaps and failings in our structure may be overcome by other means which will serve the stated tests. Distress in some of our cities or the shortage of economic opportunities in underdeveloped areas can be overcome frequently, not by wholesale introduction of public goods and enterprises, but by the completion of several public works which would open up the areas to private development, as the TVA did for its region and the St. Lawrence Waterway is likely to do for the Northern States of our country. We have learned from our economic aid to underdeveloped countries that a few strategic public works which would not be undertaken by private capital can often generate extensive industrial development. So we find that the provision in the housing laws for the absorption of losses in land purchase by local communities and the Federal Government has stimulated urban redevelopment in many cities which had suffered from the heavy hand of blight. Government guaranties on home loans have stimulated our entire home construction industry. Similarly, the modernization of the current building codes would so reduce costs as to open up vast opportunities for new construction.

The basic challenge is, therefore, not to distinguish between public and private goods but to determine the effectiveness of the operation of the private society and economy and to seek methods of correcting whatever the shortcomings may be, whether they be omissions or imperfections.

GOVERNMENT HAS POSITIVE FUNCTIONS IN HELPING SOCIETY REALIZE ITS GOALS

Having accepted the primary governmental functions set forth in the earliest writings on political economy, governments for many decades operated within this range of responsibilities. Their activities expanded primarily as populations grew, as the land area of the nation was extended, as wealth increased and industrialization created new demands. However, the functions remained narrowly circumscribed. Government expenditures before the Civil War represented about 1.5 percent of the national income. Military engagements not only raised the immediate costs of government but significantly raised them in the years following the war, as many costs persisted. Between the Civil War and World War I government expenditures were higher and represented about 2.7 percent of the gross national product; the percentage would be higher if calculated in

terms of national income. After World War I the rate rose to about 3.1 percent.

The major rise in the level of Government expenditures grew out of the crash of 1929 and the subsequent depression. The concepts of Government's responsibilities were drastically altered. The laissez-faire philosophy of the previous century and a half was replaced by a new vision of Government as being a positive force responsible for closing the gaps in the private economy and mitigating or correcting its failings. The individual person was no longer to be abandoned to his fate. His difficulties were no longer regarded as personal weaknesses for which he was to do penance by continued misery. They were often the result of social forces over which he had no control. As a member of society, he was entitled to a minimum of benefits which would enable him to take advantage of opportunities for self-support when they arose. The Government was responsible for the direction of the economy so that its efforts would supplement and reinforce those of private industry in providing employment opportunities and productive economic activity for the people.

The recognition of these positive responsibilities led to a new series of governmental programs. Some were directed at failings. Others were intended to initiate activities and services which were not being provided by the private economy. The programs were directed at the most diverse facets of the economy. Some were designed to stimulate business. The Government entered upon large construction projects and embarked upon providing new services such as research, theater, music, and art. The private and public relief systems were modernized and the old poor-law concepts swept aside. Assistance to the unemployed became a public function. New codes were drafted for industry to provide guides for its conduct and minimum terms of employment. Other institutions like the banks, stock market, and commodity exchanges were rehabilitated. Tremendous projects such as TVA were initiated to strengthen the economy of entire regions. Social insurance systems started major public schemes of aid to individuals. Conservation programs were executed to develop and preserve our natural resources.

These programs affirmed Government's positive economic and social responsibilities. It could not stand idly by while the country went to rack and ruin. Businessmen, bankers, farmers, and workers demanded action. It had to take steps both to rehabilitate the country and mitigate the suffering of the people and stop the loss and waste of national resources and wealth.

Governmental expenditures for these purposes are no longer considered unproductive. It is now generally believed that governmental expenditures during periods of less than full employment are highly productive and lead to the utilization of resources and manpower which would otherwise remain idle. The older economic theories which assumed stability with minor variations and couldn't conceive of major depressions had provided no alternative but to wait for recovery while the patient's economic blood was let. Such views are too brash for the current era in which there is an open conflict between economic systems on their comparative ability to provide employment and promote economic well-being.

Still new tests for Government to meet were born during the war. The failings of the past had created a longing for the Government to

assume more positive functions. Moreover, the stupendous achievements recorded by Government as a wartime planner and guide for the economy reaffirmed the public's belief that this instrument could also solve the maladies and defects of a peacetime society and economy. The new responsibilities assigned to the Government were no longer limited to those of aiding in the recovery of a society and economy in complete distress. Its obligations are more continuous and positive. These new tests were formally developed and articulated as American policy in the Employment Act of 1946. It declares that it is—

The continuing policy and responsibility of the Federal Government to use all practicable means * * * to coordinate and utilize all of its plans, functions, and resources, for the purpose of creating and maintaining, in a manner calculated to foster and promote free competitive enterprise and the general welfare conditions under which there will be useful employment opportunities including self-employment, for those able, willing, and seeking to work, and to promote maximum employment production and purchasing power.

The Federal Government has sought to implement these broad directives. During the last decade we have enjoyed an unusual era of economic growth and high employment. During the last year we faced problems of stabilizing our price structure to prevent the inflationary forces from weakening the foundations of our economy. People who closed their minds to direct controls and considered only indirect monetary techniques for restraining price rises, raised the question of the possible conflict between full employment and price stability.

Both goals, we contend, are compatible. The present administration has failed to choose procedures for effecting stability which are themselves consonant with the maintenance of full employment and balanced growth. The monetary controls which we have employed originate from an outgrown economic philosophy derived from a time when people and government suffered and tolerated the sharp swings of the business cycle. These theorists and practitioners are imprisoned by their conceptions and assumptions which are out of tune with an economy in which full employment and balanced growth are essential goals and cannot be subordinated to a third goal such as price stability. Policies must be devised to realize concurrently these three objectives of full employment, growth, and stability.

The concept of full employment provides us with a measure of the degree of underutilization of our manpower. It supplies a measure of the upper limits of economic activity and social well-being which we can attain with our material resources and capital.

We have also accepted economic growth as an essential objective. It responds to the underlying yearning for progress in an optimistic western society. The channel to progress is through economic expansion. The Government's responsibility is to facilitate this process. Besides helping to maintain a climate conducive to full employment it must help dormant and declining areas and industries find the formula for their rejuvenation. Where the latter fails, new designs must be evolved for the distressed areas. Help can be furnished them through technical assistance and finance as we have done.

through our foreign-aid programs. This is the objective of the area assistance bill now before Congress.

Stable growth means not only that prices remain relatively stable but also that the growth process is balanced. It is the unevenness in the rate of expansion and the accumulation of demand in specific sectors which currently create the environment for inflation in our economy. The excessive demands on structural steel and other key commodities necessary for the expansion of our capital goods industries sparked much of our current inflationary price movement. The Government's responsibility is to restrain unjustified price increases and to help balance demand through appeals and controls and possibly to build new capacity to meet these rising economic needs where private industry proceeds at too slow a pace. Economic balance demands careful appraisal of our areas of growth and our physical and human resources. Economic balance also calls for an appropriate pattern of large and small businesses.

One other function of government is to help translate economic growth into rising living standards. In our economy we boast that such has happened; and indeed the facts support this conclusion. "People's capitalism" is the phrase coined to describe our system as contrasted with others. Certainly we can boast, in the words of a recent panel group sponsored by the Advertising Council, of enjoying a "rising dynamic way of life and the broad distribution of the benefits of the economy among the people through a high standard of living for the bulk of the population" (The American Round Table, sponsored by Yale University and the Advertising Council, Discussions on People's Capitalism at Yale University, New Haven, Conn., November 16 and 17, 1956, Advertising Council, 1957, p. 13).

These criteria may be differently defined. But in my concept it would include the realization of constantly rising living standards; higher level minimum wages for the entire work population; equal pay for men and women; collective bargaining as the practice of industrial relations; shorter working hours; longer productive work lives; adequate educational and training facilities for youths, adults, and older persons; adequate social insurance and assistance to provide basic economic security; adequate hospital and medical care; sufficient number and high standards of housing; local cultural and recreational facilities and vast opportunities for personal development. These social goods and resources often have to be supported by some level of government. The essential test is whether the needs and aspirations of the American people are being fulfilled under existing arrangements. Where they are not, it is the responsibility of the Government to take positive steps to insure their fulfillment. The form of operation is a later question to be faced.

In American society, we have placed a strong emphasis on efficient execution. If early solutions do not meet this test, we shall evolve the proper ones through debate and effort. As an example, we are now trying assiduously to evolve a system of medical care which will satisfy our population. We have relied on private systems. Their defects have been manifoldly revealed. Improvements are being made in response to the strong criticism and the appearance of new competitive services. This two-fold process will continue, we hope, to shape our institutions to serve us better.

The conservation and development of our resources has been a long established goal for American government. Similarly, we must list a sound agricultural economy as a primary objective for our Federal agencies. National security and the appropriate forms of foreign aid to protect ourselves and stimulate and assist the development of independent, viable, and growing nations are part of our current international policy. Traditionally our governments concern themselves with the promotion of an adequate transportation system both for military and commercial purposes. Research and scientific development are new responsibilities which technology makes necessary, because private endeavors have been limited and must be stimulated, and many pioneering efforts require huge financial outlays and entail great risks. Adequate statistical services are vital to a properly functioning industrial society and must be supplied primarily by the Government. Finally, no government can neglect promoting an adequate urban plan for its population.

CONCLUSION

These, then, are some of the positive functions of government. They are a far cry from the modest list of governmental responsibilities recognized before 1929. The Government has an obligation to help realize these new objectives. It cannot sit back prayerfully and hope that these ends will be realized. It must determine whether the state of well-being conforms to these purposes. If there are gaps in our private society and economy, and if the performances do not meet the tests, it has an obligation to intervene and help the citizenry realize these ends for which the society has been created.

TABLE I.—*Government expenditures, 1956*

[Millions of dollars]

	Total	Federal	State and local
Total.....	\$104, 218	\$72, 012	\$35, 483
Purchase of goods and services.....	80, 227	47, 199	33, 028
Compensation of employees.....	36, 068	18, 798	17, 270
Net purchases from business.....	40, 245	24, 487	15, 758
New construction.....	12, 818	2, 774	10, 044
Other.....	27, 542	21, 828	5, 714
Less domestic sales of surplus consumption goods.....	115	115	-----
Net purchases from abroad.....	3, 914	3, 914	-----
Transfer payments.....	17, 150	13, 491	3, 659
Grants-in-aid to State and local governments.....	-----	3, 277	-----
Net interest paid.....	5, 739	5, 198	541
Subsidies less current surplus of Government enterprises.....	4, 592	2, 847	1, 745

Source: Survey of Current Business.

APPENDIX

FEDERAL CASH PAYMENTS AND CREDIT GUARANTIES BY TYPES OF RECIPIENTS

There are no data available which provide a convenient and explicit summary of cash payments, loans, investments, subsidies, and transfer payments to individuals not in the Government's employ. Special analysis D of the budget provides some data on this subject by noting the beneficiary of the expenditures, which is, in some cases, a private individual. In the latter instances, the data has been ab-

stracted, but this material does not provide a full listing of the data, particularly in such areas as public works, military procurement, and expenditures for developmental purposes.

Tabulations are available for the calendar years 1951-52 appearing in the report of the Council of Economic Advisors, which provide a better insight into the allocation of funds by type of recipient. We would recommend that the Joint Economic Committee request the Bureau of the Budget to develop a current supplementary table which explicitly sets forth the Federal Government's expenditures by type of recipient and which would proceed beyond the classifications shown in the attached table. The exhibit would clearly arrange the expenditures to indicate which are made through procurement or contract with private persons or bodies.

Because we believe such tabulations are desirable and would throw light on the extent to which the Federal Government now depends upon such private persons and bodies for the services and goods it uses or furnishes to the American people, we are attaching the table for the calendar years 1951-52.

Federal cash payments to the public by type of recipient and transactions, calendar years 1951-52

[Billions of dollars]

Cash payments	1951			1952, 1st half ¹
	Total	1st half	2d half	
Direct cash payments for goods and services, excluding payments for military services: ²				
Payments to individuals for services rendered:				
Civilian wages and salaries (excluding Post Office):				
Federal ³	3.0	1.5	1.5	1.6
Grants- and loans-in-aid for performance of specified services, net ⁴	.9	.4	.4	.5
Total.....	3.8	1.9	1.9	2.1
Payments to business for goods and services:				
Public works:				
Federal.....	2.1	.9	1.1	1.3
Grants-in-aid and loans for public works.....	.8	.3	.5	.3
Other goods and services ⁵	.9	.4	.6	.4
Payments to foreign countries and international institutions for goods and services.....	.1	(⁶)	(⁶)	(⁶)
Total.....	3.8	1.6	2.2	2.0
Direct cash payments for goods and services—payments for military services: ⁷				
Military personnel.....	9.7	4.4	5.3	5.7
Major procurement and production.....	7.5	2.8	4.7	6.5
Military public works.....	1.2	.3	.9	1.1
Stockpiling of strategic and critical materials.....	.7	.4	.3	.5
Operation and maintenance of equipment, research and development, reserve forces, and other.....	10.7	4.3	6.3	7.1
Total.....	29.8	12.2	17.5	20.9
Loans and transfer payments to individuals:				
Social insurance and public assistance:				
Federal employees' retirement benefit payments.....	.3	.1	.1	.2
Old-age and disability benefit payments.....	2.2	1.1	1.1	1.2
Unemployment insurance benefit payments.....	.9	.5	.4	.6
Grants-in-aid for public assistance.....	1.2	.6	.6	.6
Readjustment benefits, pensions, and other payments to veterans ⁸	5.2	2.6	2.7	2.3
Loans to homeowners, net.....	.1	(⁶)	.1	(⁶)
Interest ⁹	1.1	.6	.5	.6
Other ¹⁰	-1	-2	(⁶)	-2
Total.....	11.0	5.4	5.6	5.2

See footnotes at end of table.

*Federal cash payments to the public by type of recipient and transactions,
calendar years 1951-52—Continued*

[Billions of dollars]

Cash payments	1951			1952, 1st half ¹
	Total	1st half	2d half	
Loans, investments, subsidies, and other transfers to business and agriculture:				
Farmers:				
Price support, net (including supply program).....	-.4	-.4	-.1	-.2
International Wheat Agreement.....	.2	.1	.1	.1
Other loans and direct subsidies to farmers.....	.8	.4	.3	.5
Business:				
Home mortgage purchases from financial institutions...	.5	.2	.3	.2
Loans, net.....	(²)	(²)	(²)	(²)
Direct subsidy payments.....	(²)	(²)	(²)	(²)
Subsidy arising from the postal deficit.....	.7	.4	.3	.4
Interest ³	3.1	1.5	1.6	1.4
Total.....	4.8	2.3	2.5	2.4
Loans and transfer payments to foreign countries and international institutions:				
Unilateral transfers:				
Military aid.....	1.6	.7	1.0	1.4
Economic aid.....	2.9	1.6	1.3	1.2
Loans.....	.3	.2	.1	.1
Subscriptions to the International Bank and Monetary Fund (net cash withdrawals).....	(⁴)	(⁴)	(⁴)	(⁴)
Total.....	4.7	2.4	2.4	2.7
Clearing account for outstanding checks and telegraphic reports.....	+1	(⁵)	+1	+3
Total Federal cash payments to the public.....	58.0	25.7	32.3	35.6

¹ Estimates based on incomplete data.

² Differs from the national income concept of "Government purchases of goods and services" by excluding, in addition to military services, farm price-support expenditures, and unilateral aid to foreign countries. Grants to States and localities for public works, here included as a Federal expenditure, would be included in the national income accounts as a State and local expenditure. There are other less significant differences between the two concepts.

³ Excludes payroll deductions for Federal employees' retirement.

⁴ Includes all grants-in-aid and loans to public bodies for purposes other than public works and public assistance. Includes, in addition, $\frac{1}{4}$ of Federal expenditures for veterans' tuition, books, and supplies.

⁵ This figure is obtained as a residual by deducting all other expenditures from total cash payments to the public. This residual is subject to a high margin of error, since many of the detailed expenditure figures are estimated from records maintained on different bases. Conceptually, it includes purchases of supplies and equipment, payments for transportation, communication, and various contractual services.

⁶ Less than \$50,000,000.

⁷ Excludes retired pay and redemption of Armed Forces leave bonds which are included below as payments to veterans. Also excludes payroll deductions for civilian employees' retirement.

⁸ Includes cashing of terminal-leave bonds retired pay of military personnel, and national service and government life insurance refunds and benefits in addition to veterans' pensions and readjustment benefits. Includes only $\frac{1}{4}$ of payments for veterans' tuition, books, and supplies.

⁹ Includes a small amount of interest on tax refunds in addition to interest on tax refunds in addition to interest on the public debt. Interest paid to business includes about \$100,000,000 of interest paid each year by the Federal Government to State and local governments. (Interest in appendix table A-2—Consumer account—is net and is on an accrual rather than a cash basis; it includes interest paid by State and local Government corporations.)

¹⁰ Represents transactions in deposit funds (including partially owned Government corporations) and in trust funds not specified elsewhere.

NOTE.—Detail will not necessarily add to totals because of rounding.

Source: Bureau of the Budget.

ECONOMICS AND THE APPLIED THEORY OF PUBLIC EXPENDITURES

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What does the economist have to offer a perplexed public and its policymaking representatives on the theory of Government functions as they affect the budget? The cynic's offhand answer, "not much," may be close to the mark if one demands definitive rules of thumb for determining the precise scope of Government functions and level of Government expenditures. But if, instead, the demand is for economic guidelines to aid the budgetary decisionmaker (1) in blending rationally the service, stabilization, and income-transfer functions of Government; (2) in identifying those deficiencies in the private-market mechanism which call for Government budgetary action or, more broadly, those activities where Government use or control of resources promises greater returns than private use or control, and (3) in selecting the most efficient means of carrying out Government functions and activities (whether by Government production, contracts with private producers, transfer payments, loans, guaranties, tax concessions, and so forth)—if this is the nature of the demands on him, the economist is prepared to make a modest offering now and to work along lines that promise a greater contribution in the future.

In a sense, this paper is a progress report designed to show where the economist can already offer some useful counsel, to indicate some of the lines along which promising work is being done, and to suggest certain limitations or constraints within which the economic criteria for dividing resources between public and private use must be applied.

A BASIC FRAMEWORK

As a first step in the search for economic guideposts, we need to disentangle, classify, and define the basic objectives and functions of Government that shape its budgetary decisions. Fortunately, Prof. Richard A. Musgrave has developed a conceptual framework for this task in his "multiple theory of budget determination." Although he speaks for himself in this volume and elsewhere,¹ a brief examination of his contribution provides a most useful point of departure for a schematic review of expenditure theory.

The component functions of the budget as he brings them into focus are: (1) The service, or want-satisfying, function: to provide for the satisfaction of those individual wants which the market mechanism cannot satisfy effectively (e. g., education and conservation) or

¹ See, for example, *A Multiple Theory of Budget Determination*, *Finanzarchiv* 1957, vol. 13, No. 3, pp. 333-343, and the relevant chapters of his forthcoming treatise on public finance.

is incapable of satisfying (e. g., defense and justice); (2) the income-transfer or distributional function: to make those corrections in the existing income distribution (by size, by occupational groups, by geographical area, etc.) which society desires; and (3) the stabilization function: to join with monetary policy and other measures to raise or lower the level of aggregate demand so as to maintain full employment and avoid inflation. For purposes of the panel discussion of which this paper is a part, the first function is of dominant interest, and the succeeding sections of the paper return to it. But several general implications of the Musgrave system as a whole deserve attention before turning to specifics.

Musgrave's formulation helps unclutter our thinking on the component parts of the budget decision. It drives home the significant point that our decisions on how much and what kind of want-satisfying services to provide by Government budgets need not be tied to our demands on the budget for correction of either the existing patterns of income distribution or the level of aggregate demand. If we prefer, we can have a small budget for services (financed by taxes levied on the benefit principle) combined with a big budget for redistributive transfers of income (financed by taxes levied on the ability principle), or vice versa; and either combination can be coupled with either a deficit to stimulate demand and employment or a surplus to reduce demand and check inflation. In this respect, it is reminiscent of Samuelson's "daring doctrine" that by appropriate fiscal-monetary policy "a community can have full employment, can at the same time have the rate of capital formation it wants, and can accomplish all this compatibly with the degree of income-redistributing taxation it ethically desires."² Musgrave, in turn, points the way to achieving any combination of Government services, income redistribution, and economic redistribution, and economic stability we set our sights on.

So far, so good. The waters, though deep, are clear and relatively still. They get somewhat muddied and troubled when we move from the clear-cut want-satisfying programs (subject to the benefit principle) and clear-cut distributive programs (subject to the ability principle) into dual-purpose programs, transfers-in-kind in the form of subsidized housing, medical care, vocational education, and so forth. For here we are no longer furnishing services that the majority has voted to meet its own needs (including both selfishly motivated needs like defense and police protection and socially motivated needs like foreign aid) via Government, but are in effect requiring the minority to accept services which they might or might not have bought had they been handed an equivalent amount of cash. Perhaps they would have preferred to spend it on wine, women, and song, but the majority is apparently saying, "No, we know what's best for you." Can this be justified?

It may be digressing to do so, but let us consider for a moment the provision of free vocational education as a case in point. It might be argued that vocational training results in a direct increase in earning power of the trainee (since employers will be willing to pay him higher wages) and that it should therefore be left in private hands

² Paul A. Samuelson, *The New Look in Tax and Fiscal Policy*, in *Federal Tax Policy for Economic Growth and Stability*, Joint Committee on the Economic Report, Washington, November 9, 1955, p. 234.

or, if furnished publicly, should be financed under the market principle (by direct charges to the recipient of the service) rather than the budget principle (provided free of charge and financed by general taxation).³ In terms of the service budget alone, the foregoing conclusion is probably right. But bringing in the redistributive motive puts subsidized vocational training in a different light. The voting majority may feel that income transferred in this form constitutes a more efficient and desirable form of transfer than a direct cash transfer. It insures that the transferred economic power won't be squandered in foolish and dissolute ways. It approaches reduction of economic inequality through greater equality of opportunity. In the process, it strengthens the economy's productive capacity.

The new welfare economics may protest that this is a form of tyranny of the majority of the voters over the minority, that each individual is his own best judge of his welfare. Since the equivalent cash payment would have been spent differently, it is said to be a violation of consumer sovereignty. But it is also quite possible that the recipient of the transfer in kind will vote with the majority to have this kind of program rather than a direct cash payment. The individual may accept and welcome the discipline in such an arrangement which overcomes his own self-deplored lack of willpower (a lack which is not restricted to children, aged persons, and imbeciles). How many of us would "prefer" to spend our time quite differently than we do if left to our own devices, yet are willing to accept, or even welcome, the tyranny of a deadline as a condition of participating in a desirable project? Seen in this light, the transfer in kind may interfere more with license than with freedom of consumer choice. I do not mean to dismiss the "tyranny" argument, but its force is certainly softened by the kind of consideration just examined. It may be further softened if we accept the proposition that the responsibility of the voters' representatives goes beyond a mere recording of individual preferences to leadership and education designed to redirect individual preferences along lines which a social consensus deems more constructive.

Even beyond this, the transfer in kind may actually have a large service component, i. e., secondary benefits which accrue to others than the direct recipient of the service.⁴ For example, low-income housing may confer indirect benefits on high-income people in surrounding areas for which they are willing to pay a considerable price. Subsidized housing projects may replace unsightly slums, arrest urban blight which threatens to encroach on better neighborhoods, and reduce fire and police protection costs. To this extent, taxes on high-income people to subsidize low-cost housing may in large part be a

³ For a discussion of these principles see Gerhard Colm, *Essays in Public Finance and Fiscal Policy*, New York, 1955, pp. 8-11.

⁴ To the extent that the income transfer motive is the sole or dominant motive for keeping certain services on the public budget (or at least causing us to supply them on the budget principle rather than the market principle), a rise in average family income and a decline in inequality will eventually bring us to a point where programs such as vocational education and low-cost housing should be moved off of the Government budget and into the market economy. This point is undoubtedly much more distant for some programs than others. Also, I do not mean to suggest that the main impact of economic growth and prosperity is to reduce Government expenditures. Both in the case of intermediate public goods (such as roads), the demand for which typically moves in accord with private goods, and in the case of "end item" services (such as better education and recreation), the demand for which increases with higher standards of living, economic growth and prosperity mean higher rather than lower demands for Government services. (See Gerhard Colm, *Comments on Samuelson's Theory of Public Finance*, *The Review of Economics and Statistics*, November 1956, vol. 38, p. 410.)

payment for the indirect benefits they receive rather than a transfer payment. Clearly identifying and separating the service elements from the redistributive element in this manner suggests that the wants of third-party beneficiaries are being satisfied by using the direct recipient of subsidized housing, medical care, education and the like as the instrument, willing or unwilling, for this purpose.

This formulation may also shed new light on the theory of progressive taxation. Musgrave suggests that high-income people may be willing to pay proportionately more for a given government service than low-income people (i. e., the income elasticity of demand for the service is greater than unity), even in the case of government services like defense and justice which by their nature must be consumed in equal amounts by all persons. Add to this consideration the important indirect stake which the upper income groups have in subsidized programs for the lower income groups (i. e., programs not equally consumed by all). The direct beneficiary may put a low value on the service and a high value on money, while the indirect beneficiary (who gets secondary benefits in protection from epidemics, in arresting of urban blight, in a more stable body politic and labor force, and so forth) may put a relatively high value on the service and a low value on money. The tax policy result: progressive taxation on the benefit principle.⁵

Although the foregoing discussion leads us afield from the strict question of what functions government should undertake, it underscores an important point that should not be overlooked in the course of separate inquiries into tax and expenditure principles: the two are intertwined in both a conceptual and a practical way. Our concept of government functions, both in their service and in their redistributive elements, has obvious implications for tax theory. Also, as will be noted below, expenditure and tax instruments are often alternative means of accomplishing a given governmental objective. For example, one can give government support to the oil and gas industry, to foreign investment, or to agriculture either by outright subsidy reflected in higher expenditures or by tax concessions reflected in lower tax revenues.

The Musgrave contribution provides an instructive illustration of the intellectual process at work, a process of which the Joint Economic Committee's hearings are an essential part. His formulation, even though not yet published in definitive form, has already clarified and stimulated thinking on public expenditure theory (a field comparatively neglected in favor of work on tax theory and policy) and has provided a base for further contributions to the subject. This is not to say that his system is complete, that it will not be modified, or perhaps even replaced in the course of time. It is a framework for thinking about the problem rather than an operational prescription for

⁵ Prof. Joseph A. McKenna, building on the Musgrave formulation and adding to it the assumption of diminishing marginal utility of money (an assumption Musgrave explicitly eschews in drawing inferences for progressive taxation from the service budget), sets up the concept of "maximum taxable benefit," the amount of money any beneficiary—primary or secondary—of a public service would pay if forced to do so rather than do without the service. For services to consumers, this maximum taxable benefit would be the marginal utility of the service divided by the marginal utility of money, while for business services, it could ordinarily be obtained directly in terms of money savings or increased receipts. In this formulation, a public service would be undertaken only if the sum of the maximum taxable benefits for all beneficiaries exceeds the cost of the service. (This formulation is developed by McKenna in an unpublished paper, *Reflections on Public Expenditures*, St. Louis University, May 1957.)

government budget accounting. It has no unequivocal place in it for those government services which represent a satisfaction of "merit wants," (those which reflect a collective, or majority judgment that certain services should be provided even if they interfere with individual preferences). Nor does it appear to provide explicitly for some of the resource-allocating functions of the budget such as changing the balance between consumption and investment to influence the growth rate, redirecting resources from one industry to another (e. g., from other industries to the petroleum industry), from one stage of production to another (e. g., in favor of the extractive stage) or from one geographical area to another (e. g., in favor of foreign versus domestic investment).⁶ But, in spite of these conceptual and practical limitations, encouraging progress has been made toward clearing away the analytical underbrush and revealing more clearly the choices that have to be made and the problems that have to be solved.

ECONOMIC DETERMINANTS OF THE PROPER SPHERE OF GOVERNMENT ACTIVITY

Given a framework for straight thinking about budget functions, the economist is brought face to face with two questions that come closer to the central problem of the proper sphere of Government activity. First, where competitive bidding via the pricing mechanism is inapplicable, how are the preferences of voters for governmental services to be revealed, measured, and appropriately financed? Second, waiving the question of measurement of preferences, where would the line between public and private control over resources be drawn if economic efficiency were the only criterion to be implied?

On the first question, insofar as it relates to individual preferences for public goods, economists have agreed on the nature and difficulty of the problem, have made some intriguing suggestions as to its solution, and have concluded that it is next to insoluble. The key difficulty is that the voting process, unlike the pricing process, does not force the consumer of public goods to show his hand. The essence of preference measurement is the showing of how much of one good or service the consumer is willing to forgo as the price of acquiring another. But the amount of a public good or service (say, of defense, police protection, or schooling) available to the voter is independent of the amount he pays in taxes or the intensity of his demand for it.⁷ Unless and until we devise a reliable and reasonably accurate method of detecting specific voter preferences in some detail, our definition of the proper sphere of government activity will have to rely chiefly on

⁶ Some of these reallocations represent an implementation of foreign policy and national defense, others represent simply a substitution of collective judgment or political pressure for the rule of the market as to the most efficient distribution of productive resources. In terms of the Musgrave framework, perhaps some of the expenditure and tax subsidies to specific industries may simply be an inefficient way of providing a larger amount of defense or other services. They would thus fit, albeit rather uncomfortably, into the service budget.

⁷ For an illuminating exploration of ways and means to get at a more valid and clear-cut expression of voter preferences for government services, see the pioneering work by Howard R. Bowen, *Toward Social Economy*, New York, 1948, especially ch. 18, *Collective Choice*. In this chapter Bowen explores both voting and polling techniques for ascertaining those individual tastes and preferences which cannot find expression in, or be measured by, the market mechanism.

the informed judgment and perception of those whom we vote into legislative and executive office.⁸

This being the case, the economist's task is to contribute what he can to this informed judgment and perception. In effect, the economist's job becomes one of telling the voters and their representatives what their preferences as to governmental activities would be if they were guided by the principle of economic efficiency. In doing so, the economist is not proposing that decisions as to what kinds of activities should be assigned to government—what wants should be satisfied and resources should be redirected through government action—should be made on economic grounds alone. He is fully aware that values such as those of political and economic freedom play a vital role in these decisions. But he can perform the valuable service of identifying those deficiencies in the market mechanism and those inherent economic characteristics of government which make it economically advantageous to have certain services provided by government rather than by private initiative. In other words he can show where government intervention in resource allocation and use promises a greater return per unit of input than untrammelled private use.

The economist recognizes, of course, that there are areas in which he is necessarily mute, or at least should not speak unless spoken to. These are the areas of pure public goods, whose benefits are clearly indivisible and nonmarketable, and no amount of economic wisdom can determine the appropriate levels of output and expenditure.⁹ In the realm of defense, for example, one successful Russian earth satellite or intercontinental ballistics missile will (and should) outweigh 10,000 economists in determining the appropriate level of expenditures. At most, the economist stands ready to offer analysis and judgments as to the critical levels of defense expenditures beyond which they threaten serious inflation in the absence of drastic tax action or curtailment of civilian programs, or, given that action, threaten impairment of producer incentives and essential civilian programs.

A much more fruitful activity for the economist is to demonstrate the economic advantage offered by government intervention, budgetary and otherwise, in those intermediate service areas where benefits are at least partially divisible and marketable. A number of economists have made useful contributions on this front.¹⁰ In what situations does economic logic point to government intervention to correct the market mechanism's allocation of resources in the interests of greater efficiency in their use?

⁸ Insofar as voter wants in the public sphere go beyond individualistic preferences to general welfare choices (as Colm, in his article commenting on Samuelson's theory, argues that they not only do, but should), the problem changes form, but the desirability of sharper definition of voter preferences remains undiminished.

⁹ No attempt is made here to define a public good. Samuelson (in *The Pure Theory of Public Expenditures*, *The Review of Economics and Statistics*, November 1954, vol. 36, p. 387) has defined "collective consumption goods" as those in which one individual's consumption of the good leads to no diminution of any other individual's consumption of that good. McKenna (op. cit.) would broaden the definition to include as public goods all those that provide "benefit simultaneously and automatically to more than one member of society." It would seem that while the former definition leaves out many goods provided under the budget principle, McKenna's embraces quite a number provided under the market principle.

¹⁰ See, for example, O. H. Brownlee and E. D. Allen, *Economics of Public Finance*, second edition, New York, 1954, ch. 10, *The Role of Government Expenditure*. See also Max F. Millikan, *Objectives for Economic Policy in a Democracy* (especially pp. 62-68), and Robert Dahl and Charles E. Lindblom, *Variation in Public Expenditure*, both in *Income Stabilization for a Developing Democracy*, Max F. Millikan, editor, New Haven, 1953.

1. Where there are important third-party benefits (also known as extra-buyer benefits or beneficial neighborhood effects) which accrue to others than the direct beneficiary of the service as in the case of education, disease prevention, police and fire protection, the market price and demand schedules underestimate the marginal and total social benefits provided by the service in question. By and large, the direct beneficiaries are the only ones who enter the private market as buyers, with the result that the services would be undervalued, underpriced, and underproduced unless government entered the transaction. Government is the instrument for representing the third-party beneficiaries and correcting the deficiency of the market place (though this is not to deny that private religious and philanthropic organizations, for example, also represent third-party beneficiaries and operate on budget rather than market principles).

2. Just as there may be indirect benefits not reflected in market demand, there may be indirect costs inflicted on society which do not enter the private producer's costs and therefore do not influence market supply. Classic examples are the costs of smog, water pollution, denuding of forests, and the like. In these areas, private output will exceed the optimum level unless government corrects the situation either by regulation or by a combination of expenditure and charge-backs to the private producers involved.

3. Where a service is best provided, for technical reasons, as a monopoly (e. g., postal service, electricity, railroad transportation), the Government is expected to step in either by regulation or operation to avoid costly duplication and improve the quality of service. Ideally, its function would also be to guide prices toward levels consistent with optimum output.¹¹ Involved here is the problem of the decreasing cost industry, where efficient plant size is so large relative to total demand that average cost decreases as output increases, and the market solution of the output and price problem will not result in best use of the productive assets. To push production to a point representing an ideal use of resources may require, if not government operation, a subsidy financed out of tax revenues.

4. Government may enjoy some advantages in production or distribution which make it an inherently more efficient producer of certain services. Here, the classic case is highways, streets, and sidewalks. By providing them free to all comers, Government effects substantial savings in costs of distribution since it does not have to meter the service and charge a price for each specific use. In this category we might also fit projects, such as the initial development of atomic energy, which involves such great risks and huge accumulations of capital that the private market does not have the financial tools to cope with them.

Although the foregoing list could be lengthened, it serves to cover the major types of mixed economic situations (i. e., those in which resource allocation could be guided either by the market mechanism alone, or by Government alone, or by a combination of the two) in which the economist sees opportunities for improved deployment of productive resources via Government action.

¹¹ Note that the Government here is likely to be applying the market principle rather than the budget principle, though it has the advantage of being able to combine the two. For example, in the postal service it can subsidize parts of the service in accord with assumed social priorities, while making other parts pay their way.

ALTERNATIVE MEANS OF CARRYING OUT GOVERNMENT FUNCTIONS

Given the decisions as to the appropriate sphere of Government activity (on the basis not merely of considerations of greatest economic gain but also of value preferences), there remains the problem of choice among alternative methods to implement these decisions, to achieve given aims and satisfy expressed public wants. This choice will affect the budget in different ways. It may increase expenditures, decrease revenues, establish contingent liabilities, or perhaps have no effect on the budget at all (except for a small amount of administrative expenses involved in the supervisory and regulatory activities). Since the operational question is not merely what functions and activities Government should carry out, but what budgetary principles and expenditure levels these lead to, the problem of implementation must be included in any applied theory of public expenditures.

Here, the economist's role is to determine the most efficient method of providing the service or otherwise influencing resource allocation. He is concerned with minimizing costs, i. e., achieving the stated objective with a minimum expenditure of resources. Needless to say, other considerations will also influence the selection among alternative means, as even a brief consideration of the types of choices involved in the implementation process will make clear.

What are these choices? Take first the case of direct satisfaction of individuals' public wants. Should the Government produce the desired public goods or obtain them from private industry by purchase or contract? To accomplish redistributive ends, should the Government provide transfers in cash or transfers in kind?¹² Should Government rely on public production of educational services, or should it consider private production combined with earmarked transfers of purchasing power to parents? Thus far, the choices all involve direct budgetary expenditures, the level of which differs, at least marginally, depending on the relative efficiency of the method chosen. But in making his choice, the policymaker must consider not merely the direct costs of providing the service but whether one method involves more or less disturbance of private market incentives and patterns of production than another, whether it involves more or less interference with individual freedom (which is largely a function of the extent of Government expenditures and intervention but certainly in part also a function of the form of that intervention), and so on.

Another set of choices may take the item off of the expenditure side of the budget entirely, or leave it there only contingently. Should such subsidies as those to promote oil and gas exploration, stimulate foreign investment, expand the merchant marine, promote low-cost housing, and increase the flow of strategic minerals take the form of (1) outright subsidies or above-market-price purchase programs, (2) Government loan programs, (3) Government guaranties, or (4) tax

¹² One involves so-called resource-using (also called factor-purchase or exhaustive) Government expenditures, i. e., payments in exchange for current goods and services rendered, with direct control of resources remaining in public hands. The other involves transfer payments, i. e., payments made without any provision of current goods and services in return, with direct control over resources passing into private hands.

concessions? The choice will clearly involve quite different impacts on Government expenditures.¹³

In many of these cases, the economist can be helpful with his efficiency criterion. But one would be naive to think that efficiency alone dictates the choice. The economist may show that a direct subsidy could stimulate a given amount of private direct investment abroad, or a given amount of exploration for oil and gas, with a much smaller cost to the budget than is implicitly required in the tax concession method of achieving the same end. Yet, the costlier tax concession method may be preferred for two simple reasons: (1) it is virtually self-administering, involving no administrative hierarchy to substitute its authority for relatively free private decisions, and (2) it does not involve an increase in the expenditure side of the budget, a fact which has certain attractions to the Executive and Congress.

As yet, no clear boundary lines have been drawn among the various form of Government intervention to mark off those that properly belong within the scope of public expenditure theory. But this illustrative review of the various choices makes clear that some forms of Government activity which are not reflected in expenditures at all (tax concessions) or only contingently (guaranties) are an integral part of such expenditure theory. In fact, there may be a stronger case for embracing these in expenditure theory than many Government activities which require budgetary outlays but are conducted on the pricing principle, i. e., Government enterprise activities.

Economists are conducting some provocative inquiries into questions of alternative methods of carrying out Government programs in areas where the answers had heretofore been taken for granted. For example, the transfer of schooling to a private production and Government transfer payment basis has been urged by Prof. Milton Friedman as a more efficient means of providing the desired service.¹⁴ Prof. O. H. Brownlee is currently probing further into this question, as well as the possibilities of transferring other publicly produced services into the sphere of private production. Once fairly conclusive findings are devised as to the methods most likely to minimize costs, there remains the vital task of blending these findings with the non-monetary values that would be gained or lost in the process of transferring from public to private production.

SOME CONSTRAINTS ON THE APPLICATION OF SPECIFIC ECONOMIC CRITERIA

Repeatedly in this discussion, the note has been sounded that, in determining the level of Government activity, the policymaker cannot live by economics alone. More particularly, we need to guard against setting up our economic guides solely in terms of those considerations which lend themselves to sharp economic analysis

¹³ Even within the bounds of a particular program, these impacts can vary sharply. Thus, a direct lending program can be handled by using either funds provided by the U. S. Treasury, in which case it will be reflected in Government expenditures and debts, or as was recently the case in the Federal housing program, funds raised by direct sales of debentures to the public, which are not recorded as part of Government expenditures and debts.

¹⁴ See Milton Friedman, *The Role of Government in Education, in Economics and The Public Interest*, Robert A. Solo, editor, New Brunswick, 1955, pp. 123-144. In his prescription, Friedman would, of course, have Government regulate the private schools to the extent of insuring that they meet certain minimum standards in their programs and facilities.

and definition. In other words, the role of both economic and non-economic constraints must be given full weight.

The former include a host of considerations relating particularly to economic motivation in Government versus private undertakings. Government may, for example, have a decided edge in the efficiency of distribution or be able to achieve a better balancing of social costs and social benefits in a variety of fields. Yet, there may be important offsets to these economic advantages in terms of (1) bureaucracy, (2) lack of the profit criterion to gage the results of Government activities, and (3) undesigned or unintended (presumably adverse) economic effects of taxation.¹⁵

The latter factor, in particular the fact that tax financing of public services involves breaking the link between an individual's cost of a given service and his benefit from it, may involve important offsets to economic advantages otherwise gained by Government expenditure. Thus far, to be sure, no dire consequences of the disincentive effects of taxation have been firmly proved, but changes in the form of private economic activity to minimize taxes are certainly a cost that must be weighed when netting out the balance of economic advantage in Government versus private performance of services.

Beyond the economic factors, one encounters an even more basic and less manageable constraint, namely that of freedom of choice. Thus, it is quite conceivable that following the kinds of economic criteria discussed earlier in the paper would take us considerably farther in the direction of Government spending and control over resource allocation than we would wish to go in terms of possible impairment of economic and political freedom. This consideration enters importantly not merely in decisions as to the proper range of Government activity but also in choosing among alternative methods of providing Government services.

This is not to imply that all value considerations run counter to the expansion of the Government sector of our economy. Such expansion may serve a number of social values, such as greater equality of income and opportunity, a more acceptable social environment, and so on.¹⁶

To get all of these considerations into the decision-making equation on private versus public provision of a particular service, or on the choice among alternative forms of providing the service, requires a wisdom which goes well beyond the field of economics. Perhaps this explains why so few economists enter politics.

¹⁵ These less sharply defined economic effects have to be balanced, of course, against comparable and perhaps offsetting drawbacks in the market mechanism. For an exploration of some of these factors, both in the private and the public sphere, see Robert A. Dahl and Charles E. Lindblom, *Politics, Economics, and Welfare*, New York, 1953, especially pt. V. See also C. Lowell Harriss, *Government Spending: Issues of Theory and Practices*, Public Finance, vol. 12, 1957, pp. 7-19.

¹⁶ This type of consideration is examined in William Vickrey, *An Exchange of Questions Between Economics and Philosophy*, in *Goals of Economic Life*, edited by A. Dudley Ward, New York, 1953, pp. 148-177. See also Fax F. Millikan, *op. cit.*

PRINCIPLES OF BUDGET DETERMINATION

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The people of the United States are generally agreed that the economy is to be organized on the premise of free consumer choice, that production is to be carried on by privately owned and operated firms, and that the market should be relied upon where possible to transmit the desires of the consumer to these firms. This being our basic form of organization, why is it that a substantial part of the economy's output is provided for through the budget? This question must be answered to begin with, if we wish to say something about the "proper" scope or composition of the budget.

The budgetary activity of the Government is needed because the pricing system of the market cannot deal with all the tasks that must be met in order to operate a sound economy and a healthy society. Certain tasks must be performed by government. Some may deplore this fact and dream of a setting where everyone could live in peace without any kind of governmental activity; others may feel that the necessity of social and economic policy at the governmental level enriches the challenge of social life and makes for a more balanced society. Whatever one's values in this respect, the nature of things is such that budgetary activity is needed. The question then is under what circumstances and why this need arises.

The answer to this question is too complex to permit a simple and uniform solution. In my own thinking I have found it useful to distinguish between three major functions of budget policy, including—

1. The provision for social wants, which requires the Government to impose taxes and make expenditures for goods and services, to be supplied free of direct charge to the consumer;

2. The application of certain corrections to the distribution of income as determined in the market requiring the Government to add to the income of some by transfers while reducing the income of others by taxes; and

3. The use of budget policy for purposes of economic stabilization, rendering it necessary under some conditions to raise the level of demand by a deficit policy and under others to curtail demand by a surplus policy.

I shall comment briefly on the nature of each of these three functions, and on how they are interrelated.

PROVISION FOR SOCIAL WANTS

When I say that the Government must provide for the satisfaction of social wants, it does not follow that the Government itself must carry on the production of the goods and services which are needed to satisfy these wants. This may be necessary in some cases, as for in-

stance with the provision for police protection, which can hardly be left to a private agent, but this is the exception rather than the rule. In most cases there is no such need. If new planes or government buildings are to be provided for, they may be purchased from private firms. The essence of budgetary provision for the satisfaction of social wants, therefore, is not production by government. It is payment for goods and services through budgetary finance, and supply of such services free of direct charge to the consumer.

What, then, are the social wants which must be provided for in this fashion? Some people have argued that they are wants which in a mysterious fashion are experienced by the Nation as a whole, and thus reflect the desires of the collective entity. This makes little sense in our setting. The desire for the satisfaction of social wants is experienced by individuals, no less than that for the satisfaction of private wants. This is not where the difference lies. The basic problem of social wants arises because their satisfaction, by their very nature, requires that the goods and services in question must be consumed in equal amounts by all. Social wants differ in this important respect from private wants, where each consumer may arrange his personal pattern of consumption such as to satisfy his own personal tastes. Thus, I may go to the market and purchase whatever amounts and type of clothing, housing, or food may suit my tastes and resources; but I must be satisfied with the same municipal services as are received by my neighbors, or with the same degree and type of foreign protection as is granted to all other citizens of the United States. This crucial fact, that certain services must be consumed in equal amounts by all, has important consequences.

One consequence is that you cannot apply what I like to refer to as the exclusion principle.¹ Since all people must consume the same amounts, no one can be excluded from the enjoyment of services aimed at the satisfaction of social wants. Everyone benefits, whether he contributes little or heavily to their cost. Now you might say that this is not too difficult a problem. Let the tax collector see to it that everyone pays. Unfortunately this overlooks the real difficulty. The real difficulty is not that people are unwilling to pay unless forced to; it is that of determining just how much various people should be called upon to contribute.

This difficulty does not arise with the satisfaction of private wants in the market. Here the individual consumer is forced to bid against others in order to get what he wants. The pricing mechanism, as it were, is an auctioning device by which things go to those who value them most, as evidenced by what they are willing to pay. People must bid to get what they want, and thereby provide the producer with the necessary signal of what to produce. In the case of social wants this signal is not forthcoming. Consumers know that they cannot be excluded and that their own contribution will weigh very lightly in the total picture. Thus they will not reveal their true preferences on a voluntary basis and offer to pay accordingly. Therefore it is no easy task to determine just what social wants should be recognized and how much each should be called upon to contribute.

¹ A second consequence, which has been pointed out by Professor Samuelson, is that there would be no single best solution to the budget problem, applying the usual criterion of economic efficiency, even if the preferences of all individuals were known. This aspect is omitted from the present discussion. . . .

A further difference is this: For goods supplied in the satisfaction of private wants, competition sets a uniform price in the market. Individual consumers, depending on their personal tastes, can buy different amounts at that price. For goods supplied in the satisfaction of social wants, all must consume the same amount, and those who value public services more highly must pay a higher unit price.

This much is clear, but the question is just what should be supplied and just how much each should pay. The market cannot give the solution and a political process is needed to accomplish this task. By choosing among various budget programs, including various expenditure plans and various tax plans to cover the costs, the voters can express their preferences in the matter. Since they know that the law, once decided upon, will apply to each of them, they will find it in their interest to reveal their preferences and to vote for the plan, or the approximation thereto, which is most appealing to them. Thus preferences are revealed through the political process. While the minority might be dissatisfied, and strategies might be used in voting, an acceptable approximation to the preferences of the individual members of the group is reached.

All this is somewhat of an oversimplification. Individuals do not vote personally on each issue. Rather, they elect representatives who vote for them. Thus, the function of the representative is to crystallize public opinion with regard to such issues, budgetary and other, and to find groups of issues on which their constituents can agree. The Member of Congress is a go-between, whose function it is to work out compromises and solutions which are acceptable to the majority. By saying this I do not mean to slight the educational function of political leadership, nor do I wish to underestimate the importance of the contribution to be rendered by the executive branch and by the civil service. All these are important, but the basic process is one of transforming individual preferences into social wants.

In taking this view of social wants, I am thinking in the framework of what since Adam Smith has been referred to as the benefit principle of taxation. In other words, budget policy should provide for goods and services in response to the social wants of individuals, and to make this possible, individuals should contribute as closely as possible in response to their evaluation of these social wants. The great value of this approach, from the point of view of the economist, is that it requires us to determine public expenditures together with the revenue side of the budget. In this basic sense, there can be no theory of public expenditures without a theory of taxation, and vice versa.

What does the benefit approach mean regarding the distribution of the tax bill between people with different levels of income? I will not attempt to answer this in a categorical form, but I can point to the considerations on which the answer should depend: This is whether the goods and services supplied for the satisfaction of social wants are largely in the nature of necessities or luxuries. If they are largely in the nature of necessities, the answer leads to regression; if they are primarily in the nature of luxuries the answer points to progression. If people wish to spend the same fraction at all levels of income the answer leads to proportional taxation.² While a moderate degree of

²In technical terms, the tax structure will be proportional if the income elasticity of social wants is unity, progressive if it is greater than unity, and regressive if it is smaller than unity.

progression would seem the reasonable answer, this is by no means the only consideration entering into the distribution of the total tax bill.

Finally, a word about the matter of budgetary balance. Insofar as the satisfaction of social wants is concerned, the budget must be balanced, in the sense that goods provided for through the budget must be paid for over their useful life. This merely reflects the fact that resources used for the satisfaction of social wants cannot be used for other purposes, and someone must bear the cost. At the same time, we shall see that this is only one among other considerations. It does not follow that the total budget must be balanced.

I need hardly add that this brief discussion of social wants does not cover the entire picture. Not all public services are supplied in response to the individual preferences of the consumers. There may be instances when the majority decides that certain wants of individuals should be satisfied, even though these individuals would prefer to be given the cash and use it for other purposes. Free education or hospital services may be cited to illustrate this case. This type of public service requires a different explanation. However, note that the benefits derived from such services extend beyond the specific beneficiary, and thus approach what I have described as the central type of social wants.

ADJUSTMENTS IN THE DISTRIBUTION OF INCOME

I now turn to the second function of budget policy, which is to provide for adjustments in the distribution of income. We are all agreed that it is the responsibility of society to undertake certain adjustments in the distribution of income, which results from the forces of the market, the laws of inheritance, and differences in abilities to acquire income. Babies must be assured adequate food, the sick and the aged must be given proper care, and so forth. Beyond this, some hold to an idea of the good society which requires a fairly extensive degree of income equalization, others would favor a moderate degree of equalization, while still others might oppose any such measure and favor a high degree of inequality. These are matters of social philosophy and value judgment on which we all have our own views. Moreover, consideration must be given to the interrelation between income distribution and the total income which is available for distribution.

My concern here is not with the question as to which is the best set of values. While I happen to feel that progressive taxation is fair, this is not the point. My point is that if society wishes to make distributional adjustments, it is desirable as a matter of economic policy to make them through the tax-transfer mechanism of the budget. This is preferable to distributional adjustments via manipulation of particular prices, be it of products or of factors of production. Certainly, we cannot accept the stricture that the purpose of taxation is to finance public services and nothing else, and that, therefore, they "must not" be used for distributional adjustments. There is no such law in the order of things. Indeed, where distributional adjustments are to be made, this is the logical way in which to make them.

The determination of the desired degree and type of distributional adjustment is again a matter of political process, and I will not discuss it here. Let us suppose that some degree of income equalization is to be accomplished. This calls for taxes on some people with incomes

above the average and for transfer payments to some people with incomes below the average. Insofar as distributional adjustments are concerned, the budget must again be balanced. Now you may argue that such a general tax-transfer scheme does not appear in the budget, except perhaps in the social-security programs, and that our budget does not engage in distributional adjustments. This is not the case. The distributional adjustments are implicit in a distribution of the overall tax bill in a way which is more progressive than would be justified on the basis of assigning the cost of social wants on a benefit basis. In other words, the budget as we know it and as it is enacted reflects the net result of various component policies. More about this in a moment.

Just as my discussion of allocating the cost of social wants moved in the context of a benefit approach to taxation, so does the problem of distributional adjustment belong in the sphere of ability to pay and equal sacrifice doctrines. The two approaches are wholly compatible if each is viewed in its own context. The argument that the cost of public services should be allocated in accordance with ability to pay sounds nice, but it gives us no foundation on which to decide what public services should be rendered. This can be done only in relation to individual preferences and implies the spirit of benefit taxation. I can see no other approach that leads to a sensible solution. At the same time, it is non sequitur to argue that progressive taxation is out of order because (assuming this to be the case) benefit taxation requires proportional rates. The element of progression may be called for in order to implement distributional adjustments, which is quite a different matter.

Failure to distinguish between the problem of distributional adjustment and the problem of providing for the satisfaction of social wants leads to confusion on both counts. If the degree of distributional adjustment is tied to the level of the budget, some may favor an increase in the level of public services as a means of extending distributional adjustments, even though they do not support budget expansion on the basis of benefit taxation; and others, who would favor an expansion of the budget on this basis will oppose it because in practice it is related to an extension of distributional adjustments. Moreover, these relationships change with the level of taxation and the existing tax structure. While there was a time when the marginal taxpayer was the fellow with the large income, we are now in a situation where increased levels of public services largely involve increased tax contributions from (or exclude tax reductions for) people in the middle or middle to lower income groups. Thus the politics of the fiscal problem are changed and essential public services will go begging in the process.

BUDGET POLICY AND STABILIZATION

I now turn to my third function of budget policy, which is the use of tax and expenditure measures as a means of economic stabilization. The great achievement of the fiscal-policy discussion of the last 25 years is the by now fairly general recognition that fiscal policy must play an important role in economic stabilization. The old view that the budget should be balanced is applicable only if we consider our first and second functions of budget policy, and even here some temporary exceptions may arise. Once the stabilization function is intro-

duced, deficit finance is called for under conditions of potential depression, and surplus finance is called for under conditions of potential inflation. The point to be noted here is that the stabilization objective of budget policy can be achieved without contradicting the other requirements of budget policy, namely, efficient provision for social wants and the application of distributional adjustments.

Regarding the proper level of public services, this means that there is no excuse for make-work expenditures during a depression, just as there is no excuse for cutting essential public services during periods of high activity. Precisely the same fallacy is involved in both cases. An increase in public services during the depression is in order, only to the extent that the decline in private expenditures for some purposes (such as investment) frees resources which people may wish to allocate in part to the satisfaction of social wants; and a decrease in public services is in order during the boom only to the extent that people wish to divert resources from public use to meet an increased demand for resources for other uses. This sets the limits of the permissible adjustment: There is no justification for raising the level of public services merely to increase aggregate demand, since this can be done also by lowering taxes; and there is no justification for cutting public services merely to curtail demand since this can be done also by raising taxes.

Moreover, there is no need for permitting considerations of stabilization policy to interfere with desired distributional adjustments. Thus it was argued frequently during the thirties and forties that taxes on lower incomes should be avoided because this would undermine demand and that therefore a more progressive tax structure was needed; and vice versa for the current case of inflation where it is held that progression should be reduced to secure a shift of resources from consumption to investment, thus providing for increased capacity in order to check inflation. The argument makes sense in both cases if we assume that the total level of tax yield is given, but it breaks down if we allow for adjustments in the level of taxation. The level of taxation which is required for purposes of stabilization should depend upon the distribution of the tax bill, and not the other way round.

NET BUDGET AND SEPARATION OF ISSUES

To bring my point into focus, let me exaggerate a little and assume that there are actually 3 different budgets, pursuing respectively my 3 functions of budget policy. First, there is the budget to provide for the satisfaction of social wants, where taxes are allocated in line with a benefit principle of taxation. By its nature, this budget is balanced over the useful life of the services which are supplied. Secondly, there is the budget to provide for distributional adjustments, involving tax and transfer payments. By its nature, this budget is balanced as well. Then there is the budget designed to stabilize the level of demand. By its nature, this budget involves either taxes or transfer payments, proportional to what is considered the proper state of income distribution.

We may think of these budgets as being determined in an interdependent system, where the manager of each of the three branches

takes the action of the other branches as given.³ Having determined the three budgets, the Government may proceed to administer each budget separately. This would involve various sets of taxes and/or transfers for any one person. To simplify matters, it will be desirable to clear the tax and transfer payments against each other, and thus to administer one net budget policy only.

The actual tax and expenditure plan enacted by the Congress in any one year reflects such a net budget. This is of advantage as a matter of administrative convenience, but it blurs the issues. While it may be difficult as a matter of legislative procedure to determine independently each of the three subbudgets noted in my discussion, some lesser steps may be taken in the organization of the budget process, on both the executive and the legislative side, to move the problem into a better perspective. To say the least, an understanding of the three objectives as distinct issues is prerequisite to efficient budget planning.

The preceding discussion will suffice to show that it is exceedingly difficult to establish a simple set of principles by which to secure an

³ To illustrate, let me assume that there are two taxpayers only, X and Z. Assume further that the full employment income equals \$100, and that X's earnings are divided such that X receives \$70 while Z receives \$30. Now suppose that the Distribution Branch imposes taxes of \$10 on X and pays \$10 of transfers to Z, the desired distribution being such that X is to receive 60 percent and Z is to receive 40 percent.

Next, let me suppose that with an income of \$100, distributed in this fashion, private expenditure on consumption equals \$60 and that expenditures on investment equal \$30. Moreover, the manager of the Stabilization Branch is informed that expenditures for the satisfaction of social wants equal \$22. This means that total expenditures equal \$112 and are \$12 above the full employment level. To simplify matters, let us hold investment constant. In order to lower consumption by \$12 the Stabilization Branch will impose taxes of \$20, it being assumed that the ratio of consumption to income is constant at 60 percent. In order not to interfere with the distributional adjustment, \$12 will be paid by X and \$8 by Z.

The income of X now equals \$70 - \$10 - \$12 = \$48, while that of Z equals \$30 + \$10 - \$8 = \$32. Now suppose that both wish to spend 27.5 percent of their income on the satisfaction of social wants. Thus for the satisfaction of social wants taxes equal \$13.20 for X and \$8.80 for Z, with total expenditures for the satisfaction of social wants equal to \$22.

The three subbudgets involve the following transactions:

	X	Z	Total
Satisfaction of social wants:			
Goods and service expenditures.....			22.0
Taxes.....	13.2	8.8	22.0
Balance.....			00.0
Distributional adjustment:			
Taxes.....	10.0		10.0
Transfers.....		10.0	10.0
Balance.....			00.0
Stabilization adjustment:			
Taxes.....	12.0	8.0	20.0
Transfers.....			
Balance.....			20.0
Net budget:			
Taxes.....	35.2	6.8	42.0
Transfers.....			
Goods and service expenditure.....			22.0
Balance.....			20.0

Instead of collecting 3 separate taxes from X it will be more convenient to collect the total of \$35.20; and instead of collecting 2 taxes for Z and paying 1 transfer, it will be more convenient to collect net taxes of \$6.80. We thus have net tax receipts of \$42 which after allowing for goods and service expenditures of \$22 leave us with a surplus of \$20, equal to the surplus in the stabilization operation. A similar illustration might be given where the stabilization operation involves a deficit, in which case there appears a corresponding deficit in the net budget. Finally note that the distribution of the tax bill in the net budget is more progressive than that for carrying the cost of social wants, but less progressive than that involved in the distributional adjustment only.

efficient determination of public expenditures. This task involves the determination of the total budget plan, including the revenue as well as the expenditure side, and it comprises quite distinct sets of objectives or functions of budget policy. The issues involved are the more difficult as they cannot be solved, or be solved in part only, by the ordinary tools of economic analysis. The political process of decision-making becomes an inherent part of the problem.

At the same time, the complexity of the problem establishes no presumption that the use of resources for the satisfaction of social wants is less efficient than its use for the satisfaction of private wants. This must be kept in mind if we are to see the problem of social-want satisfaction in its proper perspective. While it is obvious that any expenditure objective, once decided upon, should be accomplished at minimum cost, the objective of efficiency in public expenditure planning must not be confused with minimizing the level of such expenditures. By the very nature of the budget as an allocation problem, the danger of inefficiency arises with insufficient as well as with excessive outlays.

SOME PROBLEMS IN OPTIMIZING THE LEVEL OF PUBLIC EXPENDITURES

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SUMMARY

In this paper I should like to discuss a few of the problems that are met with in the determination of the optimum level of Federal expenditures, with particular reference to stable economic growth. It may be useful to preface the more extended remarks with a brief summary of the major points that will be covered in the text.

It seems to me that there is a tendency on the part of many commentators on the problem of Federal finance to be unduly pessimistic on the effectiveness of the budgetary process in holding Federal expenditures to the level that makes a maximum contribution to aggregate social welfare. In an age in which economic resources are still scarce, public information media can be counted upon to call attention to any really serious misallocation of resources between the public and the private sectors of the economy, or within the public sector. It has to be conceded, of course, that the complexities of the budgetary process, and the obstacles to making close calculations with respect to the relative social desirability of public and private spending programs, provide room for much difference of opinion on the effectiveness with which our economic institutions allocate resources. What should not be conceded is the contention that these difficulties make intelligent budgeting of resources for maximum social welfare an unattainable objective.

In accordance with the relatively optimistic attitude adopted here toward the possibility of intelligent budgeting, two commonly held and widely divergent opinions are rejected. One is the view that the secular rise in gross national product entitles the Federal Government to proceed with additional social-welfare programs on some kind of automatic basis, and the other is the frequently expressed view that Federal expenditures are "too high," or that they have risen too rapidly. Both of these opinions beg the question by making tacit assumptions on which there is room for disagreement. It is merely an assumption that government is entitled to share in any definite way in the annual increments to national product; but on the other hand it is to be expected that as an economy grows, the absolute economic importance of government will grow with it. The job that has to be done is to determine how far and in what directions government functions should evolve when population, national output, and productivity are growing.

By restricting the discussion of Federal spending to problems of economic growth, we exclude two types of programs. Day-to-day housekeeping expenditures, though both affecting and affected by economic growth, are not a primary consideration. Moreover, Fed-

eral programs which may be definitely classed as social consumption are not directly relevant. A problem is posed in practice, however, in differentiating between programs which increase the capacity of the economy to produce goods and services (or to make progress in some broader sense), and those which merely contribute to current social consumption. The difficulty is, of course, that many programs have aspects of both. Examples which readily come to mind comprise most of the major Federal nonmilitary programs: Federal aid to schools, hospitals, residential construction, depressed areas, slum clearance, highways, aid to small business, social security, and the like. In passing judgment on the admissibility of particular programs we should be careful to distinguish between their social consumption aspects and their capacity for contributing to growth. Both are equally relevant to social welfare; but it is necessary to face up to the implications of selecting a given ratio between the two objectives, and this involves taking a long look at every proposed program with this distinction in mind. This is an aspect of Federal budgeting which has not received sufficient attention in the past.

A possible defect in our capacity for properly evaluating the net welfare contribution of Federal expenditures for economic development stems from the fact that there is less resistance to spending programs that can be financed out of an automatic rise in tax receipts as national income rises than there is for programs that require a rise in tax rates. The reason is that public opinion seems to be fairly united on the view that tax rates, and especially income-tax progression, have reached (or surpassed) permissible peacetime limits. Implicitly this means that the public believes that Federal spending has already gone somewhat beyond the point at which its net marginal contribution to national welfare is negative. The effect is that adequate consideration may not always be given to the relative impetus to economic growth (and thus to an ultimate rise in the tax base and tax yields) of development programs that initially, at least, require a rise in tax rates. This disability is not a prohibition, however, and it therefore is of interest to consider 1 or 2 points that bear on the effects on economic stability of a rise in Federal spending that is financed by a rise in tax rates.

One point is the possibility that destabilizing effects may arise out of an increasing divergence between the nominal and the actual income-tax rate structure when already high nominal rates are increased. The higher rate schedule stimulates individuals and firms to seek a multiplication of exemptions, and the distortions caused by the varying success of different groups may adversely affect investment. Another destabilizing effect of increased tax rates appears if increased excise tax rates, or increased rates of other taxes entering into cost of production, result in a rise in the Consumer Price Index. The consequences of increased tax rates are thus complex, and the particular mixture of inflationary and deflationary effects that is experienced depends on circumstances.

A discussion of the growth functions of Federal expenditure programs leads into the question of efficiency of Government operations. In this context efficiency is not closely related to the narrow concept of minimization of waste in Government offices, but is concerned with the question of the scope of Government functions, and the coordina-

tion of the objectives of the various Government agencies. In other words, concern is with the efficiency of resource utilization by the Government within the context of efficiency of resource utilization for the economy as a whole. It is this broader concept of efficiency, rather than the narrow "office-manager" concept, that ought to be used in determining the limits and judging the effectiveness of Government functions.

Finally, this paper calls attention to an aspect of the impact of a high Federal spending floor on economic stability. To a significant extent the knowledge that Federal spending is high, and will remain high, is a substitute for a large volume of liquid assets in providing a stimulus to private investment. So long as the monetary authority refrains from taking strong steps to discourage private borrowing, firms and individuals can borrow from banks (and thus create purchasing power) with the certainty of a massive basic demand for products on the part of the Government. Thus an important contribution is made to investment for growth in the private sector; but in these circumstances the assurance of price stability appears to call for a more determined Federal Reserve policy than would be needed in the absence of the Government spending floor. In other words, there may be a bias toward optimism which might on occasion have to be counteracted in the interest of inflation control. It can be argued that interest rate policy may therefore have to be supplemented with other types of control, particularly controls over investment through internal financing.

THE PRECONDITION OF EFFECTIVE BUDGETING

The public finance theorist tells us that the cost of producing an additional unit of public goods is the sacrifice of real private consumption or investment that is necessary to release the resources needed to give effect to the increase in public spending. In order to maximize social welfare, therefore, public expenditures should be pushed to the point at which the social satisfaction obtainable from an additional (or marginal) dollar spent on publicly produced goods no longer exceeds that of a dollar spent on privately produced goods.¹ (Publicly produced goods are defined here in a broad sense, including not only government services, but also the net satisfactions derived from government transfer expenditures.)

This concept is basic, and underlies the budgetary procedures in any political system. The principle is being applied whenever an intelligent decision is made, but it is qualified under rule by pressure groups if the wishes of the strong are accorded a heavier weight than those of the weak (for example, producers versus consumers). It is true that we have an exceedingly difficult hurdle to surmount when we attempt to translate this marginal principle into practical action.

¹ At first blush one hesitates to state a proposition that would appear to be, in theory at least, so obvious. That there is nothing obvious about its practical political application is apparent from the manner in which (1) protagonists of increased provision of governmental welfare services simply assume that the more of these services the economy produces, the greater the net contribution to social welfare, and (2) exponents of Federal tax reduction assert that "expenditures have risen too rapidly and have reached too high a level." In seeking the optimum level of public services in a mainly free enterprise economy, this is, of course, precisely the issue that must be debated. The implications of the problem can be clearly seen if one consults Governor Stevenson's campaign statement entitled "A Program for the True Economy: Where Is the Money Coming From?" and the comments thereon by selected economists, *Review of Economics and Statistics*, May 1957, pp. 134 ff., and the Committee for Economic Development, *Tax Reduction and Tax Reform—When and How*, May 1957, pp. 10 ff.

Developed by economic theorists for use in thinking about the optimization of public expenditures, it is subjected to severe criticism (possibly too severe criticism) by those who are experienced in the budgetary process and are impressed by the complexities of political decision making.² (1) It assumes substantial knowledge on the part of the public of the available alternatives; (2) it supposes that substitutions between public and private spending can be made in small enough units so that some attention is paid to the sacrifice in the consumption of private goods that must be made when government spending is increased; (3) it assumes that the welfare contributions of alternative public expenditure programs are comparable; (4) it takes it for granted that the general public and its legislative representatives make a reasonably successful attempt to reconcile future social welfare with present social welfare; (5) it assumes that account is taken of the fact that a particular objective, like growth or a welfare program, produces incidental adverse, social effects, and that some government-produced goods hurt one group of individuals while benefiting others, or while benefiting society as a whole (for example, an airport in a residential area); and (6) it assumes that it is not a fatal defect of decision-making that many individuals and groups favor or oppose on purely dogmatic or sentimental grounds increases in the relative importance of Federal expenditures within the framework of aggregate spending. If we consider these points in order, the practical difficulties come into focus at once, and not the least of them is the irreconcilability of opposed value judgments, upon which the economist has no special competence whatever to give an opinion.

Thus, (1) no one has ever suggested a completely satisfactory means of providing the knowledge of alternatives that is needed to permit full weight to be given in our fiscal thinking to the public and private goods and services that must be forgone when a decision is taken to tax and to spend for a particular purpose; (2) even if such a tool were perfected, the fact that no price is too great to pay for adequate self-defense, for example, is an indication of the impossibility of making close, marginal calculations in Federal spending; (3) our ideas with respect to comparability of the satisfactions from alternative forms of public expenditure are fuzzy; (4) little success can be expected from an attempt to reconcile future with present social welfare so long as economists and others divide themselves neatly between those who believe we should encourage present consumption at the expense of present investment and future consumption and those who believe that we should do the reverse; (5) surprisingly little attention

² See, for example, Jesse Burkhead, *Government Budgeting* (Wiley, 1956), pp. 42, 44, who states that "Marginal social benefit and marginal social cost are attractive phrases, but they are devoid of explicit content," and with respect to the allocation of public expenditures, "At the time when decisions are in process, marginal theory provides no guidelines for the allocation of public expenditures." This statement appears to be rather extreme, since budget making and budget cutting are by no means always across-the-board.

³ See the opposed testimony of several prominent economists at the hearings before the Joint Economic Committee in June of this year: *Fiscal Policy Implications of the Economic Outlook and Budget Developments*, Federal Reserve Board Chairman Martin has stated (Senate Finance Committee hearing, August 19 of this year) that present inflationary pressures arise out of overspending and undersaving (and that the Federal Government may be the "chief offender"). The counterargument would be that a high ratio of consumption to income makes an invaluable contribution to full employment, which is itself indispensable to rapid capital formation. But, again, it has been argued that the rate of capital formation in the fifties has been somewhat less than that of the twenties, with the implication that the saving-consumption ratio might well be increased. When the question is raised whether the level of saving in the twenties may have been too high to sustain full employment, the elusiveness of this whole issue becomes apparent.

is ever paid to the long-term adverse welfare effects of public spending programs; and (6) to the extent that individuals and groups have preconceptions and particularistic points of view, the conditions are lacking for an objective, socially oriented approach to welfare economics.

All these obstacles to applying the marginal principle in order to ascertain the correct level and distribution of Federal expenditures are serious ones, and they stand out ominously in the dark shadows of the budgetary process. They have to be borne in mind when we are considering the net contribution that can be made by Federal spending and taxing to the maintenance of the maximum rate of growth (assuming that we want to maximize growth) that is consistent with the minimum acceptable degree of economic stability. Yet they are not insurmountable so long as the issues are debated in the full glare of publicity. Indeed, to take any other view would be to admit that public spending decisions are completely haphazard, and, despite all the shortcomings of the budgetary process, this is patently untrue.

THE ROLE OF THE FEDERAL GOVERNMENT IN ECONOMIC GROWTH

In consonance with the terms of reference of these hearings, I shall limit myself to a discussion of Federal expenditures for growth and stability. At the same time, an adequate level of current maintenance expenditures and spending for protection is an indispensable prerequisite to growth, if not to stability, and both these types of expenditures are themselves dependent on the rate of growth. Consequently, they are likely to rise over the long run, and thus they are necessarily always under consideration, implicitly if not explicitly.

At the outset it may be noted that a public spending policy aimed at encouraging growth exerts complex effects on economic stability. Federal expenditures on production factors place a floor under aggregate demand, and, to that extent, reduce the danger of both cyclical downturns and secular stagnation. On the other hand, a concomitant of growth is a rise in the flow of goods and services, which, taken by itself, is a deflationary factor. The net effect cannot be easily foreseen very far in advance. Moreover, unless great care is taken in the choice and magnitude of governmental projects, the private sector may react adversely to increased competition for limited supplies of savings and scarce resources. In contrast to the possible deflationary effects of government spending for growth are the inflationary implications. The acceleration of rates of growth may provide the background for creeping inflation, and to avoid this a careful balance needs to be kept between public and private investment programs. Moreover, there is always some danger that the public may ultimately react to a lengthy period of creeping inflation by shifting into assets that are believed to be inflation proof. If this occurs, there is no guaranty that the pace of inflation will not be greatly accelerated.

It is easy to approve, in general terms, any rise in aggregate spending that is expected to contribute to stable growth. The trick is to determine, of the expenditures that can be made for this purpose, what proportion should be undertaken by the Federal Government. This problem has roots that are deep in the Nation's history. It will

be recalled that Alexander Hamilton held to the view that growth would be stimulated if the National Government would take the lead in economic life, whereas his opponents divided themselves between two positions; (1) that the private sector could do the job best unaided by government except in essentials like protection of life and property, and (2) that the States, rather than the National Government, should assume responsibility for certain risky and expensive developmental investment projects. In seeking to maximize growth, we must accept one important human characteristic. It is a rare individual who concerns himself much that growth should be stable, provided only that it is rapid. Feelings run strong, however, on the ratio in which the public and private sectors should share responsibility for spending for growth; and purely economic judgments are modified, and may at times even be submerged, by political philosophies.

The feeling is widespread that we are helpless in stemming the tide of Federal spending. But what is meant by this? Net budget expenditures, which were 15.3 percent of gross national product in fiscal 1949, after rising to 20.4 percent in fiscal 1953, had declined again to 16.1 percent by 1956. Gross national product has been rising steadily, while Federal spending has been subject to considerable fluctuations, primarily in response to the military situation. Private spending has likewise been rising, however, and there is no a priori reason why a long-term rise in gross national product should not consist, in part, of publicly produced goods and services. Indeed, it might be a contribution to clarity of thought if we ceased making regretful references to our inability to prevent a secular rise in Federal spending. Economic growth implies an expansion in the output of both public and private goods.

It is not impossible, moreover, that balanced growth may call for an increase in the ratio of public to private goods during certain phases of economic and political development. The latter statement receives support from the relatively sharp rise in State and local expenditures in recent years, much of which has been in direct response to a public demand for new types of State and local services. Many of them, like hospitals, highways, and standards of police protection, are at once cause and effect of economic growth. A similar point applies to some Federal expenditure programs. It might be found, for example, that a rising proportion of Federal spending to gross national product would be justified by the need to react to the effects of growing international pressures which themselves are a corollary of growth of populations and of the expansion of economic aspirations of all nations. To the extent that this were true, a rising trend of Federal expenditures would be as much a result of growth as a cause of it. We may have to reckon with the possibility, as the expensiveness of national defense rises, that the ratio of Federal spending to national income will rise.

RISING GROSS NATIONAL PRODUCT AS A JUSTIFICATION FOR EXPANDED FEDERAL PROGRAMS

A line of argument has often been set forth, and recently discussed by a symposium of economists, the acceptance of which would, indeed, greatly complicate the task of making an objective assessment of the

relative satisfactions to be derived from public and private spending. This is the view (mentioned in footnote 1) that, even with present tax rates, prospective economic growth can be counted upon to finance automatically such desirable public services as medical and unemployment insurance, a really adequate system of public education, slum clearance, the development of natural resources, and an expanded concept of old-age security. If this argument is taken to mean only that the automatic annual increase in Federal tax revenues can be counted upon to finance some rate of secular rise in Federal expenditures, then it is not very interesting as a basis for establishing future spending policy. But if it is meant that we have some slack to play with in the budget, and that surely we can earmark a portion of the annual increment in national product for welfare purposes, or, indeed, for any particular objective, we are perilously close to being in the position of short circuiting the budgetary process. The essence of budgeting is to reexamine constantly the relative merits of the performance of functions by the public or private sector, as well as the merits of performance versus nonperformance of the function.

Budgetary experience in this country runs strangely counter to the view that there is no problem to be faced in financing a planned secular increase in Federal welfare and other programs simply because at constant tax rates the total rise in Federal tax receipts over some period of years will be several times the total cost of the programs. It is a matter of record that revenues have not been, and are not now, adequate at present tax rates to finance all the programs that are urged upon (and by) the American people each year. Where, then, would we be if we went ahead and earmarked funds for an expansion of Federal programs?

The immediate answer would appear to be that either tax rates would have to be raised, or other spending programs would have to be curtailed. In fairness, however, this answer needs to be qualified. Of the Federal programs mentioned above, some contribute to economic growth and some do not (or do so to a very minor extent). Those which do not (namely, all those which come under the rubric "the better life") would be a deadweight charge on future budgets. But those which do facilitate growth also serve to enhance taxable capacity, and in some instances they may do so relatively to alternative programs undertaken in the private sector.

It seems imperative that the public should always be informed in advance of the cost to the Nation, in terms of foregone possibilities of growth, of an option in favor of a diversion of resources toward the better life. The voting appeal of liberalized social-security benefits, for example, is very great. Therefore we need estimates of the cost to the private sector, in terms of taxes, that must be paid over the long term, taking account of increased revenue needs due to population growth and to changes in the age distribution of the population. Moreover, account must be taken of the forms which demands for further elaboration of the good-life concept are likely to take, merely in consequence of the acceptance of initial and successive phases of the program. For in accepting a program of this sort we are not only committing ourselves to the cost of foreseeable welfare and other government services. In addition, we are assuming responsibility for the automatic increases in the cost of these programs that result

from rapid population growth; and we are advancing one step along the road toward the acceptance of at present unthought-of spending programs, since the achievement of one goal opens way for the struggle for another.

It is important to note that nothing in this discussion should be construed as representing basic opposition to an expansion of Federal spending programs intended to contribute to growth and long-term social welfare. We need a healthy competition between the public and private sectors for the privilege of implementing the investment decisions that will optimize the utilization of resources at the disposal of the economy. Given the criteria of optimization, the test is relative efficiency, and there is no reason to advocate reduced expenditures merely because this permits a reduction in tax rates. But the good life ought not to be confused with economic development. We should be quite clear on the distinction between those Federal expenditures that can reasonably be considered to contribute to growth and those which are synonymous with consumption. This distinction is often obscure in the realm of public spending.

Let us reject, therefore, the view that our dearest objective is always to strive to reduce Federal spending, however desirable judiciously spaced intermittent economy drives may be. On the contrary, we should be prepared to consider acceptance of an expansion of Federal programs when it can be established that they will make a greater contribution to desired growth, per dollar of expenditure, than would private investment programs. No purely general discussion can enter into the manifold details that have to be sifted in giving effect to this judgment. One may simply state the belief that this is an area in which the planning principle, because of its obvious usefulness, should be acceptable to everyone. At what point, for example, does investment in educational resources cease to contribute to growth and become a form of consumption? Remembering the serious political consequences of "overeducation" in certain European countries during the interwar period, we may ask whether we do not need a detailed forecast of the economy's future needs for trained personnel in order that intelligent decisions can be taken with respect to what the desirable contribution of the Federal Government to education should be. (Similar exhaustive investigations ought to be made, and kept current, with respect to all long-range Federal programs.) It is quite clear that productivity will be raised by improved standards of education only up to the point at which the working force is optimally distributed among job opportunities. Beyond that point educational expenditures become a form of luxury. This may be all to the good socially; but it will not necessarily contribute to growth.

HIGH TAX RATES AS AN OBSTACLE TO EXPANDED FEDERAL SPENDING

It is quite a step from the argument that a portion of the annual increment to real national income should always be earmarked for Federal spending to the view that at some point positive steps may have to be taken to curtail the expansion of Federal programs. If we look at economic growth alone as a criterion for Federal expenditure policy, we do not discover at the present moment any compelling argument in favor of the curtailment of Government spending. Notwithstanding some recent slowing down in productivity incre-

ments, there appears to be no serious dissatisfaction with the current rate of growth in real national product, nor with the part played by the Federal Government in providing the basis for it.⁴ On the other hand, we must reckon with the eventuality that, taking into account the possibility of the need for a rise in military expenditures, the level of desirable Federal spending programs may rise sufficiently to call for higher tax rates. If this were to occur it would be necessary to subtract from any contribution made by increased Federal expenditures to economic growth the adverse effect that was produced on private investment and initiative by higher tax rates, and hence on the rate of growth in the private sector.

At the risk of repetition, it should be emphasized that this problem is nonexistent to the extent that the rising tax base associated with rising gross national product provides each year an automatic increase in tax revenues. Under current tax rates, and with current annual increments to GNP, about \$3 billion of additional revenues come automatically into the Treasury each year. Only a portion of this, however, is available for programs designed to stimulate growth. Not only does this figure have to be deflated for a rising price level, but also account has to be taken of automatic increases in Federal spending under a wide variety of programs which are themselves a function of growth in population, for example, grants to States and localities, highway programs, collection and analysis of statistics, services to agriculture and industry, and so on. Even when this is done, however, a modest residual is left which might be employed to finance new governmental programs without the aid of new taxes. But no one can predict for many years the cost of maintaining international political and military equilibrium, and it is therefore conceivable that in the light of urgent national defense projects desirable civil spending programs could not be financed solely out of automatic annual increments of tax revenues.

DESTABILIZING EFFECTS OF INCREASED TAX RATES

It is rather unlikely that at present high income-tax rates public opinion would be favorable to tax increases even in order to finance growth programs that might ultimately contribute more to national income (and to the tax base) than would the private investment programs that would have to be sacrificed unless taxes on consumption were increased.⁵

Nevertheless it is of some interest to glance at a possible consequence of any significant further rise in personal income tax rates. There is good reason to believe that pressure for exemptions and favorable tax rates under the income tax are some kind of a function of the severity of the nominal rate structure. If this is so, then a further rise in income-tax rates would tend to shift the income-tax burden still further in the direction of those individuals and proprietorships which are not in a position to benefit from such conces-

⁴ Moreover, despite the large space devoted to the inflation problem in the press, there is so far little evidence that the public feels great concern over a gradually rising price level (though this situation could change drastically). On the contrary, many policymakers show signs of being more fearful of temporary periods of declining prices than of a long-term upward trend in prices.

⁵ It is hardly to be expected that if tax-rate increases were found to be necessary, the income tax would be exempt.

sions as percentage depletion, accelerated amortization, conversion of ordinary income into capital gains, and so on. Consequently, those who were unable to escape the effects of the higher nominal rates would invest less (because of higher marginal tax rates), and would, moreover, have smaller after-tax incomes. But those who did manage to avoid being subject to the higher rates would have no incentive or capacity to increase investment (ignoring the income effects of the additional Federal spending). Consequently there would be a net adverse effect on that part of economic growth that is accounted for by investment in the private sector.⁶

One argument in favor of holding any rise in Federal peacetime expenditures within the limits of the automatic increment of tax receipts determined by current rates of growth in gross national product is the difficulty of finding new revenue sources that are not destabilizing. As stated above, further rises in personal income-tax rates would probably have disincentive effects on those who are unable to escape the nominal rates. With respect to death taxes, there is scope for increased rates and lower exemptions, but this scope is limited. The other major alternatives, sales, and excise taxes, have a potentially serious defect if they are exploited during a period of creeping inflation, or when there is a delicate balance in the economy between inflationary and deflationary forces. The Consumer Price Index of the Bureau of Labor Statistics, which is the index used in most wage-escalator agreements, includes "sales taxes, retail excise taxes, customs duties, and all manufacturers' and processors' taxes passed on to the consumer." Thus any increase in the rates or coverage of these taxes causes an automatic rise in the Consumer Price Index, and therefore in all wage rates either formally covered in escalator agreements or in practice tied to the cost of living in wage bargaining. The number of workers directly or indirectly covered under formal escalator agreements (nearly 4 million at the present time) is of special significance, for there is no room for doubt that their hourly wages will increase in accordance with specified rises in the Consumer Price Index. At the same time it is precisely during a period of rising prices that we find the maximum number of workers covered under escalator agreements.⁷

In view of the fact that the two effects mentioned above tend to offset each other (higher income-tax rates are here viewed as deflationary, and higher excise-tax rates as inflationary) it may be reasonable to infer that some combination of rises in the rates of each tax could be found which would be reasonably neutral to inflation. An important difficulty, however, is the distortion caused by the mixture of unemployment and rising prices. Higher income-tax rates would tend to discourage output, while higher sales-tax rates would stimulate

⁶ A possible exception to this statement may be of interest. If we start with a sufficiently progressive rate structure in the higher brackets, the pressure for exemptions and special treatment may be very great if income tax rates are raised still further. If this is so, an increase in the nominal rate structure could actually result in a lessening of the tax burden on the higher-income groups. (This is what would actually occur if a very high rate structure were to lead to the exemption of realized capital gains from the income tax.) Conceivably the consequence might be a net increase in investment by them, since in the extreme case assumed here their after-tax incomes would be higher under the higher nominal tax rate structure. The practical application of this case is probably unimportant, but it serves to call attention to the nature of the economic effects of a high nominal income tax rate structure, which are usually ignored in favor of discussions of equity effects.

⁷ Moreover, the recent growing popularity of the longer term labor contract had already led to wider adoption of the clause even in advance of the price rise of 1956.

price and wage rises. The situation would be one of a mixture of rising prices and soft spots. The very evident confusion of economists in trying to explain economic trends in the circumstances of the past year or two, when a somewhat similar situation has developed for other reasons, is testimony to the obstacles which would face an attempt to prevent the appearance of destabilizing effects if substantial additional tax revenue should come to be needed.

There is, to be sure, an alternative tax which does not suffer from the "cost-inflationary" defect of sales taxes. This is a spending tax of the type proposed by the Treasury in 1942. This tax, levied at progressive rates on an individual's spending, provides no mechanism whereby the tax shows up in the Consumer Price Index, and therefore contains no element of cost-push inflation.⁸ At fixed rates, and with relatively low personal exemptions, this tax could be used to finance an increased amount of Federal investment expenditures without disincentive effects on either private investment or personal consumption. A Federal spending and tax policy could thus be evolved which would be consistent with both growth and price stability, though at a political cost. The cost would be a substantial increase in the role of government in the overall planning of resource use. But this eventuality is really implied anyhow in a fiscal program aimed simultaneously at growth and economic stability.

A CRITERION OF EFFICIENCY OF GOVERNMENT SPENDING PROGRAMS

It is difficult to conceive of a discussion of government spending functions that omits reference to the question of economy and efficiency in Federal expenditures. The greater the efficiency with which government performs its services, the easier it becomes to gain public acceptance of the diversion of a given quantity of resources from private to public use. Unfortunately, as everyone knows, it is far from simple to compare efficiency in the private and public sectors. The efficiency of private enterprise is tested in terms of bankruptcies and declines in capital values that are often associated with bargain purchase by a more aggressive management group. No such objective market test is at hand for government services, and this fact not only complicates the problem of ascertaining the efficiency with which government agencies operate, but makes the public sector vulnerable to frivolous, along with the justified, charges of inefficiency. It is often forgotten, moreover, that it is no easy matter to measure the efficiency of private enterprise. Furthermore, government action itself contributes to the degree of efficiency that is achieved by the private sector. Again, subsidies, favorable tax treatment, tariff protection, and the like may find legitimate support on one ground or another; yet they obviously widen the range within which inefficiency on the part of private management can conceal itself. I would contend that relative efficiency, in any narrow sense, does not provide much of a basis for helping us decide the proper scope of governmental functions. In any event, each government agency ought to be glad to

⁸ It might be worthwhile for Congress to reexamine the good and bad points of this tax in the light of the growing importance of wage cost-of-living clauses, and of the possibility that valorization clauses may sometime become increasingly popular in many types of contracts besides wage agreements (for example, index bonds, variable annuities, escalated social security payments, etc.). For a recent searching analysis of this tax see Nicholas Kaldor, *An Expenditure Tax*, George Allen and Unwin, Ltd., London, 1955.

subject itself to a periodic checkup on efficiency, and to report its progress in reducing cost per unit of output.

In a broader sense, the question of efficiency borders on that of the determination of the limits of government functions. Here efficiency is conceived of, not in the technical sense of output per worker, but with respect to the form that the long-term objectives of government programs ought to take in the light of forecasts of the future needs of the Nation. In other words, efficiency is conceived of in terms of output per unit of resources. In this area Congress might sponsor technical studies, perhaps undertaken by the staffs of appropriate joint committees, of the alternative short- and long-term objectives of major national welfare and other spending programs. This would give much-needed assistance to administrative agencies in making their self-evaluations, and would at the same time help to keep decisions on the scope of government functions from being made on opportunistic grounds. Certainly these decisions are ultimately political ones; but holders of public office would clearly benefit from analyses made by technical experts, and important public spending issues would receive the benefit of timely clarification. One is struck with the need for maximum agility on the part of both government and private enterprise in making their decisions to devote resources to promising developmental projects, and in determining upon a method for sharing responsibility for them. Any equilibrium between public and private spending plans must be tentative and subject to change. There is no room for dogma in allocating functions between government and private enterprise. We are engaged in a constant process of trial and error, and we can maximize the rate at which we learn, only if programs are constantly reassessed.⁹

THE IMPACT OF A HIGH FEDERAL SPENDING FLOOR ON ECONOMIC STABILITY

Up to this point we have been primarily concerned with the question of the impact of Federal spending programs on growth. It is necessary also to take account of the ways in which the floor of Federal spending, as well as probable changes in Federal spending levels in response to fluctuations in income and employment, react upon spending in the private sector. The importance of doing this lies in the fact that the level of private investment spending (and through the multiplier, consumption spending) is partly, indeed significantly, determined by the fact that Federal spending is high, will remain high, and is likely to rise on the advent of any serious unemployment. The world situation assures a minimum Federal budget in the vicinity of \$70 billion. Moreover, the great expansion of economic activity in recent years has necessitated a substantial rise in State and local programs; and since these promise to continue to increase, private long-term investment decisions are made in the light of knowledge that public demand for resources will rise secularly. It is true that cut-backs in Federal spending in the interest of economy add their weight to the soft spots caused by specific overproduction, inventory reductions, and lagging consumer demand. But even those who stress these

⁹ A case in point is the difficulty of coordinating the objectives of different Federal agencies. For example, the Department of Agriculture is continually concerned with the problem of excess capacity in agriculture, while the Bureau of Reclamation's irrigation program obviously adds to it.

phenomena, and who believe that maintenance of expansion rates rather than the danger of inflation is the major economic problem facing this country today, would probably grant that these adverse signs are primarily structural and temporary in nature.

A high floor under government spending has a direct effect on economic development. It also has an indirect effect by way of its encouragement or discouragement to private investment spending. Provided that aggregate spending is not so high that interest rates are driven up to the point of discouraging private investment, a high level of government spending is a favorable sign for full employment and for the contribution of the private sector to rapid economic growth. Viewed in the broadest possible terms, one of the tasks of the Federal budgetary process is to take a position on the rate of private capital formation that is the optimum precondition of the desired rate of expansion of Federal (and State and local) developmental programs. Economic progress is maximized when the correct balance is struck between public and private spending programs.

Permanent full employment (with no more than relatively minor recessions) in a free-enterprise economy is an achievable objective provided two hurdles can be surmounted. First, the private sector must be permanently convinced that the demand for resources for public use will rise indefinitely in response to growing demand for the kinds of programs that are best undertaken by government. In the public sector there is no important question of a lack of purchasing power; what has to be established is the reasonable certainty of a public desire for the expansion of governmental programs. Second, some kind of procedure has to be worked out whereby competition between government and private enterprise for limited resources is not allowed to lead to an inflationary situation that is serious enough to be a prelude to crisis and possible collapse in the private sector. The problem is complicated by the fact that within the private sector itself specific overproduction and miscalculations are integral to the investment decision-making process, and serious deflationary consequences can ensue if rapidly rising interest rates happen to coincide with inventory reductions and cutbacks resulting from temporary overproduction.

Any defects attributable to monetary and fiscal policy as instruments of inflation control are magnified under circumstances of high level Federal spending and taxing, and particularly so under a philosophy of assuring government its share in the secular rise in national product and in responsibility for rising national economic potential. The problem arises out of the fact that while monetary and fiscal policy are suitable instruments for discouraging private spending, they are quite irrelevant to the control of Federal (though not, of course, State and local) spending.¹⁰ Sharp criticism has been directed

¹⁰ This is a worldwide phenomenon. Considerable complaint has been voiced in a number of European countries that fear of inflation leads governments to impose controls on private investment and consumption, while no similarly effective instruments are at hand to curb ambitious public spending programs. One difficulty is that whereas controls over the private sector can be made to operate more or less continuously, national governments often tend to delay moderating action with respect to their own spending programs until a serious international monetary crisis has arisen. Some method needs to be evolved that will encourage national governments to submit to a more continuous regulation of spending programs in the light of what the governments themselves expect the private sector to accomplish for economic growth and stability. In a word, the instruments of economic control at the disposal of free enterprise were developed prior to the appearance of national governments as massive users of economic resources, and are inadequate to cope with present-day problems.

in recent months against a monetary policy that is credited with being effective in stiffening the terms of borrowing to potential homeowners, small and new business, and farmers. The Treasury's difficulties with debt financing are indeed well publicized; but while borrowing problems discourage private investment and consumption spending, they do not enter into legislative spending decisions. This phenomenon has been complained of in many countries, centrally controlled and decentralized alike, in the postwar decade, and it appears to be part of the price that has to be paid for full employment.

Recent discussion has called attention to a further complicating element in inflation control.¹¹ Monetary policy is alleged to suffer from the serious defect that its major influence is exerted in restricting investment in the competitive sections of the market; big business and oligopoly can utilize price policy and reinvested earnings as a defense against monetary control. In my judgment it is not necessary or desirable to carry too far the basically valid point that monetary policy can never be as important an instrument of control as it was thought to be in an era when the commercial banking system occupied a highly strategic position in the aggregate credit flow. Institutions have changed; they have not been swept away. The correct course would appear to be to forge supplementary political institutional weapons that will assist in the control of investment by large enterprise and by the Federal Government. The dice are loaded in their favor in the struggle for scarce resources. Moreover, there is always the threat that any sign of weakening on the part of the relatively competitive segment of the private sector of the economy will be taken as an invitation to government or big business to step in and fill the gap. There may be cogent reasons why further concentration of economic power in the hands of the Federal Government and big business is desirable. But it would seem imperative at the earliest possible moment to establish ground rules which, if there is found to be an imbalance of power at the expense of the private sector, and specifically at the expense of new and small enterprise, make it possible and likely that steps will be quickly taken to redress it.

¹¹ Cf., for example, J. K. Galbraith, *Market Structure and Stabilization Policy*, Review of Economics and Statistics, May 1957, pt. V.

GOVERNMENT AND THE MARKET

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THE DIVISION OF LABOR BETWEEN GOVERNMENT AND THE MARKET

Most of the great problems of social policy in this century involve the division of labor between government and the market. The conditions of freedom and equity, of order, efficiency, and progress depend upon our answer to the question: What things should be done by group decision operating through the political process, and what things should be done by individual decisions mediated by the mechanism of the market? The line which divides these processes is neither intuitively obvious nor eternally fixed; it must be decided by free discussion among the responsible citizens of a free society; it changes according to the circumstances of the times, the understanding of the citizenry, and the capabilities of the Government. Nevertheless, there are some general principles which can, or should, guide rational discussion of this great problem.¹

What are the peculiar characteristics of these two processes? What ends do they seek? How can they work together to achieve these ends?

The political process

In any society, the political process is concerned with the allocation of power. In a democratic society that process is designed to secure a group consensus on specific issues of social policy. The consensus is always subject to discussion and modification, but, while it remains in effect, the rules of the game compel individual dissent to be subordinated to group decision. An importer of Swiss watches, for example, may doubt the wisdom of protective tariffs, but, so long as these duties stand on the schedules, he foots the bill and harbors his questions till the next election.

If we take a broad and cursory view of the political process, we find that the scene is occupied by the following groups of actors:² First, the electorate, the citizens, who exercise the franchise in the light of their values, their information, and their interests; second, the political parties, who propose issues to the electorate; third, the

¹ For background, see Frank H. Knight, *The Ethics of Competition, The Ethics of Competition and Other Essays*, reprint edition, London, George Allen & Unwin, 1936, especially pp. 49-58. Classical discussion of the problem can be found in Adam Smith, *Wealth of Nations*, book V, ch. i: Of the Expenses of the Sovereign or Commonwealth, and John Stuart Mill, *Principles of Political Economy*, book V, ch. i: Of the Functions of Government; ch. xi: Of the Grounds and Limits of the Laissez-Faire or Non-Interference Principle.

For a summary of current economic thought, see Fritz Machlup, *The Division of Labor Between Government and Private Enterprise*, *American Economic Review*, XXXIII (March 1943), pp. 87-104. For a sociological treatment, see Max Weber, *The Theory of Social and Economic Organization*, translated by A. M. Henderson and Talcott Parsons, New York; Oxford University Press, 1947, ch. ii. Also consult Henry C. Simons, *A Positive Program for Laissez-Faire, Economic Policy for a Free Society*, Chicago, the University of Chicago Press, 1948.

² This is an expanded version of the list given in Ernest Barker, *The Parliamentary System of Government, Essays on Government*, second edition, Oxford, the Clarendon Press, 1951.

legislature or parliament, who are selected by the electorate, from the parties, to represent their interests and to transplant the general consensus into specific laws; fourth, the executive, who translates both the laws of the legislature and the consensus of the body politic into specific acts of policy; fifth, the permanent bureaucracy, who carry out the details of executive policy and perform the routine tasks of government; sixth, the judiciary, who interpret the law and adjudicate disputes.

The role-structure of the political process is extraordinarily complex. Equally complex are the functions carried on within this structure. For, in all its variety and complexity, the political process represents the most characteristic activity of organized society; namely, problem solving according to specified rules, under given conditions, in an environment of uncertainty. Despite the humbug and chicanery, the oratory and ideologies which lend color and interest to the process, political choice in a democratic society is the solution of common problems through group discussion. Discussion is the essence of democracy. And since the solution of the problem cannot be known beforehand, the outcome of the process is indeterminant; it cannot be predicted from given conditions. In this respect it differs radically from the market process in which the given conditions of consumer preferences, industrial technology, and available resources dictate the outcome within tolerable limits of accuracy.

Another outstanding feature of decisions made through political discussion is their uniformity. They must be, so to speak, the same for everyone—everyone, that is, whose circumstances are similar. By contrast with the market mechanism, individual differences are not taken into account save through the ad hoc device of administrative discretion. For example, if the political process determined the disposition of goods among consumers, every household might have an annual dividend of 4 pairs of shoes and 5 quarts of whisky, even though a barefoot teetotaler would find these goods superfluous. On distribution day he would truck them to the public square and barter them for something else, a costly and annoying expedient which the price system renders unnecessary.

Despite the indeterminacy of the political process in general, the roles of some of the actors can be identified and tentative predictions ventured. The individual citizen, in his capacity as a voter, a lobbyist, and a political persuader, acts to maximize the satisfactions he receives from his government. Representatives act to maximize their terms of office. Political parties act to maximize the power they command which, under democratic conditions, is equivalent to maximizing the votes they receive.³ In this connection, political parties act as entrepreneurs and innovators. Just as entrepreneurs in the market economy design and offer for sale the commodities among which consumers choose, so political parties package the issues on which elections are decided. But the range of choices is much narrower for the American voter than for the American consumer. The voter, therefore, is confronted with a "tie-in purchase." To buy a box of apples, he must take a peck of leeks. To get a labor and taxation policy he likes, he may have to swallow a foreign policy he abominates.

³ Anthony Downs, *An Economic Theory of Democracy*, New York, Harper & Bros., 1957.

The differences between voting and purchasing also call for brief comment. In democratic societies, the rule is, "One citizen, one vote"—except for juveniles, prisoners, and migrants across political boundaries unable to establish legal residence before the election. In the market, the rule is "Purchases are made with money, and money income is distributed among people in accord with inheritance, effort, and the chances of life." Though public policy must ultimately be ratified by votes, voting is by no means the crucial nexus of the political process, and the formal equality of the ballot box is countervailed a hundred times over by inequalities of power and ability which make themselves felt in the strategy of decision. Given its initial inequality in the distribution of wealth and income, the democracy of the market consists in the fact that one man's dollar is the equal of another man's dollar. Neither race, religion, nor prejudice can stay these instruments from their appointed ends—to guide production and govern the allocation of resources. Finally, the voting mechanism accomplishes its results indirectly and by remote control, as it were; the vote does not immediately call forth that which was voted for. Purchasing, on the other hand, both indicates a preference and accomplishes possession of the thing preferred.⁴

Problem solving through the political process is a necessary consequence of the existence of uncertainty. The degree of uncertainty faced by the society exercises a profound influence on the structure and function of its institutions: The greater the degree of uncertainty, the higher is the cost of acquiring information on issues of public policy. The ordinary citizen being unwilling to bear the costs of acquainting himself with the issues, society specializes the function of detailed policy decisions in a small group of elected representatives. But, again, the greater the uncertainty, the greater the likelihood of error. Thus, the necessity of checks and balances to hold legislative folly within tolerable limits. Political parties are another byproduct of uncertainty; they specify the issues to which voters react, and conduct exploratory expeditions to sample the consensus of the body politic. The normal administrative work of the bureaucracy represents still another aspect of society's unending struggle to routinize the unexpected.

If uncertainty were to vanish, by far the greater part of the apparatus of government would be altogether superfluous. No uncertainty, no problems; no problems, no politics. For in a world without uncertainty the costs of acquiring information about the future are reduced from infinity to zero; the consensus of the body politic is formulated and made known without doubt or delay. Therefore "representative" government and political parties would be obsolescent. Administrative decisions would be reduced to repetitive routine so that the executive arm of the Government would consist of tax collectors and producers of public services. Given perfect certainty, both the verdict of justice and the balance sheet of power are intuitively obvious so that neither adjudication nor a trial of strength are necessary. Order follows inevitably. For disorder arises either from fraud or from an appeal to force; the first is impossible when concealment is impossible and the second is superfluous when the outcome is inevitable.

⁴For further comment, see James M. Buchanan, *Social Choice, Democracy, and Free Markets*, *Journal of Political Economy*, LXII (April 1954), pp. 114-123.

In this event a society which shared a common pattern of values and which was not plagued with fundamental conflicts of interest has no use for a central authority to maintain order. A society divided into contending interest groups but united by a common standard of justice would decide differences by rational compromise in order to establish equity and preserve stability. In both cases the reserves of force are impounded in a common bank and need never pass into active circulation. (Only the uncertain society needs a central authority to collect and, on occasion, spend these reserves of force.) But a divided society without common standards of justice would impose order in the interests of the strongest.⁵

The market mechanism

The market mechanism is concerned with the allocation of resources. It is designed to answer the questions: (1) What things shall be produced? (2) How shall they be produced? (3) How shall the output be distributed among the agents who, jointly, produce it? (4) How shall society provide for maintenance and progress?

In an individualistic social order characterized by free exchange, private property, and personal responsibility these decisions are initiated by individual consumers and individual producers; but the market is a device for making these multitudes of choices mutually consistent, for translating individual decisions about bread, houses, and automobiles into social decisions about prices and outputs. For the buyer, prices are costs which provide both a signal and an incentive to cut back on his use of things that are dear and push forward on his use of things that are cheap. For the seller, prices are returns which provide both signal and incentive to make more of the things that are expensive and less of those that are cheap. For the system as a whole, prices settle at the level which clears the market. The prices of productive services, together with the pattern of ownership of resources, determine the distribution of income among persons and families; and the income of resource owners represents the costs of producers, while the expenditures of resource owners—as consumers of goods and services—represents the income of producers.

The broad and general case for the free market is simply this: Left to their own devices owners of resources will be guided by the signals of the market to put scarce agencies to the most productive uses. Given freedom of maneuver plus reasonable knowledge of the facts, resources will be channeled into the areas where demand is brisk and returns are high and diverted from the uses where demand is slack and returns are low. And the attempt of each economic agent to maximize his net returns leads, under free competition, to equal returns at the margin for agents of equal capacity. Finally, equal returns at the margin means maximum returns for the community as a whole.

But even if the system of the market worked with perfect efficiency, the ends it secures are no better and no worse than the initial distribution of resource ownership on which it is based. Allocative efficiency does not mean distributive justice. Further, the sovereign consumer whom the market serves may command it to perform serv-

⁵ In the uncertain society, as Thomas Hobbes argued in his *Leviathan* (1651), preservation of order is the elementary task of civilized government. But whatever the degree of uncertainty, order without equity is tyranny.

ices which are, at best, frivolous and, at worst, subversive of higher esthetic and moral values.⁶ Consumer sovereignty is no guaranty of individual integrity.

These, however, are evils easier indicted than remedied. For, in addition to the democratic presumption of individual responsibility which forbids arbitrary interference with the means he commands and the ends he chooses, we encounter the political dilemma that public intervention can scarcely be expected to rise above the private standards of the citizens who sanction it. It would be a rare thing, indeed, if citizens displayed more wisdom at the polls than in the market.

Still further, one of the notorious facts of economic and social life is that not all individuals have effective power to exercise their formal freedoms. Freedom without power is illusory. The faith, the presumption, or the hope that the individual is the best judge of his own interests is altogether untrue if his abilities are limited or his understanding corrupted. Here again, however, democracy faces one of its critical dilemmas: How do we detect significant aberrations from rational self-interest and how do we intervene to correct them? Above and beyond the limits of individual ability are the subtle barriers to formal freedoms erected by prejudice, by custom, and by overt coalitions that narrow his range of effective action.

The market, like the political process, is powerfully affected by the degree of uncertainty which the society faces. Economic knowledge is a scarce commodity; and actual adjustments of the market are bound to diverge from the ideal because of the intrusion of the unexpected into the affairs of both producers and consumers. Chance creates both windfall gains and losses in the lifetime income stream of the individual. Uncertainty also takes its toll on the income stream of the society in the form of periodic fluctuations in income, employment, and prices. The market creates an elaborate series of adjustments to handle the problem of uncertainty. The major adjustment consists of a division of labor between those who receive relatively fixed returns (sellers of labor and renters of capital) and those who receive fluctuating returns (stockholders or owners) based on the fortunes of the enterprise. In this picture, the business entrepreneur bundles together the risks which a specific firm is designed to exploit and sells pieces of these chances to owners (or to himself) who pledge their capital to the firm.

In the absence of uncertainty, most of economic life would be reduced to repetitive routine. Entrepreneurship would vanish; administration and decisionmaking would become unnecessary. The business cycle would cease to trouble us. The economic problems remaining would be the age old ones of scarcity and poverty in—I might add—an environment of unrelieved monotony.

FRAMEWORK ACTIVITIES OF GOVERNMENT

In discussing the various grounds on which government participates in economic activity, I have divided the normative role of the state into two broad categories. The first covers the "framework" or regulatory activities of government, the second the "allocative" activities. Framework activities establish the structure within which the market

⁶ Frank H. Knight, *The Ethics of Competition*.

functions. They alter or help to establish the "given conditions"—the tastes, resources, and technology—which govern the equilibrium of market forces. Though framework activities involve some use of resources, this aspect of the problem is relatively trivial; the chief issue is the substantive content of the rules and orders which government establishes. Allocative activities, on the other hand, involve substantial use of resources, or modify the distribution of income, or affect the level of economic activity. As we shall see presently, there is some overlap in these categories.

In this and the section following I have attempted to say what government should do; i. e., to extract from the existing body of doctrine in political economy some normative criteria for the economic role of the state. But Leviathan has an insatiable appetite; in the effort to satisfy the political temper of the times, parties often propose and enact measures of doubtful—doubtful, I say, not negative—economic value. These dubious expedients are briefly treated under the catchall heading of "Price Fixing and Government Enterprise."

Rules of the game

In democratic societies, standards of behavior can be regarded as a series of overlapping circles: The circle of broadest compass is the mores, values, and norms of the society. Inside this is the domain of the common law, based on judicial recognition of social mores. Inside this is basic or constitutional law plus judicial interpretation of constitutional provisions. Still narrower in scope but more detailed in form is statutory law. At the final and smallest of the circles we find administrative law and administrative custom.⁷

Government, then, codifies and administers the common rules of the market as part of this set of overlapping sanctions. It does in two different ways.

1. Standards and norms: The State is the agency which standardizes practices. The great body of doctrine which defines the "law of contract," establishes the meaning of "private property," or implements "the rule of reason" represents the standardizing activities of government as the articulate instrument of custom. This body of rules governs the legal qualities of money, the procedures for buying and selling, the liabilities of partners and stockholders, the means for collecting debts, and the paths to be followed in going into bankruptcy. Law and administrative decisions also guide the process of taking out a trademark, of conducting collective bargaining, of selling stocks and bonds, and of passing on an inheritance.

These positive rules implement order and stability in commercial interchange. In economic terms, they are part of the definition of "resources." For an agent of production is not just a technological datum, for example, so many acres of land or man-hours of labor; it is that plus an invisible penumbra of rights and duties embodied in the law of contract and other parts of the framework.⁸

2. Prevention of force and fraud: Government exercises a monopoly of force in order to prevent fraud and forestall the use of force by

⁷ The breadth of the circles does not indicate legal priority. Constitutions and statutes can, to be sure, set aside the common law, and the evolution of judicial decisions which modify the common law need not parallel the evolution of the mores. I am indebted to my colleague Prof. Winston M. Fick for this formulation.

⁸ The "Institutions of the contract" is discussed in Émile Durkheim, *On the Division of Labor in Society*, translated by G. Simpson. New York: The Macmillan Co., 1933.

private parties. Private force must be held in check, because its use is subversive of both public order and justice. So far as the market is concerned, the reservoir of force at the disposal of the State is employed to uphold contracts and prevent "taxation" of one private citizen by another.

Though illegal use of force almost always involves fraud or concealment, prevention of fraud per se rests on different grounds than does prevention of force. In the long run the fraudulent merchant, the vendor of stocks in nonexistent oil wells, or the manufacturer of tainted foods would be forced into bankruptcy by a free and informed market. But in the meantime the costs of detecting fraud through trial and error involve extraordinary burdens on those who are short-changed, fleeced, or poisoned. It is cheaper all around, therefore, to rule these practices illegal and provide the machinery for enforcing these rules. At the Federal level the Pure Food and Drug Act or the activities of the Securities and Exchange Commission are notable examples of this practice.

Defining the group whose welfare is to be maximized

Part of the exercise of national sovereignty consists in defining the limits of the social body whose welfare is to be maximized. In practice this ordinarily means the ethnic and racial groups who occupy the territory of the state. This object is implemented by a simple but enormously important device—the restriction of immigration.

The broad outlines of social policy on immigration are very largely a closed issue in most nations of the Western World, though they may be reopened for review by changes in the balance of power or by shifts in population structure. Barriers to migration raise the income of labor competitive to potential immigrants and lower the earnings of specialized resources that are complementary to potential migrants. If no restraints are imposed on exports of capital or imports of commodities, neither the rate of interest nor the relative price of internationally traded goods will be much affected by these barriers.

Freedom of entry

Given a framework of rules and a definition of the group to be served, the case for freedom of entry is overwhelming on both economic and political grounds. Freedom of access is both an implication of political democracy and a necessary condition for economic efficiency.

So far as economic efficiency is concerned, barriers to entry result in the production of less of the restricted commodities and more of all other things than the economy either wants or could have if the barriers were broken down. How do these restrictions arise and how should the State move to demolish them? In the absence of public intervention, the degree of restraint on the free movement of resources would be established by the balance of two contrary tendencies: On the one hand, there is a clear and obvious gain from combining to restrict competition and raise prices—as, for example, a coalition of bakers or of housebuilders in a particular locality or a cartel of metal fabricators or a syndicate of truckdrivers in the country at large. (These gains are greater the smaller the possibility of securing substi-

tutes for the commodity or service the coalition controls.)⁹ On the other hand the costs of coordinating the coalition plus the restless forces of competition act to erode these gains away.

The State should, and in some cases does, aid the market in restraining the growth of coalitions. As a minimum it ought not to countenance nor encourage these barriers by law and administrative decisions that create a favorable climate for suspending competition. At the maximum it ought to seek out and break up trusts, combines, and syndicates. This is no easy matter as the complex history of law and court procedures under antitrust clearly demonstrates. However the existence of the Sherman and Clayton Acts plus the activities of the Federal Trade Commission have exercised a profound influence on our economic structure and have helped to prevent the growth of cartelized inefficiency on the European model.

Restrictive practices by trade unions represent still another example of barriers to free entry. The union need not ration entry to the trade or occupation by direct controls such as membership quotas, elaborate apprenticeship requirements, or high membership dues. The same result can be accomplished indirectly by persuading the buyer of labor services not to offer employment below some stipulated wage. The wage rations entry. Unlike producer coalitions, unions have very low overhead costs and can proliferate indefinitely without running into diseconomies of scale.

Regulation of natural monopoly

Natural monopoly is an obvious candidate for public regulation. Monopoly creates economic inefficiency by distorting the pattern of production. The price of monopolized articles is higher, the output lower, and the output of all other things is greater than would be the case if monopoly were conducted in the public interest.¹⁰

Natural monopoly ordinarily arises when the advantages of large-scale production plus the conditions of demand are such that one producer engrosses the entire market for a commodity. And competition in the industry will be imperfect if production and demand conditions are such that a small number of firms dominate the scene. For either pure monopoly or "competition among the few," the individual producer occupies a large enough share of the market so that variations in his output exert an appreciable influence on the price of the goods. In the effort to maximize returns producers will jack up prices above the incremental costs of production.

Given the definition of "the commodity," the degree of monopoly power depends on the extent of substitution in both production and consumption. Everyone has a bit of a monopoly on something: The unctuous manners of a neighborhood grocery-store proprietor may earn him a preferred position over his quarrelsome competitors, but if he attempts to capitalize this dividend into his prices he will merely increase the business of the chainstore down the block. A rutabaga

⁹ For discussion of the underlying economic issues see Alfred Marshall, *Principles of Economics*, 8th edition; London: Macmillan & Co., 1920, book V., ch. vi; as modified by J. R. Hicks, *The Theory of Wages*. Reprint edition; New York: Peter Smith, 1948, pp. 241-247. Further see George J. Stigler, *The Theory of Price*, revised edition; New York: The Macmillan Co., 1952, p. 208.

¹⁰ Melvin W. Reder, *Studies in the Theory of Welfare Economics*. New York: Columbia University Press, 1947; ch. IV, An Obstacle to the Attainment of Maximum Welfare: Monopoly.

monopoly would be of small avail so long as potatoes, lima beans, and squash could readily be had. A monopoly on gas or electric power in a particular town is a somewhat more serious matter, however, because of the unavailability of close substitutes. Most State and local regulation of monopoly lies in the field of public utilities, and the Federal Power Commission exercises jurisdiction over interstate movements of natural gas and hydroelectric power. A monopoly over a factor of production such as aluminum would also raise questions of public policy even though a host of other metals compete with it for its various purposes.

Now given the economic indictment of monopoly, regulation ought to be designed to encourage efficient use of resources; that is, to force the monopoly to price at its incremental cost of production. But this criterion raises a host of technical issues which it is inappropriate to pursue here.¹¹

In some instances the public may elect to take over and run the monopoly. In principle, both regulation and operation should arrive at the same end, but since the latter involves government ownership and allocation of resources it will be briefly treated under another heading.

External economies and diseconomies

In allocating resources by the market, private welfare is synonymous with public welfare so long as prices reflect the full costs or the full benefits of economic activity. But this reflection is often imperfect, and some of these imperfections raise important issues of policy. A famous illustrative example concerns the manufacture of a commodity which creates smoke or noxious vapors that pollute the surrounding air. The "private cost" to the manufacturer is the expense of labor, raw materials, wear and tear on the plant, et cetera, incurred in producing the article. The "social cost" is that plus the inconvenience and danger which pollution creates for the inhabitants roundabout.¹² For an inhabitant of southern California this is no trivial example, I might add. (In the long run with free choice of places of residence no one would put up with the nuisance unless he felt that other advantages of the locale compensated for it; and thus the place affected would have to offer lower rents or a higher dividend of conveniences in order to be of equal attractiveness with other places. Thus, the long-run cost of the nuisance would be the distortion it created in regard to choice of residence.)

This case illustrates an external diseconomy—external because it operates outside the price system and diseconomy because it creates a cost for someone. In general an external economy (or diseconomy) is created whenever the consumption or production of some commodity or service by one agent creates benefits (or costs) for other persons not covered in the price. There are four categories of these external effects: (1) between consumers, (2) between producers, (3) from producers to consumers, and (4) from consumers to producers.¹³ In order to push forward on the production and consumption of

¹¹ For a summary of these issues see Nancy Ruggles, *The Welfare Basis of the Marginal Cost Pricing Principle and Recent Developments in the Theory of Marginal Cost Pricing*, *Review of Economic Studies*, XVII (1949-50), 29-46, 107-126.

¹² A. C. Pigou, *The Economics of Welfare*, 4th edition; London: Macmillan & Co., 1932; pt. II, ch. IX.

¹³ Tibor Scitovsky, *Two Concepts of External Economies*, *Journal of Political Economy*, LXXII (April 1954), 143-151.

things which create external economies and to cut back on those that create diseconomies, public intervention in the interests of economic efficiency is required if the effects are important enough to be worth bothering about. In some instances laws and regulation alone will suffice; in others—to be discussed under the second of our major headings—public resources must be expended.

For the smoke nuisance case, as an example, zoning regulations and requirements concerning manufacturing processes, private incinerators, and perhaps automobile exhausts seem the appropriate remedy, though—as the Los Angeles case again demonstrates—considerable research, financed by public money, will be needed before precise correctives are discovered.

Most of the important cases where regulation is appropriate involve external diseconomies between producers, or between producers and consumers. Many of these instances also involve the conservation of resources.

An important instance where intervention can improve allocation is presented by external diseconomies between lumbering and farming. Cutting timber increases the rate at which water drains off the surface and exposes farmlands downhill or downstream to the likelihood of flood and erosion. Various remedies have been proposed: one is a requirement that lumber companies replant as they cut (some of them find this profitable to do on their own); another is that they modify the cutting pattern so as to leave undergrowth and small trees standing.

External diseconomies between producers in the same industry are exemplified by the extraction of crude oil from a particular deposit or pool. If drilling rights are owned by a variety of operators, each will seek to pump the deposit as rapidly as possible with the result that pressure of natural gas inside the dome will fall and cut down the yield of the pool. Each producer creates external diseconomies for the others. But production could be maximized if ownership were unified so that external burdens would be transformed into internal costs. If one producer cannot buy out the others—because it is too troublesome or requires more capital than he can lay his hands on—unified extraction can be achieved by public regulation, providing the rules are enforceable and technologically feasible.¹⁴

The fisheries case is another instance of producer diseconomies, with one additional complication—the economic opportunity, the fishing ground, cannot be owned. Given certain biological variables, which are but imperfectly known at present, the annual rate of take will exert an influence on the total population of certain species of ocean fish. But the individual fisherman does not consider changes in the underlying stock of resources when he voyages out to make his catch. Each one, consequently, creates diseconomies for the others; rational management of the fish population goes by default and is left to chance.¹⁵ The remedy would appear to include some sort of international licensing organization.

Still another aspect of producer diseconomies is found in activities whose unregulated pursuit would clutter up the city streets or create

¹⁴ Clair Wilcox. *Public Policies Toward Business*. Chicago: Richard D. Irwin, Inc., 1955, pp. 363–366.

¹⁵ Anthony Scott. *The Fishery: The Objectives of Sole Ownership*, *Journal of Political Economy*, LXIII (April 1955), 116–124.

chaos through unlimited exploitation of limited facilities. An interesting, but somewhat trivial example, is taxicabs in metropolitan areas. In the interests of holding down the burden on other forms of traffic, the number of licenses granted to cabdrivers is limited, the number being decided by a rough estimate of the advantages of service to the consumer versus the disadvantages of cabs to other drivers. Taverns and liquor stores are similarly limited on the presumption, no doubt, that a plethora of such facilities would lower the character and quality of the region. A much more important example is Federal licensing of radio and TV broadcasting in order to prevent dual exploitation of a single channel. Now, whatever the grounds on which such limits are fixed, the license to exploit the facility represents a partial patent of monopoly. Public authority may place hedges on the license; for example, the Federal Communications Commission in granting TV licenses seeks to disperse control over the channels of mass communication. But other things the same, it is surely contrary to either policy or economy to give these prerequisites away. They should be sold on the open market to the highest bidder—providing the applicant meets the other conditions which policy imposes. This criterion most certainly applies to radio and television franchises.

Economies in pursuing interests and acquiring knowledge

The case for the free market presumes that the individual knows his own interests and is aware of economic alternatives. Common observation suggests that departures in practice from these conditions are as pervasive as they are regrettable. Individual conduct shows many instances of obstinate attachment to "irrational" objectives; the costs of acquiring knowledge of the market are frequently so high that, in the absence of outside help, the sensible man decides that it is more efficient to remain ignorant.

Now the paternalistic role of the state in democratic societies, intervention to improve behavior or combat ignorance, is capable of infinite abuse and must be severely limited. The following represent some of the steps that may be taken on this ground.

Some transactions are restricted or altogether prohibited—e. g., sale of habit-forming drugs, gambling, and the practice of the world's oldest profession. While dope addiction and other aberrations work some hardships on persons outside the transaction, i. e., create external diseconomies, the primary reason for their prohibition is that they do violence to the self.

On a somewhat different level, the state requires the individual to maintain ownership in himself; he may offer his services for rent but cannot sell himself in bondage. Nor can individual citizens sell their electoral franchise. Clearly, however, these actions are prohibited because of their adverse external effects since, if widely practiced, they would subvert the whole climate of freedom.

An intrusion of the state which is widely accepted in practice but still debated in principle is compulsory saving under the Social Security Act. Although the actuarial value of the pension exceeds the accumulated worth of the contributions, the compulsory portion of old-age and survivors insurance is founded on the theory that the ordinary worker shortchanges his future, i. e., discounts future income at a higher rate of interest than he ought rationally to employ.

A still different set of interventions, directed, I think, against the effects of ignorance of market alternatives is licensing of professional practitioners such as doctors, lawyers, and pharmacists. A free market with exact knowledge makes licensing unnecessary, for the self-interest of the buyer rewards the seller according to his worth, and the incompetent can find no customers. But in the absence of exact knowledge the license testifies, when properly administered, to some minimum level of competence and saves the time and cost of determining whether the practitioner deserves his title. For law or medicine these costs would be high. I doubt whether the same is true, however, for barbers, beauticians, and others who need a public certificate to set up shop.

ALLOCATIVE ACTIVITIES OF GOVERNMENT

“Allocative” activities of Government employ resources, influence the distribution of income, or affect the level of national output. Despite their great variety and complexity and despite the even greater complexity of that incredible document, the Federal Budget, which authorizes them, the grounds or reasons for undertaking them are relatively few in number.

Indivisible services

Among its other functions, market price is a rationing device which governs the volume of goods or services at the disposal of the user. No price, no service. But many activities that are “in the highest degree necessary” cannot be rationed by price and must be available to everyone if they are available to anyone. An example which conveys the essence of the case: lighthouses.¹⁶

In some cases an indivisible activity could easily be carried on by a voluntary agency which supported itself by fees charged to the user. Shipowners, conceivably, might band together in an association to build lighthouses, or the residents of a river valley might embark on a joint operation to control floods—another indivisible activity which Government ordinarily performs—but the difficulties of promoting and administering the agency, the trouble involved in collecting fees from unwilling beneficiaries, etc., would render the prospect of such associations dubious. In this connection, however, Government may be regarded as a holding company for a group of associations rendering a variety of indivisible services to the citizenry.¹⁷ While Government can more readily promote and finance such associations, the holding company is likely to be somewhat larger than optimum size (and not always responsive to the needs of its customers).

Headed by national defense, the dominant function of central governments under existing conditions, the major indivisible services may be listed as follows:

1. National defense and related functions
2. Police protection
3. Foreign aid and development
4. Public health
5. Pure research

¹⁶ J. S. Mill, *Principles*, Bk. V, ch. XI, sec. 15.

¹⁷ Paul A. Samuelson, *The Pure Theory of Public Expenditures*, *Review of Economics and Statistics*, XXXVI (November 1954), 387-389.

6. Navigational aids and flood control
7. Streets and highways—with exceptions as noted below
8. Wildlife preservation
9. Public monuments, buildings, and parks—with exceptions

Comments on selected items:

(2) Individuals can and do hire private watchmen and carry arms to fend off marauders but prevention, detection, and punishment of crime are public offices.

(3) Foreign aid is a function of political and military policy, but long range economic development probably depends on exports of private capital.

(4) Pure research is undertaken both by government and by private nonprofit agencies, such as universities and foundations.

(6) Navigational aids and flood control on inland waterways are often conducted jointly with power production and irrigation which can be rationed by prices.

(7) Save for limited access roads and bridges, highways are indivisible services in the first instance but can be financed by taxes on cars and gasoline in joint demand with highways. These taxes represent user charges whose yield provides a clue to the optimum size of the highway network.

(9) Imposing public edifices and parks, to the extent they have esthetic value, are an indivisible service for the public in general. But visiting a national park, hunting on a game preserve, and using a public recreation facility should, if practicable, be rationed by admission charges or licences in order to prevent overcrowding and cover the costs of operation.¹⁸

How should indivisible services be produced? Both economic efficiency and political liberty require that Government use the signals and incentives of the price system in acquiring and combining the resources which supply these services. The market for indivisibles is blind on the demand side, but the supply side should use prices to the fullest extent possible. This clearly implies (1) that Government should pay market prices for the resources it hires, (2) that, whenever possible, Government should contract with private producers to perform services instead of supplying them directly. For, to amplify the second of these criteria, the optimum size of government from the standpoint of political policy may exceed the optimum for purposes of managerial efficiency. If public bodies can contract out or delegate the task of management to private enterprise, they may both reduce the costs and improve the quality of operations.

To exemplify: Highways, public buildings, and dams can be, and normally are, built by private contractors rather than by public employees. The complex weapons and devices needed for military preparedness in the postatomic age are manufactured by private concerns rather than by Government arsenals. The thousands of different items used in the daily operation of government are ordinarily purchased from private dealers. To these statements there are some exceptions. Highway departments sometimes build their own roads; the Military Establishment does manufacture some of its own weapons; and Government agencies sometimes fabricate their own supplies.

¹⁸ Procter Thomson, *Prices Versus Taxes in the Allocation of Public Resources*, Proceedings of the 48th Annual Conference of the National Tax Association. Sacramento, Calif.: National Tax Association, 1956, pp. 140-157.

These exceptions ought to be rigorously and carefully scrutinized. In all too many cases the waste and malfeasance which there occurs would be incompatible with survival under private auspices. But the details of this topic belong elsewhere.

Requisition of military manpower represents one important area where Government ignores the signals of the price system though, to be sure, the ground rules for the draft vary from time to time and coercion is sweetened by persuasion. As a result, it is impossible to ascertain the real costs of defense, i. e., the costs in terms of the value of manpower in other uses. Cheap military manpower secured via the draft is, moreover, an expensive bargain in the long run. In an age where the soldier must command a formidable arsenal of technical weapons, these reluctant defenders are scarcely the equal of a seasoned cadre of professionals recruited by voluntary inducements. At a time, moreover, where potential annihilation lurks in the dark of night for those who stay at home as well as those who go to war, no great premium would be necessary to hire all the permanent staff of our forces or to pay, if need be, for short periods of duty followed by transfer to the Reserves. In a mature and responsible society, finally, a mercenary army of professional soldiers poses no great threat to our democratic freedoms.

External economies and diseconomies

As was argued above, prices sometimes fail to reflect the full costs and benefits of particular activities, with the result that the private market produces too few of the things that create external economies and too many of those that create diseconomies. In many cases these departures from optimum can be handled by public regulation and involve no direct use of resources. Particularly is this true of external diseconomies, e. g., the smoke- nuisance case and the oil-well case. But where the activity creates benefits for persons other than the producer or consumer, a subsidy is needed to stimulate its production. From the standpoint of public resources, education represents by far the most important example of this principle.

The education of individual A produces, of course, a direct and immediate benefit to A himself; and self-interest alone would induce him, or his parents acting for him, to build up his capital of ability. But A's education also confers advantages on B, and C, and D. For in a democratic society with a universal franchise, education is a necessary condition for wise and responsible exercise of political freedoms. A, if uninstructed and ignorant, could not exercise his franchise wisely and an illiterate electorate would imperil the whole future of democracy. Further, cultural interchange and all the amenities of civilized society demand individual sensitivity to values, ideas, and the world about us. But if left to its own devices, family A might not purchase as much schooling as B, C, and D would like to see them buy. This important instance of external economies in consumption justifies public subsidy for education.

The school government, in this context, is a corporation that implements the interest of each in the education of others. For, to be sure, B's concern for A (and A's for B, etc.) could be implemented by a series of private gifts. But these interests would be better served by a mutual compact among families A, B, C, and D stipulating that each would match—or meet in some agreed ratio—the contributions of the

other. A community referendum on school taxes and expenditures assumes precisely this sort of mutual compact. Because of external economies, families A, B, C, and D would elect to expend a greater amount per child than would have resulted from individual purchases plus private philanthropy.

Public subsidies for schools could be expended in a number of ways. Government could subsidize private schools; it could dispense certificates to the family, who could spend the certificate at an accredited school of their choice; or it could operate schools as a department of government. For political and other reasons, current practice favors the latter alternative.

External economies are a pervasive feature of human life but most of them are too trivial to be worth bothering about as subjects of public intervention. Examples are the householder whose well-kept lawn beautifies the neighborhood, or the merchant whose store windows gladden the eye of passing pedestrians.

An analytical curiosity which puzzles and intrigues economists but may or may not be of great practical importance is the possibility of "increasing returns to scale" for a particular industry. In this form of external economy, expansion of production by the firm lowers costs for the industry because optimum size for the exploitation of some common facility has not yet been achieved.¹⁹ These cases, when identified, are appropriate candidates for subsidy. But possibilities for such economies appear to be rather limited, and, in any event, no one seems able to identify these curiosities in practice.²⁰

Operation of natural monopolies

Monopoly, as already argued, represents an obvious threat to efficiency. The case for controlling it by public intervention is equally obvious. The choice between regulation or public operation turns upon some difficult issues of politics, economics, and administration whose solution varies according to circumstances. Regulation may tempt an alert and aggressive monopoly to befuddle or bribe the regulators. Operation involves the possibility of aggravated bureaucratic waste.

Monopolies in power, water, gas, and transport are often operated by municipalities. The Post Office Department is a monopoly operated by the Federal Government. How should these monopolies be conducted? On the one hand, optimum efficiency is achieved when the price of the service covers the cost of producing the last unit of that service. On the other hand optimum efficiency requires that total sales receipts cover total costs of producing the service; for taxes to finance subsidies inevitably warp the pattern of economic alternatives; moreover equity (equal treatment of equals) is violated when nonusers subsidize users—except in special cases where nonusers receive benefits that are not reflected in the structure of prices. These criteria conflict when the demand schedule for the service intersects the schedule of incremental (or marginal) costs at a point which lies below the schedule of average costs.²¹

¹⁹ Allyn Young, *Increasing Returns and Economic Progress*, *Economic Journal*, XXXVIII (December 1928), 527-542.

²⁰ Seftovsky, *External Economies*, J. P. E., LXII.

²¹ For background and further exposition see the articles of Nancy Ruggles cited in footnote 11. Roughly, however, when average cost (total cost divided by number of units) falls as output rises, because of economies of scale, the expenses of producing the last increment of the service are bound to be lower than the average cost of the entire

If pricing on the basis of incremental costs involves subsidizing the monopoly from the Public Treasury, the governing authority has a number of strings to its bow which it can employ in important special cases. It can vary the quality of the product. By reducing the cost and quality of its services it can eventually come to rest at a point where demand price, incremental cost, and average cost coincide, and where incremental pricing, therefore, just covers total expenses.²²

For the post office, a Federal monopoly which chronically runs at a substantial deficit, these technical considerations are relevant and important.²³ Under existing practices and rates, the postal deficit subsidizes advertisers, book publishers, magazines, other departments of government, and inhabitants of rural areas. (Due to the vagaries of Government accounting, the post office does not bear the full cost of contributions to pensions for employees; on the other hand it is, or was, used as a vehicle for delivering handsome subsidies to private transport agencies such as airlines.) Subsidy in general is justified by the presence of a substantial degree of external economies. In the remote past subventions to publishers might have been justified as a contribution to literacy and education. Surely this presumption is of negligible worth at the present juncture. Surely, also, the diseconomies of high taxes render the postal deficit, and the additional taxation thereto attached, an enterprise devoutly to be liquidated.

Through what steps can the postal service be induced to balance its budget? First, put it on notice that it must balance its accounts. Second, unscramble the records so that it bears the full costs, but no more than the full costs, of its operation; this implies payment by other departments for use of postal buildings and delivery of Government mail and payment of overhead and retirement costs by the post office. Third, and most important, let it set its own rates and establish a defensible system of mail classification. Under this dispensation the postal service would be a quasi-independent corporation free to use the methods of the market, save for the stipulation that (having no stockholders) surpluses, if any, must be plowed into additional facilities. Deficits, when they occurred, would be financed by postal bonds sold to the private market.

If these three steps were taken, might it not be possible to contemplate a fourth and more radical proposal, namely opening the postal business to private enterprise? The quaint and antiquated devices

range of output. (For instance if a batter who is hitting .250 before a particular game, pulls his average down, his "incremental" performance that day was less than 1 out of 4.) It follows as a matter of simple arithmetic that incremental cost times number of units sold falls short of total cost.

²² The existence of an equilibrium at this intersection can be shown as follows: Given an enterprise where incremental cost and demand schedules intersect at any point, each increase (or decrease) in quality will raise (or lower) the cost schedules and raise (or lower) the demand schedule. Given diminishing returns to investment in quality of service, each rise in quality will raise the demand price (for a given output) by less than the cost price; each fall in quality will lower the demand price by less than the cost price. Eventually the average cost schedule can be made to overtake the demand schedule where the former crosses the schedule of incremental costs.

By similar reasoning, a monopoly that earns a surplus in the first instance is in the happy position of being able to achieve balance by raising its level of service.

If, now, increasing returns to investment in quality prevail over the relevant range, a public monopoly that incurs a deficit in the first instance should raise rather than lower the quality of its service.

What do variations in "quality" entail? For a city transport system obviously, or for the Federal Post Office (as argued below) many such variations in convenience, promptness, and comfort can be undertaken. For municipal gas, water, and electricity, technical possibilities of variation are much more limited. Installing and repairing facilities, and billing customers would appear to exhaust the range.

²³ Jane Kennedy, Structure and Policy in Postal Rates, *Journal of Political Economy*, LXXV (June 1957), 185-208.

by which, it is sometimes alleged, the post office conducts operations would be put to the test of the market, while prospects of private monopoly would be counteracted by public competition.

Equality

A free and open market tends to pay productive agents the value of what they produce. The income of individuals depends on the unit price of productive services times the number of units which they own—including both capital goods and their own labor power. The number of units of productive services which they own, or have embodied in them, depends on inheritance, effort, and luck. For reasons too obvious to enumerate, the benefits of inheritance, effort, and luck are not equally distributed in the existing social order and are not likely to be so distributed in any conceivable scheme of social organization.

But inevitability does not justify inequality. More accurately speaking, inequality of wealth and income can be modified by social policy; and a democratic social order is powerfully determined to undertake that policy. Equality, or mitigation of gross inequalities, is both an end value of the democratic community and a means to other ends.

In this context the happiest exercise of the power of the state is to promote equality by removing the barriers which restrict opportunity; barriers founded on caste or prejudice, barriers heightened by the presence of ignorance, and barriers which the market itself would sweep away if given scope to do so—all this is a necessary exercise of democratic public power.²⁴

The State also intervenes to purchase equality, or mitigate inequity, through the tax-expenditure mechanism. Depending on the schedule of taxes and the imputation of benefits to individuals, the balance of benefits bestowed minus taxes collected is generally positive for the lower income groups and negative for higher income groups.²⁵ Despite opportunities for evasion, the saw tooth monster embodied in present income and inheritance tax schedules has cut down significantly on the relative share of upper income groups in the Nation divided over the past quarter century.²⁶ Approach toward equality, then, is both a valid aim and a real accomplishment of our democratic fiscal system.

Given the conditions of economic life, a tax-expenditure system which promotes equality conflicts, after a certain point, with other end values of the community. Specifically it conflicts, after some specified point, with productivity. In full perspective, the relation between equality and productivity doubtless runs as follows: If wealth and income were very unequally distributed, there is a range over which the community could probably achieve both higher output and more equality by redistributing resources from rich to poor. If redistribution continued, a point of maximum productivity and moderate equality would be reached. Thereafter, additional degrees of equality could be purchased only at the expense of some sacrifice of productiv-

²⁴ Allan G. B. Fisher, *Alternative Techniques for Promoting Equality in a Capitalist Society*, *American Economic Review*, XL (May 1950), 356-368.

²⁵ James M. Buchanan, *The Pure Theory of Government Finance: A Suggested Approach*, *Journal of Political Economy*, LVII (December 1949), 496-505, refers to this balance—with the sign reversed, however—as the "fiscal residuum."

²⁶ Simon Kuznets, *Shares of Upper Income Groups in Income and Savings*, New York: National Bureau of Economic Research, 1952.

ity. These sacrifices would be small at first, but would increase steadily till, at the limit, complete equality—the same income for everyone—would be reached only by a very considerable sacrifice of total output.

Now why must equality and productivity be competitive values beyond a certain point? Answer No. 1 is to be found in the adverse incentive effect of progressive taxation on initiative, risk taking, and enterprise. Answer No. 2 rests on the adverse incentive effect of receiving income without expending effort. (Up to a point, of course, the latter effect would be counterbalanced by improvements in ability and standard of living created by subsidies to low-income families.)

To continue: So long as society can get more of both values, both more equality and more income (from a given body of resources), it would be wasteful not to do so. But the problem of choice arises when the two values cannot increase simultaneously, when, that is, additional equality can be purchased only by some sacrifice of productivity and progress. Because we are, or may be, faced with this kind of choice is, of course, no reason for abjuring additional equality. We may judge it worth the price. But in so judging we must take account of the terms of trade between equality and productivity. Here, in brief, is a central problem of democratic government—how much more (or less) equality do we want in terms of the sacrifice (or gain) in productivity involved in moving toward it.

Finally, equality is not achieved by any one activity of government. It is a byproduct and an end product of the whole system of government finance.

Humanitarianism

The market is an impersonal agency. It takes no account of need unless signaled by price and recognizes virtues only when they are marketable. In larger perspective, however, "no man is an island," or, in the language of economics rather than literature, one man's utility function may contain a term for the welfare of another. Humanitarian activities are thus an important special case of external effects between consumers.

Humanitarian objectives can be undertaken by voluntary nonprofit agencies to which individuals contribute in accord with their means and desires. (In the division of labor between government and the market these institutions share some of the elements of both.) Citizen X, however, might be more willing to support some humanitarian activity if assured that Y and Z would follow suit. Accordingly he makes a compact with them under which each is to vote on the amount that all will contribute. Before voting, they decide that the total will be allocated between them in accord with their means. In this way each dollar that X contributes will be accompanied by, say, half a dollar from Y and two from Z. When the vote is taken, therefore, the tax each levies on himself exceeds the amount he would have contributed on his own. Government philanthropy, then, can be regarded as a device to administer such a compact for the community as a whole, voting, of course, being conducted by representatives rather than by the entire electorate.

Humanitarian activities of government include a series of transfer payments for assistance to dependent children, aid to the aged, compensation of the unemployed, and general relief for the indigent and unfortunate.

Economic stability

An economic environment of individual decisions, mutual interdependence, and uncertain prospects is inevitably subject to fluctuations in income, employment, and prices. While these erratic movements are, in some sense, a concomitant of progress, the business cycle generates a train of evils which no responsible society will passively endure. (1) Uncertainty itself creates costs; elaborate and expensive adjustments must be undertaken by individuals in order to cope with it. (2) Both inflation and depression generate diseconomies in the form of overexpansion of certain sectors of the economy during a runaway boom and underutilization of resources during a slump. (3) The incidence of the cycle is inequitably distributed between individuals. (4) Aggravated uncertainty of the system plus waste and inequity generate political pressures which threaten the stability of democracy.

From the individual point of view the cycle appears as a capital levy of arbitrary amount, levied without announcement or compensation. If the cycle cannot be tamed but must be accepted as an act of providence, social policy, as a bare minimum, ought to share its burdens more equitably.

Under modern conditions, the cycle can, or some of its components can, be mitigated, though not completely controlled, by fiscal and monetary policy. Government can stabilize certain elements of the budget and these in turn can exert a tranquillizing effect upon the market; it can stabilize the level of expenditures over the cycle; it can fix the rates, though not the yield, of the tax system; it can stabilize the quantity of money but not, of course, the number of times that money circulates during the period.

Government can also intervene to stabilize several important variables for the market as a whole. It can, if needed, fix the price of particular things though not the quality and quantity of goods exchanged at this price; it can fix the rate of interest; it can stabilize the general level of prices; and it can stabilize the level of employment.

Under modern conditions, however, the chief problems of fiscal policy are conflict among objectives and inadequacy of means. Regarding conflict, the Government may not be able simultaneously to stabilize the level of prices and the volume of employment. Full employment at forced draft spells inflation, although the terms of trade between more inflation and more employment vary erratically over the course of the cycle. Regarding means, stabilizing either employment or prices or some selected combination of the two can be attempted either through automatic devices or through forecasting and administrative action. Automatic devices or built-in stabilizers take time to operate; forecasting is subject to error, and administrative action may involve both error and delay.

In any event economists know appallingly little about the cure of the cycle and still less about its causes. The situation counsels humility, caution—and more resources for basic research.

MISCELLANEOUS ACTIVITIES: PRICE FIXING AND GOVERNMENT
ENTERPRISE*Price fixing*

On an ad hoc basis, the Central Government intervenes to regulate the prices of particular goods and services. In most instances save the control of prices during wartime, these interventions establish minimum prices and redound to the advantage of particular producers.

Primary instances of these activities are farm price supports, tariffs, transportation prices, and minimum wage legislation.

In the short run, parity prices and production quotas on basic agricultural commodities sold in the private market represent an income subsidy to wealthy farmers financed by a sales tax on low income city consumers. For the rise in price is equivalent to a levy on consumption; the larger the farmer's output (or acreage) the greater is the extent of the subsidy which this rise in prices (or soil bank payments) confers upon him; and the wheat, cotton, corn, and tobacco which this program covers are staples of the city worker's budget. (The portion of the crop sequestered in storage by the Commodity Credit Corporation and its equivalents is paid for from general revenues, though a portion of the cost may be recovered if the commodity is later sold or dumped abroad.)

In the long run, the portion of the subsidy that finds its way into income of farm labor tends to retard the migration of workers to the city and slow down the rate of urban economic development. The portion imputed to land bids up the price of farms.²⁷ In addition to the income subsidy, the stability of agricultural prices which the program administers enables farmers to employ resources more effectively.²⁸

Tariffs and import quotas subsidize producers at the expense of consumers in the short run, while in the long run they draw more resources into the protected trades than would otherwise be the case and lower the national dividend by cutting us off from the advantages of international specialization. In addition, tariff hampers exports, fosters domestic monopoly, and creates political pressures for subsidies to foreign governments. Tariff, however, prevents deterioration in the economic position of workers and investors who are threatened by foreign competition and who can raise enough leverage to secure protection.

The legal minimum wage raises the price but reduces the volume of employment for workers in the trades it protects. For no tendency in economics is more certain or definite than the principle that states: the higher the price of something, other things the same, the less the volume of purchases. This principle, unfortunately, applies to the hiring of unskilled workers in sweated industries. An effective floor on wages which raises costs of production will diminish employment because, first, employers substitute capital for labor and, second, consumers substitute other goods for those produced by the protected trades. If demand for unskilled labor is elastic the minimum wage also reduces the total wages bill and purchasing power placed in the hands of the protected workers.

²⁷ For general discussion see T. W. Schultz, *Agriculture in an Unstable Economy*, New York: McGraw-Hill, 1945.

²⁸ D. Gale Johnson, *Forward Prices for Agriculture*, Chicago: The University of Chicago Press, 1947.

Benefits of minimum wages are secured by those who gain employment under its provisions. Costs are borne, first, by the workers whom it prices out of the market, second, by consumers who buy the products of protected industries, and third, by resources which are complementary to unskilled labor.

Government enterprises

In addition to operating natural monopolies which sell to the general public, Government also produces a great variety of supplies and services; for many, but not all of these, Government itself is the sole customer. The Defense Department operates a galaxy of establishments which manufacture arms, build ships, and produce supplies. The Government operates a railroad in Alaska and in Panama; it has turned its hand to the production of rum and molasses in the Virgin Islands; it lends money to farmers (the Farmers' Home Administration), to small-business men (the Small Business Administration), and to importers and exporters (the Export-Import Bank). It builds and owns ships which are leased to private concerns. Finally, Government is the landlord of 400 millions of acres within the 48 States.

What issues of principle and practice are raised by these activities? In general, as suggested above, Government is a most indifferent manager of enterprises. Why? Because Government employees are stupid and lazy? Not at all; here, as elsewhere, the servant is worthy of his hire. Because the civil service, while an admirable device for preventing corruption, tends to protect mediocrity and inhibit initiative? Perhaps; but too much cannot be made of this argument. Because Government is immune from the discipline of the competitive market? In part, yes, but large sections of corporate bureaucracy also enjoy some relative immunity. The ineffectiveness of Government management arises from its diseconomies of scale. Government is too large for maximum efficiency. Or, put a bit more carefully, Government may be no larger than necessary in order to discharge the functions which it alone must command, but if some activity which the market could have performed is added to its structure, that activity will, in general, be conducted less effectively than it could have been conducted by the market. Not only that; but the addition of this activity will dilute the managerial capacity of the top echelon, and existing activities will suffer in consequence.

Now, of course, this general presumption must be modified in particular cases. Many old-line Government bureaus (such as the Forestry Service) and many quasi-public corporations (such as the TVA) have great dedication and initiative with high esprit de corps amongst their staff and are fully the equal of comparable sectors of private enterprise. But the general presumption against Government enterprise should not lightly be cast aside. Government ought not to duplicate the efforts of the market and when it has done so, because of some temporary expediency, it should withdraw as gracefully and rapidly as possible. Exceptions require very strong proof indeed.

Unfortunately, once Government is embroiled in one of these ventures, the cost of disentanglement is high. In some cases no private firms are willing to take the thing off the Government's hands save at bargain-basement prices. Or—as in the case of loans to farmers and small-business men—the activity involves a concealed subsidy which the political power of the beneficiaries is mobilized to retain. Or an

arsenal, a manufacturing plant, and an insurance agency become symbols of empire and all the massive power and artful devices of entrenched bureaucracy are arrayed in their defense.

RATIONAL CHOICE IN BUDGETARY POLICY

Given the grounds which sanction Government activities, how should we decide how much of our resources to devote to public purposes? Since the market cannot register the demand for these services, the political process must answer this question for us.

To economize on the labor of decision-making, elected representatives review policy and decide the details of public expenditure. In this, however, they do but reflect the ultimate consensus of the body politic so far as it lies within their power to determine it. Let us inquire, therefore, how the rational society would determine expenditures if the people themselves, after due investigation and debate, held a mass referendum on budgetary policy.

The decision could be made in two separate stages. The first order of business would be determination of the system of taxes, i. e., the array of rates for collecting any given amount of revenue from various income groups. To simplify exposition let us suppose that the revenue is to be collected by a universal tax on personal income. For each amount of revenue some sets of rates promise more equality, and some less; some would exact a smaller sacrifice in productivity, others a greater sacrifice. Indeed each set of rates would yield a specific combination of equality and productivity. The rational voter would select the rates that corresponded to his preferences as a citizen and his interests as a producer.

The society as a whole, let us say, decides to accept some rough average of the systems of rates for which its members voted. This being decided, the taxes levied upon members of each income class for each different amount of revenue are ascertained and announced.

Our citizen-taxpayers repair to the polls again to vote for the level of expenditures. Let us suppose that they are to cast a separate vote for each of the major categories: national defense, health and welfare, conservation, and so forth. How does the rational taxpayer cast his vote? He is aware that, say, expenditures of \$10 billion of the community entail \$100 in personal taxes, \$15 billions, \$150 and so on. Given his income and the structure of taxes, each extra dollar levied on him is accompanied by an additional \$100 million from the community at large. (These accompanying amounts, of course, vary from one income group to another and from one expenditure level to another.) As a rational citizen-taxpayer he assesses the technical results of these expenditures and evaluates the personal satisfactions they create for him. For each class of activities, he votes for the level of public expenditures where the satisfactions created through Government by the outlay which necessarily accompanies the last dollar in personal taxes equal the satisfactions he would have secured from a dollar of private expenditure. He equalizes at the margin the satisfactions secured from alternative avenues of expenditure.

Depending on their income, their preferences, and the structure of the tax system, each individual selects some different level of expenditures in each category of the budget. The community, let us suppose, balances off these votes by compromising at the median, by taking,

that is, the level which slices the votes in half; 50 percent voted for some higher level, 50 percent for some lower amount.

The result, inevitably, satisfies no one perfectly and dissatisfies some exceedingly. First, the tax system appears arbitrary when viewed by citizens who hold different preferences for the terms of trade between equality and productivity. Second, the degree of freedom the voter exercises depends on the number of expenditure categories arrayed for his decision. Third, the optimum for which he votes is surrounded by a margin of doubt. For his choice on "national defense" is bound to be affected by public expenditures and personal taxes for "conservation." But he votes for each in ignorance of the amount the community will determine for the other. Fourth, the community—under the median rule or any other rule—is not likely to satisfy his preferences precisely (unless, by accident, he was the median voter). If, for instance, the community chooses \$10 billion, those who wanted more will feel shortchanged, while those who selected less may fancy themselves abused.

What role does representative government play in rational budgetary policy? The variety and complexity of government is beyond the scope of the ordinary citizen, nor would it be at all sensible for him to spend any large fraction of his time and his fortune in public business. That task is entrusted to elected agents who both accumulate knowledge of public affairs and serve as middlemen between the body politic and its government. Even the most dedicated of these agents can form no more than a rough estimate of the issues at stake, and can collect only the most cursory of samples of the true state of public opinion. But given their limits and their commitments, the role of the legislator is to vote as the citizens would have voted if they knew as much as he knows.

FEDERAL EXPENDITURES IN MODERN AMERICA

Frazar B. Wilde,¹ chairman, Research and Policy Committee, Committee for Economic Development, and president, Connecticut General Life Insurance Co.

I welcome this study of the principles that should underlie Federal decisions to spend money. We have fallen into the habit of thinking that, where Federal expenditures are concerned, we should consider every case on its merits. Even in these terms, on a case-by-case basis, we do not do well—often what passes for merit has little relation to the national welfare. But, in addition, to consider each case on its merits is not really to consider the merits of any case. Each decision can be made properly only in the light of the other decisions that must simultaneously be made. And this is possible only if all decisions are illuminated by certain common principles. This is why I am pleased that one agency of the Congress is now discussing the principles of Federal expenditure policy.

In conducting this very valuable inquiry, I hope the subcommittee will bear in mind one important fact about the American economy that many people disregard in making recommendations about Federal expenditures. That fact is that we have developed in this country a set of private institutions which have demonstrated their capacity to meet most of our national needs through the individual efforts of our citizens, singly or organized in businesses, labor unions, and other associations. The basic impetus to satisfying these needs comes from the millions of decisionmaking units in the economy who direct their labor and financial resources into productive pursuits without interference from the Central Government.

The role of government, especially of central government, in a highly developed, private enterprise economy like ours is vastly different from its role in an underdeveloped country. Where the private economy is incapable of generating and sustaining growth, the Government must step in to stimulate the forces of expansion. Where the private economy is already growing at a rapid rate, the presumption runs the other way. Although certain limited exceptions should be recognized, it is true in general that government intervention is likely to do more harm than good, either because it might result in a misallocation of resources or because it might impair the incentives of private individuals to produce and to undertake risks.

There is still another reason for relying less on the Government in this country than elsewhere. Not only is our national product the largest in the world—it is also distributed more equally than in most other countries. This is partly the result of the tremendous growth

¹ While the views presented in this paper are within the general framework of policy statements issued by the Research and Policy Committee of the Committee for Economic Development, their particular expression and application here are the responsibility of the author alone.

we have already achieved and partly the result of our greater devotion to the ideal of equality of opportunity.

Although we have not completely eradicated the problem of extremely low incomes, we have developed efficient and equitable methods of dealing with many of its basic causes. Our system of universal education provides every child with the basic training needed to participate in the economy and to share in its output. We deal with unemployment and old age—two of the major causes of poverty—through social insurance and private pension arrangements. And we have a nationwide system of public assistance to help those who are poor for other reasons.

More needs to be done to improve the lot of the less fortunate among us, particularly to assist in developing the skills that will permit them to earn their own livelihoods. But growth in our production carries far more potential for removing poverty from our midst than does a redistribution of the output we have. This is one of the more important reasons why we must be sure that Federal expenditure programs promote, rather than retard, economic growth.

ROLE OF THE FEDERAL GOVERNMENT IN A GROWING ECONOMY

To determine the needs for Federal spending under conditions of growth, it is essential to discard ideas about the role of government that are the outgrowth of the depression psychology of the 1930's. The problem is no longer how to assist the economy in making use of the available human and physical resources. The problem now is how to allocate our existing scarce resources among the numerous demands that are placed upon them. This change is reflected in the reasons now being given by those who support more Federal spending. Proposals to maintain or increase the present level of Federal spending are advanced mainly on two grounds, neither of which is related to the high employment problem. Higher spending by the Federal Government is now justified either on the ground that growth itself creates demands for more government services or that increased spending is essential to promote further growth.²

I agree that economic growth increases the need for certain governmental services—particularly if the term “economic growth” is understood to include growth in population as well as in number, size, and geographic dispersion of the Nation's economic units. By and large, this growth-created demand for government services is concentrated in the traditional areas—police and fire protection, water supply, waste disposal, highways, education, postal services, provision for the aged, etc. We tend to take some of these services for granted, but they are extremely important for the health of the economy.

It is important to recognize, however, that in this country most of these traditional services are provided by the States and local governments, not by the Federal Government. Among the categories mentioned above, the Federal Government is responsible for postal services, interstate highways, and old-age and survivors' insurance. Otherwise, Federal expenditures consist largely of outlays for defense,

²This discussion is limited to the nondefense portion of the Federal budget, since our defense requirements are to an important extent independent of our growth needs. Although the research conducted under the defense programs has contributed to the development of new products and new techniques, I know of nobody who would argue for a larger defense budget on the ground that it would stimulate growth.

interest on the national debt, and a host of programs that subsidize particular groups, industries, or regions in the economy, the most important of which are farmers and veterans.

Although there is very little basis for measuring the increased needs of the community for the traditional governmental services as growth proceeds, it is probably not unrealistic to assume that, in the absence of accumulated backlogs, expenditures for these services would increase in absolute terms but would either rise proportionately with total output or perhaps decline slightly in relation to output, on the assumption that there would be some economies of large scale.

In actual fact, cash expenditures of the States and local governments³ have increased relative to total output in recent years, from 7.7 percent in fiscal year 1948 to 9.7 percent in 1956. This increase, instead of the sidewise movement or slight decline that might have been expected under ordinary conditions of growth, is easy to explain. State-local expenditures were kept to a minimum during World War II and, before the backlog of accumulated demands could be worked off, the Korean war intervened. On top of this, there has been a rapid rate of growth in population and a movement of population to the suburbs. As a result, road, school, and other public construction projects have lagged behind actual needs. State-local expenditures are still rising relative to total output, and this trend may be expected to continue until a substantial part of the backlog has been worked off.

At the Federal level, nondefense expenditures have also increased at a faster rate than total output. Cash expenditures, exclusive of outlays for defense, foreign aid, and interest, rose from 5.8 percent of the gross national product in fiscal year 1948 to an estimated 7 percent in fiscal year 1958. On a per capita basis, and corrected for price changes, these expenditures will be approximately 50 percent higher in the current fiscal year than they were 10 years earlier.

Even a cursory examination of the major categories in the budget will reveal that the recent rise in Federal nondefense expenditures cannot be attributed to needs created by growth. For example, Federal cash expenditures for agriculture increased from \$0.6 billion to \$4.9 billion in the past 10 years; matching grants to the states for assistance to the aged, the blind, and other categories of needy persons increased from \$0.7 billion to \$1.7 billion; and outlays for housing, community development, and related activities increased from \$0.2 billion to \$0.9 billion. Such expenditures might have been expected to decline with the steady increase in employment and the continued growth of the incomes and financial assets of the Nation's families; yet there is little evidence in recent budgets that such a decline is in prospect.

I must confess that I have great difficulty in understanding the argument that substantial additional Federal spending—over and above the spending required of States and local governments—is needed to stimulate growth. The argument seems to be that, since growth requires more investment, investment by the Federal Government should rise proportionately as much as—and perhaps even more than—investment by other sectors of the economy. This proposition is by no means self-evident. In fact, in an economy with so many

³ Including Federal grants-in-aid and retirement and insurance trust expenditures, but excluding outlays of utilities and liquor stores.

other institutions capable of supporting large-scale investment projects—individuals, businesses, State governments, local governments, quasi-public authorities, and voluntary associations—it would seem more reasonable to suppose that less reliance need be placed on the Federal Government as these other institutions expand their activities.

My own view is that, given our present institutional framework, the Federal Government should refrain from making an expenditure unless it is absolutely certain that it is needed and that other units in the economy cannot provide that expenditure more efficiently.

There are strong arguments for turning to the Federal Government only as a last resort. Spending decisions will be more economical and efficient if they are made directly by the people who pay the bills. The economy will grow more rapidly if the investment of savings must meet the test of profitability in a competitive market. The freedom of the individual and the vigor of State and local government will be better protected the more limited the size and power of the Central Government. And, in an economy where private demands are high, we can help avoid inflationary pressures by holding down the size of the Federal budget.

I do not want to imply that our needs for public assets are small. On the contrary, there is need to clear the slums in our large cities; to build more schoolrooms, hospitals, and roads; to improve our harbors and airports; and to conserve and develop our natural resources.

But should these be provided by the Federal Government? The answer, I believe, is that only few of these important programs may be clearly labeled a Federal responsibility. One of the clearest cases is the financing and planning of interstate roads. In constructing the Nation's highways, attention must be given to the needs of interstate traffic and to defense needs. Furthermore, the State-local highway programs must be coordinated so that they will result in a logical national network. For these reasons and one other—that the program can be financed through taxes levied on highway users and need not be a drain on the general revenues—CED has endorsed Federal participation in the construction of the Interstate Highway System.⁴

On the other hand, education and health are either a State-local or private responsibility. Airport improvement (as distinct from aids to navigation), slum clearance, and urban development programs must be tailored to the needs of individual cities or metropolitan areas. The improvement and operation of commercial harbor facilities is a local, State or regional problem for which the use of a quasi-public authority seems to best be suited. Conservation and development of natural resources is a matter of national as well as local concern, but Federal outlays for these purposes should be restricted to projects that cannot be undertaken by private businesses or State and local governments; and, in all cases, the full cost of construction and operation—including the cost of capital at market rates—should be borne by the beneficiaries of these projects.

I conclude that most of the governmental services and public assets required under conditions of growth should be provided by the States and local governments. Before turning to the reasons why the Fed-

⁴ Committee for Economic Development, *Modernizing the Nation's Highways*, January 1956.

eral budget for nondefense purposes is nonetheless at record levels, it is necessary to examine still another argument that has been used of late to justify increased Federal expenditures, namely, that the States and local governments do not have the financial resources to satisfy the growing demands upon them.

ROLE OF FEDERAL AID

Some people who agree that States and local governments have the primary responsibility in providing governmental services under conditions of growth nevertheless believe that a major share of these services should be financed by the Federal Government through grants-in-aid or similar devices.

Since 1940, the Federal Government has provided roughly 10 percent of total State-local revenues, with the exception of World War II years and the subsequent period of readjustment. In fiscal year 1956, total Federal aid accounted for \$3.3 billion of State-local revenues—an amount just short of 10 percent. Since then, however, the Federal highway program has been put into operation and the magnitude of Federal aid has been rising rapidly. According to the President's budget for fiscal year 1958, Federal grants (exclusive of the proposed school construction aid program, which was not enacted by this year's Congress) will amount to \$5.3 billion this fiscal year and, at this level, they will probably account for 12 to 13 percent of State-local revenues.

The use of Federal aid is not limited to a few small and isolated activities of the State and local governments. In fiscal year 1956, 87 percent of total Federal aid was allocated to education, highways, public welfare, health and hospitals, and natural resources—expenditure categories that accounted for 74 percent of total State-local expenditures. It is important to recognize, therefore, that the proposals to increase Federal aid would add greatly to an already bewildering variety of strongly entrenched programs.

There is a place in our financial system for Federal aid. Such assistance should be reserved for projects, like the road program, in which the Federal and State or local governments have a joint responsibility. In all cases, the State and local governments should finance a substantial portion of the cost of the joint program on a matching basis.

There are grave dangers in an excessive reliance by the State and local governments on the Federal Government for financial assistance.

In the first place, such aid may lead to an encroachment by the Federal Government on decisions that should be made by State, county, and city governments. Those who are familiar with local conditions are in a much better position to gauge the needs of their communities.

Second, even if Federal assistance is provided on a matching basis, there is always a tendency for States and municipalities to allocate more of their own resources to the areas in which Federal assistance is given merely to obtain the Federal funds. Thus, the use of funds provided by another government may result in a misallocation of resources, with some activities being supported too handsomely and other, more necessary, activities being starved. As nearly as possible, tax and expenditure decisions should be made at the same level of government, rather than at different levels.

Third, Federal aid has already placed a heavy burden on the Federal Government. In the current fiscal year, grants-in-aid will constitute approximately one-seventh of total Federal cash expenditures other than defense and foreign aid. The continuous rise in Federal aid during the past decade has been an important factor in preventing the moderation of the increase in Federal expenditures that is necessary before Federal tax reduction becomes practical. In view of the urgent need for Federal tax reduction and tax reform in the interest of promoting growth, augmentation of Federal aid programs could delay indefinitely the revisions that have already been postponed for much too long a period of time.

The financial problems that must be faced by the State and local governments are admittedly formidable. They can be solved within the traditions of our Federal system, if the States and subdivisions accept their responsibilities. In practice, Federal assistance cannot be confined to a few selected activities—once the assistance is extended to another area, there will always be requests for more Federal aid as new State-local problems arise. As the Kestnbaum Commission has pointed out:

If we are not willing to leave some room for diversity of policy, to tolerate some lack of uniformity in standards, even in matters which are of national concern and about which we may feel strongly, the essence of federalism, even if not the legal fiction, will have been lost. We must also realize that it can be lost, or its vitality sapped, by nonuse of State and local initiative as well as by overuse of national authority. We have, therefore, as citizens a responsibility to see to it that those legitimate needs of society that could be met by timely State and local action do not by default have to be met by the National Government.⁵

CAUSES OF HIGH AND RISING FEDERAL SPENDING

There are two major reasons why the Federal budget continues to rise even though it is already at record levels. First, a number of Federal programs are misdirected—we are trying to solve problems by spending more money, rather than by eliminating the causes that created them. Second, the Federal Government is doing things that the private economy or that State and local governments can do more efficiently.

The agriculture program is perhaps the best illustration of the type of program that should achieve the desired results at lower costs. In its statement on agricultural policy⁶ CED urged that emphasis should be placed on withdrawing whole farms from cultivation. We also warned that, unless price supports are gradually reduced to free market levels while the land retirement program is being carried out, it would be impossible to bring the supply of, and the demand for, farm products into balance. Finally, we suggested that assistance should be provided to help some farmers find new and more satisfactory means of earning a livelihood.

⁵ Report of the Commission on Intergovernmental Relations, June 1955, p. 5.

⁶ See *Economic Policy for Agriculture, 1956*.

In actual practice, the agricultural program has worked in the other direction in two of these respects. Price supports are being reduced, although the pace is too slow. However, whole farms are not being removed from cultivation under the soil-bank program; and enough is not being done to help farmers on uneconomical farms to move them to other occupations that provide higher income opportunities.

Another Federal activity that needs to be reexamined critically is the secondary mortgage purchase program of the Federal National Mortgage Association. This program was at one time to be converted to a self-supporting private mutual enterprise with the purpose of alleviating temporary shortages of mortgage funds. Instead it is being used to insulate the mortgage market from general monetary policy. In an economy with our efficient private capital markets, one logical remedy to try before the Federal Government intervenes is to permit the Federal agencies that insure and guarantee mortgages to meet the prevailing rates.

The stockpiling programs seem to be directed more at stabilizing prices of some metals and minerals than at meeting our security needs. Since our stockpile exceeds \$6 billion and our capacity to produce critically necessary materials has increased substantially in the past few years, it is time to consider revisions of these programs in the interest of reducing prospective Federal activities.

The postal deficit of \$600 million is such a self-evident disgrace that it is hard for the ordinary citizen to understand why the Congress does not eliminate it. Postal rates should be raised promptly to pay for the entire cost of the postal system, and user charges should be adopted in other cases where individuals and private businesses benefit directly from a Federal service.

Considerable savings can be made in the veterans' programs by revising payments in accordance with the recommendations of the President's Commission on Veterans' Pensions. In particular, the Commission's proposals for gradual elimination of benefits for non-service-connected disabilities should be implemented as soon as possible.

Finally, the Federal Government should restore to the State and local governments functions that they are in a better position to perform. Among these are sewage and pollution-control facilities, vocational education, disaster relief, urban redevelopment, and public assistance. The Joint Federal-State Action Committee, appointed by the President, is now considering the feasibility of shifting certain governmental functions and tax sources from the Federal Government to the State and local government. I hope that the results of this work will provide the basis for a clearer delineation of the role of the various levels of government in our Federal system.

The foregoing are only a few examples of the policies and programs that should be reviewed in order to reduce Federal expenditures.

THE NEED FOR BUDGETARY REFORM

There are, of course, great political obstacles to overcome if the Federal budget is to be trimmed to its absolute essentials. As CED indicated in its latest policy statement, the biggest obstacles are—

public defeatism about the Federal budget and the pressures of particular groups to expand Federal programs in which they are interested. * * * Citizens will

have to be willing to forego Federal expenditures that are less valuable to the Nation and to themselves than tax reduction.⁷

The way to overcome defeatism and apathy is to reform Federal budgetary procedures in order to focus the attention of the public and the Congress on the consequences of expenditure decisions. In our study of Federal budget procedures,⁸ we found that the budgetary process is deficient in two important respects, each of which must be dealt with properly to achieve economy and discipline. First, adequate consideration is not given to the relation between total expenditures and taxes in the formulation of expenditure policy. Reduction of taxes seems to be subordinated in the budget process to the pressures for expanding the numerous activities of Government. Second, the Congress and the public are not adequately informed as to the long-range costs of particular programs. What seems to be a relatively small expenditure for a new program when it is initiated often mushrooms into billions of dollars. It is clearly impossible for Congress to judge the desirability of any program merely on the basis of the current costs.

To remedy these weaknesses we emphasize five recommendations:

1. The administration must take the leadership in formulating a policy that will leave room for tax reduction. In appraising the worthwhileness of government activities, we should remember that reliance on the free decisions of individuals, including their decisions about how they will spend their income, is fundamental to our democratic society.

2. Information on the purposes and relative values of budgeted expenditures should be presented to the Congress on a program budget basis, so that it can evaluate the purposes of the recommended programs and decide how much should be appropriated for the activities of Government and how much should be allocated for tax reduction. We urge the use of program budgets, because only in this way can the great mass of information now presented in the budget be organized to relate proposed and present programs to their costs. Under present procedures, expenditures and appropriations are subdivided by departments and agencies, rather than by type of activity. The Congress and the public will be able to understand the full scope of government activities if appropriations and expenditures are combined by programs rather than by departments. Some progress along these lines has already been made, but the development of the program budget should be pushed ahead more rapidly in the near future.

3. To make budget decisions properly, Congress should have before it estimates of revenues and expenditures, not only in the coming year but also for 4 or 5 years ahead. Along with overall budget totals, the estimates should include details for the major, long-term Federal programs, whether they are included in the administrative budget or in the cash budget.

4. The President should be given authority to veto individual items in appropriation bills. Under present procedures, the President cannot disapprove one item without disapproving many others and, as a result, too many wasteful expenditures creep into the annual budget.

⁷ Tax Reduction and Tax Reform—When and How, May 1956, p. 10.

⁸ Control of Federal Government Expenditures, January 1955.

5. Congressional procedures should be revised to encourage Congress to view government spending as a whole and to evaluate the effect of the budget on the private economy. A joint budget-policy conference, consisting of key congressional leaders, should be organized to coordinate revenue and expenditure decisions and to set guidelines for the separate tax and expenditure committees of the Congress.

CONCLUSION

With the Federal budget as high as it is now, it is imperative, in the interest of economic growth, that the current upward trend in Federal expenditures be moderated and, if possible, arrested. Federal expenditures are using up resources that might be more productively used in the private sector of the economy or by State and local governments. High Federal expenditures are absorbing incomes that might provide an incentive to effort and enterprise, and the high Federal tax rates needed to finance these high expenditures reduce effort and activity devoted to earning and producing income.

To say that Federal expenditures should be moderated is not the same thing as saying that needed governmental services should not be supported. Indeed, a growing economy requires more governmental services, but the major responsibility for providing these services should rest with the State and local governments. If we continue to spend more at the Federal level, the other units will not have the financial resources they will need to satisfy the demands imposed upon them by a growing economy.

III. LEVEL OF GOVERNMENT AT WHICH PUBLIC
FUNCTIONS ARE PERFORMED

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Dr. George C. S. Benson, president, Claremont Men's College

A few decades ago, this problem could have been solved with a very simple answer: "Read the constitutions." The Federal Constitution outlined Federal powers, and the State constitutions often outlined local functions as contrasted to State functions. Today, however, the complete freedom accorded to congressional exercise of the Federal expenditures power by the Supreme Court does place on each Congress the awe-inspiring responsibility of redetermining the allocation of functions in those fields where expenditure is a major item. Not only do congressional decisions determine whether or not the Nation enters a governmental area which had formerly been considered the province of the States, but Federal grants also frequently include provisions which profoundly affect the State-local distribution of functions.

GRANTS-IN-AID

Federal grants-in-aid have been a major, although not the only, means of bringing the Federal Government into disputed, nonconstitutional functions. The grant device has sometimes been a useful means of cooperative sharing of responsibility for a function between levels of government (as, to take an obvious example, the public-health function should be shared). It is an easy method of recognizing a Federal "interest" in a field, or of stimulating States and localities to functions which they might otherwise ignore. It has, in a number of cases, considerably improved the level of governmental administration in some States and localities.

The troubles with the grant-in-aid device grow perhaps out of the ease with which the device is used. There are now too many grants (about 90) and those grants are too detailed. They confuse State and local budgeting and disturb the responsibility of governors, State legislatures, mayors, councils, and county boards for the functions which are supposedly allocated to those bodies. In a subtle way grants become a means of defeating popular control of government at the State and local level. Professional officials at each level work out their policies together, often without much regard to the opinions of elective officers.

There are, however, some places where grants would be more desirable than direct Federal programs. Some of these places are suggested in the later discussion of specific fields. They are usually

cases where a direct Federal operation has tended to keep State governments from entering fields in which those governments should have an interest.

HAPHAZARD NATURE OF FEDERAL ACTIVITIES

Federal intervention in the fields which were formerly considered State or local has, in the nature of things governmental, been somewhat haphazard. It is, of course, possible to cite frequent oddities. For example there are now some Federal activities in all major fields of State and local expenditure, except public safety, which is in most countries one of the first functions to be subject to central authority. To take another example, the Federal Government gives public-assistance grants in those special categories where the needs are most continuous and leaves to the States the function of general relief, which has far more bearing on the Federal Government's full employment responsibilities than do the special categories of public assistance. The Federal Government gives loans to aid certain local-government public-works planning but then ignores the results of such planning with some of its own expenditures. It reaches the child-welfare worker in the county public-assistance department with two quite uncoordinated groups of grants. It may give money to one public-health worker from several public-health grants. It has determined over 40 percent of State and local expenditures in Mississippi without any consideration of the needs of Mississippi as a whole. The Federal Government teaches the farmer about general care of his farm through a grants agency but about soil conservation through a direct Federal agency.

But these and other incongruities are a natural result of the development of Federal action in the State-local field through a score or more of Federal bureaus and an equal number of congressional committees. This committee is to be congratulated for its efforts to view these problems as a whole, and to find some general criteria for allocation of functions.

CRITERIA FOR ALLOCATION

A substantial number of criteria for allocating governmental functions come readily to mind. Is the function one which can be financed adequately by the level concerned? Is it a function, the financing of which affects the general economic condition of the Nation? Is it one which prospers better under the direct popular control of local government? Is it one which is so precious to our liberties that we do not want unified control? Or is it one which gains from the superior administrative technique and the greater knowledge normally to be found on a broader level of government? Does the function require close coordination with other functions which are already located at one or another levels of government? Do the persons subject to it move readily from jurisdiction to jurisdiction? If the function is one which requires different policies in different sections of the country, is this not a substantial argument for State or local administration? Is the function one which a large central government cannot operate too well because it involves several bureaus which are difficult to coordinate?

One questionable criterion which is not stated above is whether or not the function has a "national interest." All activities of government have some degree of national interest, in the sense that most aspects of the life of every citizen are important for national defense, or for international relations, or for the general welfare. If we permit "national interest" to be a criterion of allocation, everything will soon be nationalized, Washington will be vastly overburdened, and our Federal system will be gone. There may, however, be functions in which a high degree of "national interest" justifies Federal activity.

The above host of considerations is confusing, so it is best to begin by looking for major criteria. Clearly the first one is that those functions specifically outlined in the Constitution as Federal functions should be exercised by the National Government. This includes national defense, foreign policy, international and interstate commerce, Indian affairs, patents and copyrights, money and currency, and the other items which you know. These functions usually cannot be transferred to State or local levels without constitutional amendment, probably should remain where they are, and hence are out of this discussion. It should be noted that the importance of these functions has increased vastly in the past few decades. Instead of being concerned with how to dispose of Federal surplus as in the last century, we now have a Federal budget which, in the field of strictly constitutional Federal functions, involves expenditure of over \$50 billion. There are three important implications of the size of this Federal budget for this committee. First, in itself these strictly Federal expenditures are a large enough amount to permit some delay or speedup of expenditures as may be dictated by national economic considerations. Second, it is already a sufficient array of vitally important powers to keep the President and Congress very fully occupied. Do we really want to add to the responsibilities of overburdened Federal elective officers the whole range of State-local governmental activity? For it should be noted that once the Federal Government moves into a field, even by the deceptively mild grants-in-aid route, the basic policy decisions in that field will sooner or later fall back on the President and Congress. Pressure groups would rather work on 1 Congress than on 48 legislatures.

A third important implication of the large, strictly Federal budget for allocation of functions is fiscal. When the Federal Government is carrying heavy charges for defense and foreign relations, is it financially wise to increase its responsibilities in what was considered the State and local field? Some grants in these fields tend to encourage expenditures. For example, Federal old-age-assistance policies have encouraged heavy expenditures in States like Louisiana and Colorado. At a time when total governmental costs are necessarily high for defense, it is not wise to get into intergovernmental fiscal relationships which encourage expenditure.

Next to the constitutional criterion for allocation of functions it seems to the writer that the most important criterion of allocation is the degree to which the function may be subject to direct popular control. All fields of government have some technical features, but some are much more appropriate for judgment by a local citizenry than others. In this day of large technological organizations, it

seems desirable to leave to the State and local units of government such functions as are more readily understood and directed at those levels where the people are best able to do so.

The reasons for leaving functions to State and local units where direct popular control is possible are well known but should be re-stated briefly. Decentralized government has the fundamental advantages of—

1. Preventing undue concentration of governmental power which may be dangerous to liberty.
2. Giving citizens a greater opportunity to participate in their government.
3. Providing greater opportunity for training political leadership through practice in State and local government.
4. Permitting greater adaptation of governmental policies to the needs of particular areas.

Clearly, however, the above criterion for direct popular control should be aided by several others. Consideration of the fiscal capability of the local unit is in order. Consideration of its administrative capacity, either through qualifications of its personnel or through its political willingness to recognize governmental problems, is also in order. Also before all technological work is assigned to the Federal level of government, we should reflect that its superiority is in gathering technicians together. In some fields we need rival groups of technicians to work out new ideas.

If one values the Federal-State-local division of labor, he could then allocate a substantial group of functions to the State-local level on the ground that these functions are ones which operate better under direct popular control and should do so for the reasons stated above. Here we are admittedly entering a very controversial field.

The writer places these criteria very high because he assumes that most Americans wish to maintain direct popular control. He admits, however, that some other considerations, such as administrative convenience of persons affected, or effect of the functions on governmental policy in the economic field, will at times result in modification of the results of this criterion. How do we apply these general criteria to specific fields?

Law enforcement

Most Americans seem to feel that law enforcement is a field of State or local effort. This is in part because of a natural fear of the great power of a Federal police force, in part because of union-labor opposition to State police forces, in part because no pressure group has ever urged federalization. In general this desire to avoid concentration of police power seems healthy for liberty, but it must be admitted that a number of local police forces leave much to be desired, and that some greater integration of our police work would be helpful. Perhaps the services now rendered by the Federal Bureau of Investigation to State and local citizenry to support and improve the functioning of their own law-enforcement agencies will be adequate. Perhaps greater State activity is desirable.

Education

This writer would include public education in the fields which should be left subject to direct popular control. If the democratic

process of popular judgment can work anywhere it should work in the public schools with which more voters come into direct informed contact than any other function of government. Technical aspects of this field can easily be transmitted from system to system. Another major consideration in the case of public education is the criterion of liberty. Do we want Federal grants, to which some administrator or subcommittee can easily attach conditions, to determine policies in our vast public-school system? The schools could easily become a mechanism for political thought control on a tremendous scale. Incidentally, some of the groups which are now most actively working for Federal aid to education might be among the first to regret some of the Federal controls.

The Federal Government is already involved in a number of aspects of public education, some of which seem questionable to this writer. The vocational education program does not seem to have much more of a national interest than other programs, but would be better coordinated with other State and local activities if it had more direct State management. The Federal subsidies of education in federally affected areas are justifiable on the ground of financial need, though their distribution leaves something to be desired. The national school-lunch program of the Department of Agriculture may be a useful means of disposing of surplus agricultural commodities, but the cash grants under it seem to be an unnecessary expense on the Federal Government and an intrusion on a field which belongs to States and localities.

Welfare

Categorized public welfare is now so definitely under Federal control that any attempts to put it elsewhere will surely raise very substantial protest. Nevertheless, it seems to the writer that this is a field of direct popular interest and control. If we are to be taxed for the support of our indigent fellow citizens (as most Americans will probably wish to be taxed within limits) we should have some say as to the requirements for relative support, the amount of relief payments, and the terms of eligibility. These practices will vary greatly from section to section of the country as perhaps they should.

One exception to State and local responsibility for public welfare is general relief, the relief to be received by the unemployed if a severe economic situation has used up unemployment-insurance benefits. In the event of recurrence of another depression, it seems that here is a real place for Federal help on the ground of the greater credit and other financial resources of the Federal Government in such times and the responsibility which the Federal Government has assumed for full employment. Perhaps the mechanism for that help should now be established.

Highways

Another field in which direct popular control is important is that of highways and roads. Voters know what kind of roads or streets they are using and can easily pass judgment on whether they should spend more or less dollars for this purpose. It will be a tragedy when, as has been seriously proposed, President and Congress must consider questions of street paving. Yet the whole trend is in the direction of greater Federal responsibility for road construction. Recent high-

way acts have increased the percentage of grants which the Federal Government is paying.

There are certainly some considerations for Federal interest in the highway field. National defense is interested in an adequate interstate network as is interstate commerce. Certain other Federal activities are aided by better highway networks. But, as noted above, we should be wary of this "national interest" criterion for allocating functions of government. Some genuine national interest can be found in every function of Government; so the inevitable result of pushing the national-interest criterion is complete centralization.

It seems to this writer that the better way of allocating responsibility for highway construction (almost all maintenance is State and local and no one is seriously advocating change of this allocation) is to assume that this is a function which profits from direct popular control, and that the Federal Government should intervene only where the State or locality has genuine financial need. Federal funds for construction of important interstate roads across vast desert areas, such as those of Nevada, are clearly appropriate. Federal funds for construction to or through Federal facilities are also appropriate. Some Federal aid for a definitely interstate system is also in order. But the general Federal aid which requires apportionment of certain percentages to rural roads and certain percentages to urban areas is both a denial of popular control and a confusion of the responsibilities of Government. It is well known that these allocated general aids frequently result in less economical expenditure.

If the Congress should decide at some future time that the general economic condition requires more roadbuilding, it can easily find State and local highway agencies which are able to spend the money.

Aids to agriculture

In this field, we find a curious and expensive existing allocation of function which violates the criterion of direct popular control. The long-established extension system is a grants-in-aid compromise by which governmental education of the farmer benefits from national concentration of technical knowledge and local control of the mechanism through which that knowledge is transmitted to the farmer. Yet we have over decades maintained a rival agency (the Soil Conservation Service) with direct Federal funds to educate the farmer on matters of soil conservation. While this deviation from the extension pattern could originally have been justified as a means of waking up extension personnel who were not sufficiently aware of the importance of soil conservation, it is today an upsetting factor in agricultural education.

In addition we find Federal agencies passing out direct benefits to agriculture which are not supportable, either as a matter of allocation of functions or of sound public policy. The agricultural price-support program, which may have had some justification at its inception, is today morally and economically unsound. And, if it were sound, it should be administered by the States as its own statute has long permitted but the Department of Agriculture has not wished to encourage. The actual determination of subsidies and of acreage allocation at the local level is a function which Federal administrators should wish to decentralize in a Federal system of government. This is a function which should be subject to direct popular control.

Another expenditure function which is reasonably subject to direct popular control is that of "soil conservation" benefits payments. This program, if continued at all, would be more economically and efficiently handled, if it were done on a grants-in-aid basis with the States. The propriety of payments here is easily a matter of direct popular control. No peculiarly Federal technical knowledge is needed. While there is a national interest in soil conservation, it is doubtful if such conservation is the real end of this program. In any event, the national interest could be recognized adequately through a grants program.

Social insurance

The present picture in the social-insurance field is complex. The old-age and survivors insurance program is a direct Federal operation. So is railroad and maritime workers' compensation. Unemployment compensation (and the related Employment Service) is a joint responsibility of Federal and State governments. Workmen's compensation is a State program. All of these fields are similar in technical difficulty, so there is no argument to justify the present diversity. There is, however, an argument of administrative convenience which clearly justifies keeping old-age and survivors insurance on a national basis. Persons are bound to move from State to State in a mobile industrial population like ours. Recordkeeping would be vastly confused and movements of individuals possibly handicapped by State regulations if this function were handled on any other basis.

Coverage of individuals under workmen's compensation is immediate so there is no particular reason for its not being handled on a State basis, unless one accepts the assumption that the Federal Government has a national interest in keeping all State workmen's compensation laws up to some minimum level. Since workmen's compensation is not known as an important cause of interstate competition, this writer would reject the above assumption on the ground, already stated, that we would lose our Federal system if we allocated to the National Government all functions which have some national interest.

Unemployment compensation and the related employment service present a different problem. Both fields clearly involve some national issues. The Joint Economic Committee has an interest in unemployment compensation for its possible stabilizing effect on the national economy. All of us are interested to see that people do not lose unemployment compensation as a result of an interstate movement. The Employment Service has some role in suggesting out-of-State placements to unemployed workers. Yet there are powerful reasons for keeping these services on the State-local level. Both are functions which are reasonably susceptible to direct popular control. Some of the functions with which they are closely related such as vocational education, public assistance, and public education are already on that level.

On the whole, it seems probable that the existing allocation of functions in these fields is relatively correct. Administrative procedures should probably be altered, as suggested by the Commission on Intergovernmental Relations, but the sharing of Federal and State activities seems correct.

Conservation of natural resources

In this function we also have a widely variegated pattern of operations. The Federal Government owns and operates (with vastly different policies in different bureaus) a large amount of forest land, some parks, and a great deal of wild land. It spends funds on some cooperative work in connection with forests, including chiefly fire fighting. It provides the sole resources for many flood-control projects and "lends" a substantial sum (much of which may never be repaid) on reclamation projects.

The story as to how the Federal Government got itself into this vast variety of projects is too long to tell here. It is partly because of the failure of States and localities to undertake this work themselves. It is partly because no governmental agency is likely to give up a project on which it has started.

It seems clear that most of these functions are ones which are susceptible of direct popular control and which should involve a greater participation by the States and to some extent by local levels of government. Admittedly, any such change would have to come gradually and after substantial education of the official personnel of some States, perhaps through grants-in-aid. But it is clear to this writer that the States, especially the public-land States, would be more vital units of government if they took a constructive interest in their natural resources. While prediction is difficult in any field of social action, it might prove that local ingenuity would find better methods of developing some of those assets than has the Federal Government. A recent study in California has suggested that this might be the case.

Specific recommendations are not made here because the writer agrees with the Commission on Intergovernmental Relations and the Second Hoover Commission that the conservation problem deserves special treatment. But he is convinced that the States should bear some of the costs and share in some of the controls of this field.

Control of commercial activities

The writer is not discussing the field of commercial regulation for two reasons. First, the amount of governmental expenditure involved is small. Second, the legal problems and confusions are very great.

Public health

These inexpensive but important activities are spread over three major levels of government: Federal, State, and usually county. The work on all three levels is linked together by an elaborate system of specific grants. While there are probably too many grants, the existence of the system seems reasonable in the light of the criteria advanced above. Public health is largely a technical function and most aspects of it speedily cross State and local boundary lines in a mobile population like our own. So there is less of the argument of direct popular control for complete local control and there are more technical reasons for some kind of national control. But there is one important consideration for maintaining some degree of local autonomy, i. e., the close interrelationship of the public-health function to several other activities which are predominantly on the State and local level. These include public assistance, public education, and law enforcement.

Fiscal aspects of allocation of functions

Since the writer is the only political scientist on the panel, he has left fuller discussion of the fiscal problem to his colleagues from the field of economics. He would, however, like to make two general comments about the basic problem of the finances of a Federal system. The problem is, of course, that the Central Government can administer most taxes at less cost and with more fairness to the community as a whole than can State and local levels of government, although the latter are the more logical levels for administration of many expensive functions.

The first comment is that there is little likelihood of effective decentralizing action through return of specific taxes and functions to the States. The Commission on Intergovernmental Relations explored this field carefully and found no such reallocation which would not benefit the wealthier States and hurt the poorer ones. Although our grants system is not basically an equalizing system, it seems improbable that the American people will consent to a change which is so far opposite from equalizing.

The second comment is that the equalizing block grant could be well used to replace some of the excessively specialized and control-ridden particular grants. The Commission on Intergovernmental Relations rejected this block-grant program on the ground that it would only add block grants to specific grants and thus further reduce the independence of States and localities. This, of course, is a psychological approach which depends in part on the mood of Congress when it considers block grants. If a substantial portion of Congress is really seriously concerned with the amount of national expenditure and with the detailed control of State and local expenditure into which Congress has been almost unconsciously gravitating, a block-grant system, with larger aid to the poorer States might be a useful substitute for existing specialized grants and a useful answer to pressure groups suggesting new grants.

CONCLUSION

This memorandum is not much more than a series of random remarks on a subject which deserves much fuller and more careful consideration. Important functions have not been considered, and of course many of the functions which have been considered involve other criteria than those mentioned here. The writer's hope in submitting these comments is to emphasize a few points of view:

First, the existing allocation of functions between levels is not very rational, and confuses responsible government on all levels and has an adverse effect on State and local budgeting.

Second, the concept of "national interest" has been overworked. It could easily lead to the end of our system of decentralized government.

Third, an important criterion of allocation of function which is often overlooked is that of the desirability of direct popular control of many functions. Reallocation of functions should be considered in this light.

FEDERAL EXPENDITURE AND STATE FUNCTIONS

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In his Williamsburg speech of June 24, President Eisenhower called upon the States to assume financial responsibility for the provision of public services now borne, in whole or in part, by the Federal Government. Following this, in July, he appointed a top-level committee to work with a committee representing the State governors. The preservation of effective political decentralization has been made a subject for serious contemporary discussion.

The President made his views on these matters quite explicit. He recognizes the advantages of genuinely decentralized government. But at the same time, he feels that there exist certain pressing social needs which, if the States do not meet them, must be provided for by the Central Government. In this position, the President is surely reflecting an attitude which is widely shared. And it is this attitude which will possibly provide the motivation for expanded Federal expenditure over the next decade. The Federal Government will probably continue to assume greater and greater financial responsibility for highways, schools, hospitals, resource development, slum clearance, urban redevelopment, flood and natural disaster relief, etc.

"UNDENIABLE" NATIONAL NEEDS

In this paper, I want to examine critically this commonly held attitude. Two specific quotations from the President's speech provide a text:

Every State failure to meet a pressing need has created the opportunity, developed the excuse, and fed the temptation for the National Government to poach on the States' preserve. Year by year, responding to transient popular demands, the Congress has increased Federal functions.

Opposed though I am to needless Federal expansion, since 1953 I have found it necessary to urge Federal action in some areas traditionally reserved to the States. In each instance, State inaction, coupled with undeniable national need, has forced emergency Federal intervention.

There is no ambiguity here. The needs exist. Either the States respond to them, or the Federal Government must. On this simple and apparently straightforward logic, the power of the States themselves to determine whether or not there exist needs for services traditionally performed has completely vanished.

Something is wrong here. The mere presence of public or collective needs has become confused with the necessity for satisfying them. The need for more and better highway facilities, for more school-

rooms, for more slum clearance, etc., may be readily admitted. But needs are always relative, never absolute. The existence of "undeniable" need does nothing toward proving that action must be taken to meet it. Paralleling each additional need or desire, be it public or private, there is some cost of meeting it, a cost which can be measured in terms of the goods and services sacrificed or given up. This concept of alternative or opportunity cost is the central principle of economics, and we stand always in danger of overlooking it, especially in discussions of public policy issues. We can collectively satisfy the need for more schoolrooms only by giving up something else—dwelling units, automobiles, or what have you.

Public needs become objectively meaningful only when people indicate a willingness to bear the necessary costs. And there is no objective standard to be utilized at this point. In a democratic society, the genuine collective needs of the people are expressed only through their actions as voters, pressure-group members, legislators, and administrators.

The question at issue concerns the prospects for Federal assumption of financial responsibility for functions traditionally performed by the States and local units of government. The President suggests that the latter units have failed to meet the needs which should be met, presumably on the basis of some objectively determinate standard. But if no objective standard exists, on what basis can such a statement make sense?

FEDERAL VERSUS LOCAL DECISION MAKING

It might be argued that the social decision-making process represented by the Federal Government is more "rational" than is that represented by State and local units, that is "rational" in the sense that Federal decisions are more closely in correspondence with the genuine desires of the populace. This argument appears from time to time under different forms, but surely it has no basis either in fact or ideal. The philosophical foundation of western civilization embodies the assumption that the individual acting for himself or his family can best express his own wants. Failing this, the individual's desires can be more closely satisfied through decisions made in small, closely associated groups and organizations. How else can we account for the widespread support for such ideas as local option, home rule, self-determination, etc.? The individual's wants are more adequately expressed through the actions of a county or city school board, which is forced to respond directly and continuously to conflicting pressures, than through the action of the National Congress or a Federal administrative agency. At the local levels of government, the needs of individuals are clearly manifest, but (and perhaps here is a key to some of the confusion) so are the costs. And it is precisely because both needs and costs can be more properly weighed that local governments many times seem to the careless observer to be backward and unresponsive in taking positive action. Local school boards do not always decide to build schoolrooms which some educational authorities, thinking only of the need, demand. But this fact in itself is an indication that decisions are being made on a rational basis rather than the opposite.

The best evidence that many of the needs for extra schoolrooms, more roads, more hospitals, and so forth, are not undeniable is provided by the fact that States and local units have not taken measures to satisfy them. Far too often, the Federal Government is called upon to assume additional financial responsibility because the direct connection between benefits and costs tends to become lost in the complex maze of Federal budgetmaking. To the individual recipient of Federal aid, Federal financing gives the illusion of some sort of magic although simple logic must reveal that additional Federal taxation is necessarily present. As a general rule it may be stated that the further removed the individual is from the governmental unit involved the greater the fiscal illusion becomes. This alone should give pause to any extension of Federal financing at the expense of State and local units.

WHEN IS FEDERAL FINANCING OF STATE FUNCTIONS JUSTIFIED?

Fiscal equalization

There are only two legitimate grounds which justify that the Federal or Central Government assume some fiscal responsibility for public services performed by State and local units of government. First, some Federal action is legitimate if the purpose is that of achieving fiscal equalization among the various States. By fiscal equalization I mean the equalizing of the overall fiscal burden among the separate State areas.

This sort of action may become necessary if there exist wide differences in incomes and wealth among the separate States. Here the Federal Government may, in the interest of both efficiency and equity, take action to transfer funds from the richer States to the poorer States. Such transfer is necessary due solely to the fact that average incomes differ among the separate geographical subdivisions, and that these differences impose differential fiscal pressures on individuals. The individual who resides in a low-average-income State must, on the average, be subjected to a heavier fiscal pressure than his equal in a high-average-income State. A fiscal disadvantage is placed on the individual who happens to reside where low income receivers are concentrated. In more concrete terms, the Mississippi resident must pay higher taxes to get the same quality of public services than the New York resident, not due to any inefficiency of the Mississippi fiscal structure, but due solely to the fact that he lives in Mississippi. The equalization of fiscal pressures may be accepted as a proper role of the Central Government.

But, having accepted fiscal equalization as an appropriate Federal function, the next question becomes that of applying this legitimate purpose to the problem of Federal financial aid to States for particular State functions. There are several points to be noted.

First of all, the need for geographical equalization of fiscal pressure is rapidly being eliminated. Average income differentials among the States are narrowing over time. It is not to be expected, nor should it be hoped, that these differences will ever be fully eliminated. Some such differentials must remain as the result of the deliberate choices freely exercised by individuals. But regional income and wealth differentials significant enough to warrant Federal intervention should assume diminishing importance over time.

Secondly, if Federal income transfers to accomplish fiscal equalization are attempted, this does nothing to suggest that particular State functions should be singled out and designated for Federal aid. The equalization argument is a general one, and it should be applied for overall fiscal pressures (taxes and benefits) and not to particular services such as education, highways, and so forth. Ideally, Federal grants-in-aid designed to achieve equalization should be completely unconditional, and the recipient States should be free to dispose of such funds as they wish. Unless this procedure is adopted, State budgets are distorted and spending upon projects of secondary importance may be encouraged. The equalization argument provides no justification for Federal assumption of financial responsibility for specific State and local functions.

Thirdly, if fiscal equalization is the main purpose to be achieved by Federal financial aid, this can be accomplished through Federal grants to the poorer States only. There is no equalization purpose to be served by general Federal financial aid to all States, rich and poor alike.

Federal grants-in-aid, in the past, have not been motivated primarily by the desire for fiscal equalization. The factual record indicates that Federal grants to States have been almost neutral in their equalization effects. The achieving of fiscal equalization has not been the dominant motive behind expanded Federal aid, and there seems no reason to predict that the equalization argument will loom larger in the future. In fact the contrary seems more likely. Federal financial aid in the past has been tied to State performance of particular public functions. This sort of financial aid must be supported on the basis of some argument other than that of equalization.

Spillover or neighborhood effects

The second justification for expanded Federal participation in the financing of public functions traditionally performed by State and local units lies in the possible existence of important spillover effects stemming from independent State action or inaction. If the action taken by a single State with regard to the performance or non-performance of some public service exerts significant and important effects on citizens of other States, some basis is provided for the interference of the Central Government. It is at once evident that almost any action, public or private, carries with it some spillover effects. The benefits from public expenditures made by individual States rarely fall exclusively upon residents of the spending jurisdiction. And the social costs resulting from a failure to perform certain services are not normally confined to a single political unit. The relevant words become, therefore, significant and important. When do such spillover effects become important enough to warrant Federal intervention? The answer here can only be discussed case by case; there is no clear dividing line which is generally applicable.

We may, first, examine the financing of the highway system. Much of the support for Federal financing of the Interstate System, approved in 1956, was based on the presumed need for a genuinely interstate network of highways. It was argued that full State responsibility would allow portions of the national network to become depreciated to such a degree that effective interstate communication would be disrupted or seriously impaired. No detailed empirical in-

vestigation is required to indicate the weakness of this argument. If the separate States were, in fact, characterized by vastly divergent standards of road construction, some additional Federal participation may have been justified. But the road network of the Nation is remarkably uniform, and interstate travel is not difficult. The spillover effects do not loom as significant or important in any meaningful, relative sense. There appears to have been no legitimate justification for increased Federal participation in financing highway construction. This is not, of course, to deny the existence of benefits to be expected from a single, integrated system of trunk roads. These are real benefits to the Nation as a whole, but they will be secured at the cost of yet another expansion of centralized political power, a cost which can only be indirectly calculated and which tends to be of permanent duration.

As a second currently important case, we may consider the problem of Federal aid for school construction. The existence of spillover or neighborhood effects from State and local expenditure on education cannot be denied. And this is clearly a national interest in seeing that the separate States devote adequate funds to education. The population in any one State at any particular time is made up of individuals educated in many of the separate States. The benefits from educational expenditure are not limited to the citizens of the State which finances. Having said this, the whole question now reduces to one of assessing the significance of the spillover effects and weighing these against the added cost which necessarily accompanies Federal intervention.

In education, these intervention costs are likely to be especially high. Education is not a homogeneous product, and the values of maintaining separate systems are great. We do not know the sort of education which is optimal, and the forcing of all public education into a standardized straitjacket which Federal financing must involve would destroy much helpful experimentation and divergence. It is assumed that Federal financing will involve Federal control, sooner or later. There seems little evidence that such control can possibly be avoided. We may look again at the highway problem for current evidence. Federal intervention was designed to be kept at a minimum. Yet, before the revenue bill was enacted, Davis-Bacon provisions concerning wage setting were imposed, and now, only 1 short year later, active discussion is continuing concerning Federal action to regulate billboard advertising. It is naive to hope that Federal aid to school construction would fare any better. It is realistic to expect that it will fare worse.

We may summarize all this by saying that, when spill-over effects are present, there are real benefits to be gained from the securing of uniform national standards of performance of certain public services. But there are also real costs involved in achieving such uniformity. Far too often, popular discussion overlooks the cost side. The costs are difficult to compute, because they are measurable only in terms of power concentration. It is almost impossible to place dollar equivalents on costs of this nature, but this should not cause them to be neglected. Such costs show up in damage to the whole political power structure represented by a federally organized system. Genuine federalism as a viable political form requires severe limitations on the

degree of power concentration in the Central Government. And, in a country so large as the United States, genuine federalism may be essential to the preservation of the free society.

The discussion at this point becomes one of the political philosophy, which is inappropriate in this brief paper. Perhaps a more direct and positive approach is more useful. Let me state that I consider further centralization of political power in the hands of the Central Government to carry with it a real cost; that I consider the benefits to be secured from nationalizing public education, highways, and other similar services insufficient to warrant paying this cost. In making this statement I am not speaking as an economist who has measured such social intangibles as the cost of centralizing power or the benefits of nationalizing education. No accurate measurement can be made. Only those directly responsible for decisions can strike a final balance on the basis of their own attempts at measurement. But, in undertaking this difficult task, political leaders should not allow themselves to be bamboozled into accepting some supposedly objective measures of national need and then cajoled into believing that because the need exists it must be satisfied. The implications of the Eisenhower statements cited at the beginning of the paper must be rejected. The failure of the States and local units to take action in expanding certain public services is no signal for Federal Government action.

CONCLUSION

I shall conclude by stating that there appears to be no justification for the Federal Government, over the next decade, to assume greater responsibility for financing public functions now financed by States and local units. There are good reasons which suggest that a sizable reduction in Federal aid to States and localities should be carried out. But it would be naïve to expect such a reduction, and I am by nature a pessimist. But by waking up, all too late, to the dangers inherent in the continued concentration of power in the Central Government, we can, perhaps, prevent further encroachment.

This study by the Joint Economic Committee is devoted to the general topic, "Federal Expenditure Policy for Economic Growth and Stability." The proper environment for economic growth is a politicoeconomic system characterized by effective decentralization of power. Undue power concentration can only be detrimental to economic progress, whether this concentration be in the form of big business, big labor, or big government.

THE INCREASING ROLE OF INTERGOVERNMENT TRANSFER PAYMENTS IN THE PERFORMANCE OF STATE AND LOCAL FUNCTIONS

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In discussing the division of functions between governments at various levels, it is well to keep in mind two significant facts regarding the existing division and the way it is being financed.

In the first place—and contrary to the impression spread by those who ritualistically pin the “welfare state” label on the activities of Washington—the almost all-consuming preoccupation of the Federal Government is the fulfillment of its constitutionally imposed responsibility to “provide for the common defense.” Nearly 80 percent of all of the revenue Washington collects is devoted to activities related to this single, all-important function.

Second—and largely obscured from public consciousness because of the impact of the mountainous Federal expenditure—is the fact that most of the outlay for civilian public services is directly underwritten by the States and the local governments themselves.

Stated another way, although Washington collects about 70 percent of the tax dollars levied by all governments, the States and localities are paying for more than 70 percent of the total cost of all civilian public services from their own direct tax levies and charges and by going increasingly into debt.

In fiscal 1956, according to a recent study of the Bureau of the Census, the expenditures of all governments approximated \$101 billion (excluding all insurance-trust outlays and the utility and liquor-store operations of the States and localities).¹ Of this total, the Federal Government spent about \$67.5 billion, including \$3.3 billion transferred to the States and localities in the form of grants. The States and localities, for their part, raised and spent \$33.3 billion, excluding the Federal grants they received.

Over half of all this governmental spending in 1956—almost \$54 billion—went to meet the costs of past wars and to pay for national defense. These exclusively Federal outlays paid the cost of veterans' benefits, interest on the war-incurred debt, maintenance of the Armed Forces, overseas aid, the atomic program, stockpiling, etc.²

The remaining governmental expenditure—slightly less than \$47 billion—represents the total outlay by all governments for civilian purposes in 1956. This combined Federal, State, and local govern-

¹ Summary of Governmental Finances, Bureau of the Census, document G-GF56, August 23, 1957. Census concepts of Federal receipts and expenditures are not precisely comparable to those of the Budget Bureau because of the effort of the Census Bureau to conform in structure to the system it uses for classifying State and local data.

² This total is derived from The Budget of the United States Government for the Fiscal Year Ending June 30, 1958. Other figures come from Bureau of the Census sources, unless otherwise noted.

mental spending to meet civilian needs equaled about 11 percent of the value of all goods and services produced in the United States in 1956. In comparison, the outlay for this purpose was 9 percent in 1929³ when, however, there was no depression and war-created public construction lag to be overcome and no comparable pressure for expanded public services resulting from the unprecedented postwar population rise.

In 1956, public expenditures for civilian purposes were divided between the Federal Government and the States and localities in the following manner:

	Amount (billions)	Percent
Federal, total.....	\$13½	29
(Grants to the States and localities).....	(\$3½)	(7)
State and local, exclusive of Federal grants.....	\$33½	71

Most of the \$10 billion of Federal spending for civilian purposes (excluding the grants to the States and localities) went for postal services (\$2.9 billion) agricultural aids (\$2.9 billion) and other natural resource and nonhighway transportation development purposes (\$2.1 billion). Only slightly more than \$2 billion remained to meet the cost of all of the other civilian functions assumed directly by the Federal Government.

The States and localities spent most of the \$33½ billion they raised from their own resources in 1956 in the performance of 10 major functions. Their outlay for these functions, in relation to total governmental outlays for them, follows:

Function	State and local outlay exclusive of Federal grants (billions)	Percentage of total governmental outlay
Education.....	\$12.7	95
Highways.....	6.2	88
Health and hospitals.....	2.7	90
Public welfare.....	1.9	53
Police protection.....	1.3	89
Sanitation.....	1.3	100
Fire protection.....	.7	100
Local parks and recreation.....	.5	100
Local libraries.....	.4	100
Housing and community development.....	.3	62

The part played by the States and localities in providing these major civilian services is not only surprisingly large; during the postwar years it has been expanding.

In the 8 years from 1948 to 1956, State and local expenditures financed from their own sources (excluding Federal grants and insurance trust, utility and liquor-store activities) rose \$17.5 billion—from \$15.8 billion to \$33.3 billion—a rise of 111 percent. In the same period Federal grants to the States and their subdivisions rose \$1.4 billion, or only 73 percent.

³ Musgrave and Culbertson, *The Growth of Public Expenditures in the United States, 1890-1948*, National Tax Journal, June 1953.

The substantial effort of the States and localities to meet the soaring postwar demand for greater outlays for civilian governmental functions is reflected in the rapid rise in the tax collections and the debt of these governments.

Between 1948 and 1956, State and local tax collections rose almost 100 percent from \$13.3 billion to \$26 billion, and a further rise to \$28 billion is estimated for 1957. Meanwhile, State and local debt skyrocketed 162 percent—from \$18.7 billion in 1948 to \$49.2 billion in 1956. A further rise in debt of about \$5 billion is estimated to have occurred in 1957. Almost three-fourths of this indebtedness is owed by the local governments.

The foregoing discussion has dealt primarily with the part the various governments play in performing civilian functions from revenues derived from their own sources. It is important to note, as well, the role of intergovernment transfer payments and the increasingly significant distinction between financing a government function and the performance of it—a distinction which is particularly important at the local level.

Because of the public controversy over the Federal grants-in-aid, it has been less noted that grants and the sharing of revenue have become increasingly important in the interrelationship between the States and their subdivisions. In fact, the local governments actually are the ultimate beneficiaries of almost all intergovernmental revenue transfers. Indeed, were it not for this factor many local governments could not possibly have continued to perform their traditional functions, or have attempted to assume newer ones.

In 1956 the general expenditures of the States and localities totaled \$36 $\frac{2}{3}$ billion—they spent the \$33 $\frac{1}{3}$ billion which was raised from their own resources plus the \$3 $\frac{1}{3}$ billion received in Federal grants. Two-thirds of this total, however—about \$24 $\frac{1}{2}$ billion—was spent by the local governments although they were able to raise only \$16.2 billion from their own local sources.

The ability of the localities to spend substantially more on the performance of their functions than they raised themselves, was due to the receipt of \$6.2 billion in net grants and shared revenue from the States plus \$0.3 billion received in direct grants from the Federal Government.

The States, for their part, raised \$15.1 billion from their own general revenue sources and received \$3 billion in Federal grants. But they disbursed \$6.2 billion more to their local governments than they received from them and, thus, revenue available to the States for their own direct expenditure was only \$11.9 billion.

Actually, the local governments not only received intergovernmental revenue transfers equal to the entire amount of the Federal grants-in-aid; they were also the recipients of an additional transfer of revenue from the States of an almost equal amount. Without this substantial financial aid—more than half of which was allocated for education—local government outlays could not possibly have accounted for more than half of the outlay of all governments for civilian purposes during the course of 1956.

Despite this intergovernmental aid, the mounting needs of most local governments continue to exceed the revenue from all sources available to meet them. How to find enough money to meet the ever-rising demand for increased local services—and particularly for those which

must be assumed by our metropolitan areas—is a major problem we must solve. Its urgency has increased with the rapid change in the way our people live.

America has gone through two great changes in its living patterns. In the last quarter of the 19th century and the 1st quarter of the 20th century, we shifted from a basically rural to a basically urban society. Inevitably, the rise of the cities rapidly increased the cost of traditional local functions—for education, sanitation, police and fire protection, parks and libraries, and for public health.

With the second great change in American life—a shift from an urban to a basically metropolitan society—the demand for expanded local public services has become explosive.

In 1955, almost 60 percent of our entire population was living in 172 metropolitan areas located in 42 States and the District of Columbia. These 95 million metropolitan residents now live in an area that covers only 7 percent of the entire territory of the United States. Furthermore, this concentration is continuing to increase. In the last 5 years alone, 97 percent of our 12 million population rise occurred in the metropolitan areas.⁴

At a recent conference of State and metropolitan officials it was aptly observed that—

The metropolitan area does not respect geography. It jumps over and around rivers and land masses. It ignores the political lines of districts, villages, towns, cities, counties, and States.⁵

The metropolitan core city, its suburbs and its satellite cities are now one compact and interrelated community, and its boundary becomes further extended every day.

While about 70 percent of the 172 metropolitan areas are still confined within a single county, 30 are now intercounty and the boundaries of 11 of these areas extend into 3 and even 4 counties. In addition, there are 24 metropolitan areas that are now interstate.

The arrival of the metropolitan era has intensified traditional local problems and added a host of new ones. The need for rapid mass transportation between the core city and its suburbs, for an expanded water supply, for the proper planning of land use to protect residential areas from the encroachment of those that are commercial and industrial, for construction of low-cost housing and for the retarding of community blight, for the ending of water and air pollution and the elimination of industrial wastes are all concerns of the entire metropolitan area and must be cooperatively resolved. Effective fulfillment of all of these expanding local responsibilities now requires a new kind of governmental effort—a united metropolitan area approach.

A variety of methods to achieve this end are now being undertaken. In some places, the consolidation of existing historical political units within the metropolitan area is being urged. In others, more and more areawide functions are being undertaken by the counties. Elsewhere, informal cooperative metropolitan federations are being established. In some areas, special purpose governmental authorities, intracounty and even interstate in their functions, are being set up.

⁴ The States and the Metropolitan Problem, a report to the Governors' Conference by the Council of State Governments, 1956.

⁵ Report of the Arden House Conference on Metropolitan Area Problems, September 21-23, 1957.

All of these efforts must be encouraged. Yet, even while new administrative techniques are being devised to make the performance of local functions more efficient, more money to finance them is still critically needed.

The magnitude of the financial problem is suggested by an official estimate of public works construction needs alone.

In 1956, total State and local outlays for new public works reached a record \$9.4 billion and the local governments accounted for 60 percent of this total. Nonetheless, even this huge expenditure for highways, educational buildings, water and sewerage works, hospital and institutional buildings and other non-Federal public enterprises met less than half of the current need. According to the United States Departments of Labor and Commerce, State and local governments should now be investing \$20.4 billion in new public construction each year if the backlog of need is to be overcome by 1965. It must be substantially eliminated by then if "new and severe community problems are to be avoided," the Federal experts warn.⁶ Yet, in 1956, total State and local public construction only measured up to 46 percent of this goal, and each year we fail to reach it the backlog grows.

In 1956, the direct expenditure of the States for the performance of their own general functions reached a record total of more than \$12 billion, about 26 percent of all governmental outlays for civilian purposes. About \$4.3 billion was spent for highway construction and maintenance, \$1.7 billion for institutions of higher learning, \$1.6 billion for public assistance, \$1.4 billion for State hospitals and institutions, \$0.7 billion for natural resources development, and \$0.2 billion for highway police activities.

All States are under constant pressure to increase their outlays for the performance of their own statewide functions, particularly to meet the rising demand for higher education, mental health services, recreational facilities and other services. At the same time, there is also an insistent demand that the States relieve their hard-pressed local governments of some of the functions that traditionally have been theirs—local roadbuilding and maintenance and public assistance, for example.

Even more important, there is a mounting pressure on the States to exercise their superior taxing power and their leadership function to help raise far more revenue to finance local functions and to help increase the efficiency of the local performance.

The "creature" local governments must be allowed—in fact, must be encouraged and aided—to coordinate their efforts to solve mutual area-wide problems, both intrastate and interstate in scope.

Furthermore, the States must assist their localities to increase local property tax yields, the source of 87 percent of the direct tax revenue of all local governments and of 74 percent of the tax collections of the cities in 1956. Unjustified State-imposed tax-rate limitations must be ended. Frequent reassessments and uniform statewide assessment procedures must be encouraged. Besides, the States must provide leadership in an effort to professionalize the role of the tax assessor.

⁶ Construction Review, May 1955, p. 4, published by the U. S. Departments of Labor and Commerce.

With more and more Americans working in one community but residing and paying taxes in another, local governments must increasingly depend on the State to levy and collect general taxes and then share the revenue equitably among them. By this means, and particularly through greater statewide use of progressive levies on income and profits, total revenue available to local governments will increase and can be distributed more fairly, more revenue can be obtained from taxes based upon ability to pay, and there need be less dependence on the plethora of local sales and payroll taxes that are currently being imposed. Furthermore, only through special State grants-in-aid based on the broad taxing power of the State can be poorer localities achieve at least minimum standards in the performance of their local functions.

Clearly, more revenue can be obtained to finance State and local functions by a greater use of State income taxes. In 1956, less than 17 percent of all State taxes came from this source. In 13 States, including some of the most industrialized and urbanized like Illinois, Michigan, New Jersey, Ohio, Indiana, Washington, and Texas, no individual income and corporate profit tax is collected at all. Even though the Federal Government has long extended an invitation to all of the States to enjoy a share of the revenue collected by its progressive income tax—through the allowance of deductibility against the Federal tax, wherever State income taxes are imposed—most States have failed to take full advantage of this revenue-sharing opportunity.

The expectation of several decades ago that the States would provide great leadership in the effort to find new solutions for changing and complex State and local problems has not been fulfilled. Although progress in some States can be cited, most State legislatures are still dominated by those who look backward and are unresponsive to modern needs. Archaic and, apparently, almost unchangeable State constitutions keep the States and localities tied to inefficient and outmoded practices that block progress toward more efficient government. State and local taxes are still based almost entirely on regressive levies. Although additional revenue could be obtained from progressive taxes on income and profits, efforts to install them are met with the fearsome argument that employers will be driven to other States where the "tax climate" is more favorable.

Rather than obstructing the solution of local problems, as is now so frequently the case, State governments more appropriately should be the channels through which new inspiration, ideas, and revenues flow to their political subdivisions. This, above all, should be the function of State governments today.

Despite the necessity for continuing vast outlays to meet the costs of past wars and present defense requirements and for expanded public expenditures to meet civilian needs, the dominant mood is for fiscal retrenchment. Willingness to make every necessary sacrifice for national security is widely proclaimed. The necessity for a greater effort to meet school, highway, health, community development, and other civilian needs is widely acknowledged. At the same time, the demand for tax cuts mounts.

With the Federal Government collecting 70 percent of all tax dollars, inevitably Washington is the main target of the economy and tax reduction drive. And, since war and defense related costs can

hardly be cut substantially, it is the one-fifth of all Federal expenditures spent for civilian services that is facing closest scrutiny. Above all, the Federal grants-in-aid are now under attack.

All Federal, State, and local grants should be ended, the National Association of Manufacturers says.⁸ The chamber of commerce, on the other hand, favors Federal grants for highways, airports, marketing research, and natural resource development, but would end all those that help raise public service standards for individuals—public assistance, child welfare, education, unemployment compensation administration, and school lunches.⁹

Is Federal financial aid to the States and localities to help them perform their functions a legitimate Federal function? Since the Civil War, when the first State land-grant colleges were established with Federal aid, the congressional majority has viewed that it is. On the one hand, it is widely believed that Federal funds should be used to assist poorer States and localities raise their standards of public service to a reasonable minimum. Furthermore, Federal grants-in-aid—through the use of the matching principle—stimulate the recipient States and localities to undertake and, to add their own financial support to, new forms of public service which Congress deems vital to the national welfare.

The variation in the capacity of the people of the different States to meet public service costs—like the variation between the localities within each State—is substantial.

In 1956, for example, per capita income in West Virginia and New Mexico was only one-half of the income in Delaware, and in Mississippi it was about one-third. These income variations are dramatically reflected in public service standards. In the fall of 1956, Delaware reported an additional public school classroom need of only 1.2 percent of its existing supply. In contrast, West Virginia's need was 11.3 percent and Mississippi 37.6 percent.¹⁰ Furthermore, the selective-service disqualification rate—which largely reflects standards of education and health—was only 7.9 percent for Delaware in contrast to 13.1 percent for New Mexico, 14.3 percent for West Virginia, and 45.3 percent for Mississippi.¹¹

The varying degree of achievement by these States does not reflect a lesser effort on the part of the poorer ones. On the contrary, whereas Delaware was spending only 1.9 percent of the personal income of its residents to support public schools in 1953-54, Mississippi was spending 2.6 percent; West Virginia, 2.9 percent; and New Mexico, 3.1 percent.¹²

Because of our increasingly interdependent way of life, local and State boundaries have lost much of their importance of an earlier day. With millions of families now migrating annually across local and State boundaries pursuing opportunity in an economy which now is nationwide in scope, the adequacy of essential public services—both in the communities from which they come and to which they go—is now a nationwide concern. The establishment of minimum nation-

⁸ Testimony of Dr. Harley L. Lutz on behalf of the National Association of Manufacturers before the House Subcommittee on Intergovernmental Relationships Between the Federal Government and the States and Municipalities, July 31, 1957.

⁹ Federal Grants-In-Aid Programs, Chamber of Commerce of the United States.

¹⁰ U. S. Office of Education, Circular No. 490, January 1957.

¹¹ Statistical Abstract of the United States, 1956, U. S. Department of Commerce.

¹² National Education Association, Research Division Bulletin, August 1956.

wide education, health, and public welfare standards for all Americans is not merely a national concern because we are a humane people; we need them also to protect the standards of the communities into which the new arrivals come. And we need them to strengthen our national security as well.

In 1956, Federal grants financed about 9 percent of all State and local functions. What lies ahead?

There is no doubt that many States can meet more of their own expanding revenue needs through a more adequate and equitable effort. In addition, the States and their subdivisions can do much more to increase the efficiency with which they now perform their functions. Furthermore, as Congress periodically reviews the Federal grant programs, changes in emphasis and in matching formulas doubtless will occur. Nonetheless, it is the opinion of this writer that the role of Federal grants inevitably will become larger, not smaller, in the years ahead.

Not only will State and local needs grow, as will the Federal responsibility to help meet them, but State and local dependence upon the superior taxing power of the Federal Government will also continue to increase.

In 1956, the 500 largest industrial corporations in the United States sold roughly one-half of the Nation's manufacturing and mining output, a total of about \$175 billion. They earned nearly two-thirds of all after-tax manufacturing and mining profits.¹³

Increasingly it becomes evident that only the Federal Government has sufficient means to secure an adequate and equitable tax contribution from the powerful private industrial, commercial, and financial enterprises which dominate the American economy today. Increasingly, the Federal Government—like the States in behalf of their localities—must exercise its broader taxing power to collect revenue, and then to share it on the basis of equitable formulas.

The attack on Federal grants-in-aid by the NAM and chamber of commerce seldom charges that the purposes now served by these grants are unworthy of public support. It is only alleged that the States and localities are able to bear the cost. Yet, without doubt those who seek to whittle away the Federal grants are fully aware that this transfer of the cost would accomplish substantial tax savings for wealthy corporations and individuals since the Federal tax structure, despite its imperfection, is essentially based upon ability to pay in contrast to the regressive character of State and local levies. Furthermore, it cannot be doubted that many of the services now supported by Federal grants in poorer States and localities would be terminated because State and local revenue resources are insufficient to sustain them.

Is the Federal fiscal dilemma of increased demands for civilian expenditures and growing demands for a general tax reduction susceptible to congressional accommodation? This writer believes that it is. Is not the present an opportune time for the Congress to close the unjustified tax loopholes and end the illegal evasions that could bring a multi-billion-dollar addition to Federal revenues?

¹³ Fortune magazine, July 1957.

CENTRALIZED VERSUS DECENTRALIZED FINANCE

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It is an accepted rule that the Government should not perform functions that can as well be performed privately and that the Federal Government should not perform functions that can as well be performed by State and local governments. Unfortunately this doesn't help very much in making decisions as to whether functions should be assumed by the Federal Government or left to the States.

PRESUMPTION FAVORING DECENTRALIZED FINANCE

The presumption in favor of State and local government is based on the faith that decentralization is an important constituent of democracy. This faith is particularly plausible insofar as it applies the rule that matters which are solely or perhaps mainly of concern to a particular area should be left to the people of that area for decision. This interest in local autonomy carries the title "Home Rule" and it is guarded as jealously (and as frequently violated) as the similar right of the private individual to mind his own business when it does not conflict with that of somebody else.

Beyond this interest in home rule there are values in local government that are lost when responsibilities are assumed by central governments. One of these is participation—government by the people. The private citizen undoubtedly finds opportunities to participate in government at the local level which cannot be duplicated at the national level. At the city hall or State capitol any public-spirited citizen can reach his alderman or legislator in person and he can appear to express his views at a public hearing. An ordinary "dirt farmer" can do all of this and get home in time to milk the cows. It may be prohibitively expensive for him to go to Washington and, anyway, he would need an elaborate organization to make much impression there. Rated by degree of participation, most democratic government is that by popular assembly or referendum where representatives can be dispensed with entirely. Next best is representative government in a small enough circle so that the ordinary citizen without undue sacrifice can make himself heard and felt.

Local government also offers to many an opportunity to participate in government in positions of responsibility. There are thousands of people whose career as a representative of the people is and will be confined to membership on the school boards of our some 65,000 school districts. This is not only of some value in itself—it is a training school and a testing ground from which the upper echelons of government recruit talent.

Local governments also serve as experiment stations in which new ideas may be tried out without the risk and expense (to say nothing

of the inertia) that would be involved if the experiments were national in scale.

These positive values of local government are reinforced by the negative aspects of far-flung centralized bureaucracy. Distrust of such is deeply rooted among Americans, especially those who lean toward an antimonopoly philosophy. Central government is not only big; it is also single; it possesses unique coercive powers; and it offers no alternatives to its customers. Like all large monopolistic organizations it suffers the inefficiencies that rise from inadequate knowledge at the center of what is really needed at the periphery.

Of course, it can be argued plausibly that some central sharing in the financial support of local functions is quite different from Federal assumption of sole responsibility and control in these areas. It is argued that in communities with limited resources, grants-in-aid may increase local independence by freeing some of their limited funds for services of their own choosing. But this new freedom is like that of a son who earns part of his support and gets the remainder in a regular (but not guaranteed) allowance from his benevolent parents. He is not really fully free and responsible until he subsists on his own income supplied by himself.

THE CASE FOR CENTRALIZED FINANCE

All of the above is widely appreciated in this country. But there is another side of the picture that offers persuasive support for a degree of centralized responsibility at least greater than that which prevailed in the 1920's.

Slow progress and undemocratic procedures in State government

The States and municipalities (particularly the former) would be in a stronger position as candidates for more responsibilities if they had (or would) put their own house in order. Following the Commission on Intergovernmental Relations one can list the areas that need attention as follows:

1. There are antiquated representation systems that underrepresent large and recently developed centers of population in one or both legislative bodies. What becomes of the democratic principle when a majority in the legislature can be elected by a quarter of the eligible voters and when A's vote counts for 10 times as much as B's? Some of this might be defended on the dubious ground of area representation; most defense is the obvious rationalization of a special interest. Some progress in reapportionment is being made continuously but it is not enough to offset population changes now going on; thus on balance the problem is a growing one. Some effort has been exerted to devise machinery that can cope with vested interests in this area but it has been successful in only a few States.

2. There are antiquated constitutions providing for weak executives, too many elected officers, too infrequent legislative sessions and budgets, too limited financial powers.

3. There are still many cases of civil service infested with patronage and with the inferior talent that must be expected at highly inadequate salary scales.

4. There is the record of neglect in dealing with the metropolitan problem regarded by many critics as the No. 1 domestic issue. This

is the problem which has resulted from the recent vast movement of population into some 168 metropolitan areas and out of their centers to their peripheries. If these areas had governments coterminous with their functions they would still be hard pressed with such matters as strangulating traffic, decadent sections, crowded schools, delinquent gangs, and of course excessive tax rates. Usually added to all this is an antiquated political geography with many units of government, some of them poaching on their neighbors. One district may have a factory and another the workers. These problems will not yield except to great courage and imagination at the State level. Not too much of this kind of leadership has developed.

Regressive taxation

The States and municipalities have on the whole a regressive tax system based at the local level on the general property tax and at the State level on the retail sales tax. The Musgrave studies¹ have indicated that in State and local taxes the poorest bracket of taxpayers (\$0 to \$2,000 net income) pay almost half again as much per thousand dollars of net income as the well-to-do (over \$10,000 net income). Moreover, there is ground for the view that the trend is toward more regressivity. Eleven States have enacted sales taxes since World War II and no States have enacted new net income taxes. This means that a vote for decentralizing the financial responsibility for a function is a vote for regressive as against progressive taxation. This is not a matter of equity alone; it also involves economics. It is the progressiveness of the tax system that gives it much of its built-in flexibility—its propensity to produce automatic surpluses and deficits to meet the needs of compensatory budgeting.

Those who favor decentralization should logically be in the front rank of the crusaders for better and more aggressive State and local government. Actually this is often not the case and it leads to the conclusion that these people are probably more interested in less government, less total taxes, and less taxes for themselves than in decentralization as such.

Interstate competition

The States and municipalities are in a relatively weak financial position because they are amenable to interterritorial competition to a far greater degree than the Federal Government.

The proposition that Federal aid involves only the collection of revenue that might have been raised locally, the sending of this revenue to a distant capital, from whence it is returned with some part missing, is at most a half-truth. The full truth would add that if the central government (for better or for worse) did not support this function and raise the tax for it, the function probably would not be supported at all and the tax for it would not be raised. The competitive factor, among others, also provides a rationale for distributing aid to strong districts as well as weak ones.

The degree to which taxation influences industrial location and the degree to which competition influences State and local decisions concerning taxation are matters long in dispute. It is evident that State

¹ Richard A. Musgrave, *Incidence of the Tax Structure and Its Effects on Consumption, Federal Tax Policy for Economic Growth and Stability*, Joint Committee on the Economic Report, 84th Cong., 1st sess., 1955, pp. 96-113.

and local governments are not completely captive and that the deductibility of State and local taxes on Federal income-tax returns gives them some protection. State and local government under the pressure of earlier public works postponement and increased population have been expanding their outlays for public services with some aggressiveness. It is true also that no empirical study has ever established the alleged fact that areas with high taxes or relatively progressive tax systems have suffered in industrial development. But anyone who observes legislative bodies cannot doubt that the pressure is real and important. It is nonetheless real because a lot of it is mainly fear psychology.

The degree of interterritorial competition is probably increasing. A perusal of newspapers and magazines indicates that the "booster spirit" is everywhere going strong. It takes the form of advertising, developmental corporations, subsidies, tax exemption, and a "favorable tax climate." Concerning the latter one former director of a State division of industrial development observed:²

In an era of industrial mobility, no State can stand alone in its adherence to a tax structure strongly oriented to the "ability to pay" theory. Continued adherence to this theory, in the face of defections by contiguous or "competitive States" will have the certain long-range effect of decreasing the rate of personal-income growth and denying improved employment opportunity to the very persons supposedly benefited by the application of this theory.

Interdependence

The trend of the times is toward more interdependence. This thesis can be supported by the impressive evidence concerning migration, travel, and interterritorial exchange of all sorts. This interdependence means that the people of Podunk, N. Y., have some equity in the maintenance of public standards in Podunk, N. Mex., and vice versa. It is characteristic of the satisfaction of human wants through government that the benefits derived from government outlay are largely indirect and frequently extraterritorial.

The growth of interdependence is particularly relevant with regard to education. Educational standards may seem at first to be of concern mainly to pupils and parents or at most the citizens of the community in which the youth are reared. But what becomes of this conclusion when we confront the statistics of migration and observe how many now being educated in one community turn up eventually as workers and citizens of another?

Interdependence means that the interest in many matters formerly of strictly local concern is now a divided one. The degree of interest for parties involved is difficult to discern and to implement. Our Federal aid system is one means by which a partnership of interest is combined with a partnership of financial responsibility and control. The control issue is the most sensitive one; the Kestnbaum Commission surveyed this area with great care and although it recommended some changes in detail, it is fair to say that on the whole it found the controls conservative and salutary. They have encouraged such State

² Robert D. Siff, *Some Pertinent Points on Industrial Development Policies, Tax Policy, Tax Institute, Princeton*, vol. XXIV, Nos. 2-3, 1957, p. 11.

improvements as merit-system civil service and State highway departments.

The general level of public expenditures

It is apparent that one's reaction to the question of Federal versus State financial responsibilities is conditioned considerably by his reaction to public expenditures as such. If he thinks they are too high he will probably favor decentralization. The States and municipalities for reasons previously cited will not spend as freely as does the Federal Government with its far superior taxing power. The proper level of overall public expenditures is the subject for other panels. Here it may be said that proponents of liberal government spending have these points on their side:

As the economy advances and per capita income increases, free income (above biological necessities) increases still faster. This free income is subject to a degree of discretion not true of the hard core of necessities. It is everywhere devoted in large measure to services where the Government competes with private disposition most effectively. Some of the ugliest aspects of the American way of life, such as slums, crowded schools, youth delinquency, and mental illness are in the area where government programs are most effective. The wastes of government are regrettable but they probably are minor compared with those of private consumption which in the United States are legendary. The typical American consumer thinks nothing of driving a station wagon across town to mail a letter. Governments are sometimes extravagant but they also frequently are niggardly. The case I know best is the Internal Revenue Service which in the opinion of many critics has always been substantially undermanned. Under present conditions the belief that the acceleration of private expenditures as against government expenditures necessarily results in the healthiest society is not tenable.

CENTRALIZATION AND ECONOMIC CONTROL

One would be insensitive to the wave of the present if he did not attempt to relate our problem to that of controlling inflation. For the maintenance of at least the present Federal role in the overall expenditure picture it can be said, looking at the long run, that Federal expenditures and taxes are more amenable to control than those of the States; that the government's large role in the economy is what makes compensatory controls effective and that this role would diminish if the Federal Government relinquished a large area to the States; that it is the predominantly progressive overall tax system that affords built-in flexibility and that this is maintained only by the Federal Government's role. On the other hand controllability is no good if it isn't used; this seems to indicate a reduction in Federal expenditures now that inflation is our gravest problem; if the States do not take up the slack, so much the better. Those who cherish Federal expenditures for their nonfiscal or institutional objectives have the obligation to offer some remedy for inflation other than reduced public expenditures.

Of course, what would really now aid the States would be an acceleration of economic growth, an end to inflation, a loosening of tight money (which interferes with their borrowing), and a con-

tinuance of Federal spending at least insofar as it supports the States. This program sounds a little like the politician's platform of a soldiers' bonus, reduced taxes, and a balanced budget. But we have not exhausted the field when we have accepted a high level of public expenditures and rejected tighter money as remedies for inflation. Simplest but not the most popular remedy is to plug loopholes in existing taxes and thus add to the Federal budget surplus. Obviously cutting taxes and letting expenditures ride is a perverse answer. Perhaps we should look for something new as an inflation control; for example, decelerated depreciation, a tax on bank loans, and a sales tax on industrial equipment have been suggested. A graduated overall expenditure tax to supplement the income tax would be a promising instrument of control if it could be administered.

On the other hand, if as alleged and as seems probable, our present inflation problem is due in large part to cost-push causes; that is, to monopolistic pressure (business and labor) upon the price level, then we surely have to look for something new in inflation controls. The nearest thing to a fertile suggestion that has so far come to our attention is that of Sumner Slichter to disallow wage increases (for a time) as corporate income-tax deductions. Alternatively we might levy a special payroll excise tax in much the same way and to the same effect. These proposals involve the administrative problem of separating wage increases from payroll additions due to expansion; and they throw all the onus of monopolistic pricing on labor. It would be more logical to levy a special sales tax on the receipts from price increases; but in only a few cases are commodities sufficiently standardized to separate genuine price increases from changes due to innovation in product. To all of these possibilities the objection will be made that they constitute government tampering with the free market. But here the ready answer is that it is the absence of a free market that creates our problem to begin with.

At any rate it seems inadvisable to reorder our intergovernmental fiscal relations as a remedy for inflation. That some Federal expenditures can and should be cut is conceded, but most of them (from our point of view) are inelastic in the downward direction. And in some areas expenditures should be increased.

This is not to say that nothing should be done about inflation. The author will not attempt here to arbitrate among the several suggestions listed above, but he does wish to leave the thought that the time is ripe for the exercise of some further ingenuity with regard to the inflation problem.

QUANTITATIVE PICTURE OF FEDERAL-STATE FINANCE

We may turn now before drawing a conclusion to the quantitative picture and ask what it shows regarding the alleged encroachment of the Federal Government on the States. Over the long view, the relative position of State and local governments in total expenditures has undoubtedly dropped sharply. In 1927 State and local expenditures were nearly three-quarters of the total (73.1 percent); in 1940 they were still more than half (52.8 percent); and in 1956 a little more than one-third (33.6 percent). The 1956 proportion is the same as that of 1948, indicating no postwar trend. Much of the recent alleged

aggrandizement of the Federal Government has been for military items; if they are abstracted from the picture, Federal, State, and local outlays are not far from equal. This was also true during the late 1930's when the military proportion of the Federal budget was much less. As to Federal aid, since 1940 it has increased more rapidly than State and local expenditure but less rapidly than total expenditure. Over the longer pull, however (comparing the present Federal position with that of the late twenties), the Federal role by any standard has increased quite substantially. The expansion occurred during the thirties and included, of course, the important area of social security.

Comparing the United States with other countries as to centralization one finds such data as the following (the figures indicate the ratio of local taxes to total taxes 1947-53):³

United Kingdom-----	8	Italy-----	18
France-----	13	Switzerland-----	51
Germany-----	14	Canada-----	28
Sweden-----	25		

In conclusion and to indicate a personal position on our problem, the author finds himself in general agreement (as to the matters discussed in this paper) with the Kestnbaum Commission's report which may be summarized as follows: The Federal system on the whole was found to be in healthy condition; the values of local autonomy are real and important and always need stressing; these values may be overbalanced by the great advantages of national or joint action in particular areas changing with time; it behooves the States deploring Federal encroachment to put their own houses in order. The States and municipalities are still finding plenty of scope for such vision, energy and ingenuity as they are able to summon. The Federal system in this country has preserved a degree of local autonomy unsurpassed at least by that of any of the world's great powers.

The pragmatic and sensible solution of Federal problems is not likely to lie in loyalty to any slogan but in the balanced weighing of values in the case of each new issue as it arises.

³ Economic Commission for Europe (Research and Planning Division), *Changes in the Structure of Taxation in Europe*, Economic Bulletin for Europe, vol. II, No. 3, Geneva, 1951, p. 59; Canadian Tax Foundation, *The National Finances, 1954-55*, Toronto, p. 10.

EXPENDITURE POLICY FOR ECONOMIC GROWTH AND STABILITY IN A FEDERAL SETTING

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This paper will present a brief summary of considerations which may influence the impact of government expenditures on economic growth and stability in a Federal setting. For this purpose the paper will (1) categorize the general impact of government expenditures, (2) indicate the extent to which impacts may depend on the level of government at which public functions are performed, and (3) the influence of grants-in-aid on these impacts.

IMPACT OF GOVERNMENT EXPENDITURES

Government expenditures will increase national income as government employees are paid and government contracts are let. The impact of these expenditures on aggregate economic growth and stability will depend on (1) the expenditure patterns of government income recipients (multiplier effects), (2) the expenditures private individuals and groups forgo because of government activities (substitution effects), (3) the total resources available to the community and their relations to the aggregate expenditures made by all sectors of the economy (price effects).

Multiplier effects

Government employees and contractors will spend at least part of their income for their own consumption and investment needs. These expenditures in turn will stimulate another round of consumption and investment on the part of new income recipients, leading to an endless chain of income creating new income through the spending cycle. These multiplier effects of government expenditures, as they influence aggregate employment and economic growth, have been discussed frequently in the literature of the last generation and form the basis of government efforts to influence overall economic activity through fiscal policy.

Multiplier effects of government expenditures may also contribute to economic stability as they are timed to counterbalance shifts in the expenditures of private groups. Such timing is difficult, however, and may present serious limitations to the effectiveness of fiscal policy.

Substitution effects

Only rarely will government expenditures be a net addition to all expenditures made by private groups. It is more likely that some private spending will be replaced by public expenditures as services provided by government take the place of private consumption or investment. Illustrations are readily provided by public education and free highways, by public power projects and municipal airports.

Private expenditures may also be adversely affected whenever erratic public spending undermines confidence in the future stability of the economy or raises doubts about the future place of the private business sector in the economy. Any such substitution effects will counteract the multiplier effects discussed above.

Beyond the mere size of private and public expenditures, however, there is a more subtle issue involved here. Where economic growth is measured in real rather than monetary terms, interest is focused on the efficiency of resource allocation, whether the spending is done by private or public bodies. As long as government expenditures merely add to private spending, the issue of relative efficiency does not arise, as it can be argued that any employment of otherwise idle resources is more efficient than unemployment. As government takes the place of private enterprise, however, it becomes necessary to evaluate these substitution effects, in regard to their aggregate size as well as to their impact on the efficiency of resource use.

Price effects

Multiplier and substitution effects thus far have been discussed with the implicit assumption that no changes have taken place in the total money supply: Government expenditures have been financed through taxes or borrowing of existing funds. Where these taxes have been raised from taxpayers who would have spent the funds if they would have not been taxed, substitution of public for private spending is obvious. Where the taxes are paid from funds which otherwise would have been saved, some net addition to total spending is possible.

Governments are not limited to the spending of tax revenue. They may borrow, either from existing funds or newly created bank credit. Where the total money supply is expanded by government debt, government expenditures may still proceed without overall price effects as long as spending is matched by the more efficient employment of resources. Where spending outruns real resource availability and use, however, the impact of government expenditures will be partly on prices rather than employment. Their impact on economic stability and growth will then be impaired by the forces of inflation. Though government expenditures will still increase money income, a growing part of this increase will now be accounted for by purely monetary gains without a corresponding growth in the output of real goods and services.

LEVEL OF GOVERNMENT AT WHICH PUBLIC FUNCTIONS ARE PERFORMED

The above discussion applies to all levels of government. The political process of decision making, the fiscal capacity of government units, the legal authority of debt creation, the skill of tax and debt administration, all differ on various levels of government, however. It will be instructive, therefore, to review the impact of government expenditures with specific reference to the level at which public functions are performed. This survey will again proceed in the order followed above, reviewing in turn (1) multiplier effects, (2) substitution effects, and (3) price effects.

Multiplier effects

Government employees and contractors are likely to spend their income regardless of the specific government unit from which they re-

ceive their funds. Consumption multiplier effects are therefore the same whether teachers are paid by Federal, State, or local governments. Neither would it appear to matter whether old-age beneficiaries receive their checks from Federal or local authorities. Investment multipliers are more readily affected by shifts in the government spending unit as actual or potential government contractors may be expected to "buy at home" and therefore be influenced by the geographic jurisdiction of the public agencies with which they deal.

The stability of government expenditures and their multiplier effects also may be subject to increasing limitations as the level of government descends. The smaller the government unit, the more it becomes the follower rather than the leader of its economic environment, subject to the general fortunes of the economic base on which its fiscal capacity and its spending power depend.

Substitution effects

Many substitution effects are again likely to occur regardless of the specific level of government at which the public function is performed. There are some reasons, however, why substitution effects may be larger at the lower level. To the extent that the fiscal capacity of smaller government units is limited, expenditures may absorb a larger share of local purchasing power, thus increasing the substitution of public for private spending. Also, taxpayers may find it easier to evade the local tax burden by shifting to other areas; it is this consideration of competitive disadvantages for local business and the resultant substitution effects of higher taxes which often limits the willingness of local governments to spend.

Difficult as it is to assess the aggregate size of substitution effects, it is even more hazardous to estimate the relative efficiency of government at different levels. As local government is closer to the people it is designed to serve, efficiency of resource use and responsiveness to shifting needs may be better safeguarded. On the other hand, the inefficiencies of local patronage have been notorious at times. Few general observations appear possible, therefore, on the more subtle aspects of resource use efficiency on different levels of government.

Price effects

Only the Federal Government has the power to create new money. The price effects of government expenditures are greatly influenced, therefore, by the level of government which finances these expenditures. Local and State governments can borrow, yet their access to the money market is subject to the same restraints which characterize the borrowing activities of private groups. The inflationary potential of government expenditures is, therefore, much more limited at levels below the Central Government which combines the fiscal and monetary powers of sovereignty.

It is this very limitation which has been the strength and weakness of lower level government expenditures. The need for local government to compete in the money market with private claimants for funds may assure more careful appraisal of government projects and thus lead to a more efficient resource allocation among private and public uses. On the other hand, local government units are much less equipped to "lean against the wind" and thus may accentuate rather than balance fluctuations in aggregate employment and income.

INFLUENCE OF GRANTS-IN-AID

Grants-in-aid are a device of intergovernmental relations designed to combine the fiscal advantages of each government level. The greater fiscal capacity of the National Government is called upon to finance expenditures of lower authorities whose more limited jurisdiction is thought to assure greater efficiency and responsiveness to local needs. The following observations will briefly indicate how such a complex Federal setting of intergovernmental fiscal relations may change the impact of government expenditures on economic stability and growth. Here, again, it will be convenient to retain the distinction among (1) multiplier effects, (2) substitution effects, and (3) price effects.

Multiplier effects

As stated before, government income recipients are not likely to be influenced by the source from which they receive the funds. There are several ways, however, through which grants-in-aid could change these multiplier effects. First, matching grants may induce the receiving government unit to spend more on its own in order to maximize the fiscal benefits received from the grant; such a reshuffling of State and city budgets is often the very purpose of matching grants and thus leads to intergovernmental multipliers. Second, grants-in-aid may be designed to redistribute income among geographic regions and areas; to the extent that such redistribution of income from well-to-do to poor areas is accomplished, the consumption multiplier will be increased.

It thus would appear that the multiplier effects of grants-in-aid depend on the way the grant is administered. Matching grants offer an incentive toward intergovernment multipliers yet limit the regional redistribution of income; grants defined by local performance standards rather than financial participation emphasize the regional redistribution of income throughout the jurisdiction of the grantor government.

Substitution effects

Grants-in-aid minimize the substitution effects of tax inequalities as they tend to equalize income as well as the tax burden among all units participating in the grants. This again holds particularly for grants requiring no financial participation of the grantee government though to a minor extent it also holds for matching grants. While grants-in-aid thus limit the competitive impact of Government expenditures among geographic areas, they may increase substitution among resources as the larger expenditures of local governments for goods and services bid resources away from private employment. This latter impact is minimized if grants-in-aid are used for transfer payments to final consumers, such as old-age assistance or educational benefits.

The appraisal of grants-in-aid and their impact on the efficiency of resource allocation presents again the difficulties encountered in any appraisal of government efficiency. Grants-in-aid wish to combine the fiscal efficiency of big government with the citizen participation that local government on the grassroots level appears to preserve. Yet fiscal efficiency presents some dangers. The pain of additional State-

local taxes may serve as a helpful yardstick to sharpen the critical appraisal of services demanded by local constituents, an appraisal dulled by easy access to financial support from governments of higher jurisdiction. In fields with a strong and clearly identified national interest, local governments can best serve their citizens by drawing on the superior fiscal powers of the Central Government. Yet such reliance on outside support should not impair the discipline associated with the discomfort of higher taxes.

Price effects

To the extent that grants-in-aid rely on the fiscal and monetary authority of the National Government, they are likely to have the same price effects direct Federal expenditures would have. The greater reserves available to the Federal Government for raising funds increase their potential contribution to economic growth as well as to price inflation. This apparent ease of Federal financial support—based on broader geographic jurisdiction, more efficient tax and debt administration, freedom from the fear of industrial migration and tax evasion, ready access to the money market—offers almost irresistible temptation of increased reliance on grants-in-aid as a convenient way out of the financial wilderness of State-local finance.

Yet the easy way may not always be the safest way to economic growth and stability. In the twin national emergencies of the great depression and the World War, there was no choice but to turn to the National Government for increasing support on all levels. As the rapid growth and relative stability of the postwar decade have greatly strengthened the national economy, State and local governments have been endowed with increased fiscal capacity to exercise more freedom of choice in deciding how to finance the costly public services their electorates are demanding. Full participation on all levels of government, not only in spending funds, but also in raising the revenue needed for these expenditures, appears the best assurance for a national resource allocation to further economic stability and growth.

ADJUSTMENT OF GOVERNMENTAL RESPONSIBILITIES VIA GRANTS

James A. Maxwell, professor of economics, Clark University

THE CASE FOR FEDERALISM

When our Federal system was set up nearly 160 years ago, lines were drawn that set limits to the powers of the National Government, and reserved certain powers to the States by constitutional provision. The lines drawn were not, indeed, clear cut, and they are even more blurred today. But the demarcation was and is of great significance.

The importance of the federal form of government to the United States is not less now than then. The very growth in the duties and complexities of government may make it more important. Some governmental decisions must be Federal, but there are many governmental services affecting the diverse life of the people about which uniform regulation and administration from a central source would be mischievous as well as impracticable. Centralized decision would be irresponsive to the variety of State and local needs.

The case for federalism—for decentralized decisions and administration—rests on more than an appeal to efficiency. This is a dynamic nation; the appropriate way to handle governmental functions does not stay put. In such circumstances, State and local governments provide limited laboratories for experimentation in administration. Even more important is the fact that the State and local governments are bulwarks of democracy. Only where the people of a nation have adequate powers of decision can they develop a public spirit and the specific knowledge and techniques that give life to free institutions.

A strong belief in federalism should not, however, be regarded as synonymous with an extreme belief in States rights. States rights can be defined so as to have genuine meaning, but this meaning should not be twisted to block adjustments in the relative responsibilities of Federal and State-local government. In the modern world changes must be made, and rigid resistance to change can be injurious to the success of federalism.

At present, with respect to economic policy, no area exists from which Congress and the States are barred by lack of constitutional power.¹ According to the Commission on Intergovernmental Relations, "the crucial questions now are questions of policy: which level ought to move? Or should both? Or neither? What are the prudent and proper divisions of labor and responsibility between them? These are questions mainly for legislative judgment, and the criteria are chiefly political, economic, and administrative, rather than legal. The emphasis is on mutual and complementary undertakings in fur-

¹ The Commission on Intergovernmental Relations, *A Report to the President for Transmittal to the Congress* (Washington: June 1955), p. 32.

therance of common aims.”² The Commission goes on to say that a realistic program to prevent overcentralization will depend not merely on Federal restraint, but “on the readiness and ability of the States and their subdivisions to assume their full share of the total task of government.”³

STATISTICAL BACKGROUND

Table 1 shows public expenditures as a ratio of net national product (gross national product minus capital consumption allowances) for various nonwar years 1890–1955. For all levels of government, it was 8–11 percent of NNP 1890–1929. The figure jumped to 20 percent during the 1930’s first because of a fall in NNP (the denominator) and later because of a sharp rise in government spending (the numerator). At present, because of carry-over costs of World War II and the continuance of international tensions, government takes 29 percent of NNP.

War-related versus civilian expenditures

If the total government expenditure is split into two broad categories (*a*) that for war-related purposes and (*b*) that for civilian purposes, the significance of the former in the postwar period is apparent. From being 3 percent of NNP in 1940, it rose to 14 percent in 1955; government expenditures for civilian purposes, on the other hand, declined from 17 percent to 15 percent.

Another piece of factual background is brought out by table 2. It shows that the structure of governmental expenditure for civilian purposes has changed notably in one respect between 1940 and 1955; welfare expenditures grew relatively, as well as absolutely. They were 52 percent of the total in 1940 and 59 percent in 1955. The other main category of civilian expenditure, economic development, has relatively held its own.

Federal, State, local shares

If next, expenditure is allocated among the three levels of government—Federal, State and local—it is not surprising to find that responsibility for the relative increase in government spending has been Federal. Table 3 shows that, for many years before the 1930’s, Federal expenditures in peacetime were 25–35 percent of total government expenditure. In the depression of the 1930’s, the Federal share jumped (to 50 percent), while that of the localities dropped (from 57 percent in 1929 to 31 percent in 1940). By 1955, the Federal share had risen to 62 percent and the local had fallen to 21 percent. The State share throughout was quite stable, being 18 percent of the total in 1929 and 17 percent in 1955.

If, finally, the classification of expenditure by levels of government is joined with the classification of war-related versus civilian, the fact emerges that postwar the State and local governments, and especially

² *Ibid.*, p. 33.

³ President Eisenhower repeated this thought in his speech to the Conference of State Governors on June 14, 1957. He said: “But, like nature, people and their governments are intolerant of vacuums. Every State failure to meet a pressing public need has created the opportunity, developed the excuse, and fed the temptation for the National Government to poach on the States’ preserves. Year by year, responding to transient popular demand, the Congress has increased Federal functions. Slowly at first, but in recent times more and more rapidly, the pendulum of power has swung from our States to the Central Government.”

the former, have expanded their civilian expenditures faster than has the Federal Government. As table 4 shows, in 1955 the Federal share was 29 percent; in 1940 it was 42 percent. The decline affected about equally the two major categories of social welfare and economic development. This postwar behavior of Federal civilian expenditure is explicable by the expansion of its war-related expenditures. What if this latter could safely be reduced? Reduction in Federal taxes would be one consequence, but part of this reduction would probably be offset by an increase in State-local taxes. Moreover, a more rapid growth of Federal civilian spending might be expected.

In the intergovernmental statistics given above, expenditures have been charged against the level of government providing the money, even when this money has been turned over to another government in the form of grants. For example, over one-half the payments to recipients of old-age assistance is provided by Federal grants; the Federal Government is the source of the funds which go to State and local governments as reimbursement of expenditures already made by them.

Table 5 shows that, while Federal grants postwar have grown rapidly in absolute amount, the growth has not been as fast as State-local expenditure. Federal grants go predominantly for social welfare with economic development a poor second. (See table 6.) In the next decade, however, economic development may gain ground because of the increase in grants provided by the Highway Act of 1956, and because social insurance payments, which are not financed via grants, will grow over expenditure for public assistance.

FEDERAL GRANTS

Grants are the chief device by which governments cooperate in handling a function, and opinion about them has been divided. Those critics who believe in a precise separation of governmental functions, with assignment of complete responsibility to a level, argue that cooperative action is relatively ineffective, leading to friction and fumbling in administration. They are, furthermore, critical of the process by which grants are selected. Congress makes the decision, often guided by pressure groups which aim at bypassing the State governments. Grants may, therefore, take the Federal Government into functions which historically and constitutionally belong to the States; they may bring centralization. The government which holds the purse strings will, it is asserted, control the activity. Still another criticism is that grants bring about a redistribution of income among the States; so that income is taken from a rich State and transferred to a poor one. At very best this process means a waste of crosshauling as revenue is pulled in to Washington and then distributed to the States.

The proponents of Federal aid present counterconsiderations of some persuasiveness. But in the literature dealing with Federal grants, an interesting aspect is that whereas opposition to grants is usually expressed in general terms, proponents tend to stress the merits of particular grants rather than of a system of grants. For example, the opponent of Federal grants to education will stress arguments relevant chiefly to this type of grant.

Separation of functions

For the purposes of this paper only general arguments are relevant, and here the most sweeping one relates to separation of governmental functions and therefore of responsibility. The desirability of clear-cut divisions and unified decisions would be beyond dispute if governmental functions could be neatly divided and as neatly maintained. But no precise division has ever commanded widespread agreement. It is of the nature of a Federal Nation like the United States to be heterogeneous in economic interests, traditions, and social outlook. A division which means overcentralization to one area may mean decentralization to another.

The pages of the Report of the Commission on Intergovernmental Relations (the Kestnbaum Commission), and of the reports of its study committees, offer convenient confirmation of these generalizations. States such as Kansas and Oklahoma regard the Federal soil-conservation program as a national responsibility which should be State and Federal. (See Kestnbaum report, pp. 159, 164-66.) A State like New York stresses the national importance of public housing, slum clearance, and urban renewal, while a State like North Carolina takes a very different view. Similar contrasts can be found in the attitude toward development of water resources: Oregon versus New Jersey; forest-fire control: New York versus Washington; forest planting: Massachusetts versus California; stream pollution: Connecticut versus North Dakota; natural disaster relief: Maine versus Texas. In short, no manifest line can be drawn between a policy which puts into Federal hands a power to make decisions which might be irresponsive to the variety of geographic needs, and a policy which puts in the hands of the States important responsibilities which they cannot meet. Even if, at any point of time, such a line were visible, it would inevitably get out of date. And flexible adjustment of functions to accord with a changing environment is not easy, since it is of the essence of federalism to guard against frequent constitutional change.

In circumstances of this sort, the device of grants may serve to link the interests of the States and of the Federal Government. A governmental function, vocation rehabilitation, which is primarily a responsibility of State and local governments, may also be a matter of national concern. To shift the function to the Federal level would certainly be difficult and might be undesirable; to leave it as wholly a State-local responsibility would be to neglect a national need. These unsatisfactory alternatives can be avoided if the Federal Government offers grants to stimulate State-local performance, to carry part of the cost of the function, and to establish standards of performance at a level appropriate to the national interest. Such a step may increase the Federal power; it may bring some centralization, depending on the scope and stringency of the Federal conditions. But the history of grants offers no instance in which a grant has been a prelude to Federal assumption of control; it does offer instances of grants which have outlived their usefulness and of others which have not been adapted to new situations.

Redistributive effects

The criticism that grants redistribute income among the States is correct. If per capita income is taken as a measure of the richness

or poverty of a State, rich States at present receive relatively small grants, and poor States relatively large ones. (See table 7.) A rank correlation of per capita grants and income by States for the fiscal year 1953 gives a value of minus 0.59. This modest negative correlation for grants as a whole conceals the fact that some grants, most notably those for health services and public assistance, are much more equalizing. Those for employment security, on the other hand, show a positive correlation, i. e., larger relative grants to the richer than to the poorer States.

Equalization by means of distribution of grants is, however, only part of the process of interstate redistribution of governmental income. In addition, the Federal revenue from which grants are provided drains relatively more from the richer States. With one exception (grants for employment security administration which come from payroll taxes) the money distributed as grants comes from general revenues. It is, therefore, reasonable to assume that the incidence of the revenue spent as grants is the same as that of aggregate tax collections. The incidence of Federal taxes per capita in fiscal 1952 ranged from \$112 for Mississippi to \$1,015 for Delaware. Rank correlation of these figures with per capita income payments for the fiscal year 1953 gives the high value of +0.93. A visual indication of the dual process is given by the accompanying charts, the line with the positive slope showing the progressive incidence of Federal taxes by States, and the line with the negative slope the regressive incidence of Federal grant expenditures. Congress, in framing the formulas for allocation of Federal grants should bear in mind the redistribution which comes from raising the revenue to be spent as grants, as well as that from the formulas.

Equalization, carried too far, would have unfortunate effects on resource allocation. If, for example, Government welfare services are provided to employables at generous levels, and through equalizing grants, incentive to labor mobility would be reduced. Equalizing grants for development purposes might also create misallocation of resources. On the other hand, equalizing grants when spent on welfare services for unemployables would not likely impair resource allocation, since mobility of persons not in the labor market should be discouraged rather than stimulated.

The practical likelihood that Congress will overdo equalizing grants seems not to be great. Variable-ratio formulas, providing poor States with a higher, and rich States with a lower percentage reimbursement of expenditure, bring objection from the rich States. The logical proposal that, for established welfare functions, the Federal Government should give no grants to rich States, confining itself to variable-ratio grants to poor States, has not appealed to Congress or to the rich States. And yet such a scheme would require a much smaller Federal expenditure, and it would relieve the rich States entirely from the onus of Federal conditions.

It should also be remembered that, while equalization grant formulas and a progressive Federal tax system redistribute income so as to favor the poor States, the process is less powerful than if the Federal Government, as an alternative, took over the whole activity. Some part of the cost of provision of a welfare expenditure, such as old-age assistance, is shifted at present via Federal grants from taxpayers in poorer States to those in richer. But entire Federal respon-

sibility for old-age assistance could be expected to redistribute costs even more from poorer to richer States.

A final criticism of grants will be discussed, not because of its weight, but because of its recurrence in popular discussion. It is that collection of revenue by the Federal Government, and its subsequent disbursement as grants, merely reallocates resources already under the jurisdiction of State and local governments and available to them for taxation. As has been indicated just above, such a statement slurs over the important fact that, in the process, there is a redistribution of resources so that some States get more and some less. But even if collections and grants balanced State by State—even if the process paralleled that of federally collected State-disbursed taxes—the description would be inaccurate. Federal collection of most revenues is more efficient and equitable than State-local collection; a given revenue can be raised with less real cost by the Federal Government than by State-local governments.

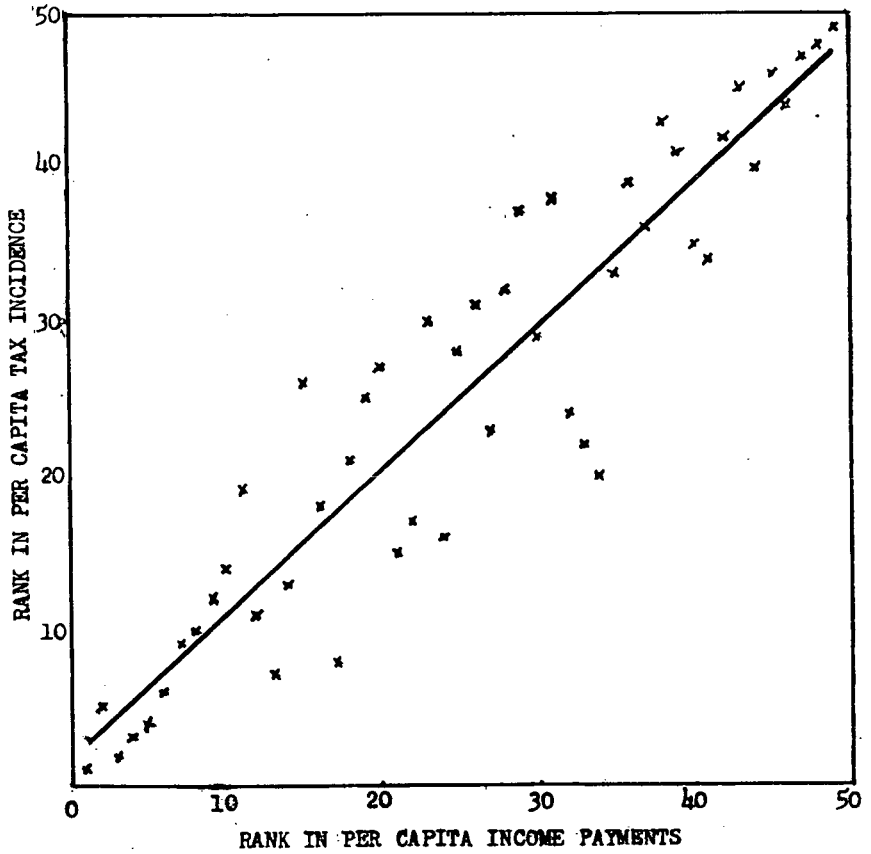
The gist of this discussion is that two basic difficulties stand in the way of designation of functions as wholly Federal and wholly State-local. The first is that governmental interest in most functions is not divisible into these two segments, and, as a result, responsibility cannot easily be so divided. For some functions, indeed, the division is easy. To provide security against external aggression is a task for the National Government; to provide internal security is a task for the State and local governments. But the current debate concerning responsibility for civil defense, and the existence of the FBI, impair somewhat even these generalizations. The second difficulty is that the ability of the Federal Government on the one hand, and of the State-local governments on the other, to collect revenue and to handle expenditure, is disparate. The State-local governments can handle a great many functions more effectively than can the Federal Government. The Federal Government, however, can handle collection of most revenues more effectively than can State-local governments. Except in time of war, the tendency is for State and local governments as a whole to have a plethora of duties in relation to the revenues at their effective disposal. The case of the Federal Government tends to be the other way around. Both of these difficulties stimulate use of grants.

DEFECTS OF FEDERAL GRANTS

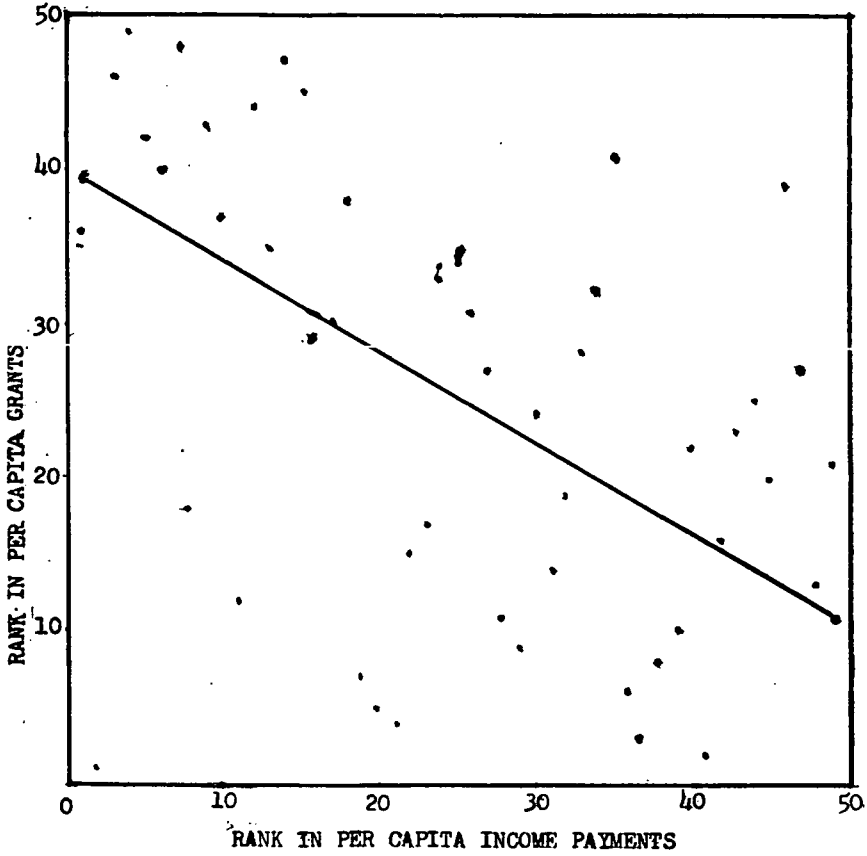
The favorable appraisal of grants presented above should not be allowed to obscure the fact that Federal grants, as now utilized, have important defects. Their development has been piecemeal and haphazard, so that no system of grants exists. Over the years Congress, responding to pressures, has provided conditional grants, thereby stimulating State and local governments to spend more than they otherwise would for specific purposes. And once in operation, grant programs live on, even though the original national purposes behind them have been achieved. In such cases, grants serve only the fiscal purpose of lightening the load on State-local budgets. Even when grants continue to achieve national objectives, they may need revision concerning method of apportionment, conditions, and administrative rules.

The pages of the Kestnbaum report indicate the hold of status quo on intergovernmental financial relationships. In 280 pages 174 dissents,

STATE RANKS IN PER CAPITA FEDERAL TAX INCIDENCE
(FISCAL 1952) AND INCOME PAYMENTS (FISCAL 1953)



STATE RANKS IN PER CAPITA FEDERAL
GRANTS AND INCOME PAYMENTS (FISCAL 1953)



qualifying statements, exceptions are recorded. Almost no specific recommendation concerning grants is unanimous, and yet an academic critic is bound to feel that the recommendations of the report were disappointingly weak rather than bold. As such a critic, I cannot believe that, for example, the grants for agricultural and vocational education serve important national objectives; and that those for public assistance and for public health do not need major overhaul and probably consolidation into block grants.

Another defect of the Kestnbaum report is that it gave very little attention to intergovernmental tax relations. And yet even the boldest opponent of grants is aware that discontinuance or reduction of grants would throw a burden of expenditure upon State and local governments which they could not easily provide. The proposition naturally arises: Could not reduction of Federal grants be coupled with reduction of Federal taxes? Even if State use of some tax sources is less efficient than Federal, a realistic program of decentralization which would increase the importance of the States in our Federal system has marked appeal.⁴

The lack of boldness in the Kestnbaum report may be indicated also by a brief examination of its treatment of present governmental responsibilities for two major functions, highway construction and unemployment insurance.

Highway construction

Responsibility for no long-established function of government has gone through so complete a cycle of change as highways. A century and a half ago, Federal interest in highways was strong. But in the years after the War of 1812, the Federal Government retired from construction and not long afterward so did the States. The task of building and maintaining highways became, in the main, a local function, and it remained so almost to the 20th century. Roads seemed to be a local responsibility because traffic on them was local. Then the rise of the automobile, by revolutionizing our system of transport, also revolutionized the responsibilities of government toward highways. At first there was demand even for Federal construction of a system of interstate highways, but the more pedestrian plan of Federal grants prevailed, with allocation of most of the money to local roads. Gradually, however, under the guidance of the Bureau of Public Roads, the mileage eligible for Federal grants was limited, and in many States a State highway system was marked out for direct construction and maintenance by State highway departments.

The Federal grants for highways have been given a good rating by most observers, and, in a historical sense, this rating seems correct. Nonetheless, it seems that the political strength of the program allowed and persuaded Congress to stick to a formula and allocation which were out of date even before World War II. Postwar, indeed, Congress enlarged and revised the program, giving attention to express highways through or around the larger cities, and to designation of an interstate system for which the major financial responsibility is Fed-

⁴ At present, a Joint Federal-State Action Committee is exploring what can be done. Federal relinquishment of taxes on admissions, local telephone service, club dues, etc., bringing in a revenue of about \$750 million, is suggested as a quid pro quo to reduction of grants for vocational education, old-age assistance, national disaster relief, the school-lunch program, etc.

eral. But too much money continued to be spent on roads with relatively little traffic, to the neglect of heavy traffic roads and of roads in the more populous States.

The Kestnbaum report showed little awareness of this situation. It favored some increase of Federal aid channeled especially toward "highways of major importance to the national security" (p. 216); it wanted "a reduction in the extent and degree of Federal supervision" of the grants; it favored a pay-as-you-go plan financed "primarily from increased motor-fuel taxes" (p. 219); it wanted repeal of the Hayden-Cartwright Act. Yet at this very time Congress, in framing the Highway Act of 1956, was making major decisions in highway policy. It was to increase Federal expenditure on highways from 10 percent of total governmental expenditure to 20 to 25 percent, to provide for reconstruction of the 41,000-mile Interstate Highway System almost entirely with Federal money, and to segregate Federal highway-user taxes into a fund earmarked for highway purposes. It may be that a mileage will emerge which is entirely a Federal responsibility, while the remaining mileage will be left to the State and local governments with little or no Federal aid.

Unemployment insurance

Unemployment insurance was set up in 1935 on a cooperative Federal-State basis by use of the tax offset. A purely Federal scheme was thought to be impractical for a variety of complicated reasons, among them the danger of being declared unconstitutional. The tax offset scheme itself squeaked by the Supreme Court in 1937 in a 5 to 4 decision, with the majority putting much emphasis on their opinion that the conditions and controls imposed by the Federal Government were not excessive, and that the States were given a wide freedom concerning the type of statute they might enact.

In the 20 years since this decision, the number of advocates of federalization has grown, and, if a fresh start could be made, a national plan of unemployment insurance might be favored. The actual scheme of Federal-State cooperation, with its divided administrative and legislative responsibilities, and the resultant diversity of coverage, benefits, waiting periods, and tax rates, does not meet adequately the national interest in unemployment compensation. Merit rating, in particular, has introduced a perverse behavior of the contribution rate which impairs countercyclical finance and endangers the solvency of some State reserves. These are formidable faults which are inadequately recognized by the Kestnbaum report.⁵ Indeed, nowhere in the report, and in the report of its Study Committee on Unemployment Compensation and Employment Service, is the influence of status quo so marked. A bare majority of the study committee—6 out of 11 members—favored an increase in the tax offset from 90 to 99 percent. This would, in effect, abolish the present Federal grant for unemployment compensation and permit the States to collect 99 percent of the employer tax. The Commission gave its endorsement to experience rating. By a bare majority of 6 to 5, its study committee favored extension of coverage to employers

⁵ Four Commissioners, Senators Morse and Humphrey, Dr. William Anderson, and ex-Governor Alfred E. Driscoll, favored a national system of unemployment insurance, supported and administered by the Federal Government.

of 1 or more employees, and the Commission went along, with 1 dissent.

The likelihood of major reform in unemployment insurance, not to say federalization, is slight. The existing scheme works well enough most of the time; it has the entrenched support of its administrators and indeed of all State officials in States with strong reserves.

CONCLUSION

Two related policy conclusions seem indicated by this brief survey. (1) The present system of grants needs overhaul to eliminate grants which no longer serve an important national purpose, to revise grants for which conditions, administration, apportionment are inappropriate, to add or enlarge grants for purposes where inadequate State action is coupled with national need. (2) If the net result is to throw new financial responsibilities on State and local governments, the Federal Government should offset, or more than offset, the burden by reduction of Federal taxes, especially those suitable for State-local administration. Such steps would help in reconstruction of a more effective federalism.⁶

TABLE 1.—Public expenditures and net national product,¹ all levels of government combined (fiscal years)

	1890	1929	1932	1940	1955
Expenditures (billions):					
1. Civilian	\$0.6	\$8.8	\$9.6	\$15.5	\$60.5
2. War-related ² .....	.2	1.9	2.2	2.5	52.9
3. Total .....	.8	10.7	11.8	18.0	113.4
4. Net national product	11.0	95.0	50.7	93.0	359.5
Expenditures (percent of net national product):					
5. Civilian ²	6	9	19	17	15
6. War-related ²	2	2	4	3	14
7. Total	8	11	23	20	29

¹ The classification and the figures for (1890) 1940 are taken from an article *The Growth of Public Expenditures in the United States, 1890-1948*, by R. A. Musgrave and J. M. Culbertson, *National Tax Journal*, June 1953. The figures for 1955 are only roughly comparable with those for 1940 since I have sometimes had to guess where Musgrave and Culbertson would put the figures.

² War-related expenditures are defined as those of the Military Establishment, veterans' benefits, interest on Federal debt incurred for defense purposes, and Federal foreign aid in 1955.

TABLE 2.—Public expenditures for civilian purposes, 1940 and 1955,¹ all levels of government combined (fiscal years)

	1940	1955	1940	1955
	Billions	Billions	Percent	Percent
1. Regulation and protection	\$1.0	\$2.1	6	4
2. Economic development	3.6	14.5	24	24
3. Social welfare	8.0	35.8	52	59
4. Interest ²	1.3	1.3	7	2
5. Other	1.7	6.8	11	11
Total	15.6	60.5	100	100

¹ See footnote to table 1.

² Interest on debt incurred for purposes other than defense.

⁶ A thorough overhaul of grants should not neglect their adaptability for countercycle purposes. Some of the possibilities were summarized in a paper presented to your subcommittee by me in November 1955.

TABLE 3.—*Distribution by levels of government of public expenditures*¹
(fiscal years)

	1890	1929	1932	1940	1955
	Billions of dollars				
1. Federal.....	0.3	2.6	3.5	9.0	70.2
2. State.....	.1	1.9	2.3	3.4	19.6
3. Local.....	.5	6.2	6.0	5.6	23.6
Total.....	.9	10.7	11.8	18.0	113.4
	Percent of total				
1. Federal.....	33	24	30	50	62
2. State.....	12	18	20	19	17
3. Local.....	55	57	51	31	21
Total.....	100	100	100	100	100

¹ See footnote to table 1.

NOTE.—Figures may not add to totals because of rounding.

TABLE 4.—*Distribution, by levels of government, of civilian expenditure, 1940 and 1955*

	1940	1955	1940	1955
	<i>Billions</i>	<i>Billions</i>	<i>Percent</i>	<i>Percent</i>
Economic development:				
1. Federal.....	\$2	\$5	55	37
2. State.....	1	6	25	38
3. Local.....	1	4	20	20
Total.....	4	15	100	100
Social welfare:				
1. Federal.....	3	9	42	25
2. State.....	2	12	24	32
3. Local.....	3	15	34	43
Total.....	8	36	100	100
Other:				
1. Federal.....	1	3	30	29
2. State.....	1	2	15	25
3. Local.....	2	5	55	47
Total.....	4	10	100	100
Total civilian:				
1. Federal.....	7	17	42	29
2. State.....	3	19	22	32
3. Local.....	6	25	36	39
Total.....	16	61	100	100

NOTE.—Figures may not add to totals because of rounding.

TABLE 5.—*Federal grants and State-local expenditures*

	Grants	State-local expenditures	Percent
	<i>Millions</i>	<i>Millions</i>	
1947.....	\$1,678	\$14,171	11.8
1953.....	2,781	32,937	8.5
1954.....	2,987	36,607	8.2
1955.....	3,126	40,375	7.7

TABLE 6.—Federal grants, 1947 and 1955

	1947	1955	1947	1955
	Millions	Millions	Percent of total	Percent of total
Labor and welfare.....	\$935	\$2,094	55	67
(Public assistance).....	(644)	(1,427)		
Commerce and housing.....	602	724	36	23
(Highways).....	(208)	(584)		
Agriculture and agricultural resources.....	65	248	4	8
Natural resources, not agriculture.....	10	26	1	1
Other.....	67	35	4	1
Total.....	1,678	3,126	100	100

TABLE 7.—Per capita income payments (fiscal 1953), Federal grants (fiscal 1953), Federal tax incidence (fiscal 1952), by States

	Income payments	Federal grants	Federal tax incidence	Income payments	Federal grants	Federal tax incidence
United States.....	\$1,616	\$17.19	\$412			
Delaware.....	2,256	15.52	1,015	1	36	1
Nevada.....	2,201	51.19	653	2	1	5
Connecticut.....	2,132	10.92	698	3	46	2
District of Columbia.....	2,122	7.88	697	4	49	3
New York.....	2,110	13.04	676	5	42	4
Illinois.....	2,038	13.75	552	6	40	6
New Jersey.....	2,035	8.84	510	7	48	9
California.....	2,008	21.29	505	8	18	10
Ohio.....	1,942	12.47	460	9	43	12
Michigan.....	1,916	14.67	445	10	37	14
Washington.....	1,846	25.71	381	11	12	19
Maryland.....	1,806	12.37	485	12	44	11
Massachusetts.....	1,792	16.31	549	13	35	7
Pennsylvania.....	1,778	10.04	446	14	47	13
Indiana.....	1,751	11.81	336	15	45	26
Oregon.....	1,718	17.85	387	16	29	18
Rhode Island.....	1,705	17.27	538	17	30	8
Wisconsin.....	1,694	14.51	376	18	38	21
Montana.....	1,690	30.45	350	19	7	25
Wyoming.....	1,654	32.74	333	20	5	27
Colorado.....	1,652	32.85	412	21	4	15
Missouri.....	1,631	23.68	405	22	15	17
Kansas.....	1,590	21.79	302	23	17	30
New Hampshire.....	1,586	16.73	408	24	33	16
Nebraska.....	1,558	16.64	326	25	34	28
Iowa.....	1,546	17.25	300	26	31	31
Minnesota.....	1,524	18.34	361	27	27	23
Arizona.....	1,488	25.96	293	28	22	32
Utah.....	1,484	28.17	243	29	9	37
Texas.....	1,468	18.84	318	30	24	29
Idaho.....	1,448	24.89	241	31	14	38
Vermont.....	1,382	21.06	359	32	10	24
Maine.....	1,364	18.09	372	33	28	22
Florida.....	1,352	17.02	378	34	32	20
Virginia.....	1,350	13.17	277	35	41	33
New Mexico.....	1,337	30.68	239	36	6	39
Oklahoma.....	1,310	34.51	245	37	3	36
South Dakota.....	1,296	28.93	218	38	8	43
North Dakota.....	1,270	27.23	224	39	10	41
West Virginia.....	1,245	19.21	249	40	22	35
Louisiana.....	1,240	34.94	258	41	2	34
Georgia.....	1,162	23.31	200	42	16	42
Tennessee.....	1,156	19.05	209	43	23	45
Kentucky.....	1,146	18.56	231	44	25	40
South Carolina.....	1,092	19.40	170	45	20	46
North Carolina.....	1,078	14.11	213	46	39	44
Alabama.....	1,021	18.44	163	47	26	47
Arkansas.....	953	25.30	139	48	13	48
Mississippi.....	830	19.26	112	49	21	49

Sources: The Commission on Intergovernmental Relations, Report, pp. 303-304, Selma Mushkin, Illustrative Estimates of Federal Expenditures and Revenues by States (U. S. Department of Health, Education, and Welfare, Washington, 1956, mimeographed), p. 58.

THE TENABLE RANGE OF FUNCTIONS OF LOCAL GOVERNMENT

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The members of the legislative, executive, and judiciary departments of 13 and more States, the justices of peace, officers of militia, ministerial officers of justice, with all the county, corporation, and town officers, for 3 million and more of people, intermixed, and having particular acquaintance with every class and circle of people, must exceed, beyond all proportion, both in number and influence, those of every description who will be employed in the administration of the Federal system (The Federalist, No. 45).

The preservation of a large role in governmental activity for local governments is widely accepted as an important social goal. No one can doubt that the individual citizen gains greatly in political dignity and wisdom if he can participate in the political process beyond casting a vote periodically. It is also generally conceded that a good political system adapts itself to the differing circumstances and mores of different localities, or, as I would wish to rephrase it, the system should allow legitimate variations of types and scales of governmental activity to correspond with variations in the preferences of different groups of citizens.

Nor will it be denied that this social goal is being increasingly sacrificed. In 1900, virtually all questions of housing, public health, crime, and local transportation were dealt with exclusively by State or local governments, and the role of the Federal Government in education, regulation of business practices, control of natural resources, and redistribution of income was negligible. Today the Federal Government is very active in each of these areas, and its share of responsibility is gradually increasing.

I propose to examine some of the reasons which are given for the growing centralization of political processes. The proper range of activities of government in general will not be raised. Our question is simply this: If the people in a given community wish to embark on a particular governmental policy, when does the efficient discharge of this policy require that it be imposed by a central authority also upon other communities?

In many minor areas of governmental activity no real questions are raised, as yet, about the feasibility of local sovereignty. If a given community wishes to have superb library facilities, it can build and pay for them; if another community wishes instead a skating rink, it may so choose. If individual citizens in any community disagree strongly with the majority preferences, they may move to a more congenial community. Since governmental functions must often be provided upon a considerable scale to be tolerably efficient in execution, a

sufficiently eccentric individual may not be able to find any community with enough like-minded individuals to be able to adopt that series of governmental policies which would exactly suit his taste. For example, he may wish to live in a community with gravel streets and a magnificent observatory, and find no community willing to provide this combination. This sort of limitation is also encountered in consuming the products of private enterprise—I may not find precisely the automobile or typewriter that suits me.

In most areas of governmental activity, however, it is increasingly felt that local governments are inefficient units. When any of three types of governmental activity are sought, it is said that the unit of effective administration must be large in scale—

1. When the object of a regulatory policy can be nullified by the competition of (including migration to) other local governmental units.

2. When the source of revenue of the activity can escape financial responsibility by migration to another unit.

3. When the policy is incapable of efficient performance upon a local scale.

We consider these problems in turn.

THE PROBLEM OF COMPETITION.

Suppose that a community wishes to set a high standard of factory safety, and requires the installation of a very expensive safety device. Then the local portion of a much larger industry will be undersold in the common market by factories in other communities, provided they do not also simultaneously set as high standards of safety practices. The local branch of the industry then dies or migrates. These facts can be taken as data for our discussion.

The essence of this argument is that competition, which usually works so well in the area of private enterprise, serves to defeat desirable goals in the area of government. If every governmental unit, save one, were to desire and require elaborate safety devices in the factories of some industry, it is claimed that their desire could be stultified by the presence of the exceptional community which did not have this desire, because the regulated industry would migrate to this community and escape regulation, and the knowledge that it would do so is often enough to prevent the various communities from attempting to regulate it.

It may be remarked that a similar argument is often encountered in the private-enterprise sector. Plants with low wage rates, it is often said, force plants with high wage rates to reduce their wages in order to compete successfully in the common market. In this case the argument is reversible: the plants with high wage rates force plants with low wage rates to raise their wages in order to compete successfully for workers in the common labor market. Both formulations, however, are singularly uninformative, for they do not lead directly to the correct conclusion, which is that the wages of all (similar) workers must approach equality in all plants under competition, and the common wage rate will be governed by the value of the worker's services in those plants which can pay this rate. Can it be that some parallel obscurity attaches to the customary formulation of the unfortunate effect of competition among governments?

The governmental analysis is, in fact, incomplete. Suppose any community set the required level of safety practices as high as it wishes, and then gave a subsidy to each enterprise in the locality equal to the additional cost that these safety devices imposed upon the enterprises. Then there would be no tendency for the local industry to be handicapped in competition with other areas with lower safety standards, and the community would enjoy more worker safety and less of other things than other communities. If 47 percent of the localities or 99 percent of the localities embark upon this policy, then 47 or 99 percent of the factories will have the desired safety practices, and the nonconformist competitors will not have the slightest tendency to injure or attract these safe and expensive factories.

When a community imposes the safety regulations without giving a compensating subsidy, its troubles arise from the fact that it is seeking to push these higher costs off on consumers, and neither local nor distant consumers wish to assume this burden. The problem of competition resolves itself into an unwillingness of the community to bear the costs of its policy when they are posed as an explicit burden.

A similar analysis holds when the community wishes to require of some consumer good that it be of unusually high quality. If it specifies that only goods of this unusual quality be sold in the community, the producers will be quite eager to meet the specifications—at a remunerative price.

Although it involves a digression, it may be profitable to discuss more generally our example of factory safety devices because the discussion will serve to illuminate the workings of competition in general. If workers are faced with the choice of working in one plant, unequipped with safety devices, at an hourly rate of \$1.50 but with expected losses from injuries of 5 cents per hour, and in another plant with safety devices they are offered \$1.46 with no expected losses from injuries, we should expect them to choose the latter plant. If under these conditions they do not choose the safer plant, the most probable explanation is that they do not correctly appraise the expected losses from injuries and the remedy is to inform them of the consequences of working in factories unequipped with safety devices. In a fully competitive system the entrepreneurs will supply at cost all the safety devices that the workers demand, and all safety devices which return (to the worker, in terms of reduced injuries) as much or more than the cost will be adopted. It may well be that in this situation there will be safety devices which do not pay but which would reduce injuries further, and that the community as a whole sets a higher value on avoidance of these injuries than the workers themselves do. Some moral philosophers might argue that these workers should set a higher value on the avoidance of injuries, but the workers do not, and in a society with free choice of occupation they cannot be made to pay for more safety than they wish. Hence the society must bear the costs of achieving more safety, and the sole question is whether the costs be borne by consumers through compulsory installation of the safety devices and restriction of supply, or by direct grant from public funds.

The competition of other communities as tax collectors is an important form of the alleged difficulty arising out of competition. Suppose community A wishes to have splendid and expensive schools,

streets, housing, poor relief, and what not. If it levies sufficient taxes to finance this elaborate program, a large portion of the tax base (industries and well-to-do individuals) will leave the community while simultaneously a large number of beneficiaries of the generous program may immigrate. The tax rates on the narrower tax base will have to be prohibitive (from the viewpoint of the remaining taxpayers) to finance the sumptuous program.

Again we can accept the facts, with one temporary amendment. Let us assume that the same income is received by every family, and no questions of income redistribution are involved. Will the presence of communities with lower tax rates defeat the ambitions of community A? The answer is clearly in the negative. There will be some redistribution of population among communities: those people who prefer cheaper public services and lower tax rates will move elsewhere, and others with opposite taste will move to A. Competition of communities offers not obstacles but opportunities to various communities to choose the types and scales of governmental functions they wish. The proviso that all family incomes are equal has a vast influence on this argument, of course, and we turn now to income redistribution as a goal.

THE DISTRIBUTION OF INCOME

If all families had equal (real) income, would there be any need for local governmental units? Why could not each city be a private corporation, supplying at a price the services its dwellers demanded? With many, many such corporations, competition would prevent monopolistic pricing, and schooling and police and fire protection would be sold at a price including a fair rate of return on investment. This scheme would obviously be inappropriate where the service must be a monopoly (like national defense) and probably also where the community size was so large (due to the economic advantages of size) that the communities were too few to rely upon competition, but let us put these instances aside. We are not seeking to prove that there should be no government, but rather to find the logic of government at the multiunit governmental level.

A basic deficiency in this private enterprise organization of social life, we would all agree, is that it allows excessive freedom to the individual. It would allow parents to horsewhip children, and it would create communities populated chiefly with drunkards and drug addicts—although thieves would presumably prefer to live among honest men (even with their policemen) than only with other thieves. Public opinion would curb many undesirable personal actions, but the society would wish to compel observance of its basic values. As a result, we must recognize the need for political units large enough so their numbers include enough normal people to insure the imposition of the society's basic moral standards on local communities. Our States—with 1 or 2 possible western exceptions—meet this condition of statistical large numbers.

The second basic weakness—some will call it a strength—of the private enterprise organization of local government is that it would not permit price discrimination; it does not have the ability to redistribute income. The purely competitive organization of local services would

make it impossible for a local government to obtain money from the rich to pay for the education of the children of the poor, except to the extent that the rich voluntarily assumed this burden.

How can local governments cope with this problem? If 99 communities tax the rich to aid the poor, the rich may congregate in the hundredth community, so this uncooperative community sets the tune. Here competition does not perform with its usual excellence, for competition is the system calculated to organize only voluntary activity.

What is the correct amount of redistribution of income in light of the society's desires? It is more than the unrestricted competition of tax-free colonies of the rich would allow, but less than the most aggressively egalitarian community would desire. The decision must be in some sense a national decision, for the proper amount of redistribution, even if rich and poor were chained to their communities, could not depend upon the accidents of income composition of a particular community. And once this level of redistribution is set, no one community may complain if its rich citizens migrate when it seeks to go above this level of distribution unless the society is prepared to let the most egalitarian community set the scale of income redistribution.

Since redistribution is intrinsically a national policy, it should not be restricted to a community level; a community consisting only of poor people should receive the desired minimum social services. Hence, in pure principle, the Federal Government should collect the progressive levies and redistribute them (in whole or in part) to local units with each unit receiving an amount governed by the number of its poor and the degree of their poverty.

Given this system of tax revenue redistribution, the local governments could still be allowed to perform any function which they were competent to perform efficiently. One community might choose to spend more on schools and less on hospitals than another, but this is surely an area of legitimate freedom; there is no "correct" distribution of expenditures among such functions.

In a society which has no serious program of income redistribution (even as a means to the attainment of minimum goals), local governments would face no basic revenue problems because of competition.¹ It is in keeping with this argument that a century ago almost all functions were local and the problem of competition for the tax base was negligible. With an appropriate fiscal system we could restore these revenue considerations to a position of unimportance even in an era of extensive income redistribution. There still remains the question of whether the local governments could efficiently perform the enlarged range of functions that modern governments have assumed. We turn now to this question.

THE ECONOMIES OF SCALE

How large must a governmental unit be to perform efficiently the activities which the public wishes governments to perform? This is an area which deserves much more attention than it appears to have received, and the following remarks are highly tentative.

¹ Perhaps a qualification should be entered with respect to the growth of taxable wealth that escapes a general property tax. In England the desire of property owners to ease their tax burdens was a force in the emasculation of local government; see E. Cannan, *The History of Local Rates in England*, second edition, 1912. ch. VI.

There are a set of functions which are intrinsically national because they are indivisible. The greatest of these is national defense, and it would be ill-served if each State or local unit were to undertake the defense of its own area. One may cite also foreign relations, the national governmental machinery, and the control of relationships among lower governmental levels.

In addition to such traditional functions, one may list certain functions which are or can be performed at a local level but which must be coordinated to achieve efficiency in their design. The transportation systems of localities must take some account also of the needs of long-distance transportation. The radio and television stations of various localities must not jam one another. These are functions which in the economist's language, have large external economies or diseconomies accruing to the areas which do not participate in their execution, so it is essential that they be formulated (although not necessarily administered) on a larger area than the local government.

We should reserve for the Federal Government those functions which are much more efficiently discharged on the largest scale. When local performance involves large duplication, it is inefficient. Thus it seems undesirable to have 48 estimates of wholesale prices since the price movements in most regions will be parallel; on the other hand, the calculation of cost-of-living indexes might suitably be removed from the BLS to the States.

The optimum scale of performance has tacitly become identified with the National, or at least the State, scale almost without examining the nature of the governmental functions under discussion. This seems most surprising to the student of industrial organization; he is accustomed to finding that the activity in an industry with a complex technology is usually efficiently conducted by a firm smaller by almost any measure than the government of a town of 25,000. Is there some special characteristic of governmental functions that makes large units necessary to efficiency?

Only one characteristic seems a possible candidate for this role: the great variety of functions performed by even the small governmental units. The lack of specialization is pronounced even though political scientists complain of a multiplicity of overlapping local units (many of which were established to evade tax or debt limits on local units). Some of these functions can be performed efficiently on a very small scale. Many of the most distinguished private schools and colleges are much smaller than the school system of a town of 5,000 people. Others are more varied. A police department can efficiently control local traffic on a small scale; in one sense it must be worldwide to have an efficient "missing persons" bureau.

But this variety of function is not really unusual. Every enterprise must use goods and services, or produce goods or services, which must be produced or sold on a much wider scale than the enterprise itself can undertake. Even a huge department store is not large enough to make its own delivery trucks, or to print the newspapers in which it advertises. Just as cooperation in these matters is brought about by the price system, so cooperation among governmental units has been developed—and could be carried much further—to avoid the determination and execution of all public functions by that governmental unit which is most efficient in conducting the function with the largest scale of operation.

It happens, as we have already noticed, that one function of paramount importance must be conducted on a very large scale: the collection of revenues designed to redistribute income. Much centralization, in fact probably most centralization, has been a consequence of this situation. A central government is loathe to make grants without exercising a degree of control over the local units which disburse the funds. No degree of control less than 100 percent, however, is sufficient to guarantee local performance exactly as the central authorities wish it, and there is no obstacle except tradition to slow down their gradual extension of controls.

The case for imposing controls over the smaller units receiving grants, however, is far from general. The central disbursing authority has no monopoly of wisdom. The State boards of education have imposed a series of certification requirements on local teachers, for example, that have done much to lower the quality of elementary education in the United States. When central governments have superior civil servants, as they often do, the cause lies more often in their control of finance and authority than in the advantages of centralization. It may be true that when most administrative units are small the ablest men cannot conduct affairs on the largest scale, but this seems an odd consideration to give weight in setting the functions of local governments in a democracy. More often the complexity of the tasks at the national level has reached such levels that not the ablest men can control them efficiently.

If grants were given to local governments without supervision, there would be some instances of gross neglect or venality and more variety in the quality of the performance of public functions. We should also expect to find that much of this variety was eminently sensible, and that many types of experimentation would constantly be embarked upon by the more venturesome and the more foolish communities—with large social benefits from both the successes and the failures.

If we give each governmental activity to the smallest governmental unit which can efficiently perform it, there will be a vast resurgence and revitalization of local government in America. A vast reservoir of ability and imagination can be found in the increasing leisure time of the population, and both public functions and private citizens would benefit from the increased participation of citizens in political life. An eminent and powerful structure of local government is a basic ingredient of a society which seeks to give to the individual the fullest possible freedom and responsibility.

IV. ECONOMY AND EFFICIENCY IN GOVERNMENT
EXPENDITURES

ECONOMY AND EFFICIENCY IN GOVERNMENT EXPENDITURES

SOME DEVICES FOR INCREASING EFFICIENCY IN GOVERNMENT EXPENDITURE

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This paper treats what must be considered some comparatively minor issues associated with government spending. It is concerned with how to determine the levels of some of the services that government ought to provide and how such services should be produced. Its proposals are applicable to State and local as well as Federal expenditures. I am almost certain that other participants in this study will point out that solutions to many of the central problems of public expenditure policy are essentially matters of personal taste on which unanimous agreement is not to be expected. At the present time, I am not prepared to debate this position. Instead, I shall deal with some problems whose solutions should not be arbitrary ones, even though the changes in expenditures that would follow from applying them would look small in comparison with current levels of spending.

The treatment provided does not point out in detail how the principles proposed might be applied. I shall sketch the applicability for a few examples. These examples may appear to be extreme cases and are chosen to demonstrate clearly the points I am trying to make. These proposals when applied might prompt us to do some things in ways much different from those currently employed.

Although I shall argue that demand and supply relations can guide us more in determining government expenditure than currently is the usage, this argument does not support either those who believe that the best government is the one that does least nor those who believe that the scope of governmental activities should be expanded. In many areas we don't know whether government is spending too little or too much—even though such questions could be answered unambiguously—because we have not obtained relevant information nor employed decision-making procedures which would permit us to use the relevant data.

GOVERNMENT SPENDING TO PROVIDE SERVICES AND TO REDISTRIBUTE INCOME

Government spends to provide services and to modify the distribution of income from that which would prevail if it were determined only by the pattern of resource ownership and resource prices. The extent to which income should be redistributed—the tax and ex-

penditure pattern together being important instruments of redistribution—is essentially an ethical problem and will not be discussed here.

Goods and services that should be provided by government

The goods and services whose provision to the population should be of interest to government and the goods and services which government should produce need not be the same things. The first group includes things whose costs should be covered to some extent from tax revenues, although the organization of the production of these things might be left completely to private enterprise. The things whose provision to the population is a legitimate governmental concern includes those that one might call "socially beneficial." Additional consumption of such a good or service by one person increases the welfare of other persons as well as that of the immediate consumer. Elementary school education is a service generally believed to be of this kind. Because Smith's children do not capture all of the benefits of becoming literate and perhaps learning how to think and thus eventually becoming better citizens than would be the case if they were without elementary education, Jones is willing to contribute toward the education of the Smith children, i. e., to support governmental expenditure for such education. It is believed that if elementary school education were allocated among the population in the same manner as steak or beer, too little of it would be produced. Other instances of goods or services that are socially beneficial include services to check the spread of communicable diseases and various services associated with sanitation—sewage and garbage disposal, for example.

A second category of goods and services in whose provision government should be interested might be called public goods,¹ those which can be consumed by one person without any reduction in the amounts available to other persons. For example, a radio or television transmission can be received by an additional receiving set without affecting the reception of other receivers; one's view of a public monument is independent of the number of persons who have seen it previously.

Government's interest in socially beneficial goods is to see that their consumption is larger than would be the case if they were distributed in the same manner as other goods. This objective can be attained by subsidizing producers or by giving grants to consumers conditional upon these grants being used to purchase such goods or services. Either approach requires governmental spending. The interest of government in public goods also is akin to seeing that more is produced than would be the case if they were privately produced and sold. It costs something to produce and disseminate radio programs. Yet the best way of collecting to cover these costs is not necessarily to charge each listener according to the amount he listens but rather to charge him a flat fee for the opportunity to receive radio reception. Insofar as government may act as the intermediary in collecting and dispersing funds, government expenditure is involved.

¹ Refer to Paul A. Samuelson, *The Pure Theory of Public Expenditure*, *The Review of Economics and Statistics*, XXXVI, pp. 387-389.

Goods and services that should be produced by government

Whether government should produce goods and services—socially beneficial ones, public goods, or other goods—is simply a question of whether governmental organization of production will result in a given amount being produced at a lower cost than would be achieved by private producers. Thus, there is no inherent reason for a good or service to be produced by government, even though this good is freely distributed by government, if private producers can produce it at less cost; nor is there any reason why government should not produce any good or service and sell it in the market, even though this commodity has been produced privately, if it can do so at less cost than private producers.

In this paper I shall avoid the hardest problems—those associated with how much production there should be of public goods and goods with social benefits. Instead I shall deal with some of the problems of trying to assure that the costs of producing whatever outputs are chosen is a minimum, some of the devices that can be used for determining the outputs of goods that are neither public goods nor socially beneficial but in the production of which government has definite advantages, and with some considerations in determining whether a good is socially beneficial.

MORE WIDESPREAD USE OF CONTRACTING AS A DEVICE FOR LOWERING COSTS OF SERVICES IN WHICH GOVERNMENT HAS AN INTEREST

In the United States it is widely believed that with both types of producers having access to the same technology and the same market information, private producers will produce more efficiently than government. There is relatively little pressure for government to take over the production of steel or autos or most other goods and services that are clearly neither socially beneficial nor public goods. A foundation for this belief might be that if decision makers are rewarded (or penalized) in accordance with the quality of the decisions which they make, the quality of decision making will be better than if rewards and quality of decisions are not closely related. Where profit is a good index of the quality of the decision, the results of private producers' decisions in organizing production are generally accepted.

In many areas, government has chosen to specify the amount of a product to be produced and to let private producers produce the product for government. The military does not produce its own planes, tanks, etc.; the postal service hires railways and airlines to carry mail; some school districts do not operate their own school buses, etc. The line between where government should buy goods and services and where it should produce them itself appears to have been arbitrarily drawn. If the contention that private producers can produce more efficiently is correct, there are opportunities for reducing costs of government—although the savings may not be large—through more widespread application of the practice of government specifying the task to be accomplished and letting private producers bid for the job. For example, fire protection, garbage collection, mail collection and delivery, and even many law-enforcement activities (such as checking parking violations and collecting taxes) might be contracted to private agencies.

One cannot forecast accurately the outcome of more widespread application of contracting. There should be reductions in costs of doing some of the things now done by government. But total expenditure might be increased. For example, with better garbage collection at the same cost as at present or the same kind of garbage collection at lower cost, people might demand more of it than currently is being obtained. Rather than try to guess what the expenditure pattern would be, let me try to indicate how more widespread use of contracting might be made by reference to an extreme case.

One function which government performs is that of levying and collecting taxes, the procedure whereby a person may determine his tax liability having been stated basically by legislation. There are, of course, what many people call "inequities" in the tax structure that are the results of legislation. However, there are others that are essentially administrative—in the assessment of property for tax purposes and in the undercollection of income taxes, particularly from self-employed persons. It is claimed that these could be remedied by devoting more resources to tax collection, yet there is no agreement as to how much more should be devoted to this purpose. One way of determining this would be to sell the right to collect a certain tax in a particular area. If taxpayers have adequate recourse to opportunities to prove their true tax liabilities so that they will not pay more than legally prescribed and if the right to collect a tax sells for more than the net revenues (gross collections minus collection costs) obtained by government, greater efficiency in tax collection would have been achieved. The tax "farmers" (as they were called in earlier times when such procedures were followed) would be organizing their resources more efficiently than has government in collecting a given amount of revenue and/or devoting more nearly the correct amount of resources to their function. It might be noted that such a move might prompt legislation such that taxpayers could more unambiguously determine their tax liabilities and that there should be virtually no bribery of tax collectors.

SOCIALLY BENEFICIAL GOODS AND SERVICES

There is not complete agreement with respect to precisely which goods and services are socially beneficial. However, some of this disagreement is the result of failing to distinguish between benefits that can be rewarded through the market and those that cannot. For example, investment in plant and equipment that will earn enough to pay interest and amortization costs is socially beneficial in that it results in a given amount of product being sold at a lower cost. However, the making of such an investment is rewarded through the market. If a person learns to understand things that improve his decision-making ability as a citizen but do not increase his marketable skills, this act is not rewarded through the market. Only the latter kind of action warrants expenditure as a socially beneficial action. If there are unnatural impediments to investment that prevent the first kind of action from being carried out, such impediments can be removed by the establishment of governmental agencies—for regulation or for making loans, for example—whose expenditures are relatively insignificant.

Furthermore, as already has been indicated, goods or services that are socially beneficial need not be produced by government. Unless the government is interested in controlling the curriculum, the appropriate stimulation to the production of elementary education could be provided by grants to families conditional upon such grants being used for elementary schooling. Private producers could operate the schools and collect for their services through fees.

An appraisal of current governmental aids to higher education provides an opportunity to illustrate a confusion in popular notions of socially beneficial goods. Governmental aids to education are extended not only to elementary schooling but to secondary school training and so-called higher education—the educational services provided by colleges and universities. Yet, it cannot be argued that training a person to be an accountant, an engineer, an embalmer or a mathematician or to speak French brings significant social benefits. It is true that increasing the number of accountants, engineers, etc., reduces the prices for the services which they produce. But improving technology or increasing the amount of capital employed in producing various goods and services also reduces their prices. Investment in higher education does not differ fundamentally from any other form of investment in the distribution of its returns among the persons making the investment and others. If a rationalization, consistent with our general views as to how resource allocation should be made, were to be provided for public support to higher education, this rationalization might be that existing market arrangements make it possible for us to borrow to purchase a farm, a factory, or an oil well, but that borrowing to purchase a college education usually cannot be accomplished through formal financial channels. Investment in higher education thus would be too small, if we left its determination to the same forces as are permitted to determine other investment decisions. One way to encourage more investment in higher education is to reduce its price through governmental grants to some colleges and universities.

However, if it is agreed that we should be interested primarily in assuring that individuals may invest in themselves through training on the same terms as they may invest in other assets, this objective can be achieved by creating lending institutions for making loans to purchase education—perhaps in creating an FHA for college educations. Such institutions could require considerably less Government expenditure than do current arrangements—in the long run they need not require any; and, they could result in a better allocation of educational opportunity than do present institutions. At the present time, some persons who would not buy a college education if they had the financial resources and had to pay the full costs attend some State-supported institutions. Others who would buy a college education if they could borrow the financial resources and had to pay the full costs cannot attend college. A loan program, in lieu of present forms of State support, would permit the second group of individuals to attend college, and—if educational training were priced at cost—would result in the training of fewer individuals in the first group. Governmental operation of institutions of higher learning might continue under the proposed arrangement. But, the reasons for such operation are the same as those for State operation of grocery stores, filling stations, etc.

It should be noted that pricing higher education at cost would permit us to determine whether too much or too little is being produced. When a good or service is not socially beneficial and is priced below cost, the fact that more of this good or service is demanded than is available is not sufficient to claim that a true shortage exists. In the long run, there would be "shortages" (excess demand) of all such goods and services if they were priced in this manner. Information about the quantities of socially beneficial goods and services that would be purchased at various prices also is required to determine how much should be produced. Because, at some arbitrary price, there is excess demand for such a good or service does not necessarily mean that too little is available. Excess demand for this good also may mean only that the price is too low.

PUTTING DECISIONS WITH RESPECT TO HIGHWAY SERVICES ON A SUPPLY AND DEMAND BASIS

Among the goods in which government should act as collector and disperser—if not producer—are those in which costs of collecting from each user in accordance with the amounts used are high relative to production costs. Water or electricity would be such a good, if either good were cheap but meters were very expensive. A classic example is highway services. With the exception of a few limited access highways and bridges, the costs to private producers of collecting from highway users directly in accordance with use are so high relative to construction and maintenance costs that unless government provided highways and streets, there would be too few of them.

For more than three decades, there has been much argument relating to how much should be spent on highways and who should pay the bill. The question of who should pay the bill hinges on whether highway service is socially beneficial. Although improved highways cut transport costs and hence the prices of things consumed by persons not directly using the highways, there are many other activities that result in reduced prices and for which no special means of compensation are provided. Except for potential military uses of the highways—for which the military services should pay—the case for attributing social benefits to highway services is a weak one.

In addition to attributing social benefits to highways, further resistance to conceptually applying the usual market criteria to determining how much of such service should be produced has arisen from viewing highway services as public goods. If using a highway imposed no maintenance costs and if there existed no problems of highway congestion, such a view might be legitimate. However, it is not economic to construct highways so that there are not maintenance costs (at least for some vehicles), and street and highway congestion is one of our most widely discussed problems. If difference in quality of service is considered—quality might be defined in terms of opportunity to travel at a certain speed, with a certain comfort and some specified probability of accident—much of the service offered by the street and highway system is not a public good.

If it is agreed that highway services are neither socially beneficial nor public goods it would be desirable to try to ration these services among users and to determine the amounts that should be produced in the same general way as these problems are solved for other goods. The practical problems are those of attaching appropriate prices to highway services, collecting from highway users according to the amounts of each of the services used and employing highway-use data to determine the amounts of roads of various qualities to construct.

Some of these problems have been explored in more detail elsewhere² and I will state only some of the implications of these explorations here. Collecting from highway users in accordance with the amount of service obtained can be accomplished by reliance upon motor-fuels taxes for passengers' cars with supplementary weight-distance taxes for trucks and buses. Revenues could be allocated to each section of the highway system in accordance with the traffic pattern and comparisons of revenues and costs would be employed to guide the construction and maintenance patterns. Encouragement to toll roads would be provided by imputing revenues to them in the same fashion as for other roads. Thus, decisions about how much of various kinds of highway service to provide could be based on whether such changes would pay. We would be able to know more clearly than we can at the present time how adequate is our highway system.

SUMMARY

The devices that have been suggested in this paper—more widespread use of contracting in the production of services provided by government, a loan program to prospective college students rather than an expanded State role in the production of higher education, and the provision of highway services in accordance with market criteria—are all designed to make it possible for us to know more accurately whether the right amounts of certain kinds of services are being provided and if the least-cost methods for providing various amounts are being employed. The changes in government expenditures that would result from using such devices might not be large, but some improvement in resource use would result.

² See O. H. Brownlee and Walter W. Heller, *Highway Financing and Development*, *American Economic Review*, May 1956, pp. 232-250.

ECONOMY AND EFFICIENCY IN GOVERNMENT EXPENDITURES

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In this paper the question of economy and efficiency will be related to the overall problem of government expenditures. With government expenditures exceeding \$100 billion a year, tax rates at high levels, a general tendency for government activity to increase over the years, and a common desire for economic development and stability, it is essential to appraise at frequent intervals the operations of the public and private sectors of the economy.

THE MEANING OF ECONOMY AND EFFICIENCY

The terms "economy" and "efficiency" are variously employed in discussions of public expenditures and taxation. Economists have emphasized the desirability of maximizing our economic and social welfare. They stress the objective of most effectively utilizing our resources toward that end by promoting economic growth and stability. The management of community affairs should be thrifty and efficient in the use of our resources. Depending upon the point of view, government expenditures for education, health, welfare, and other approved services might be increased or decreased.

Those who are critical of increased government spending and taxation often contend that both should be reduced and that more reliance should be placed upon private initiative and action in achieving our economic and social goals. They think of economy as requiring less spending and of efficiency as the elimination of what they regard as waste.

Another point of view would distinguish decisions as to public policies and functions, on the one hand, and decisions as to management, on the other. Economy would imply the wise selection of government policies, functions, programs, projects, and activities and expenditures upon them. Efficiency would relate to public management in discharging public responsibilities.

Efficiency in the accounting and engineering sense would seem to be related to unit costs and the effectiveness, as measured in terms of standards of cost, attained in the execution of government policies and functions. One might attempt to distinguish, however, between measurable money costs and social costs.

While there are many different interpretations of economy and efficiency in government expenditures, certain implications of these terms are evident. It is clear that they are related to decisions as to what expenditures governments should undertake and the effectiveness of those expenditures as judged in relation to the criteria in mind.

Broadly speaking, they are involved in the control of government expenditures for the advancement of approved objectives.

Is the control of government expenditures possible?

Not long ago the manager of the tax department of a large corporation asked me if the effort to control government expenditures was not a hopeless one. He apparently had in mind the failure of those who opposed government spending policies to accomplish substantial reductions in expenditures and the great difficulties encountered in securing greater efficiency in public management.

Others seeking greatly increased funds for public education, highways, defense, and other functions may also feel that their efforts to control expenditures have failed if their goals are not realized. In a national community with over 170 million members and State and local communities with many members, the final determination of government expenditures is bound to be the result of many compromises.

It would appear, however, that if we would expend more thought and energy in formulating our economic and social objectives we might reach a wider agreement on what they should rationally and fairly be. If we should attain more success in agreeing upon and stating our community goals, we should also be able to increase our effectiveness in utilizing our material and human resources in advancing toward those goals.

THE PRINCIPLES OF GOVERNMENT EXPENDITURES

If we are to achieve greater economy and efficiency in government expenditures, in relation to the use of our resources, it is necessary for us to formulate guiding principles and criteria by which we shall appraise the effectiveness of such expenditures. It is suggested that every student of government expenditures might profitably attempt to state what he would accept as sound, basic, and equitable principles which are also practicable of application. Suppose, for example, that some such set of principles as those listed below are to be followed. Do they not require so much interpretation and involve so much controversy that there remains a wide area requiring the determination of value judgments which will always be open to uncertainty and differences of opinion in our system of government? Even so, a statement of principles may provide a greater common denominator and may be helpful in planning and executing spending programs.

Some principles of Government expenditures

1. Government expenditures should promote the most effective utilization of our human and other resources.

2. They should be consistent with the economic objective of an increasing national income flowing steadily and equitably to the population while advancing social and other community goals.

3. They should promote, or at least protect, the welfare of the majority even though they may be designed primarily to further the welfare of a particular class or group.

4. Careful judgment should be exercised by public officials and the citizens to insure that the advantages of expenditures on each public service exceed the costs and that the utilization of funds and

resources by governments will be more conducive to social welfare than the private use of the same funds and resources would be.

5. In calculating the economic and social results of expenditures, the economic and social effects of the taxes and other receipts raised to finance them should also be weighed.

6. Public works and other expenditures should be placed at the most propitious time, so far as possible, for enhancing economic stability, increasing the community income, and lowering the costs of the services performed.

7. The services and expenditures of the various units of government—Federal, State, and local—should be coordinated as effectively as possible to obtain the maximum social benefits and to avoid an unwise and wasteful duplication of efforts.

8. Government administration should be efficient and honest. Only those expenditures duly authorized by law should be disbursed; all expenditures should be accounted for completely; and public financing should be reported intelligently and interestingly to the executive officials, the legislature, and the citizens so that the social gains and costs of public expenditures can be compared in as rational a manner as possible.

CONFLICTING OBJECTIVES

If we assume that economy, in the broad social sense, requires the most effective utilization of our resources in the advancement of community objectives, it must be conceded that there may be some conflict among our objectives. Governments are not engaged exclusively in promoting economic welfare because they may also be busy with social, political, and military aims. Provisions for public safety, both internal and external, justice, education, public health, public welfare, and the regulation of morals no doubt greatly influence economic activity, but they may be directed largely toward noneconomic objectives.

We may all agree that economic development and stability are desirable, but we all know that in some measure these economic objectives are in conflict with each other. Changes in the distribution of wealth and income may be considered desirable or undesirable objectives. The problem is not entirely an economic one, however, for it involves moral, political, and social issues.

If we can attain agreement on our community goals, we have the further problem of arriving at agreement on the methods by which the goals are to be accomplished. Should we resort to government or private action or some combination of both?

A very serious problem in attempting to secure the most effective utilization of our resources is that of measuring and appraising the results of government and private action. In coping with the agricultural problem, for example, how are we to determine the consequences of various alternatives in developing a farm-aid program? In deciding upon an appropriate foreign-aid program, can we reach a judgment with full information concerning the effects of foreign aid?

The economic, social, moral, and military results of government actions are not altogether visible and measurable in objective terms. Our standards of measurement are likely to be subjective. Performance related to such standards is appraised largely in subjective terms.

Conflict not only arises in formulating community objectives but also over the methods by which they should be advanced, not only because of disagreement over objectives, but also because of uncertainty over the consequences of various courses of action. Economy in the utilization of our human and material resources thus encounters many grave and highly complicated problems.

DOES HISTORY PROVIDE AN ANSWER?

An answer may be sought in history to the question: What functions should governments undertake and what expenditures should be made for them? Every student of public finance knows that in general and over the centuries, government expenditures have been increasing. The German social economist Adolph Wagner, stated in 1876, after a study of public expenditures in many nations, that government activities were regularly increasing because new functions were constantly being undertaken and both old and new functions were being performed more efficiently and completely. He found, apparently to his satisfaction, that public economic activities were increasing at the expense of private, and looked forward to more collective economic action.

It may be granted that everywhere government expenditures have been increasing. The extent to which governments have become more or less efficient, if one has unit costs and relative waste in mind, has not, to my knowledge, been determined.

The history of modern societies shows a tendency for much activity which was once regarded as private to be transferred to governments, for much new activity to be assumed by governments which had not previously been extensively provided by private action, and for government responsibilities once looked upon as local in nature to become increasingly national in scope. Among the more important factors contributing to the growth of public expenditures have been the following:

1. The expansion of public wants.
2. The rise of the modern state, with its emphasis upon service to the citizens.
3. Costly wars and international tensions.
4. Increasing population and changes in the age and distribution of population.
5. The industrial and social revolution of the 19th and 20th centuries, with changing techniques of production, changing economic and social problems, and new efforts at social progress.
6. Rising incomes and higher levels of individual and public consumption.
7. The direction of fiscal policies toward coping with economic development and stability.
8. The development of government taxation and borrowing, with consequent increases in the funds at the disposal of governments.
9. Rising prices.

Certainly, there have been many forces at work in the continuing rise of government expenditures. In the United States, a great part of the increasing cost of government must be attributed to the direct

and related costs of war and national defense. Modern nations have become more efficient in killing and in destroying resources. In general, war would appear to be a waster of both material and human resources.

There is undoubtedly much waste in government, as in private and business, activity. The growth of government expenditures must be related to numerous complex political, economic, social, psychological, and moral pressures. At bottom, there has been the continuing and expanding want for public services, with resistance coming primarily from the taxpayers and others who have felt the burden of paying for these services.

THE QUESTION OF CENTRALIZATION

If public safety, highways, health, education, welfare, and other functions are to be assumed by governments, to what extent should the responsibility for the function and its financing be located at the Federal, State, and local levels? Some persons will say, "Let comparative efficiency decide." Although it is not always clear what efficiency means here, let us assume that it is a problem of assigning functional responsibility to the level of government which can provide the desired amount and quality of service at the lowest cost.

There could be little doubt that on such a basis national defense would be located with the Federal Government, even though many persons have vigorously assailed what they consider to be waste in the Defense Establishment. Factors other than unit costs are involved, however. Unified national action in an emergency is essential. The cost of defense in the aggregate, moreover, is so great that State and local governments could hardly support it.

Without attempting here to evaluate the relative efficiency of the Federal, State, and local governments in providing public services, it may be pointed out that cost data are lacking in many areas to furnish a basis of comparison. To measure unit costs, we must have units of performance which are strictly and uniformly comparable. Such units are often unavailable.

There has been much argument over the years concerning the relative efficiency of the Federal, State, and local governments in terms of costs. Some persons contend that the large Federal Government tends to be most efficient, apparently identifying size with efficiency. Some argue as eloquently that the closer government is to the people, the more the people can watch and control it, with consequent gains in efficiency. Other persons regard the States as more efficient than the local and Federal governments, feeling that local units are too small for maximum efficiency in many functions and the Federal Government is too large or is too preoccupied with national defense problems to offer the greatest efficiency in domestic services.

Actually, the distribution of functions among our governments has resulted from the operation of a number of factors. Among them are these:

1. Constitutional requirements.
2. Political considerations.
3. Available resources.
4. The widening community interest.
5. Assumed efficiency of performance.

6. The inherent interdependence of governments in this country.

7. The desire for uniformity.

Perhaps most Americans believe that strong and active State and local governments are necessary for the improvement and survival of our type of representative government, or democracy. If this conviction holds, one may feel that functional and financial responsibility should, so far as possible, be placed at the local and State levels even if the Federal Government would provide a more uniform and adequate service.

If uniformity is regarded as paramount, national responsibility will be advocated. Bigness in government, as in business and labor, is undoubtedly favored by many persons. Bigness may bring weaknesses and waste, however, as students of government and society know.

If efficiency is to be rated as a primary factor in allocating governmental responsibility, we may face the difficulty that we have insufficient data to determine comparative costs, or we may interpret efficiency in terms of uniformity or the amount or quality of service without weighing costs. One may assume that big Central Government is more or less efficient than State and local governments, or that local governments near the people are the most or least efficient, without having comparative cost data. We may start out with a predilection for central or local government and, through a rationalization process, find evidence and arguments to support the conclusion which we adopted as our initial hypothesis.

WASTE IN GOVERNMENT EXPENDITURES

Nearly everyone wants economical and efficient government when he thinks of his taxes and other charges. He wants "to get the most for his money" in financing services which he thinks are essential. At the same time, the typical citizen seems to seek, or at least accept, services of benefit to himself for which others largely or entirely pay.

The wasteful use of our resources in government expenditures arises from wrong decisions as to public functions and provision for them and in the inefficient and costly administration of public functions. Waste thus arises in spending too little in some instances and too much in others.

Social reformers would have us spend more for various social services, arguing that it is wasteful not to spend enough. Many taxpayers groups contend that governments are assuming too many responsibilities and are administering their functions in a wasteful and inefficient manner.

Waste resulting from the assumption of too many Federal responsibilities may be greatly reduced by slashing certain expenditures, according to various business organizations asking for greater economy and efficiency. They would reduce expenditures for national defense, foreign aid, veterans' benefits, agricultural subsidies, and other services. They would eliminate what they regard as wasteful public works and housing expenditures, reject a general public health insurance program, leave the financing of public education to the States, keep the Government out of competition with private business, and, in general, cut down on Federal expenditures.

The advocates of economy and efficiency have also proposed numerous reforms in governmental organization and in the techniques of administration. They have supported such measures as the following:

1. The Budget and Accounting Act of 1921
2. The Corporation Control Act of 1945
3. The legislative ceiling on expenditures
4. The consolidated appropriation bill
5. Limitations on income taxes
6. Centralized purchasing
7. Improved accounting, auditing, and financial reporting
8. Adequate congressional staff for appropriation analysis
9. Performance budgeting

Many of these measures have been advocated by those desiring increased, as well as decreased, expenditures. Once policy decisions are reached, efficiency in government operations would seem to be generally desired. Improved budgetary and other controls should, indeed, be helpful in arriving at policy decisions.

A PROGRAM OF CONTROL

The Federal budget and the budgets of some of the States and large cities have grown to such proportions that some persons despair of any real control over expenditures. How can anyone comprehend defense expenditures of \$40 billion or total Federal expenditures of \$70 billion or more? And who can comprehend the expenditures of thousands of units of government exceeding \$100 billion?

The size and direction of expenditures have been determined largely in the rough and tumble of the budget process, with spending and opposing pressures in continuing conflict. In our system of government, success in the control of government expenditures in the advancement of our community goals requires the constant, intelligent, fair, and constructive cooperation of the citizens and the executive and legislative branches of our governments. Final judgments, in a democracy, must be arrived at by compromising the different points of view of those involved. If we work together in a rational and helpful manner, the compromise will be consistent with the common goals of at least the majority.

Expenditures start with proposals for appropriations. Unless appropriations are controlled, expenditures cannot be controlled.

Many persons have said that Congress has lost control of the appropriation process. But control is often in a precarious balance, and it involves the executive branch and the citizens as well as the legislature. Control must therefore be exerted at every stage of the budget process through the best efforts of all the parties involved.

The techniques of expenditure control are, in general, well known to students of public finance in and out of government. The will to control is more apt to be missing than the techniques, although improved techniques are continually being developed. The techniques frequently need refining and improvement, but those which are available are often overlooked.

Another weakness in efforts at expenditure control is the failure to appraise each appropriation and expenditure in relation to a total program, and to attain consistency throughout the total program of a government. Inconsistencies may exist in the spending program of a

certain department and are frequently found among the various spending measures of a government. In addition, the expenditures of the various levels of government may be somewhat inconsistent with each other.

Democracy is a cumbersome and bungling process, in many respects. It could, however, operate more logically, economically, and efficiently if greater and more intelligent efforts were exerted.

An important check on the success or failure of the spending program may be found in the attitudes of the taxpayers and those who must "pay the bill." Taxpayer complaints may be exaggerated with respect to claims concerning the destructive burdens of taxation. On the other hand, many taxes are now levied at very high rates. Many other substantial taxes are collected indirectly from the people and the total tax burdens are not visible, with the result that expenditures are not, under the circumstances resisted or criticized.

Government expenditures are warranted, in the last analysis, only if their social benefits exceed their social costs. The effects of each expenditure and each revenue, in relation to the total spending and taxing picture, must therefore be appraised if Government activities and finances are to be controlled in the best interests of the community.

Taxation does interfere with the lives and economic pursuits of the people. Whatever may be the benefits of the expenditure of the tax proceeds to certain groups and society at large, to the person paying the bill or otherwise feeling the effects of taxation, it is a cost.

Government is justified only when it provides essential public services which would otherwise not be available and when it supplies essential public services at a lower cost than other sources could.

In this brief discussion of some of the problems confronted in seeking the maximum economy and efficiency in Government expenditures, more questions have been raised than have been answered. Certainly we are a long way from the rational, fair, and complete control of Government expenditures as a means to advance our community objectives.

The techniques of control, sometimes of the nature of gadgets, will not in themselves assure control. Nor will the reorganization of each unit of Government and placing more responsibility for public services and their financing on the State and local governments, however commendable these measures may be.

There must be an effective and continuing will to control if our human and material resources are to be employed to best advantage by governments. Such a will to control has not yet been fully developed and exerted.

In the appropriation, expenditure, and taxation process all of the essential information available concerning proposals and their possible effects should be brought out in the open for the full appraisal by citizen groups as well as public officials. The advantages and disadvantages of each proposal should be weighed, relating the proposal to the total program of appropriation, expenditure, and taxation.

Control, to be effective, must be exercised in all of the stages of budgeting and taxation. It is necessarily continuing and unending.

Control requires standards of performance and the appraisal of performance. The standards must be related to value judgments as to

what they should be. The appraisal of performance also involves judgments.

In our representative form of government, with a Federal system, control of Government expenditures is contingent upon the effective teamwork of the citizens, the legislature, and the administration. The problem is tremendously complicated. If, however, we recognize its complications and seek out and apply the constructive measures which are available to us, we can go a long way toward increasing the economy and efficiency of our governments and keeping the tax burdens and other costs to a rational minimum.

THE INTEREST RATE IN COST-BENEFIT ANALYSIS

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It would be hard to overstate the importance of the interest rate used in the discounting of benefits and costs to judge the worthwhileness of proposed long-term Federal investments. Suppose a project were expected to yield benefits of \$1 million a year beginning 5 years from the initiation of construction and extending indefinitely into the future. Using an interest rate of $2\frac{1}{2}$ percent, we would evaluate this stream of expected benefits at \$35.36 million as of the date of initiation of the project. But if we were to use a 6-percent rate, our evaluation would be no more than \$12.45 million. The choice of interest rate becomes more critical, the longer the duration of the project in question, and the longer the lag between the beginning of construction and the time when benefits begin to accrue. Clearly major mistakes can be made if the wrong interest rate is used in evaluation. If the cost of the above project were \$20 million, it would be a fine investment if $2\frac{1}{2}$ percent were the right rate and a terrible mistake if 6 percent were the right rate. I propose to argue in this paper that a rate of 6 percent or better is the proper rate to use in evaluating Federal projects. This compares with a rate of $2\frac{1}{2}$ percent most commonly used by the Government agencies which undertake cost-benefit analyses.

The justification most commonly given for the use of the $2\frac{1}{2}$ percent rate is that that is the rate at which the Government can borrow. This, of course, is no longer true; perhaps a $3\frac{1}{2}$ percent rate would accord better with the present state of the money market. Be that as it may, my argument for a rate of 6 percent or better does not depend critically on the state of the money market. It holds equally well for the easy-money days immediately following the second World War and for the hard-money period through which we are now passing.

The essence of my argument is that there exist and have existed ever since the war widespread opportunities for investments yielding 6 and 8 percent and higher. So long as such opportunities are available, our society does itself a disservice by investing at yields of merely $2\frac{1}{2}$ or $3\frac{1}{2}$ percent. The opportunities I speak of are those at the margins of industrial and agricultural investment, and I suspect it is also true that investment in residential construction might yield close to 6 percent.

Let us consider a typical industrial investment. Let it be financed half out of equity (or retained earnings) and half out of borrowings. What must it yield in order that it be a successful investment in the market sense? Presumably, the total yield should be sufficient to pay the interest on the borrowings and provide a rate of return on the newly invested equity equal to the market rate of return on equity. Taking figures which are reasonably representative of the period since

the war, let us assume the interest charge on borrowings to be 4 percent, and the earnings yield of equities to be 10 percent. This earnings yield is, of course, after taxes; the before-tax yield of equity capital has typically been in the order of 20 percent. Thus our typical successful investment yields 4 percent on half the invested funds and 20 percent on the other half, making the rate of return on the whole equal to 12 percent. It may be objected that the 10 percent figure for earnings yield, while representative of the whole postwar period, has been rendered obsolete by the great rise in stock prices that has occurred. For recent years a figure of 7 percent might be better for the after-tax yield of equities. This means 14 percent before tax, and together with a 4 percent borrowing rate applied to half the total capital implies an overall yield on capital of 9 percent, rather than the 12-percent figure obtained earlier.

Another approach to estimating the rate of return on capital in the United States is to compare total income received on account of capital with the total value of the capital itself. Neither of these components is easy to estimate, but much work has been done in recent years to improve our knowledge of both.¹ In spite of the lack of absolute precision in the presently available estimates, one may feel quite confident that the stock of capital in the United States is somewhere between 3 and 4 times the national income, and that the income accruing to capital amounts to somewhere between one-third and one-fourth of the national income. Our estimate of the rate of return on capital in the overall economy lies, then, in the range between 6¼ percent (income of one-fourth divided by capital of 4) and 11.1 percent (income of one-third divided by capital of 3), and probably closer to the middle than to the extremes of the range.

In the case of agriculture we have a reasonably good measure of the return on capital in the ratio of the gross rent paid to the value of rented farms. For 12 Corn Belt States this rent/value ratio ranged from an average of 5½ percent in Ohio to an average of 8½ percent in Wisconsin, with most States averaging between 6 and 7 percent. The figures are for 1954-57, and apply to farms rented wholly for cash.²

It is clear that there do exist many alternative investments yielding 6 percent and more per year. One might ask, however, whether these differ substantially from typical government projects in their degree of riskiness, so as to warrant a substantially different rate of return. I cannot help but feel that Federal projects are highly similar in their degree of riskiness to many private projects. Both power and irrigation facilities are provided by the private market side by side with Federal installations, as are, from time to time, river and harbor improvements, flood-control facilities, etc. These rank, to the best of my judgment, neither as especially safe nor especially risky investments. It therefore seems reasonable to expect that Federal investments in these activities should pay off at least at 6 percent, which, as we have seen, appears to be somewhat below the aver-

¹ Cf. Raymond Goldsmith, *A Study of Saving in the United States*. (Princeton: 1956.)
Moses Abramovitz, *Resource and Output Trends in the United States Since 1870*, *American Economic Review*, May 1956, pp. 5-23, and the sources cited therein.

² U. S. Department of Agriculture, *The Farm Cost Situation*, May 1957, p. 19, table 8.

age return on investments in the private sector of the economy. The purpose of Federal investment is, I believe, to improve our level of living and that of our children; the measure of this improvement is provided in dollar terms through the estimation of benefits. There seems little or no justification for the Government's withdrawing resources from the private sector unless these will yield as much improvement in levels of living as ordinary private investments.

My recommending the use of a substantially higher interest rate in cost-benefit analysis does not imply any prejudgment that serious mistakes were made because a lower rate was used. If estimated benefits were 5 times costs using a 2½ percent rate, they would likely turn out to exceed costs, though by a smaller margin, when a 6 or 8 percent rate was used. It is the projects which are marginal in the first place that look bad when a higher rate is used. It is accordingly of interest to inquire whether projects actually undertaken could pass the test of a higher interest rate. A group of investigators at the University of Chicago have looked into this question, using the same benefit and cost estimates as were presented by the agency in question, but simply applying different interest rates for time discounting.

Out of 24 Bureau of Reclamation projects which were in fact undertaken, only 8 would have been judged acceptable at a 5-percent rate, only 2 at a 7½-percent rate, and only 1 at a 10-percent rate, if only primary benefits are taken into consideration. Counting secondary as well as primary benefits, 16 projects would pass the test at the 5-percent rate, 9 at the 7½-percent rate, and 4 at the 10-percent rate. Similar results emerged from a study of 29 Corps of Engineers projects. However, in the case of 27 Department of Agriculture watershed programs, practically all of the projects would stand up under a 5-percent rate, and two-thirds would be acceptable at a 10-percent rate, though one must add that the estimates of benefits, which are the raw material of benefit-cost analysis, appear to be subject to substantial possible error in these cases.³

Thus it appears that the use of a higher rate would have precluded some, but by no means all of the projects actually undertaken. I strongly recommend and urge that future Federal investments receive scrutiny in terms of a rate of interest comparable to the return to capital in the private sector. This will lead to a better use of our resources, and in the bargain may provide some possibilities for budget limitation.

³ University of Chicago Office of Agricultural Economics Research. Paper No. 5612, July 18, 1956, pp. 4-5.

ECONOMY IN GOVERNMENT SPENDING: THE CONCEPT¹

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The literature on government spending—official, academic, and popular—contains relatively little discussion of the concept of efficiency or economy.² Theories about the meaning of “economy” are implicit in the terms of reference, in the method of approach, or in the coverage of the special commissions that seek greater efficiency. Also largely implicit rather than clearly defined are the concepts of economy which underlie the normal workings of the budgetary process (conceived most broadly). The writings of economists, so far as I am aware, give the problem little explicit attention. Yet in a world where governments have the role they do today, efficiency in government spending has an importance that calls for our best intellectual efforts.

THE GENERAL CONCEPT OF ECONOMY (EFFICIENCY)

Economizing is the process of getting good (better) value or, essentially the same thing, higher efficiency; success is achieved when the use of resources yields the best result possible. The crucial element is a relationship between (*a*) what is used up and (*b*) what is received, i. e., between input and output. Only when one compares this relationship can one study economizing.

A reduction in expenditure is not necessarily a move toward economy; perhaps the loss of output is even greater. In fact, one persistent fallacy in discussions of government economy is an assumption that not spending is economy; a person terminating his expenditure on food would find himself with more money to starve—not my idea of economy. On the other hand, an improvement in accomplishment which yields something highly desired is not necessarily evidence of greater efficiency; the cost may have been excessive.

There are some other things that are not necessarily guides to economy. The recent concern over the size of the budget totals as such, for example, seems to me misplaced. A rising or falling expenditure trend, in itself, gives no indication of efficiency. No per capita figure, no percentage relationship to national income, no comparison with another era or another land—no such measure—can re-

¹ It was only late in August that a release from other commitments permitted me to accept the invitation to participate here. My points rest on work done over a period of years, without the new research I would have undertaken had time permitted.

² The outstanding exception with which I am familiar is Mayor's Committee on Management Survey, *Modern Management for the City of New York*, New York, 1953, vol. 1, pp. 32 ff. My statement in the text is not intended to disparage the work of the Hoover or other commissions.

veal whether spending is economical. Such figures do not compare what we get with what we pay.

The inputs of a business or a government are resources, human time and effort, materials, the use of equipment.³ In most cases they have money prices; consequently, a reasonably reliable money measure of cost is available. In a more fundamental sense cost is the best alternative sacrificed; money measures may not indicate the complete worth of the alternatives sacrificed. Consequently, a look beyond money figures is needed if costs (inputs of any economic process) are to be measured fully. Yet these more fundamental measurements are rarely feasible; for the most part we assume that people spending their dollars freely take as good account of alternatives as an imperfect world permits. Where compulsion rather than free market choice determines—and this is characteristic of the way governments get funds—there is a presumption that dollars do not give an accurate measure of the worth of alternatives sacrificed. Yet I know of no way to allow for distortions in cost measurement that result from compulsion.

Still greater difficulty arises in measuring outputs of government. The procedure used in national income accounting (valuing output precisely at money cost, i. e., treating input and output as identical in money value) is utterly inappropriate for judging economy and efficiency. Yet there is no other simple or precise measure of output. Therefore, government spending presents a strikingly different problem from that of either business or family spending.

Business has a tangible measure of output—the dollars customers will pay; these dollars are just like the dollars in which costs are paid; comparison of inputs and outputs is easy (except as gaps in time separate them).⁴ Families as ultimate consumers draw upon immediate and direct experience to make their judgments of the worth of spending. What the public gets from government expenditure varies from indispensable elements of existence itself to services of insignificant worth, perhaps even positively harmful. What are these varied outputs worth? And what about outputs that could be obtained from more or different spending? Some might be worth a great deal more than they would cost, but so long as they are not “purchased” we have little basis for judgment. The difficulties of measuring outputs create the chief obstacle to applying the traditional economic or business concept of efficiency in government affairs.

IMPROVING METHODS OF OPERATION

Yet there is a level at which the problem of efficiency can be studied and mastered without raising the more difficult issues. Here we see the most readily understandable concept of economy. It involves choice of methods of achieving immediate, specific objectives. The objectives ordinarily involve operation—heating a hospital, processing a voucher, dredging a channel, building a barracks. The thing to be

³ Government spending which transfers command over resources rather than uses them to create goods and services presents problems treated later. The definition of “government expenditure” is in fact much more complex than may appear. See C. Lowell Harris, *Government Expenditure: Significant Issues of Definition*, *Journal of Finance*, December 1954, pp. 351-364.

⁴ Not all the objectives businesses and businessmen seek through profitmaking activity are sold in the market. The pure exceptions raise problems very like those that characterize government spending.

accomplished has been decided upon and defined with considerable precision. Then the reasonably possible methods of achieving it can be compared and the cheapest selected. The problem may closely resemble one which business firms face; their solutions can be extremely helpful.⁵ So can the solutions of other governments.

This approach, the application of businesslike methods, has helped improve government efficiency. (A change in operating methods to cut spending may also change the accomplishment; if the output is better, the desirability of the change clear; if accomplishment suffers, the wisdom of the change is very much harder to judge.) Frequently, the use of business methods will require at least a temporary increase in outlays, such as for mechanization; spending more saves money later. So much government spending is on wages and salaries that improvement in personnel policies (in the broadest sense) may offer the greatest challenges to those striving for more efficiency. Promising opportunities for bettering methods lie ahead, I suspect. However, in view of the determined efforts of recent years, I should be surprised if the application of business methods offers promise of great improvements in efficiency at the Federal level except as better methods are devised in business; Members of Congress are in a better position than I to judge the possibilities. Yet, as has been pointed out so often, the big problems lie elsewhere, in the formulation of programs.

Before passing to the larger issues, however, it is wise to note some issues which may confuse the choice of one as against another operating method.

A government spending program may seek mixed objectives. Consequently, a businesslike method that is best for getting one part of the objective, perhaps the dominant one, may need to be discarded because it is ill suited for another. One thinks of the Walsh-Healey Act, the requirement that United States ships be used for transporting a portion of foreign-aid cargoes, the desire to channel procurement orders to depressed areas, or "Buy American." One also thinks of our desire to prevent corruption, dishonesty, personal favoritism—the "spoils system"—even at the sacrifice of flexibility and speed. A systematic survey of Federal spending policies would probably reveal many examples of mixtures of objectives which influence operating methods. All the objectives may be worthy. That is not the point here. The point is that combination of objectives may impede the choice of the least expensive operating method of achieving the main goal. Even worse, the "mixing" adds difficulty in identifying the method which will give the best combined result.

Difficulty in finding and using the cheapest method of achieving a stated objective also arises from government methods of accounting for capital items.⁶ If spending projects provide services over different stretches of time, or if projects involve costs that extend over varying periods, judgments of economy can be reliable only if an appropriate interest (discount) factor is used. The choice of an appropriate

⁵ Successful businesses sometimes use different methods for performing an essentially similar function. The business world will not always contain one procedure which all recognize as best.

⁶ Developments since I last studied this problem may have altered some of the problems described here.

figure is itself a matter for debate.⁷ Yet the essentiality of including the calculation in decision making is (or ought to be) beyond dispute.

A second problem of capital accounting is depreciation (including obsolescence).⁸ The traditional method of treating capital spending plus maintenance as current expense and ignoring depreciation may give tolerably good results for the budget as a whole, though I have great doubts. For individual projects, such a method is certainly not the best man can devise. The treatment of capital expenditures on long-lived projects as current outlays on the same basis as payment for labor services yielding only momentary worth (delivery of today's mail) must distort judgments on the wisdom of capital outlays. The concept of economy in executing programs ought to include allowance for depreciation. Differences between leasing and ownership must sometimes complicate measurement of efficiency.

The problem of tax exemption also arises in evaluation of one as against another method of achieving a social objective. This country has chosen to get much of the money for financing government from businesses, or more generally, from the process of creating income.⁹ Taxes are a significant element of cost for most productive organizations (creative activities). An activity that does not need to include expense of government as a cost will appear to operate more cheaply than activities which do pay taxes; yet the apparent "saving" is not a reliable guide to economy.¹⁰

A less generally recognized aspect of the tax problem as it bears upon comparisons of efficiency arises from tax exemption as a substitute for expenditure. Seeking an objective that requires use of resources, Congress may rely on some form of tax exemption.¹¹ Occasionally, perhaps, the taxes that might otherwise be collected can be determined to provide a good index of cost; I can think of no case, however, in which the cost is treated along with dollar outlays as an expense of government.

Appraising the efficiency of guaranties and insurance as devices for achieving objectives presents other perplexing problems. Without either an outlay or a sacrifice of revenue, government can perhaps bring changes in the private economy. Yet how much guaranty (or insurance) will produce how much result? and what kind?¹² Moreover, there is the chance that sometime the Treasury may be called upon to make cash payments to cover losses. But how much? Business concepts of economy cannot really be applied to evaluate "operating" methods in such cases.

⁷ The rate used should probably be that for which Government can borrow freely in the market for a period equal to that of the services and costs involved.

⁸ A third problem, the treatment of loan transactions, would be discussed in a more complete study.

⁹ For this purpose, the provision of housing services, through rental or owner occupancy, is a form of income creation. The chief tax is the local property tax.

¹⁰ In trying to improve the Nation's transportation system, for example, we still fail to solve the problem of differences between forms of transport which cover less than they cost (airlines not paying all expenses of terminals), those which pay approximately their cost (some trucks), and those (railroads) which, in addition to paying their own expenses, contribute to the treasuries of local, State, and the National Government for nontransportation functions. In trying to improve communication, comparison of the postal and telephone systems should take account of the widely different tax treatment.

¹¹ Accelerated amortization is even more difficult to appraise than tax exemption. The interest lost to the Treasury from the tax deferral cannot be determined when the decision to grant rapid amortization is made. Nor can we judge how much will be accomplished that would otherwise not be done.

¹² The history of "608 housing" insurance suggests that all results of a well-intentioned policy are not desirable. Perhaps generous provisions for guaranty and insurance of home mortgages, by stimulating demand, have raised land prices and building costs; if so, some of the basic objectives were partially defeated. How could one, then, judge the efficiency of the Government's methods for getting the results it sought?

COSTS: CONCEPTUAL ISSUES INVOLVED IN JUDGING EFFICIENCY

Dollars raised by either taxes or government borrowing do not necessarily give an accurate measure of the worth of sacrificed alternatives.¹³ Some of the problems involved are inherently insoluble, but there is point in understanding them.

Most taxes are compulsory contributions, clear or hidden. They exist because of the approval (or the absence of strong disapproval) of representatives of a majority of the voting public.¹⁴ Yet even casual familiarity with the process of tax legislation should leave no doubt that the total an individual pays can be quite different from what would represent his freely but responsibly and conscientiously made judgment of his proper contribution. His marginal taxes—whether in a high personal income bracket, a tax on business earnings that is a cost of what he buys or a reduction of his income, or an excise tax—may or may not seem more desirable than some (marginal) government services. Few if any of us, I suppose, could make such a calculation for ourselves. How can we (our representatives) do so for others? How validly can any vote of taxes—forcing payment even from those unable to vote or voting in opposition—reflect the worth of alternatives sacrificed?

Some resources in private hands undoubtedly serve purposes of slight usefulness. To take them in taxes is to impose little sacrifice of a truly desirable alternative. The fact that this situation undoubtedly exists has been used to justify some (a large amount of) high bracket rates even when there is no basis for determining how much of the money collected will actually come from such sources. Yet it is wrong, I think but cannot prove, to attempt to justify any significant amount of government spending on the grounds that payment can be made with tax dollars that impose slight cost on the taxpayer. Still less justification exists for implying that we know which dollars have such low cost.

Taxes impose a type of cost unlike that of prices.¹⁵ This cost results from tax-induced distortion of economic (and social) life. The individual (or business), with some exceptions, gets the same services whether or not he (it) pays a Federal tax. Any one person's or firm's failure to pay tax brings no loss of government service. This situation contrasts with market transactions in which the product or service can be obtained only if the price is paid. Consequently, the incentives to escape taxes are quite different from those to avoid paying prices. The escape (evasion or avoidance) requires time and effort, costs which are largely pure waste for the economy; in addition, the escape will often involve choice of actions less desirable than one would otherwise choose. The allocation of resources becomes somewhat less efficient. Sheer losses to the economy result, but losses which cannot be measured.¹⁶

¹³ Revenues from charges are more likely to measure the worth of sacrificed alternatives tolerably well.

¹⁴ Unlike many State and local taxes, Federal levies are not the result of constitutional or charter provisions that decisively limit the freedom of the voting public. Yet the dead hand of the past has powerful influence. Congress, the administration, and the courts cannot in fact make frequent, large revisions in the revenue system.

¹⁵ The cost of administering some taxes may be less than that of charging prices.

¹⁶ When tax rates are moderate, such distortions are insignificant; when rates are high, the losses, while not large in the national accounts, may be more than insignificant in relation to the revenue from the top rates. Some dollars the government gets may cost the economy very much more than the average.

What the Treasury pays for funds obtained by borrowing may represent a good measure of sacrificed alternatives. This is probably true of proceeds of loans sold in open competitive markets when information is compete and no appeals to patriotism or other such considerations sway decisions. To the extent that sentiment or ignorance influences the loan terms, however, the expense to the government may represent a less good measure of cost than might be obtained. When the loan is compulsory, as in the case of social security, how can one judge cost? A person compelled to lend to the Treasury for 2 percent when he is paying, say, 6 or 12 percent on his own (marginal) borrowings may in a significant sense be incurring a greater cost than the Treasury pays.

A still clearer departure of apparent money cost from the worth of sacrificed alternatives arises when borrowings come from the banking system, especially in times of substantial unemployment. Little or no sacrifice of desired alternatives may then be required. At this point we have reached more complex considerations than my space permits me to examine.

The upshot of these comments on cost seems to be that tax dollars are likely to impose sacrifices worth somewhat more than the dollars suggest, especially when tax rates are high. So will compulsory borrowing. Finally, conscription and other compulsion will likely involve costs above those shown in the Treasury's figures.

ATTAINMENTS: GOODS AND SERVICES

Now we return to the heart of the problem, the need to evaluate what is or might be obtained. Here is the task of program formulation. It involves two essentially different kinds of outlays: (a) Spending to get goods and services (national defense, postal services, tax collection); and (b) transfer spending (welfare, subsidies to farmers).¹⁷ The first buys goods and services which are thereby taken from other uses; government use imposes real sacrifice, real cost. Transfers, however, do not use up resources (except for the relatively minor expense of administration); they do not take productive capacity from other uses to create government output.

How much benefit does society get from an element of government spending that yields goods or services? The gains may be incalculable in the sense of being great beyond measure. Almost always the results (good or bad) are incalculable in the sense of not being measurable. Rarely can fruits be evaluated with anything like the precision with which a business can value what its spending programs bring. It is even harder to envision accurately the gains from spending programs that might be but are not being made. The difficulties are likely to create a sense of frustration. Yet we must do something.

The start is to define objectives, both ultimate and immediate, as clearly as possible. What constitutes a better life? Peace, victory, personal freedom, to be liked abroad, reduction of poverty, health, the development of human personality and opportunity, justice, equality before the law—so goes the list of things most of us want, things that seem basic. Then one faces the choice of more

¹⁷ The two groups are not sharply distinct.

instrumental objectives, desirable as means to help achieve the basic ends. Some of these instrumental objectives may (or must) be sought through government spending.¹⁸ Much of the analysis of objectives at both levels is intuitive. We cannot have all we want; so we must choose from among a host of good things. Few of us as individuals, I suspect, can measure and balance basic values to our own satisfaction. Doing so as a group is even harder.

Confusion of instrumental objectives with those that are more fundamental is a recurring source of difficulty; means get mixed with ends. Success in achieving some specific goal this year—new knowledge about disease or improvement in recruiting Foreign Service officers—may be a fine move toward a more basic goal—better health or diplomacy. Yet this year's success may only conflict with the achievement of a more basic objective. The low-interest rate policies of the late 1940's and more than one feature of agricultural policy seem to me examples; failure to raise salaries of senior civil servants may save money now but cost heavily in longer run quality of government services. Moreover, it is not economical to do efficiently something desirable if the accomplishment of something still more important becomes harder as a result.¹⁹

The definition and redefinition of objectives, fundamental and instrumental, must be a continuous process if we are to make the wisest decisions. In a dynamic society both needs and opportunities change. Economy requires more keeping up to date than we may think. Enough modernization of goals to prevent the continuation of serious waste—including waste in the form of failure to take advantage of new spending possibilities that offer more than they would cost—is difficult in a world where so many things press for attention.

Choice of objectives would be easier if the public had clear knowledge of its wants in order of priority. Unfortunately, however, the world is too complex for public opinion to be clear on more than the broadest matters. We must rely upon our elected representatives (and, in my view, the civil service). One of the greatest of the difficulties they face is the identification of the general public interest.

Government undertakes a spending program because the public as a whole will benefit.²⁰ Unless there is such a paramount general concern, the use of public funds is not justified. Or so it seems to me.²¹ Yet the total gain from any program will include some more or less specific benefits; not all individuals will be affected equally. Those aware of greater benefits—from this dam, that research, or any military installation—are likely to press for the spending more insistently than the average person. There may, in fact, be a bias against general benefit spending in favor of that for special interests; the strongest pressures do not necessarily—even “in theory”—reflect what will best serve the general interest.

Another factor adds confusion. The many elements of our society are so interdependent that the prosperity of one influences that of

¹⁸ The analysis will involve the question, “If this goal is one people in general want, why will the free market not provide the means to reach it if the worth exceeds the cost?”

¹⁹ Federal-State local rivalry for funds may offer examples. Many localities, I suspect, spend less on schools than they would if Federal spending (and taxes) were lower. Some of the Federal spending may be done efficiently, but on projects less important than additions to school facilities.

²⁰ Programs financed by charges on the user constitute exceptions.

²¹ Although this view has been dominant in the legal and scholarly writings, the “man in the street” might not hold to it strongly.

others. Consequently, groups press for government spending to bring them special benefits; they rest their plea on the claim that the public as a whole will benefit; this general benefit is to come not from the products or services created but from the diffusion through the economy of secondary benefits which result from the improved position of the special groups.²² The pressure on Congress to vote for spending on the basis of special, rather than the general public, interest must complicate the determination (as well as the achievement) of what is most economical. The relative persuasiveness of special interests is not necessarily proportionate to the contribution of their programs to the general public interest.

Up to this point we have shown, I hope, that economy in spending requires knowledge of (a) what the public wants (developed to a rather refined degree) and (b) what specific programs do contribute, not in their totality but to the general interest.²³ Our ability to judge what the goods and services really do provide will vary. Newer budgetary procedures help focus on this problem, but they cannot yield all the answers we should like about what the public is now getting.²⁴

The most serious problems arise, I suppose, in protective functions. This is true not only because the amounts are so large but also because the strength of the thing to be protected against (the physical capacity and the willingness to use it) is unknown.²⁵ In the case of national defense, the ideal minimum and maximum expenditure would seem to be the same—the amount that will just prevent the need to use force actively. Not knowing what this amount is, however, Congress will act economically in providing a margin over what appears essential; the losses can be so tragic that the risk of error which might bring war cannot be assumed. (Yet other outlays—on foreign service, information, foreign aid—also influence the amount of our need for defense spending.) Success may appear as waste, perhaps sheer extravagance. The whole concept of economy in protective (defense) spending bristles with difficult problems, to say nothing of those that arise in implementing a program.

Each of the other major categories of Federal spending presents its own problems of relating (a) what the public wants to, (b) what actual (and possible) spending does accomplish. The specialized papers presented later will doubtless do much to illuminate the issues—how Congress has come to decide what the public wants, how money is spent, what the results are, and perhaps what might be gained from greater spending.

One more point. The use of government as an agency to achieve objectives offers a way to serve the public interest where individuals and voluntary associations will do nothing or too little. Sometimes such spending can, as it were, tip a balance or fill a gap and thereby stimulate private activities that are highly desirable. Outlays to pro-

²² The hurt to the general public from the necessary taxes is likely to be ignored except as some other group may point out the connection.

²³ To the extent that a program is paid for by charges on users or beneficiaries, the general interest criterion does not necessarily apply.

²⁴ It is my impression that as a rule the budget process throws little light on what might be obtained from programs not in operation or even from bigger outlays on existing programs.

²⁵ Spending for research, inquiry into the unknown, presents problems that in some ways are more perplexing than those of protection. It is inherently impossible to know what can be obtained until the job is done.

note competition or expand knowledge are two widely different examples. Spending of this sort can have a powerfully multiplying effect; it may induce or force a mass of private activity into more productive channels.²⁶ In the case of economic growth there are important examples.²⁷

ATTAINMENTS: TRANSFER EXPENDITURES²⁸

The concept of economy in transfer spending has received less attention than the growth of such spending would seem to require. The recipient's benefit may be substantial, a dollar for every dollar received. Often, he makes no sacrifice of desirable alternatives to get it.²⁹ Sometimes there is sacrifice but of minor nature only. Normal "economizing" forces do not motivate the recipient in limiting his "demand."

What is the general public benefit? It is rarely tangible, not even as clear as better courts, cheaper food, or less congested transport. What the public gains is membership in a society some of whose members are in better situations than otherwise.³⁰ The result may be a true benefit to the general public.³¹ The gain is hardly measurable, however. And who really bears the burden? One cannot be sure there is net gain until costs and fruits are compared. The diffusion of cost is likely to be over a group so large that no real identification of burden is possible. Those who pay may be in no position to take effective action to press their interests.³²

Is any approach to a concept of "economy" feasible? Within limits, certainly.

The essential start is a clear definition of purpose or objective. What is the need, in general and specifically? Immediate and more permanent? What is the public concern in meeting it? Why? Are there gradations in urgency? If so, what is the relative significance of possible priorities? It is questions such as these that must be answered. Persons concerned directly, including potential recipients, must be consulted. Yet we can expect objective, balanced judgments—those reflecting real concern for economy—only if final evaluations are made by persons who can and will make the general interest paramount.³³

The next step is to compare alternative ways of attaining the goals, considering, of course, but looking beyond administrative feasibility. Some methods, for example, may do more than others to remove causes.

²⁶ The situation is usually either one in which benefits cannot be captured by a private creator (for sale at their worth to the public) or if captured for sale will not yield their full potential because the private owner will charge more than marginal cost.

²⁷ Some of my views on this subject appear in C. Lowell Harriss, *The American Economy: Principles, Practices, Policies*, 2d edition (Homewood: R. D. Irwin, Inc., 1956), pp. 732-750.

²⁸ Space limits, plus my own uncertainty, preclude a discussion here of the meaning of "transfer payment" and the "transfer" element in government spending which purchases goods and services. In some respects any government expenditure which yields substantial benefits to specific groups is a transfer, but more common usage limits the concept of transfer to payments for which no goods or services are received.

²⁹ The Government employee or a seller to the Government makes sacrifices for the dollars he gets. If he were not working for Government, he would do something else with his time and other resources. Ordinarily what he could earn would be almost as great.

³⁰ If interest on Government debt is a transfer—I doubt that this is the most helpful method of thinking of interest—the public gain is largely some form of freedom from the costs of inflation.

³¹ One of the blessings of modern productivity, in my view, is the power it gives to alleviate destitution.

³² On the other hand, opponents may exert the big pressures while potential beneficiaries are generally ineffective.

³³ This statement assumes that the decision is not made by popular referendum.

The most economical program may be one which for a time costs more than others but which accomplishes proportionately more. Some transfer programs, I suspect, are less economical than they might be because they offer benefits broadly; aid goes even where the need is much less than that which "sells" the plan to the public. The broader program may gain wider support than one more economical, one that would concentrate help where it would most efficiently achieve the objectives of general public interest. Programs in operation call for continual examination—the basic objectives, the methods possible under current conditions, and the procedures in use.

The concept of economy in transfer spending can, I hope, be sharpened. Final answers, however, will always rest on judgment. Yet whose judgment? And how formed—on the basis of what questions asked, what facts analyzed, what values appraised? The papers and hearings stimulated by the Joint Economic Committee will undoubtedly make possible improved judgment.

CRITERIA OF EFFICIENCY IN GOVERNMENT EXPENDITURES¹

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A good deal of progress has been made in certain analytical techniques, for example, those of estimation and computation, that can help us choose efficient courses of action. But one aspect of seeking efficiency, that of devising appropriate criteria or tests of preferredness, is almost as troublesome as ever. Moreover, it is a crucial aspect of choosing efficient policies; for with or without painstaking measurements and sophisticated computational techniques, poor criteria can lead to some very peculiar choices. As a simple illustration, consider the criterion and one of the choices of the efficiency expert in the play *The Pajama Game*:

While I am still in bed I shave
And the lather drips and the bed gets wet,
And, oh, what a lousy shave I get
But think of the time I save.²

But let us turn to more serious problems of choice and criterion difficulties. In this paper, I shall discuss a major complication in the devising of criteria, a few generalizations about appropriate tests of preferredness, and their application to specific governmental problems of choice. These remarks apply particularly to the use of quantitative analysis—whether called economic analysis, operations research, or systems analysis—in seeking efficient government programs and activities.

In comparing alternative government operations or courses of action, we cannot apply what might be called ultimate criteria. Thus we cannot apply such tests as “maximum well-being from available resources.” Without more precise definitions, this is merely saying that we want the best. And when we spell out tests of preferredness more precisely, we find that we are using proximate criteria—that is, practicable tests which are not necessarily or obviously consistent with ultimate goals. The fact that we have to use such criteria makes it easy to adopt erroneous ones.

SUBOPTIMIZATION AND CRITERIA³

There is a major complication in the process of choosing that multiplies the possibilities of going astray. This complication is the fact

¹ The discussion here is based upon parts of ch. 2 in a forthcoming book, tentatively entitled “Efficiency in Government Through Systems Analysis, With Emphasis on Water Resources Development.” This volume, to appear in 1958, is one of a series of Publications in Operations Research sponsored by the Operations Research Society of America and published by John Wiley & Sons, Inc.

² *The Pajama Game*, book by George Abbott and Richard Bissell, music and lyrics by Richard Adler and Jerry Ross, Random House, New York, 1954, p. 125.

³ For many of the points mentioned here, see Charles Hitch, *Suboptimization in Operations Problems*, Journal of the Operations Research Society of America, May 1953, pp. 87-99.

that we inevitably have to break our problems of choice into manageable pieces or subproblems. As some have put it, the process of choosing efficient courses of action is a process of suboptimization. In a government or department, one man or one committee cannot possibly examine all problems of choice simultaneously and select each course of action in the light of all the other decisions. The task is divided among various persons along hierarchical lines, some of the broader policy choices being made by high-level officials or groups, and others being delegated to lower levels. Similarly analysis-making must be broken into manageable pieces, since it is impossible for a single analysis to examine all of the alternatives. Thus comparisons of possible courses of action always pertain to parts of the government's problem. Other parts of the overall problem are put aside for the moment, decisions about some matters being neglected, specific decisions about others being taken for granted. The resulting analyses are intended to help in finding optimal, or at least good, solutions to subproblems: in the language of systems analysis and operations research, they are suboptimizations.

Table 1 may help to show precisely what is meant by suboptimization and what kind of difficulties are involved. In the allocation of money for forest development among its component activities (labeled "Subproblem 2"), what should be done depends in part upon decisions at other levels. That is, the best allocation of these funds depends partly upon the way the whole Federal budget is allocated and partly upon the way forest management, fire suppression, and pest control are carried out. Nevertheless, decisions at all these levels cannot be made simultaneously. To be sure, each decision will not be made in complete ignorance of the others. But the allocation of funds for forest development may be made more or less independently of decisions about new operating procedures, work layout, and equipment. In the selection of specific fire-suppression equipment (subproblem 3), the allocation of the forest budget, a higher-level choice, and the selection of detailed operating procedures, a lower-level choice, will probably not be accomplished at the same time. Similarly, analysis intended to assist in such decisions inevitably looks at pieces of the Department's problem, with many other facets of the overall problem temporarily fixed or ignored, because of the sheer size and complexity of the Department's operations.

Piecemeal analysis and decision-making have their advantages. For one thing, as problems are broken down into smaller parts, more detail can be taken into account. A high degree of decentralization is often desirable so that the "man on the spot" can decide about many matters. In analysis, somewhat similarly, considerable breakdown of governmental problems is desirable so that the models used in estimating results can be "on the spot," that is, less aggregative and more nearly correct in their predictions than departmentwide models would be. On the other side of the fence, there is a danger inherent in piecemeal analysis, one whose importance can hardly be overemphasized. This danger is that the criteria adopted in lower-level problems will not be closely related to higher-level criteria. As mentioned before, proximate criteria would have to be used in any event; but since problems must be examined a piece at a time, a whole hierarchy of possible criteria comes into play, and potential inconsistencies are abundant.

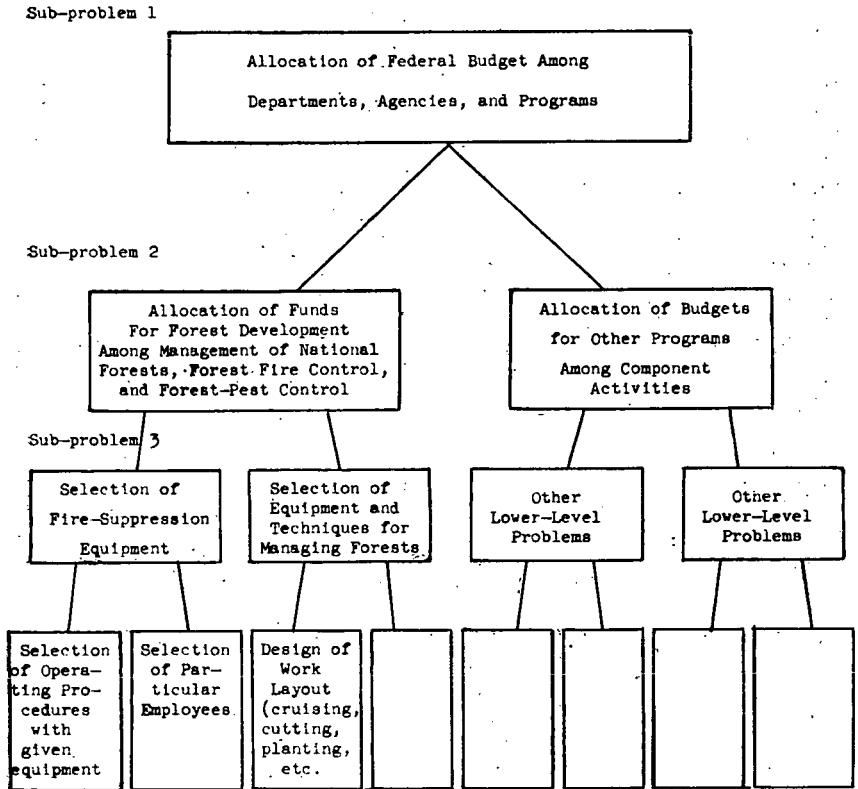


Figure 1. Sub-optimization at Different Levels

For example, consider subproblem 3—the selection of fire-suppression equipment for the national forests. This problem of choice is somewhat removed from top-level policy formation. In the case of firetrucks, maximum capacity (e. g., rate of flow that pumps can maintain) per dollar cost may seem like a plausible criterion. Yet there is no assurance that this test is consistent with overall aims. Suppose one engine costing \$10,000 can maintain a flow of 10,000 units of water per minute—a capacity of 1 unit per dollar cost. Another engine costing \$50,000 can maintain a flow of 25,000 units of water per minute—a capacity of one-half unit of water per dollar cost. Is there good reason for choosing the former engine? Is this test closely correlated with higher-level criteria? No, not necessarily. The smaller engine may simply be an inexpensive way to let fires get out of control.

The higher-level criterion—that is, our overall goal in forest development and forest-fire control—is something like maximum profits to the Nation or, more specifically, maximum net value of output. Physical output, such as the volume of water that can be pumped per minute, need not be highly correlated with value of output. Moreover, even when output is in value terms, the ratio of output to cost, i. e., output per dollar cost, has no particular relationship to maximum net value of output. Since ratios permit the scale of output or cost to wonder willy-nilly, nothing insures their consistency with higher-level tests. It is always hazardous, therefore, to use them as criteria.⁴

SOME REMARKS ON PROPER CRITERIA

So much for “suboptimization” and the fact that one must be extremely wary in devising criteria. What of a constructive nature can be said? If output and costs can be measured in the same unit—that is, dollars—a suitable criterion form is maximum output minus costs. For instance, in selecting fire-suppression equipment and methods, the test can be maximum value of output; that is, timber and property saved, minus costs. In order to estimate value of output, of course, one cannot examine fire trucks (or tools for constructing fire breaks, or fire-finder devices) in isolation. In those circumstances, only a measure of physical output could be devised. It is necessary instead to fit the fire trucks (or other equipment being considered) into the system in a realistic context and estimate the value of assets saved annually with the alternative kinds of equipment.⁵ The kind that yields maximum value minus costs or, if the budget is fixed, maximum value for the given budget, is the most efficient.

To be sure there are supplementary considerations that cannot be embraced in a practicable test of economic efficiency. One major consideration of this sort is uncertainty. Which equipment is to be preferred if type A is more efficient on the average but type B gives a higher probability of avoiding catastrophic fires? Other supplementary considerations, for example, so-called intangibles, are always present. Nonetheless, the preceding test of economic efficiency is certainly a major consideration—one that is highly relevant to the final choice. This is more than can be said for many plausible criteria.

If output and costs cannot be measured in the same units, it is impossible to maximize value of output minus costs. This is the typical situation in defense activities, various loan programs, social security programs, and many other activities that provide special services to the public. Prices that are widely acceptable cannot be given to these outputs. Voters and officials have to attach values to various programs, at least implicitly, but one man's evaluation need not always be valid for other persons. In the case of such activities, analyses have to express output in physical terms, and the use of output minus costs

⁴ This is not to say that ratios should never be used in any manner. To adjust activities until two ratios are equal is often a very useful device. But the maximization or minimization of some ratio is always a dubious criterion. For a more complete discussion of this matter, see Hitch, *op. cit.*

⁵ The streams of gains and costs should be discounted at the marginal rate of return that could otherwise be earned, but the treatment of time streams cannot be taken up in this short paper.

(e. g., 20,000 patent applications processed minus \$10 million) as a criterion becomes impossible.

The next best procedure appears to be to fix either the costs or the output at a reasonable scale. The test can then be minimum cost of achieving the specified physical output (e. g., patent applications processed, capability in particular military missions) or maximum physical output for the given cost. These two criterion forms are equivalent if the size of either gain or cost is the same in the two tests. If the test of maximum gain for a \$50 budget points to the policy that yields a gain of 100, then the test of minimum cost to achieve a fixed gain of 100 will point to the same policy—the one that achieves the gain of 100 at a cost of \$50. The choice between these two criterion forms depends mainly upon whether it is gain or cost that can be fixed with the greater degree of correctness.

This leads us to a most important question: How does one determine the right achievement or budget? If the achievement or budget is set uncritically, the test is not necessarily consistent with higher level criteria. In many problems of choice, the size of the budget or the scale of the mission is fixed by higher authority. In these circumstances, whichever is fixed can indeed be taken as given. If neither is fixed, one must try to select the mission or budget that seems reasonable in the light of higher level objectives. This calls for careful inquiry into those higher level objectives and their relationship to the mission or budget under consideration. Another possible procedure is to try several budget sizes or mission levels. If the same equipment is preferred for all task levels or budgets, that system is dominant. If the same course of action is not dominant, the use of several tasks or budgets is nonetheless an essential step, because it provides the policymaker with vital information.

APPLICATION TO SPECIFIC PROBLEMS

What implications do these observations have concerning the comparison of specific alternatives? Let's look briefly at two problems that confront government officials periodically: (1) Choosing among alternative sizes of the budget for forest management, and (2) choosing among alternative personnel policies in government. In determining the efficient size of the forest-management budget,⁶ we can devise sensible monetary measures of both output and cost. In this problem, then, a proper test would be similar to the criterion that private firms presumably use—maximum expected profits or, in other words, maximum gains minus costs (given whatever constraints exist). That is, choose the scale of timber planting, cutting, and selling that would yield the greatest excess of gains (discounted to their present value) over costs (similarly discounted). The Forest Service sometimes prepares analyses employing this sort of test; yet in this problem, and in many other investment choices, less meaningful criteria are often employed. Note that it is misleading to use a benefit-cost ratio as a test in this case (as in most others). Unless applied with special constraints and solely to small increments in

⁶ I assume here that Federal management of the national forests is to continue. By "the" forest-management budget, I mean the funds for activities leading to the sale of timber.

the budget, maximizing such a ratio would favor restricting operations to a small but golden opportunity—say, cutting a small amount of high-quality and easily accessible timber. Commonsense would rule out this extreme, but the point is that the ratio would have little significance.

The second problem, determining personnel policies (e. g., in the military) is one in which output under alternative arrangements cannot satisfactorily be measured in dollars. If we slice off one particular part of the problem, i. e., setting the pay structure, a proper criterion is minimum cost of obtaining a designated set of services (i. e., physical output). The designated set of services should be consistent with the functions and tasks that are to be performed. The cost, of course, should not be confined to the coming year's expenses, but should be the present value of the costs for at least several years ahead. This example too is one in which appropriate criteria have been adopted, at least in some instances. With respect to military, personnel, the Cordiner report has made use of a criterion similar to the one above in comparing its proposed pay structure with the existing one.

Suppose we examine other alternatives in determining personnel policies. The designated set of services, for civilian as well as military activities, should be called into question, too. We should like to eliminate overstaffing, to find more economical combinations of men and equipment, to design equipment and methods of operation that make more efficient use of personnel. For such purposes, the minimum cost of obtaining specified services will not serve as a criterion. Nor will such tests as physical output per worker, gain-cost ratios, or the minimum cost of doing some casually specified job. The test would have to be, in very general terms, the minimum cost of performing a function or mission that is specified carefully in the light of higher level criteria. To state that such a criterion form should be used is to leave the hard work still ahead, namely, putting down those appropriate specifications of the function to be carried out. But the hard work is there because the problem is hard. To avoid it by adopting nonsense criteria will not lead to sound choices.

The problems just mentioned—determining personnel policy and the forest-management budget—are but two of myriad choices that must be made in deciding upon government expenditures. In each of these choices, criterion selection is a crucial aspect of either analyzing the problem quantitatively or of just thinking about the alternatives. And in this matter of criterion selection, it is imperative that we draw on economic principles, together with caution and commonsense, instead of adopting the first plausible test that occurs to us.

ECONOMY AND EFFICIENCY IN GOVERNMENT EXPENDITURES

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VIEWPOINT

The competence of the writer is the ability to analyze economic situations and to suggest appropriate policy and action to men responsible for the management of economic affairs. Because this is the competence and viewpoint employed, there is little unusual which can be offered for consideration by readers of this report. Instead, whatever value may be assigned to the ideas presented in this report must be attributed to the fact that the author is accustomed to evaluate the economic consequences of expenditure made by Government from the viewpoint of a person observing and appraising rather than as a participant.

ECONOMY, WASTE, EFFICIENCY

The task of describing standards which can be used to determine whether specific programs undertaken by the Federal Government are economical may begin with a statement of what is understood to be economy, waste, and efficiency.

Economy is understood to be the management of affairs with special regard for costs and involves the husbanding of resources. Expenditure is wasteful if it is not economical. Efficiency is understood to be the effectiveness of managerial action as measured by a comparison of the product obtained with the expenditure or cost.

ASSIGNMENT OF RESPONSIBILITY

A review of the organization of the Federal Government, and the operation of the Federal Government in the past, may be used to support the assumption that neither the Congress nor the executive branch of the Government actually is formally responsible for efficiency and economy in public expenditure.

Persons in both the executive and legislative branches of the Government unquestionably have been and are interested in seeing to it that Government expenditure is made efficiently and with economy. Yet neither the executive branch nor the Legislature is actually charged with formal responsibility for the performance of this function. The executive branch assembles budgetary data and presents the budget to the Congress. The Congress, on the other hand, can either add to the budget or refuse to appropriate funds necessary to finance items in the budget. Furthermore, with several notable exceptions, few Members of the Legislature have made efficiency and economy in Federal expenditure the basis for their political careers.

Long ago the lack of a formal assignment of responsibility for efficiency and economy in Government expenditure presumably was not a matter of large importance, because the magnitude of Federal expenditure was not such an important factor in the economy. This situation, obviously, has been changed.

In the operation of a popular government, in which political parties adopt specific programs and party discipline is observed, responsibility for efficiency and economy may be assigned by the electorate to the party in power. In such cases the high administrative officers are the leaders of the party or coalition which comprises a majority in the legislature. In this kind of a situation the citizen may hold the party responsible for economy and efficiency. Because these characteristics are not to be found in our form of political organization, economy and efficiency seem to be an interest of legislators and administrators as a consequence of their citizenship, and as responsible individuals, rather than as a formal responsibility related to their positions in the Government. While the lack of a formal assignment of responsibility presumably is a defect in the organization of the Federal Government it, also, may be noted that the management of Federal expenditure does not appear to have been less efficient than the performance of the comparable function by the popular governments of other countries in which responsibility seems to be formally assigned. This appears to be a tribute to the commonsense and statesmanship of American political leaders.

STANDARDS

The means of measuring economy, waste, and efficiency in government apparently are quite different from those which could be employed in the management of a business operation. In the management of a business the operating statement and balance sheet can be used to indicate whether or not operations have been conducted with efficiency. A comparison of these statements with those of similar enterprises may be used to determine whether the operation of one business is more efficient than the operation of another. Such measurements and references do not exist for the evaluation of efficiency in government and both the objectives and the responsibilities of a government are different from those involved in the management of a business.

Two different types of reference may be used to determine the economy and efficiency of expenditure. The first of these is the kind of reference called a "principle." Such principles, of course, are judgments or opinions derived from the observation of experience and developed by reasoning. The second type of standard consists of a definition of proposed expenditure, expressed in definite numbers. This is the "budget" which is used in managing expenditure made by both persons and organized groups, including government. In the conduct of business operations it is customary to seek ways and means of reducing the expenditure defined in the budget. The reduction of budgeted expenditure, without producing a commensurate reduction of the volume of production, is an important function of business management. In business the incentive to provide this function is large. In the management of group operations, where large material rewards are not obtainable by the persons who

perform the function of managing budgeted expenditure, the incentive must consist of personal satisfaction, approbation on the part of others, and dedication to attainment of the task. It is also apparent that the establishment of budgets and the actual management of budgeted expenditure can be only the function of managers or executives who are held responsible.

These considerations lead to the conclusion that the Congress can only use the kinds of standards known as principles in determining the economic and efficient types and volumes of expenditure—supplementing the use and application of principles by obtaining responsible assurance that the administration of expenditure budgeted is organized and performed with competence.

THREE ECONOMIC SITUATIONS

Government expenditure is made in at least three different types of situation. One of these types of situation is experienced when the Nation is mobilized for war. A second type of situation is when large numbers of the population are unemployed. The third type of situation, which may be considered as representing "normal," is when neither of the first two situations obtain. In each of these three different types of situation somewhat different concepts and standards may be adopted and used by the Congress in evaluating expenditure.

Because the third type of situation, in which the Nation is not mobilized for war and the number of unemployed is not large, is the kind of a situation experienced most of the time, as well as in the present, it is appropriate to give priority to a consideration of two principal or basic standards to be used in this kind of a period.

Principle I

A first principle which may be used by the Congress in appraising the economy and efficiency of Federal expenditure, in the situation defined, is derived from a consideration of the effects of Federal finance upon the financial system of the economy as a whole. The importance of this standard is that by observing it the Congress may avoid precipitating inflation and general economic disorganization leading to boom and depression, inflation, deflation, unemployment, and unnecessary social friction. The principle may be stated in the following terms. The difference between Federal expenditure and income should be adjusted to change in the demand for credit in the rest of the economy. Another way of stating the principle is that the change in Federal debt plus the change in other debt should be equal to the change in the market value of national output required by the increase in the population and technological improvement. If government expenditure is adjusted to fit this equation, Federal debt would be retired in periods when the increase in the aggregate debt incurred by the State and local governments and private borrowers would be larger than the volume which could be equated with the other factors. It is not enough merely to balance the Federal budget in a situation in which State and local governments and private borrowers are expanding their debt beyond the limits indicated in the equation outlined.

The consequence of violating Principle I.—The principle described may be used to avoid large-scale long-term inflation and deflation.

It is assumed that it is not necessary to support the contention that such inflation and deflation is undesirable and to be avoided. In each period of inflation sincere, respected and honorable voices may be heard advocating expenditure and financial procedure which is inflationary. Because decisions regarding government expenditure should be debated, it is reasonable to suppose that the arguments supporting inflationary expenditure should be heard. Inflation, however, has been experienced for centuries. It is normal experience avoided by only unusual nations with unusual leaders. The causes, development and consequences have been observed, understood, defined, and explained. There is nothing mysterious and little that is not known about the subject. Deflation, of course, is a consequence of inflation.

The primary origin of inflation invariably has been and will be an expansion of the money supply in excess of the expansion of the volume of commodities produced. The usual and almost invariable origin of inflation is the expansion of government debt or the debasement of the money supply as a consequence of political action. In this connection it is to be noted that public debt is an important part of the reserve held against the money supply of this country which was incurred for political purposes. For these reasons the change in the public debt should be adjusted to the changes indicated in the equation described if government expenditure is to be considered economic and efficient. If government expenditure is so large that public debt is not adjusted to the limits defined in the equation, government expenditure cannot be considered to be either efficient or economic.

The problem of velocity.—Although the primary origin of inflation is an improper political use of credit, it also may be observed that a change in the level of prices may be related to a change in the velocity of the circulation of the money supply. This, however, is a matter which is not amenable to control by a legislative body and may be considered the special province of the persons responsible for the formulation and application of monetary policy. In the United States the Federal Reserve Board, rather than the Congress, may be considered the proper authority to deal with the problems derived from changes in the velocity of the circulation of money.

Principle II

A second standard or principle which may be used to evaluate the economy and efficiency of government expenditure is the magnitude and incidence of tax rates required to raise an appropriate volume of income. It is evident that, if expenditure is so large that the taxation required to finance the expenditure reduces the incentive to produce on the part of the population, the expenditure can be considered neither economic nor efficient.

An examination of the economic consequences of the present hotch-potch of Federal tax legislation is not an appropriate subject to the development of this paper. In passing, however, it may be noted that existing legislation, while adequate for the purpose of obtaining the funds with which to finance expenditure, provides incentive to finance capital investment of all kinds with borrowed funds, provides incentive for small-business men to sell businesses before these become too large, and provides incentive for persons who are unusually competent in the management of economic affairs to avoid action which might increase personal tax liability.

A succinct general label for the existing legislation might be that it is the kind of extravagance which can be afforded temporarily by a wealthy country in a period of booming economic activity.

UNECONOMIC AND INEFFICIENT STANDARDS

A percentage of national income

From time to time it has been suggested that an appropriate volume of expenditure might be established by selecting some percentage of national income. This approach has the merit of reducing the standard to a definite number. Such a number, however, would have no relation to the use made of the funds thus obtained and would be a violation of principle I. For these reasons there seems to be no rational justification for the selection of a definite proportion of national output as a measure of the volume of expenditure which should be used for political purposes.

Need as a standard

A second standard sometimes used to justify government expenditure is "need." A need is a matter of opinion. Because needs are unlimited and the means available for satisfying needs are not, it would seem to be obvious that no expenditure should be made primarily because the expenditure is needed or wanted. When want or need is the criterion used to determine whether or not expenditure will be made it is to be expected that expenditure will be made without reference to what can be afforded and with little regard for either efficiency or economy.

EXPENDITURE WHEN UNEMPLOYMENT IS LARGE

When unemployment is large the public will demand expenditure by the Government to provide income for persons who would otherwise be unemployed. This public demand may be expected as a consequence of widespread acceptance of the theory of compensatory government spending, the planning of full employment and the use of fiscal policy to support "purchasing power."

In this connection it is interesting to observe that the only part of the theory of full employment by means of planning and the use of fiscal policy which has proven actually acceptable is the idea that government spending in excess of income is appropriate when unemployment is large. The other part of the theory has been proven unacceptable. When a situation of full employment has obtained governments have not been able to reduce or defer expenditure until a time when unemployment would be experienced.

Because the theory is widely accepted it is to be expected that there will be a large and important demand for government spending in excess of income when large-scale unemployment again is experienced.

It probably would be possible to observe principle I, described in this paper, concerning government in such a time. When business activity is reduced and unemployment is increased it is to be expected that private borrowing also will be reduced. This would permit government borrowing to be undertaken or increased without violating principle I. In this connection, however, it is important to note that if government deficits become too large, property owners and

entrepreneurs will fear that tax rates levied upon successful business venture may be increased. If this proves to be the case the fear of taxation will deter the undertaking of ventures and investment which will be needed to increase employment and income.

The theory that the volume of employment can be determined largely by fiscal policy actually can be used to produce a situation which would represent neither prosperity nor depression but economic stagnation. Government expenditure made for the purpose of supporting employment and income but which actually produces a stagnation of enterprise can be considered neither economic nor efficient.

MILITARY EXPENDITURE

Contrary to ideas which seem to be generally accepted the condition known as peace has rarely existed for very long in this world. What is now generally thought to be peace seems to be the kind of situation which existed when British naval power dominated the oceans and ports of the world. This situation has not obtained since 1914. In the present and prospective unstable political world it must be expected that a major proportion of Federal expenditure will consist of expenditure made for military purposes.

Because expenditure for military purposes probably will be the largest single item in the Federal budget for many years to come, it is apparent that this item will continue to be the part of government expenditure in which efficiency and economy will be most important.

Assuming that the strategic evaluation and planning of the military are adequate, rational and properly integrated, the problem of efficiency and economy in military expenditure will consist largely of the problem of administering the military budget. In this connection recommendations have been made by the second Hoover Commission which supported the recommendations of the Committee on the Business Organization of the Department of Defense.

Because the maintenance of a permanent large military organization is relatively new in the experience of the United States it is reasonable to assume that there is much which is not understood about how to manage the expenditure of such an organization. The development of such knowledge requires time, experience, and study. For these reasons it probably will be both desirable and appropriate to establish task forces and working groups from time to time, with functions similar to those of the Committee on the Business Organization of the Department of Defense. Groups commissioned for the performance of this task can be used by the Congress in the way that the managers or directors of a corporation sometimes employ the professional services of firms specializing in operations research or management engineering.

CONCLUSION

The review of the standards which may be employed by the Congress to determine the economy and efficiency of Government expenditure supports the assumption that these probably must be standards concerned with overall Federal expenditure supplemented by responsible assurance that funds budgeted and appropriated are being administered with competence.

V. FEDERAL EXPENDITURES AND ECONOMIC
GROWTH

FEDERAL EXPENDITURES AND ECONOMIC GROWTH

CONTRIBUTION OF FEDERAL EXPENDITURES TO ECONOMIC GROWTH AND STABILITY¹

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INTRODUCTION

It is, I believe, a sign of progress that in the past few years we have become increasingly concerned with economic stability and particularly with growth, rather than merely with full employment. (It is interesting to note that the Employment Act of 1946 does not mention the word "growth." The nearest it comes to it is in the expression "maximum production.") As goals of economic policy, full employment, and growth are not incompatible, but neither are they identical. An economy like ours growing at a sufficiently rapid rate (with the usual qualifications regarding health, leisure, and so forth) will enjoy full employment without worrying about it, but full employment may or may not be used efficiently and will not necessarily result in growth. Growth, with its emphasis on efficiency, good management, technological progress, and, may I add, hard work and thrift, fits much better with our general attitudes and is the healthier objective of the two. That growth as such is desirable seems to me obvious. With the present international conflict it is also a condition of survival.

I shall mean by growth the rate of increase of the total output of goods and services, measured by real national income or product (gross or net) or some similar series. To achieve a growing national income two basic conditions must be satisfied: (1) There must be a growing demand for goods and services which the economy can produce; and (2) there must also be a growth of productive capacity. These two conditions are closely interrelated. The first without the second will initially result in full employment, but eventually—in inflation. The second without the first—in unemployment and idle capacity which will undoubtedly inhibit the growth of capacity itself. While economic stability is essentially concerned with the first condition, or more correctly with the adjustment of demand to a given level of capacity, and growth—with the second, it would be difficult, in an economy like ours, to achieve either without the other.

Before proceeding further let me make clear that this paper is solely concerned with Federal expenditures, and even with only certain kinds of expenditures, not because I imagine that the change in the volume,

¹ I am grateful to Donald Bear of Stanford University and to Vladimir Stoikov of the Johns Hopkins University for their help in gathering statistical materials for this paper. They are not responsible, however, for any of my conclusions and recommendations.

timing, and composition of Federal expenditures is the only, or even the most important, key to the problem in hand, but simply because it is the subject of the present hearings. While the committee has been considering one aspect of Federal policies in its bearing on growth and stability at a time, we may hope that it will synthesize its findings someday.

ECONOMIC STABILITY

The first aspect of our problem, the adjustment of demand to productive capacity at a given point of time—that is, economic stabilization—is a field where it is easy to advise and difficult to act. Economic discussions of the last two decades have repeatedly emphasized that Federal expenditures should be curtailed during an inflation and expanded during a depression, thus preventing the development of either. This is good advice, so far as it goes. A mild inflation is not catastrophic and is unlikely to injure growth, but it is hard to keep an inflation mild. There is also another reason for curtailing Federal expenditures in prosperous and inflationary times. When productive capacity is fully utilized, any increase in Federal (or any other) expenditures must be matched by a more or less equal reduction elsewhere, achieved by taxation or inflation, and is, therefore, costly. During a depression, however, when labor and machinery are not fully utilized, an increase in Federal expenditures need not and should not be matched by a corresponding reduction elsewhere because labor, machinery, and materials do not have to be taken off other jobs. More than that. The additional stream of Federal (or other) expenditures will, in turn, give rise to secondary and subsequent streams and thus increase national income by an amount greater than the original expenditure (the so-called multiplier effect).

While our economy is seldom, if ever, in one of the extreme positions described here, and while there is quite a difference between the simplicity of a textbook demonstration and reality, the essence of the argument holds. The trouble is not with the argument itself, but with its practical implementation. If the early arrival of a depression could be foreseen, some Federal expenditures, such as those on highways, could be postponed. But the slack in non-Federal expenditures (private, State, and local) might not take place for years to come. How long are we to wait? Of course, if a depression does come, Federal expenditures should be increased. This is also not easy to do on short notice if the expenditures are to be socially useful, yet less difficult, it seems to me, than their postponement.

I find it most fortunate that the stabilization problem will be considered by a special panel, whose members, I trust, will be more ingenious in devising practical suggestions than I am. (The decision to consider Federal expenditures in isolation from other measures, such as taxation, is very restrictive in this connection.) Let me make the optimistic assumption that this problem has been solved in the sense that demand for goods and services will grow at an appropriate rate and proceed to the problem of growth of productive capacity.

THE GROWTH OF PRODUCTIVE CAPACITY

The growth of productive capacity is a most complex phenomenon, and any attempt to classify its ingredients in a simple (or perhaps

any other) fashion is unsatisfactory. No particular significance should be attached to the following list. It is merely used as a point of departure.

An increase in productive capacity depends on the following factors:

1. An increase in the labor force (more correctly, man-hours available).
2. An improvement in the health, education, and training of the labor force.
3. Development of knowledge, including technical knowledge, and its application.
4. Improved management and administration.
5. Accumulation of capital, and improvement in its quality.
6. More efficient utilization and discovery of new resources.
7. Changes in other economic factors, such as composition of output, industrial structure, competition, etc.
8. Changes in more general factors, such as attitudes toward work, efforts, invention, thrift, risk, and many others which are very important, perhaps more important than the strictly economic ones, but which I am hardly competent to discuss. It is not easy to change them by Federal expenditures, in any case.

There is no simple formula that could tell us which of these components of growth should be the particular concern of our Federal or of any national government. No two countries, nor any one country at different periods of time, would give the same answer. In this particular case, it seems best to me to follow our traditions and to modify them when reasons for a change are strong.

Let us start with capital formation. Whether we could profitably invest a larger fraction of our national income (or product) is a controversial subject among economists. Much, of course, depends on the concomitant growth of the labor force and on technological progress. Without these two, and particularly the latter, the output contributed by an extra dollar of capital will decline with time. I doubt if this has been the case in this country, and I believe that we could invest a higher fraction of our income, provided anti-inflationary measures were undertaken at the same time. From this it does not follow, however, that the Federal Government should participate in capital formation on a large scale, except in such fields as highways, where benefits are diffused; atomic energy, where returns are still uncertain; defense installations, which serve a special purpose; and other special fields. The bulk of our capital formation can be left in private hands, stimulated, if necessary, by tax, credit, and other policies. This has been our tradition, and I do not see good reasons for changing it at the present time.

Similarly, there is no need for Federal (or any governmental) interference with the growth of our labor force; that is, essentially with the birthrate—we are doing quite well here on our own—nor with the length of the workweek. I do not see that the Federal Government could or should try to change our managerial or administrative methods, except, perhaps, in its own backyard. The Federal Government does concern itself with questions of competition and monopoly, but this is hardly a field for Federal expenditures, as distinguished from other Federal actions, except, possibly, in the allocation of Govern-

ment contracts. With these exclusions, the fields where Federal expenditures can and should contribute to growth are:

1. Education and training.
2. Development of knowledge; i. e., research.
3. Public health.
4. Natural resources.

All these fields are important and deserve Federal attention, but I shall limit my remarks to the first 2, and particularly to education, both because of my ignorance of the last 2 and because our education and research suffer from serious deficiencies.

FEDERAL EXPENDITURES AND EDUCATION

The committee is undoubtedly familiar with the shortage of qualified teachers, the overcrowding, and the frequently unsatisfactory level of instruction in our public schools. I would like to discuss here another aspect of our educational system: the waste of ability and talent caused by the failure of a surprisingly large number of bright high-school graduates to attend college.

In an advanced industrial society like ours, positions of importance and responsibility in practically every field increasingly require a college education and, frequently, postgraduate training as well. When an able person who can benefit from such an education does not receive it, he hurts both himself and society. It is not always easy to identify good college material, but a high score on an intelligence test combined with a high performance in high school gives a strong promise of success. Yet, according to table I, taken from a study of the Commission on Human Resources and Advanced Training published in 1954, 38 percent of high-school graduates in the upper 20 percent of their graduating class and with an intelligence score of 145 or over (which is very high, indeed) do not even enter college.² For that matter, even a score of 125 is quite high—the average for college graduates is 121³—yet, as table I shows, over 40 percent of this group, who are also in the upper 20 percent of the graduating class, do not go to college. In the words of Dael Wolfe, the Director of the Commission:

Every year, over 150,000 pupils who could become average or better members of most of the specialized fields graduate from high school but do not enter college. Some of these able students will attain positions of high responsibility; they will contribute as much to society and derive as much personal satisfaction from their work as they would had they attended college. But many will not. Without college education, they have little or no opportunity to become teachers, scientists, doctors, lawyers, or social scientists. They may become businessmen, musicians, artists, journalists, or nurses, and some of them can become engineers while others can work in a variety of subprofessional fields. But, as a group, they can-

² Dael Wolfe, *America's Resources of Specialized Talent; the Report of the Commission on Human Resources and Advanced Training* (New York, Harper & Bros., 1954), p. 174. This Commission was appointed by the Conference Board of Associated Research Councils under a grant from the Rockefeller Foundation.

³ *Ibid.*, p. 146.

not contribute to society as much without additional education as they could with it.⁴

TABLE I.—Percentage of high school graduates who do not enter college, classified by intelligence and high school grades¹

AGCT score	Percent of all high-school graduates	High-school grades (percentile rank in graduating class)					Total
		1-20	21-40	41-60	61-80	81-100	
145 and above.....	2.1		59	52	44	38	40
135 to 144.....	5.4	70	63	57	50	43	46
125 to 134.....	12.0	74	67	60	53	46	52
115 to 124.....	19.2	76	70	63	56	49	58
105 to 114.....	22.8	79	72	65	58	52	65
95 to 104.....	19.2	81	74	68	61	54	71
85 to 94.....	12.0	84	77	70	64	57	78
75 to 84.....	5.4	88	81	74	67	60	84
Below 75.....	2.1	92	84	77	70	66	91
Total.....		83	74	65	56	47	65

¹ *Ibid.*, p. 174.

The Commission concluded that—

The United States wastes much of its talent. College graduating classes could be twice as large as they currently are, and with no loss of quality. The potential supply gets drained off, in large or small amounts, all the way through the educational system. Practically all potentially good college students enter, and most of them finish high school, but after high school the loss is large. Fewer than half of the upper 25 percent of all high-school graduates ever earn college degrees; only 6 out of 10 of the top 5 percent do. Society fails to secure the full benefit of many of its brightest youth because they do not secure the education that would enable them to work at the levels for which they are potentially qualified.⁵

It is proper to inquire at this point whether the influx of all these bright young men and women into colleges would create an oversupply of college-trained personnel. Their admission to college need not necessarily give rise to a sharp increase in the fraction of our population going to college, unless this is regarded as desirable in itself. Every college teacher is aware that a distressingly large fraction of our present undergraduates are poor college material. Hence, a good deal of substitution of these poor students by better ones, rather than a net addition to them, could take place. Secondly, a rapidly growing economy needs talent and ability; in turn, a better utilization of these rare qualities promotes growth.

⁴ *Ibid.*, p. 242.

⁵ *Ibid.*, p. 269.

Similar evidence was obtained by another study which tried to find the relation between the intelligence level and occupation. It was found that on the whole people of high intelligence are concentrated in the professional, managerial, and clerical occupations; persons of low intelligence do not usually rise to the top, but a large percentage of highly intelligent persons (with scores of 140-149) are found among skilled manual, semiskilled and even unskilled groups. See C. A. Anderson, J. C. Brown, and M. J. Bowman, *Intelligence and Occupational Mobility*, *The Journal of Political Economy*, vol. LX (June 1952), pp. 218-239. Their conclusion was that "Elimination of the less intelligent men from the topmost level appears more certain than the rise of brilliant men from low positions to high ones", p. 221.

These 40 or so percent of potentially excellent students do not go to college for two sets of reasons: one is financial, the other—more general. A study made by Ralph F. Berdie in Minnesota reveals that only one-half of the upper 10 percent of high-school graduates who did not intend to go to college said that they would go if funds were available.⁶ The other half would not go because of lack of motivation, interest, or other reasons.

A system of Federal scholarships for college and post-graduate training would help those who do not go to college because of lack of funds, but no miracles should be expected from it. A large number, perhaps as many as two-thirds of potential recipients would go to college in any case, though some of them would be enabled to enter better schools and some parents would be relieved from a heavy burden. What worries me about a system of Federal scholarships, however, is their probable restriction to some specific fields, such as sciences and engineering where a shortage of trained personnel seems to exist. We certainly need able and well trained scientists and engineers, but we also need able doctors, lawyers, businessmen, teachers, and even economists. We should increase our supply of scientists and engineers by drawing into college those bright men and women who stay out of them, rather than by denuding other professions and occupations of their best personnel. The choice of study should be left to the individual, aided by advice from his relatives and teachers and not hampered by the promise of a scholarship in one field and its absence in another.

Federal scholarships could help solve but one aspect of the problem. They would not improve education in our schools, the need for which is great. To quote again from the Commission's report:

Of these possible courses of action, probably the most important in the long run is to improve education at the elementary and secondary levels. In the intermediate run, early identification of talent plus efforts to improve motivation on the part of both the pupil and his parents appears to be the most promising direction of effort. And in the short run, intensive indoctrination plus financial assistance will have the earliest payoff.⁷

Such an improvement in our educational system will hardly be accomplished without Federal help. But before I press this point further, let us take a look at a few facts.

Taken as a fraction of total population, enrollment in all our schools and universities, taken together, has not changed much since 1930. In elementary and secondary schools this fraction was 23.2 percent in 1930 and 21.7 percent in 1956 (see appendix, tables AIII-AV); in universities the corresponding figures were 0.9 percent and 1.8 percent, and total enrollment on all levels was 24.1 percent in 1930 and 23.4 percent in 1956. The proportion of young people enrolled has been increasing, but the fraction of young people (ages 5-24) in the total population fell from 38.3 percent in 1930 to 31.7 percent in 1956. With the higher birth rates since World War II, the fraction of total population enrolled is beginning to rise.

⁶ Ralph F. Berdie, *After High School, What?* (Minneapolis, Minn., University of Minnesota Press, 1953). The reference is taken from Wolfe, *op. cit.*, p. 165.

⁷ Wolfe, *op. cit.*, p. 244.

The fraction of our gross national product spent on education from all sources (Federal, State, local, and private) has risen from 3.49 percent in 1930 to 3.87 percent in 1954, after a slight dip in 1940 and 1950 to 3.16 and 3.07 percent, respectively. (See appendix, table A.VI.) Expenditures on elementary and secondary education as fractions of gross national product have behaved in roughly the same manner, while expenditures on higher education have risen faster (from 0.69 percent in 1930 to 0.95 percent in 1954).

Thus neither the fraction of our population enrolled in school nor that of gross national product devoted to education has shown a marked change. Rough as these comparisons are, they leave one somewhat puzzled regarding the causes of our increasingly acute educational problem. Part of the latter can be explained by a rise in what is regarded as good education, but by far more important is the peculiar character of education: It is an industry deriving little benefit from technological progress, so that real productivity per person (teacher) engaged has not increased much, if at all, over the centuries. True, our teachers know more (I trust) than their ancestors, but the essential method of instruction has not changed considerably since the days of Socrates: A teacher working directly with a class of students without much help from mechanical devices was then and still is the typical method. An attempt to raise the teacher's productivity by increasing the size of class simply reduces the quality of instruction.

It is most ironical that while education contributes so much to economic growth—perhaps more than any other activity—it suffers from the success of its own efforts. In industries subject to particularly rapid technological progress productivity per worker rises and his income can be and is raised without difficulty. This brings pressure on less progressive industries. To keep their workers they also have to raise wages or reduce the quality of their personnel. Their output becomes more expensive and/or of lower quality. This is exactly what has been happening to education.

This is not a temporary situation. The more prosperous we become and the faster we grow the more expensive good education will become, unless some major technological revolution, such as mass use of television as an instrument of instruction, transforms the education industry. It is too early to tell whether such a change will be possible or desirable. As things stand, it is very unlikely that this country will have an educational system such as it deserves and badly needs and can certainly afford without Federal participation on a large scale.

Traditionally, education, particularly on the elementary and secondary level, has been regarded as a local affair. Although part of this tradition has already been broken by State educational grants to local governments, which are quite common, further departures from this or any other tradition require justification.

In ages past when a person was likely to be born, live, and die in the same community (if such times ever existed in this country) which was economically more or less self-sufficient, it was natural to think of education, particularly on the elementary and secondary level, in local terms. Whatever might have been the case in the past, the geographical mobility of our present population is remarkable: between 1953 and 1956 over 10 million persons per year changed their county of residence. (See appendix, table A-VII.) Subject to annual variation, the gen-

eral trend has been from the Northeast and South toward the West. Must the South—our poorest region—provide education for the more prosperous West?

That the economic interdependence of all regions of this country is very great requires no elaboration. A waste of ability and talent in any one region affects all the rest. The education and training of our highly mobile labor force is therefore a national problem.

One may still wonder whether a proper educational system could not be financed by local governments, with State support, particularly in periods of high prosperity and full employment. Whether a large increase of educational expenditures from these sources can be undertaken is a moot question. Financial ability is hard to judge. On the whole, our poorer States, which usually also have poorer schools, are making at least as great or even a greater educational effort than the richer ones. Thus in 1954 Mississippi spent 3.06 percent of her personal income on education; Arkansas and South Carolina 2.78 and 3.37 percent, respectively, as compared with 2.08 percent for New York, 1.80 and 2.01 percent for Connecticut and New Jersey. (The highest ratios were in the West: in New Mexico, 3.56; Wyoming, 3.44; and Idaho, 3.39 percent.) (See appendix, table A-IX.) That the State and local governments find it much more difficult to raise funds than the Federal Government does is well known. The fear of repelling customers in case of a sales tax, and wealthy individuals in case of an income tax, is an important factor. Perhaps the unwillingness to tax is as strong as inability. Be all this as it may, the fact remains that State and local governments have not met the problem. Nor is a radical improvement to be expected in the near future.

The emphasis placed in this paper on the waste of talent and ability caused by the failure of potentially bright college students to enroll should not give the impression that this is the only educational problem we face. Other problems will, I presume, be discussed by the special panel. Perhaps I may add here that it is highly desirable to raise the general level of our college instruction. Our education is becoming ever longer because so little is accomplished in 4 years of undergraduate training; a master's degree and even a doctorate are increasingly required. For that matter, postdoctoral training is becoming more common. But such a reform of college education cannot be undertaken without a major improvement in our elementary and, particularly, high-school instruction.

FEDERAL EXPENDITURES AND RESEARCH

Expenditures on research and development from all sources (governmental, commercial, and nonprofit) have increased markedly over recent years, rising from some \$0.8 billion in 1941 to \$4.6 billion in 1953, or as a fraction of gross national product from 0.6 to 1.3 percent. Between 1941 and 1957 Federal expenditures on research and development rose from \$0.2 billion to \$2.6 billion, though as a fraction of gross national product the latter figure corresponds to only some 0.6 percent. (See appendix, table A-X.) And of course the absolute figures should be corrected for changes in the price level.

That economic growth is based on technological progress and research in general is clear beyond doubt. It is tempting, therefore,

to argue that Federal expenditures on research should increase. I take this position, but with the following qualifications:

1. The social usefulness of research expenditures is limited by the supply of well-trained research workers, which in turn depends on our educational system. If the Federal Government increases its demand for them without helping to increase the supply, research workers will be simply shifted from non-Federal to Federal projects. In the short run this will accomplish certain specific objectives, particularly connected with national defense. Its long-run effects may be less desirable.

2. By far the largest part of Federal research expenditures—84 percent in 1956—is related to national security. (See appendix, table A-XI.) While some of the results of these expenditures will find peacetime uses, I cannot help wondering whether it is healthy in the long run that only 16 percent of them are directed to nondefense purposes.

3. Even more important is the estimate that over 90 percent of Federal research obligations are for applied research. (See appendix, table A-XII.) Granted that the distinction between basic and applied research is vague and that the estimate is not precise, it still remains true that the Federal Government is little concerned with basic research. It may even be impeding it by encouraging scientists to leave basic research where material gains, if any, are small and move to applied projects which can be easily financed. And yet basic research is the foundation on which all other research is built; its benefits are widely diffused and accrue to the whole society rather than to its direct sponsors and originators. It is difficult to find a field more worthy of Federal support.

APPENDIX

This statement was made by Alfred Marshall, the great English economist, near the turn of the century. While there is a vast difference between the present American conditions and those in the England of his time, his statement is still of interest.

The laws which govern the birth of genius are inscrutable. It is probable that the percentage of children of the working classes who are endowed with natural abilities of the highest order is not so great as that of the children of people who have attained or have inherited a higher position in society. But since the manual labor classes are 4 or 5 times as numerous as all other classes put together, it is not unlikely that more than half of the best natural genius that is born into the country belongs to them; and of this a great part is fruitless from want of opportunity. There is no extravagance more prejudicial to the growth of national wealth than that wasteful negligence which allows genius that happens to be born of lowly parentage to expend itself in lowly work. No change would conduce so much to a rapid increase of material wealth as an improvement in our schools, and especially those of the middle grades, provided it be combined with an extensive system of scholarships, which will enable the clever son of a workingman to rise gradually from school to school till he

has the best theoretical and practical education which the age can give.

To the abilities of children of the working classes may be ascribed the greater part of the success of the free towns in the Middle Ages and of Scotland in recent times. Even within England itself there is a lesson of the same kind to be learned; progress is most rapid in those parts of the country in which the greatest proportion of the leaders of industry are the sons of workingmen. For instance, the beginning of the manufacturing era found social distinctions more closely marked and more firmly established in the south than in the north of England. In the south something of a spirit of caste has held back the workingmen and the sons of workingmen from rising to posts of command; and the old established families have been wanting in that elasticity and freshness of mind which no social advantages can supply, and which comes only from natural gifts. This spirit of caste, and this deficiency of new blood among the leaders of industry, have mutually sustained one another; and there are not a few towns in the south of England whose decadence within living memory can be traced in a great measure to this cause.⁸

TABLE A-I.—*Estimated distribution of college graduates classified by occupation of father*

Father's occupation	Distribution of 1,000 children	Percentage of each group graduating from college	Number and percentage among college graduates	
			Number	Percent
Professional and semiprofessional.....	65	43	28	22
Managerial.....	128	19	24	19
Sales, clerical, and service.....	158	15	24	19
Farm.....	162	6	10	8
Skilled, unskilled, factory, etc.....	487	8	39	31
Total.....	1,000		125	100

Source: The distribution of children was taken from Bureau of the Census report p. 20, No. 32, Dec. 4, 1950, *Children and Youth: 1950*, which gives the distribution of children under the age of 18 by occupation of the employed head of the household. The other figures are quite tentative Commission estimates. Dael Wolfe, *America's Resources of Specialized Talent*, p. 162.

TABLE A-II.—*Estimated educational attainment of boys and girls with AGCT scores of 130 or higher*¹

	Both sexes	
	Annual number	Percent
In age group of 2,200,000.....		
Finish high school.....	152,000	100.0
Enter college.....	148,000	97.0
Graduate from college.....	80,000	53.0
Receive doctor of philosophy degrees.....	70,000	46.0
	2,600	1.7

¹ All numbers are rounded, and are based upon an age group of 2,200,000 approximately the current size; percentage figures are of all (boys and girls, or both) in age group and with AGCT scores of 130 or higher.

Source: Commission estimates.

Dael Wolfe, *America's Resources of Specialized Talent*, p. 183.

⁸ Alfred Marshall, *Principles of Economics* (London, Macmillan & Co., 1890), 1st edition, pp. 270-271.

TABLE A-III.—Population, labor force, and school enrollment

Year	Total continental population, including Armed Forces	Labor force (including military)	Total enrollment in schools (all levels)	Enrollment in elementary and secondary education	Enrollment in higher education
(1)	(2)	(3)	(4)	(5)	(6)
1890.....	62,947,714	21,814,412	¹ 13,980,756	¹ 13,824,000	156,756
1900.....	76,085,794	27,323,055	17,198,841	16,901,249	237,592
1910.....	92,027,874	35,749,068	19,999,148	19,643,933	355,215
1920.....	105,827,858	41,016,851	24,061,778	23,463,898	597,880
1930.....	122,864,499	50,080,000	29,652,377	28,551,640	1,100,737
1940.....	131,788,208	56,030,000	29,751,203	28,257,000	1,494,203
1950.....	151,683,000	64,509,000	31,319,271	28,660,250	2,659,021
1952.....	157,028,000	66,426,000	32,856,348	30,554,404	2,301,884
1954.....	162,409,000	67,818,000	35,911,050	33,396,338	2,514,712
1955.....	165,248,000	69,535,000	¹ 37,811,547	¹ 35,090,018	2,720,929
1956.....	167,181,000	69,885,000	¹ 39,181,765	¹ 36,234,780	2,946,985

Year	As percent of population			As percent of labor force			As percent of total enrollment	
	Total enrollment as percent of population (4÷2)	Elementary and secondary enrollment as percent of population (5÷2)	Enrollment in higher education as percent of population (6÷2)	Total enrollment as percent of labor force (4÷3)	Elementary and secondary as percent of labor force (5÷3)	Enrollment in higher education as percent of labor force (6÷3)	Elementary and secondary enrollment as percent of total enrollment (5÷4)	Enrollment in higher education as percent of total enrollment (6÷4)
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1890.....	22.21	21.96	0.25	64.09	63.37	0.72	98.88	1.11
1900.....	22.60	22.29	.31	62.95	62.08	.87	98.62	1.38
1910.....	21.73	21.35	.30	55.94	54.95	.99	98.22	1.78
1920.....	22.74	22.17	.56	58.66	57.21	1.46	97.52	2.48
1930.....	24.13	23.24	.90	59.21	57.01	2.20	96.29	3.71
1940.....	22.58	21.44	1.13	53.10	50.43	2.67	94.98	5.02
1950.....	20.65	18.89	1.75	48.48	44.37	4.12	91.51	8.49
1952.....	20.92	19.46	1.47	49.46	46.00	3.47	92.99	7.01
1954.....	22.11	20.56	1.55	52.95	49.24	3.71	93.00	7.00
1955.....	22.88	21.24	1.65	54.38	50.46	3.91	92.80	7.20
1956.....	23.44	21.67	1.76	56.09	51.87	4.22	92.48	7.52

¹ Denotes estimation on basis of subsequent (or preceding) proportions of private enrollment to total enrollment in elementary and secondary schools. Consequently, the total enrollment in elementary and secondary schools (and in all levels) is, in part, an estimation.

SOURCES FOR TABLE A-III

Col. 2: 1890 figure from Stat. Abst. 1956, p. 5, table No. 1; figures for 1900-1940 computed from Hist. Stat., p. 25, series B, 2, and 3; figures for 1950-56 from Stat. Abst., p. 5, table No. 2 (1956 figure is for December).

Col. 3: Figures for 1890-1930 are based on "gainful worker" concept. From 1940 on the labor force concept is used. Difference is mainly that former excluded new workers not yet employed for 1st time, whereas latter includes them. Figures for 1890-1920 from Hist. Stat., p. 64, series D, 32, and cover gainfully occupied as of age 16 and over. Figures for 1930-55 from Stat. Abst. 1956, p. 197, table No. 235 and include those gainfully occupied or in labor force (whichever is appropriate) of age 14 and over. Figure for 1956 (December) comes from Monthly Labor Review, April 1957, p. 506, table A-1.

Cols. 4, 5, and 6: Figure for 1890 enrollment in elementary and secondary schools is estimated on basis of 1890 enrollment of 12,723,000 in public elementary and secondary schools (Biennial Survey of Education, 1950-52, ch. I, p. 18, table No. 11) and distribution between public and private enrollment in elementary and secondary schools in 1960 (ibid., ch. I, p. 7, table No. 4). Figure for 1890 enrollment in higher education from Biennial Survey, 1950-52, ch. I, p. 41, table No. 34. Figures for 1900-1952 from Biennial Survey, 1950-54, ch. I, p. 7, table No. 4. Figures for 1954 from Biennial Survey, 1952-54, ch. I, p. 7, table No. 4. Figures for 1955 and 1956 enrollment in elementary and secondary schools are estimated on basis of 1955 and 1956 enrollment in public elementary and secondary schools (30,532,166 in 1955 and 31,527,695 in 1956) (Office of Education, supplement to circular No. 490, p. 1, table No. 1) and on basis of 1954 enrollment in private elementary and secondary schools (Biennial Survey, 1952-54, p. 7, table No. 4) as a proportion of total enrollment. Figures for 1955 and 1956 enrollment in higher education from Office of Education, Circular Series, No. 460 (p. 7) and No. 496 (p. 2).

TABLE A-IV.—Total population and school-age population

Year	Total continental United States population (including Armed Forces)	Population ages 5 to 24	Population ages 5 to 17	Population ages 18 to 24	Population of ages 5 to 24 as percent of total population (3+2)	Population of ages 5 to 17 as percent of total population (4+2)	Population of ages 17 to 24 as percent of total population (5+2)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1900.....	76,085,794	31,845,462	21,538,024	10,307,438	41.85	28.31	13.55
1910.....	92,027,874	36,988,359	24,239,948	12,748,411	40.19	26.34	13.85
1920.....	105,827,858	40,746,789	27,728,788	13,018,001	38.50	26.20	12.30
1930.....	122,864,499	47,034,979	31,571,322	15,463,657	38.28	25.70	12.59
1940.....	131,788,208	46,351,915	29,745,246	16,606,669	35.17	22.57	12.60
1950.....	151,683,000	46,519,445	30,735,025	15,784,420	30.67	20.26	10.41
1955.....	165,248,000	52,440,000	37,334,000	15,106,000	31.73	22.59	9.14

Col. 2: Figures for 1900-1950 from table A-III, col. 2.

Col. 3: Figures for 1900-1950 computed from 1950 Census, Special Report P-B1, p. 93, table No. 39. Figure for 1955 computed from Current Population Reports, Series P-25, No. 121, p. 1.

Col. 4: Figure for 1900 computed from 1900 Census of Population, vol. II, pt. II, p. xxxvi, table XIV. Figure for 1910-50 computed from 1950 Census, Special Report P-B1, p. 95, table No. 43. Figure for 1955 computed from Current Population Reports, Series P-25, No. 121, p. 1.

Col. 5: Figure for 1900 computed from 1900 Census of Population vol. II, pt. II, p. xxxvi, table XVI. Figure for 1910-50 computed from 1950 Census, Special Report P-B1, p. 95, table No. 43. Figure for 1955 from Current Population Reports, Series P-25, No. 121, p. 1.

Cols. 6, 7, and 8: Computed from cols. 3 and 2, cols. 4 and 2, and cols. 5 and 2, respectively.

TABLE A-V.—School-age population and educational enrollment

Year	Population of ages 5 to 24	Total enrollment in education	Population of ages 5 to 17	Total enrollment in elementary and secondary schools	Population of ages 18 to 24	Total enrollment in higher education
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1900.....	31,845,462	17,198,841	21,538,024	16,961,249	10,307,438	237,592
1910.....	36,988,359	19,999,148	24,239,948	19,643,933	12,748,411	355,215
1920.....	40,746,789	24,061,778	27,728,788	23,463,898	13,018,001	597,880
1930.....	47,034,979	29,652,377	31,571,322	28,551,640	15,463,657	1,100,737
1940.....	46,351,915	29,751,203	29,745,246	28,257,000	16,606,669	1,494,203
1950.....	46,519,445	31,319,271	30,735,025	28,660,250	15,784,420	2,659,021
1955.....	52,440,000	37,811,547	37,334,000	35,090,618	15,106,000	2,720,929

Year	Total enrollment in education as percent of population of ages 5 to 24 (3+2)	Total enrollment in elementary and secondary schools as percent of population of ages 5 to 17 (5+4)	Total enrollment in higher education as percent of population of ages 18 to 24 (7+6)
(1)	(8)	(9)	(10)
1900.....	54.01	78.75	2.31
1910.....	54.07	81.04	2.79
1920.....	59.05	84.62	4.59
1930.....	63.04	90.44	7.12
1940.....	64.19	95.00	9.00
1950.....	67.33	93.25	16.85
1955.....	72.10	93.99	18.01

¹ Denotes estimation. (See table A-III.)

Cols. 2, 4, and 6: See table A-IV, cols. 2, 3, and 4.

Cols. 3, 5, and 7: See table A-III, cols. 4, 5, and 6.

Note.—The enrollment data include total enrollment in the particular level of education under consideration and consequently are not limited solely to enrollments from the age group with which it is compared. Enrollments by age group do not exist for some years; hence, it seems better to retain a consistent measure for enrollment figures.

TABLE A-VI.—Gross national product and educational expenditure

[All figures in thousands of dollars]

Year	Gross national product (Department of Commerce)	Gross national product (Painter)	expenditure on education (including capital outlay) (5+6+7+8)	Expenditure on public elementary and secondary schools (including capital outlay)	Expenditure on private elementary and secondary schools (including capital outlay)	Expenditure on public higher education (including capital outlay)	Expenditure on private higher education (including capital outlay)	Total expenditure on elementary and secondary schools (including capital outlay) (5+6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1900.....	-----	-----	1 287, 751	214, 965	1 27, 000	1 24, 463	1 21, 323	1 241, 965
1910.....	-----	-----	1 571, 688	426, 250	53, 542	1 49, 100	1 42, 796	1 479, 792
1920.....	-----	86, 600, 000	1 1, 382, 658	1, 036, 151	1 130, 141	115, 597	100, 769	1 1, 166, 292
1930.....	91, 105, 000	88, 200, 000	3, 182, 316	2, 316, 790	233, 277	288, 909	343, 340	2, 550, 067
1940.....	100, 618, 000	97, 100, 000	3, 176, 804	2, 344, 049	227, 000	332, 592	273, 163	2, 571, 049
1950.....	285, 067, 000	-----	8, 743, 885	5, 837, 643	782, 967	1, 174, 125	949, 150	6, 620, 610
1952.....	346, 095, 000	-----	10, 696, 434	7, 344, 237	1, 027, 670	1, 313, 084	1, 011, 443	8, 371, 907
1954.....	360, 500, 000	-----	13, 949, 876	9, 172, 129	1, 364, 079	1, 911, 750	1, 501, 918	10, 536, 208
1955.....	391, 700, 000	-----	-----	-----	-----	-----	-----	-----
1956.....	414, 700, 000	-----	-----	-----	-----	-----	-----	-----

Year	Total expenditure on higher education (including capital outlay) (7+8)	Total expenditure on public education (including capital outlay) (5+7)	Total expenditure on private education (including capital outlay) (6+8)	Total State and local expenditure on education (including capital outlay)	Total Federal expenditure on education (including capital outlay and grant to States)
	(10)	(11)	(12)	(13)	(14)
1900.....	45, 786	1 239, 428	1 48, 323	255, 000	-----
1910.....	91, 896	1 475, 350	1 96, 338	577, 000	-----
1920.....	216, 366	1, 151, 748	250, 910	1, 705, 000	-----
1930.....	632, 249	2, 605, 699	576, 017	2, 311, 000	-----
1940.....	605, 755	2, 676, 641	500, 163	2, 638, 000	174, 930
1950.....	2, 123, 275	7, 011, 768	1, 732, 117	7, 177, 000	3, 618, 900
1952.....	2, 324, 527	8, 657, 321	2, 039, 113	8, 318, 000	-----
1954.....	3, 413, 668	11, 083, 879	2, 865, 997	10, 557, 000	-----
1955.....	-----	-----	-----	11, 907, 000	1, 561, 574

See footnote at end of tables.

TABLE A-VI.—*Gross national product and educational expenditure—Continued*
 EDUCATIONAL EXPENDITURES AS PERCENT OF GROSS NATIONAL PRODUCT
 [All figures in thousands of dollars]

Year	Total educational expenditure (4÷2)	Total expenditure on elementary and secondary education (9÷2)	Total expenditure on higher education (10÷2)	Total expenditure on public education (all levels) (11÷2)	Total expenditure on private education (all levels) (12÷2)	State and local government expenditure on education (13÷2)
(15)	(16)	(17)	(18)	(19)	(20)	(21)
1900						
1910						
1920						
1930	3.49	2.80	0.69	2.86	0.63	2.54
1940	3.16	2.56	.60	2.66	.50	2.62
1950	3.07	2.32	.74	2.46	.61	2.52
1952	3.09	2.42	.67	2.50	.59	2.40
1954	² 3.87	2.92	.95	3.07	.80	2.93
1955						3.04
1956						

¹ Federal grants to States and local governments for education included in expenditures of col. 13 and included in Federal figure in col. 14; then adding cols 13 and 14 involves double counting.

² Denotes estimation due to the need to estimate expenditure on private elementary and secondary schools in 1954.

SOURCES FOR TABLE A-VI

Col. 2. Figures for 1930-52 from National Income, 1954, supplement, pp. 162-163, table No. 2. Figures for 1954 from Business Statistics, 1955, supplement, p. 3. Figures for 1955-56 from Survey of Current Business, July 1957, pp. 30-31, table No. 49.

Col. 3. Figures for entire column from Painter, Federal Reserve Bulletin, September 1945, p. 873.

Col. 5. Figures for 1900-1952 from Biennial Survey 1950-52, ch. 1, p. 18, table No. 11. Figure for 1954 from Trends in School Finance, p. 49, table No. 42.

Col. 6. Figures for 1910, 1930-52 from Statistical Abstract, 1956, p. 124, table No. 146. Figures for 1900, 1920, and 1954 estimated on basis of preceding (or subsequent) proportions of public and private expenditure of total elementary and secondary expenditure.

Col. 7. Figures for 1920-52 from Statistical Abstract, 1956, p. 124, table No. 146. Figures for 1900, 1910 estimated on basis of total expenditure on higher education given in same table. Figure for 1954 from Biennial Survey 1952-54, ch. 4, pt. II, pp. 106, 121, tables Nos. 5, 7.

Col. 8. Same as col. 7 for years 1900-1952. Figures for 1954 from Biennial Survey 1952-54, pp. 108, 122, tables Nos. 5, 7.

Col. 13. 1900, 1910, 1920, 1930 figures are actually for years 1902, 1913, 1922, 1932, respectively. All figures come from Historical Statistics on State and Local Government Finance 1902-53, p. 17, table I, except for 1954 and 1955 figures, which come from Summary of Government Finances in 1955, p. 26, table No. 8.

Col. 14. 1955 figure from Federal Funds for Education, 1954-55, 1955-56, p. 24, table No. 7. 1950 figure from Federal Funds for Education, 1950-51, 1951-52, p. 5, table No. 2. 1940 figure from Federal Funds for Education, 1938-39, 1939-40, p. 27, table No. 5, with \$21,358,000 added for expenditure not attributable to any given State—that figure being the one for 1942.

TABLE A-VII.—*Average annual number of migrants, by region of residence at beginning and end of year: April 1953 to March 1956*

Region of residence at end of year	Region of residence at beginning of year				Total migrants into a county of—
	Northeast	North Central	South	West	
Northeast	1,424,000	71,000	270,000	57,000	1,822,000
North Central	105,000	2,051,000	487,000	186,000	2,829,000
South	198,000	342,000	2,726,000	271,000	3,538,000
West	115,000	238,000	334,000	1,558,000	2,245,000
Total migrants from a county in	1,842,000	2,702,000	3,817,000	2,072,000	10,434,000

Source: Current Population Reports; series P-20, No. 73, p. 18, table No. 11.

From the above information we can compute average annual net migration of each region by subtracting the appropriate column sum from the appropriate row sum.

TABLE A-VIII.—*Average annual net migration, by regions, 1953-56*

Region:	Net migration
Northeast	-20,000
North Central	127,000
South	-279,000
West	173,000

Source: Calculated from table A-VII.

TABLE A-IX.—*Current expenditure on public elementary and secondary schools and personal income, 1954, by States*

[All in thousands of dollars except col. No. 5]

State	Expenditure (current) on public elementary and secondary schools, 1954	Personal income, 1954	Expenditure on schools as percent of personal income, 1954	Current expenditure per pupil in average daily attendance in public secondary and elementary schools, 1954 United States average= \$204.76
(1)	(2)	(3)	(4)	(5)
Northeast:				
Connecticut.....	\$92,755	\$5,156,000	1.80	\$296.80
Maine.....	30,872	1,304,000	2.37	199.33
Massachusetts.....	189,814	9,448,000	2.01	298.39
New Hampshire.....	19,025	894,000	2.13	256.38
New Jersey.....	233,639	11,619,000	2.01	333.31
New York.....	709,174	34,175,000	2.08	361.99
Pennsylvania.....	460,628	19,646,000	2.34	299.31
Rhode Island.....	25,608	1,522,000	1.68	268.05
Vermont.....	14,542	536,000	2.71	245.31
North Central:				
Illinois.....	383,164	19,786,000	1.94	318.81
Indiana.....	192,114	7,619,000	2.52	279.57
Iowa.....	127,059	4,449,000	2.86	273.91
Kansas.....	94,614	3,413,000	2.76	263.79
Michigan.....	325,497	14,172,000	2.30	282.82
Minnesota.....	143,529	5,109,000	2.78	286.59
Missouri.....	139,481	7,066,000	1.97	232.79
Nebraska.....	59,027	2,236,000	2.64	262.45
North Dakota.....	28,924	760,000	3.81	262.40
Ohio.....	338,214	17,221,000	1.96	253.88
South Dakota.....	31,930	901,000	3.54	274.91
Wisconsin.....	147,615	6,212,000	2.38	293.39
South:				
Alabama.....	92,895	3,239,000	2.87	150.88
Arkansas.....	49,598	1,781,000	2.78	139.19
Delaware.....	16,597	891,000	1.86	325.42
Florida.....	123,843	5,342,000	2.32	228.74
Georgia.....	125,198	4,418,000	2.83	177.41
Kentucky.....	78,332	3,594,000	2.18	153.17
Louisiana.....	120,523	3,742,000	3.22	246.65
Maryland.....	103,849	5,079,000	2.04	268.47
Mississippi.....	55,444	1,811,000	3.06	122.60
North Carolina.....	154,700	4,959,000	3.12	176.97
Oklahoma.....	90,969	3,159,000	3.07	223.87
South Carolina.....	80,527	2,391,000	3.37	176.34
Tennessee.....	106,402	4,038,000	2.64	166.36
Texas.....	346,615	13,300,000	2.61	249.22
Virginia.....	118,701	5,193,000	2.29	192.56
West Virginia.....	76,244	2,419,000	3.15	186.09
West:				
Arizona.....	45,990	1,486,000	3.09	281.63
California.....	727,557	27,148,000	2.68	314.51
Colorado.....	69,210	2,519,000	2.75	279.76
Idaho.....	29,229	861,000	3.39	237.81
Montana.....	34,889	1,074,000	3.26	327.99
Nevada.....	10,482	506,000	2.07	294.12
New Mexico.....	38,367	1,077,000	3.56	264.71
Oregon.....	91,236	2,903,000	3.14	336.72
Utah.....	34,723	1,146,000	3.03	208.18
Washington.....	129,610	4,963,000	2.61	305.42
Wyoming.....	18,434	536,000	3.44	329.86
District of Columbia.....	27,735	1,871,000	1.48	302.10

Col. 2: Biennial Survey of Education, 1953-54, ch. 2, pp. 76-77, table No. 26.

Col. 3: Personal Income by States since 1929, supplement to Survey of Current Business, 1955, pp. 140-141, table No. 1.

Col. 4: Computed from cols. 2 and 3.

Col. 5: Biennial Survey of Education, 1953-54, pp. 102-103, table No. 39.

TABLE A-X.—Expenditures for research and gross national product

[All figures in thousands of dollars]

Year	Gross national product	Total expenditures for research and development (4+5+6)	Federal expenditures on research and development ^{1 2}	Private commercial expenditures on research and development	Private non-profit expenditures on research and development ¹
(1)	(2)	(3)	(4)	(5)	(6)
1937	90,780,000		124,000		
1938	85,227,000		108,000	198,680	
1939	91,095,000				
1940	100,618,000		74,100	280,132	
1941	125,822,000	727,900	197,900	510,000	20,000
1942	159,133,000	860,300	280,300	560,000	20,000
1943	192,513,000	1,032,400	602,400	410,000	20,000
1944	211,393,000	1,817,200	1,377,200	420,000	20,000
1945	213,558,000	2,040,700	1,590,700	430,000	20,000
1946	209,246,000	1,787,800	917,800	840,000	30,000
1947	232,228,000	1,999,900	899,900	1,050,000	50,000
1948	257,325,000	2,074,800	854,800	1,150,000	70,000
1949	257,301,000	2,142,000	1,082,000	990,000	70,000
1950	285,067,000	2,342,800	1,082,800	1,180,000	80,000
1951	328,232,000	2,680,500	1,300,500	1,300,000	80,000
1952	345,445,000	3,326,200	1,816,200	1,430,000	80,000
1953	363,218,000	4,649,000	2,099,000	2,370,000	180,000
1954	361,167,000		2,084,200		
1955	391,692,000		2,133,400		
1956	414,686,000		2,282,000		
1957			2,560,800		

[Percent]

Year	Total expenditures on research and development as percent of gross national product (3-2)	Federal expenditures on research and development as percent of gross national product (4-2)	Private commercial expenditures on research and development as percent of gross national product (5-2)	Nonprofit expenditures on research and development as percent of gross national product (6-2)	Federal expenditures on research and development as percent of total expenditure on research and development (4-3)
(1)	(7)	(8)	(9)	(10)	(11)
1937		0.14			
1938		.13	0.23		
1939					
1940		.07	.28		
1941	0.58	.16	.41	0.02	27.19
1942	.54	.18	.35	.01	32.58
1943	.54	.31	.21	.01	58.35
1944	.86	.65	.20	.01	75.79
1945	.96	.74	.20	.01	77.95
1946	.85	.44	.40	.01	51.34
1947	.86	.39	.45	.02	45.00
1948	.81	.33	.45	.03	41.20
1949	.83	.42	.38	.03	50.51
1950	.82	.38	.41	.03	46.22
1951	.82	.40	.40	.02	48.52
1952	.96	.53	.41	.02	54.60
1953	1.28	.58	.65	.05	45.15
1954		.58			
1955		.54			
1956		.55			
1957					

SOURCES TO TABLE A-X

- Col. 2: Figures for 1936-56 from Survey of Current Business, July 1957, pp. 8-9, table No. 2.
 Col. 3: Calculated from cols. 4, 5, and 6.
 Col. 4: Figures for 1937-38 from Research—A National Resource, vol. 1, p. 66, table No. 1.
 Figures for 1940-57 from Federal Funds for Science, V, pp. 46-47, table No. 10.
 The 1956 and 1957 figures are estimates.
 Col. 5: Figures for 1938 and 1940 are estimated from information given in Research—National Resource, vol. II, p. 173. On the basis of the cost of research as \$4,000 per man-year of research personnel, together with that in 1940 there were 70,033 research workers in American industry (41 percent more than in 1938), the figures for 1938 and 1940 can be derived. It is assumed that Government expenditures in 1938 and 1940 for research was entirely performed by a Government agency.
 Figures for 1941-52 from Department of Defense, Growth of Scientific Research and Development, p. 10, table No. 1. These figures apply only to industrial research in the natural sciences (including medicine) and engineering. However, because private industry's research in the social sciences is probably quite limited, expenditure for research and development in the natural sciences and engineering seems adequate. In view of the fact that the source makes no mention as to how the data were compiled, whether or not items such as capital outlay, etc., were included, it seems that not too much confidence can be placed in the data. Such suspicion is reinforced by the fact that NSF data for 1953 show an almost \$1,000,000,000 increase in industrial research and development expenditures over the 1952 figure given by Department of Defense.
 Figure for 1953 from Reviews of Data on Research and Development, No. 1, p. 2, table No. 1. This figure is also for research in natural sciences alone.
 Col. 6: Figures for 1941-52 from Department of Defense, Growth of Scientific Research and Development, p. 10, table No. 1. Same comment here as to reliability of the estimate as expressed above under col. 5.
 Figure for 1953 from Review of Data on Research and Development, No. 1, p. 2, table No. 1.
 All figures in col. 6, as in col. 5, refer only to expenditures for research and development in the natural sciences and engineering. The exclusion of the social sciences is probably more serious in the case of the nonprofit institution than with private industry.
 Cols. 7, 8, 9, 10, and 11: Calculated from cols. 2 and 3, 2 and 4, 2 and 5, 2 and 6, and 3 and 4, respectively.

NOTES TO TABLE A-X

- ¹ Cols. 4, 5, and 6 refer to sources of funds for research and development. The actual performance of the research may, in the case of Government funds, be done, say, by a private commercial enterprise.
² In col. 4 the figures for 1956 and 1957 are estimates, all other figures are actual expenditures, not obligations, for fiscal, rather than calendar, years. Such figures exclude development expenditures from Department of Defense procurement funds and the pay of military personnel engaged in research and development. The magnitude of these latter elements was, in 1955, \$635,000,000 for research and development from Department of Defense procurement funds, and \$157,000,000 of pay of military personnel engaged in research and development. (Source: Federal Funds for Science, V, for fiscal 1955, 1956, and 1957, p. 4.) It is the exclusion of these 2 categories of expenditures which probably accounts for the generally higher Federal expenditure figures given in Department of Defense publication, The Growth of Scientific Research and Development. Neither of the 2 sources include routine statistical collection and publication in the definition of research and development.
 The World War II expenditure on research and development by Federal Government includes expenditure for construction of production facilities (Oak Ridge, Los Alamos) for the atomic bomb. To this extent, Federal research and development expenditure is overstated for World War II.
 † GENERAL NOTE.—All data, insofar as can be determined, include expenditures for research and development plant and equipment.
 ‡ Since expenditures on research and development cannot be defined precisely, a good deal of variation exists in data derived from different sources.

TABLE A-XI.—Federal research and development expenditure, by function, 1953-56¹

[All figures in thousands of dollars]

Fiscal year	National security	Veterans' services	International affairs and finance	All other ²	Total Federal research and development expenditures (cols. 2, 3, 4, 5)	All other research and development expenditures as percent of total Federal research and development expenditures (cols. 5, 6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1953.....	1,830,920	4,600	1,792	281,572	2,118,884	13.29
1954.....	1,804,310	5,130	1,143	291,836	2,102,469	13.88
1955.....	1,745,672	5,312	1,144	331,879	2,084,007	15.93
1956.....	1,862,902	5,870	1,421	358,901	2,229,094	16.10

¹ Federal research and development expenditure here includes capital outlay and apparently normal statistical collection.

² The "All other" includes a multitude of functions which are given separately in the source. It encompasses: Social security, welfare, and health; housing and community development; education and general research; agriculture and agricultural resources; natural resources; transportation and communication; finance, commerce, and industry; labor and manpower; and general government.

Sources: Cols. 2 and 5: Figures for 1953 from NSF, Federal Funds for Science, III, pp. 28-30, table No. 3. Figures for 1954-56 from NSF, Federal Funds for Science, IV, pp. 24-26, table No. 3. 1955 and 1956 figures are estimates. Cols. 6 and 7: Calculated as shown on table.

TABLE A-XII.—*Basic and applied research and development in Federal obligations, 1953-57*

Fiscal year	Total current Federal obligation for research and development	Federal obligation for basic research and development	Federal obligation for applied research and development	Federal obligation for basic research and development	Federal obligation for applied research and development
	<i>Thousands</i>	<i>Thousands</i>	<i>Thousands</i>	<i>Percent</i>	<i>Percent</i>
1953.....	\$1,919,500	\$116,000	\$1,803,500	6.0	94.0
1954.....	1,744,000	116,000	1,628,000	6.7	93.3
1955.....	1,887,500	130,100	1,757,400	6.9	93.1
1956.....	2,205,205	162,100	2,043,100	7.4	92.6
1957.....	2,382,400	215,100	2,167,300	9.0	91.0

NOTE.—All of the figures in this table are Federal Government obligations, as distinct from expenditures; hence these data are not exactly comparable with those presented in other tables.

Sources: Figures for 1953 from Federal Funds for Science, III, p. 9; 1954 from Federal Funds for Science, IV, p. 9; 1955-57 from Federal Funds for Science, V, p. 11. Figures for 1956 and 1957 are budget estimates.

GOVERNMENT EXPENDITURES AND GROWTH

James S. Duesenberry, professor of economics, Harvard University

INTRODUCTION

It seems fairly clear at the outset that there are important classes of government expenditures which have a positive effect on economic growth. These include expenditures for education, health, urban renewal, highway construction, water resource development, applied research in agriculture and in the production of minerals, and basic scientific research. Of course there are other classes of government expenditures which contribute little or nothing to the growth process. These include most defense expenditures (except insofar as they produce technical progress as a byproduct) and most of the transfer payments. Indeed, it may be argued that transfer payments for agriculture impede progress by holding labor on the farm which could be better used elsewhere.

Expenditures in these latter categories may be justified on other grounds but not by their effects on the growth of output.

As regards those expenditures which do contribute to the growth of output we have to ask whether they contribute enough to justify the withdrawal of resources from other uses. We cannot have everything. If we invest in education, health, and so on, we must either forgo some current consumption or some private investment.

Two decisions are involved in setting the level of government expenditures which are justified by their contribution to economic growth. These are (1) how much should be saved and invested by the whole economy, (2) how should the investment be distributed between public and private investment?

If we wish to increase the rate of growth or output we must increase the rate of growth of capital formation (in a broad sense which includes expenditure to improve the health and education of our labor force and increase the rate of development of technique). Three alternative ways of increasing capital formation may be considered: (1) Reduction in government expenditures (relative to national income) to permit reduction in personal taxes and thereby encourage personal savings in order to supply more funds for private investment; (2) reduction in government expenditures (relative to national income) or increase in taxes on consumption to permit reduction in corporate income taxes and thereby encourage private investment; (3) increase in government expenditures which contribute to growth while cutting other government expenditures or increasing taxes.

It will be argued below that there is not likely to be a chronic shortage of personal saving over the next decade. Consequently, the first method need not be considered.

Any of a variety of combination of the other two methods would contribute to the growth rate. I think it is likely that there is a

considerable volume of government investment which will contribute as much to economic growth as additional private investment. If that is true then we will not wish to hold down government investment in order to stimulate private investment. Our real problem is therefore to decide how much of an increase in total investment we can afford and how it should be divided between public and private investment.

Over the next few years considerations of national security will probably require the maintenance of the present level of defense and foreign-aid expenditures. Indeed, the growth of the Russian economy may force us to increase defense expenditures. Most of the non-defense expenditures of both the Federal and the State and local governments consist of either transfer payments or expenditures which do contribute substantially to economic growth, e. g., education, health, highway construction. There are, no doubt, some government services which are not worth their cost, and some uneconomical subsidies. Some savings could be made by improving the efficiency of government operations. But we will not be able to free any large volume of resources for investment by reducing government purchases of goods and services. Additional resources for investment can only be obtained by holding down private consumption. That can be done either through taxation or restriction of government transfer payments. There is, of course, no necessity for increasing tax rates. But unless transfer payments are reduced it will be necessary to withhold tax reductions from consumers in order to free resources for additional investment.

In the remaining sections of this paper I shall consider the three possibilities for increasing investment mentioned above, viz, (1) reduction in personal taxation; (2) reduction in corporate taxation; (3) increase in government investment.

A SHORTAGE OF PERSONAL SAVINGS?

In the last 3 years we have been told in innumerable speeches and articles that there is a shortage of savings in this country. It has usually been suggested that this shortage could be eliminated by a reduction in government expenditures. Those statements may be adequate enough as descriptions of the situation in the last couple of years. I do not think, however, that there is much reason to anticipate a shortage of savings on the average over the next decade or so. There is always a tendency to overemphasize the significance of short-term movements in business conditions. When there is a boom in investment people talk as though it would last forever. When there is a slump they see no end to it. Yet all our experience shows that investment fluctuates, every rise in the ratio of investment to income being followed before long by a decline. It is unreasonable therefore to judge the average situation by the situation at the peak of the cycle.

During 1955 and 1956 gross private domestic investment averaged about 15.7 percent of gross national product. That was about one-half a percentage point above the average ratio for the postwar years. The depression and the Second World War caused capital shortages in both housing and industry which have now been made up. It seems unlikely, then, that a rate of investment of as much as 15 percent of gross national product can be sustained in the long run. The Na-

tional Planning Association estimates the sustainable average rate of gross investment at 13.2 percent of gross national product. When we view the investment performance of 1955 and 1956 against that background it seems unlikely that a shortage of savings will persist over a long period.

That conclusion is reinforced by the fact that in the last 3 years the growth of industrial capacity has exceeded the growth of demand in a considerable number of industries.

I conclude then that under the present tax arrangement there is no great likelihood of a chronic shortage of saving. The Government will not contribute anything to the Nation's growth potential by running a surplus and throwing additional funds on the market through debt repayment. Nor will it help to cut Government expenditures and then reduce taxes on high income persons in order to allow them to save more.

It does not follow, however, that we cannot increase the rate of growth of output by increasing the rate of saving and capital formation. We can do so in two ways: (1) By adjusting the tax structure and some of our financial arrangements in such a way as to increase the demand for capital on the part of business, (2) by Government investment in such fields as education, urban redevelopment, conservation of resources and health.

CORPORATE TAXATION AND PRIVATE INVESTMENT

A number of witnesses before this committee have argued that a higher rate of growth of output can be obtained by encouraging private investment. Their argument is fairly simple. We know that there is a great deal of relatively old and inefficient plant and equipment in use in this country. That is a persistent situation. Old equipment is constantly being replaced with new but at the same time existing equipment is getting older. Since technique is constantly improving, there is always a wide gap between the efficiency of the oldest equipment in service and that of the best available equipment. It seems clear that if we could reduce the age of the oldest equipment in use we could save labor or raw materials which could be put to other uses.

At present many companies seem to feel that an investment return of 20 percent or more (before taxes) is required to justify the replacement of old plant and equipment. If the rate of return required to justify replacement were lowered the age of the oldest equipment in use would be reduced and the productive efficiency of our economy would be increased.

Three different sets of factors operate to make firms require a high prospective return on investment: (1) Some firms may simply feel that, in view of the risk involved, an investment is not worth while unless it can be expected to yield an after-tax return of, say, 10-percent. To the extent that that is true, a reduction in the effective corporate income tax rate on earnings from new investment would reduce the before-tax rate of returns required to justify new investment. But to the extent that losses on one venture can be offset against profits from another the Government shares in the risk as well as in the profits of investments. The net effect of taxation on the level of returns required to compensate for risk should not be very great.

(2) Some firms may be willing to take lower expected returns on new investment if the investment can be financed from retained earnings. They may, however, be unwilling to take the additional financial risk associated with the use of borrowed capital. In that case more investment would be forthcoming if the corporate income tax were reduced so as to permit an increase in the flow of retained earnings. (3) Some firms may be willing to use a greater amount of borrowed funds but find it impossible (except at prohibitive rates) because of "tight" money. As I have already indicated this may be a cyclical problem but it is not a chronic one which can be dealt with by taxation. (4) Because of imperfections in the capital markets some small rapidly growing firms always find it difficult to finance investments which they consider worth while. That problem may be dealt with by changes in the structure of the capital market, but I shall not attempt to discuss them here. Alternatively consideration might be given to further tax concessions to small firms.

I have emphasized the replacement problem in the above discussion, but the same argument applies to the investment involved in the introduction of new processes or new materials which may reduce costs for other firms. It also applies to the cases involving a decision whether to build new plant or to continue using obsolete standby capacity.

To our sorrow no one knows how much effect tax reduction would have on private investment. We can hardly expect that all of the increase in corporate profits after tax resulting from tax concessions will go into additional investment. Some of it may be passed on to consumers through lower prices, and trade unions may extract some additional wage increases. At the same time dividends may increase and some firms will borrow less instead of investing more. Finally, some of the gain from tax reductions may be diverted into advertising and selling expenditure rather than into productive investment. It seems quite likely that private investment will be increased by only a fraction of any tax concessions given to private business.

That is not necessarily a controlling consideration. If tax concessions result in price reductions, wage increases, or dividend increases, households are compensated for paying higher taxes in order to permit reductions of business taxes. If firms use the gains from tax reductions to avoid borrowing or build up liquid assets, taxes on consumers can be reduced without any inflationary effect. The gains to households from these sources would, of course, be distributed differently from those emerging from a change in taxes on households in the first instance. But that is not necessarily a disadvantage.

To the extent that tax reductions do result in increased business investment they should contribute to the rate of increase of productivity. The possibility of reducing taxes to increase investment must therefore be regarded as competitive with government expenditures aimed at increasing potential output.

GOVERNMENT INVESTMENT

We are always inclined to think of investment as something involving bricks and mortar or machines. When we think of government investment we think of hydroelectric projects or toll roads. They are classified as investments because they do involve physical construc-

tion and because they produce benefits which are readily identifiable, and measurable (if not collectible) in cash. But investments do not have to have those characteristics. An investment is an expenditure which produces benefits which accrue over or last for a long time. From that point of view expenditures on education are certainly investments. They increase the productivity of the labor force not just in the year in which the expenditure is made but for many years afterward. At the same time education is supposed to produce esthetic and social benefits which last throughout the lives of the students. Those benefits do not appear in the national income statistics, but we ought not to neglect them just because they cannot be rung up on the cash register.

A similar argument applies to urban renewal. At least a quarter of gross private domestic capital formation goes into residential construction. The figure is even larger if we add the associated construction of trade and service facilities, utility construction, and public construction. Yet while we pour billions of dollars into new construction we permit our enormous existing stock of housing to deteriorate far more rapidly than is necessary. Those losses could be avoided by programs designed to rehabilitate marginal areas where deterioration of property has not gone too far, for the clearance of existing slum areas, for planning the future development of metropolitan areas. Programs of that sort would save a great deal more capital than would be required to finance them. In addition, they would provide a continuing stream of social and esthetic benefits worth a great deal in themselves.

It is not my purpose to argue for particular programs. The programs I have mentioned are only examples. I do wish to emphasize two points. First, that government investment in a wide range of fields can contribute substantially to the growth of real output as usually measured. It can do so by increasing or conserving the productivity of our existing human and natural resources. Such investments may not produce revenue for the Government, but they will add to the real output of the Nation.

It is not easy to measure the yields from education, urban redevelopment, basic research, or expenditures to improve health. It is fairly clear, however, that investment in the training of professionals yields a high return on the investment. Data on the effects of other types of education are less satisfactory. Available information on skill differentials does suggest, however, that education does have an appreciable effect on the "value of a man." Similarly most experts in the housing field seem to agree that urban renewal is economically advantageous.

Secondly, I wish to emphasize that the nonmaterial benefits of a large class of government expenditures should be regarded as contributions to economic growth even when they do not add to gross national product in constant prices.

In discussing growth we tend to talk about real national product as though we were concerned with the rate of output of a single commodity. In fact, of course, we are concerned with the output of thousands of different goods and services. We add up this collection of items by weighting the output of each item by its relative price. Such a procedure is necessary since we can shift resources from the

production of one commodity to the production of another. But if we confine our attention to the size of gross national product in constant prices we leave out of account the problem of choosing the composition of the gross national product. It is just as important to produce the right things as it is to produce more of something. For the most part we leave the decision as to what things are to be produced to individual consumers and the working of the market. The business community has every incentive to find out, if not what the customers want, at least what they can be made to want. If the customers will pay for tailfins we can have every confidence that someone will discover it and supply them. The free market method of deciding what should be produced sometimes has odd results, but most of us agree that there is no better way to do things. When the philosophers are kings things may be different, but meanwhile most of us are content to rely on the vagaries of the price system.

It is clear, however, that the market process does not work for some kinds of goods and services. Private enterprise cannot supply services which benefit everyone at once, e. g., national defense or flood control, or the benefits of well planned and zoned metropolitan areas. Nor can it supply services whose benefits are diffuse or uncertain like those from basic scientific research. Private enterprise cannot ordinarily provide services which we wish to make available even to those who cannot pay the full costs, e. g., education and hospital services.¹

Standards of service in health, education, and other types of government service ought to rise with rising income at least as much as the standard of consumption of privately supplied commodities. There is no reason to discriminate against education and in favor of backyard barbecue equipment just because one is supplied by government and the other by private industry. Yet there is danger that we will hold down the expansion of government services because no one advertises them.

Moreover it seems likely that government expenditures will have to rise even if no important programs are started. Many government services must be expanded with population. Even if there is no further increase in the general price level, construction costs will rise, and so will the costs of government services. Wages in those fields, in which productivity rises slowly, will tend to keep pace with wages in areas in which productivity is increasing more rapidly. As a result the cost of a given amount of construction or government service will rise. Finally we must keep in mind the possibility that defense expenditures will rise again as the Russian economy continues to grow.

In view of those considerations government expenditures will increase even if there is no increase in the standard of government services provided. There will therefore be strong resistance to an increase in the standards of government services. But if we do not increase the standards of education, health, and urban living conditions (among other things) we will not get the full benefit of our increasing productivity. It would be false economy to starve public

¹ I have not included private charitable organizations under the heading of private enterprise. It is also true, of course, that it would be possible to depend on private firms to operate schools or hospitals while subsidizing fees for individuals. The administrative difficulties of such arrangements are obvious.

services in order to get the maximum increase in private consumption. Indeed if it were necessary it would be better to take a slower increase in real gross national product than to get the maximum increase and then devote it to the wrong ends.

CONCLUSION

The problem of evaluating government expenditures is always one of judging whether we get enough from them to compensate for what we give up. A large proportion of our nondefense expenditures produce benefits which accrue over a long period after the expenditure is made. These expenditures have to be regarded as investments and evaluated in terms of yield or rate of return on investment. If we make government expenditures we must give up either private consumption or private investment. In principle, a government expenditure of the investment type is only justified if its yield is (a) high enough to justify a reduction (or loss of an increase) in consumption large enough to finance it, and (b) higher than the yield on private investments which would be made if taxes were lower. Both tests are involved because a reduction in consumption can always be used to provide resources for either private or public investment. In practice, however, it may not be politically feasible to give tax cuts to business without giving them to consumers. In that case, the yield required to justify a government expenditure is the yield required to justify sacrificing a politically determined combination of private consumption and private investment.

The yield from government expenditures often involves two components: (a) Their contribution to productivity as measured by the real gross national product; (b) the value of the nonmaterial benefits which they produce.

It is difficult enough to measure the effects of government expenditures on productivity, but at least the problem is one of measuring objective magnitudes. But, when we deal with the nonmaterial benefits of education, public health, or urban renewal, we are in the realm of value judgments. Some people feel that widespread liberal education is a priceless asset to the whole community. But, if we may judge from the curriculums of some of our colleges, there are many who feel that education must justify itself in dollars-and-cents terms.

Some government expenditures may be justified solely on the basis of their effect on physical productivity. But many will appear poor investments on that basis. They will only appear worthwhile if we throw their nonmaterial benefits onto the scale. And the weight given to those benefits is, in the last analysis, a matter of taste, about which we cannot dispute.

FEDERAL EXPENDITURES AND ECONOMIC GROWTH

George G. Hagedorn, associate director of research, National Association of Manufacturers

At the start of this study of the interconnections between Federal spending and economic growth, it seems a fair presumption that each will have an effect on the other. Thus, there are two separate questions to be considered, which may be phrased as follows:

1. *How are the level and nature of Federal expenditures likely to affect our prospects for economic growth in the coming decades?* Under this heading we will want to decide whether it can be said that one size or kind of Federal budget will promote growth and another size and kind will impede it.

2. *Assuming an environment of economic growth, how should this affect our decisions as to the proper amounts and objects of Federal spending?* In other words, we will want to see how economic growth will affect our need for, and our ability to afford, the various types of Federal spending.

Question 1 will be taken up first.

FEDERAL SPENDING AS A DETERMINANT OF GROWTH

The entire history of the United States has been one of economic growth. True, there have been cyclical swings above and below the prevailing upward trend, but it would be mere confusion of language to label these periods as alterations of the underlying growth trend. The present panel is concerned with long-term growth trends, rather than with cyclical fluctuations above and below them, and, in this context, the first thing to recognize is that the upward trend has been persistent.

With this in mind, the analyst looking for a connection between Federal spending and economic growth must very quickly develop a feeling of frustration. Growth has occurred under so wide a variety of spending levels that one must wonder whether there is any connection whatever between the two.

During the first 140 years of our existence as an independent nation—surely, a period of economic growth—Federal expenditures (except during brief war periods) were at levels which must be considered purely nominal compared with the levels we have become accustomed to in recent decades. Yet the past two decades apparently have also been a period of growth.

The fact that there has been an increase in spending levels since pre-World War I days is too well known to require statistical corroboration. Yet the astounding magnitude of the change is worth reporting:

Annual Federal expenditures in 3 periods of economic growth

	Billions of dollars	Per capita	Percent of gross national product
Average, 1871-1910.....	\$0. 4	\$6	2. 8
Average, 1921-30.....	3. 4	29	3. 8
Average, 1947-56.....	53. 4	342	16. 5

This contrast between recent and historical levels of Federal spending suggests that economic growth may be affected very little by the level of government spending. The same conclusion is indicated by a more detailed examination of the recent years.

Compared with historical precedents, Federal expenditures have remained high since 1941. Yet there has been considerable variation in spending levels within that period. These variations do not seem to be closely related to economic growth, which proceeded throughout the period with only short and minor interruptions.

During World War II, Federal spending amounted to almost 50 percent of our gross national product. After the war spending was reduced to about 13 percent of gross national product. Contrary to some predictions, this reduction caused no cessation of economic growth. During the Korean war, expenditures rose again, reaching 21 percent of gross product in 1953. Since that year there has been some decline and the figure for 1956 was 17 percent.

This factual record gives no support to glib assertions that there is a determinable minimum level of Federal expenditures necessary for the support of economic growth. Equally, the record does not encourage the assumption that there is a clearly definable upper limit such that when expenditures rise above it they become destructive of prospects for growth. One is tempted to conclude that government spending has very little to do with the process of growth, either positively or negatively.

Yet commonsense forbids us to dismiss the subject with this negative conclusion. There must be limits—both minimal and maximal—to the levels of Federal spending which can make economic growth possible, whether or not we can define those limits precisely. The subject is worth pursuing further, provided we recognize the futility of attempting to set up precise operating rules on this basis.

Although the present discussion is oriented toward the spending side of the budget, we should not forget that the effects of spending in discouraging or encouraging growth depend to an important degree on the methods used in obtaining the necessary funds. A badly designed tax system might be destructive of growth potentials even if the total revenue it provided was moderate in amount. A well-designed tax system might protect growth possibilities to a point much higher in the spending scale, but certainly there are limits to this protection.

GOVERNMENT AS A MARKET FOR GOODS AND SERVICES

A thought which underlies some discussion of the proper level of Federal expenditures, is that the Government is an important customer for our national output of goods and services. Approximately

11 percent of our total output was sold to the Federal Government in 1956.

Every businessman recognizes the customer as a most essential element in the conduct of his business. He cannot grow—in the sense of expanding his output and his employment—unless he can find new customers or persuade existing customers to take more of his output.

These are indisputable facts of business life. From like considerations many people conclude that the Federal Government, by increasing its expenditures (i. e., by becoming a better customer), can provide an essential support for economic growth. They further conclude that as our productive capacity expands it will be more and more necessary for the Government to take a substantial part of the product off the market, in order that men and machines may not be left idle through lack of sufficient demand for their expanding output.

The train of reasoning described above is not customarily expressed explicitly. The view seems to be going out of fashion that we can predict statistically the gap between demand and potential output and adjust Federal spending to fill it.

But emphasis on the importance of the Government as a customer is still implicit in much of the argument over Federal spending. For example, we hear fears that a reduction of defense spending might have a depressing effect on our economy. With economic growth and expanded productivity there might seem to be even greater difficulty in finding sufficient nongovernmental demand to keep us going.

The customary answer to this argument, and the one which will be given here, is that there is no limit to the growth of private demand, since human wants are insatiable.

This thesis has a stale, trite sound—more like a copybook maxim than a realistic basis for economic confidence. Yet in our lifetime we have seen it vindicated to an extent which should astonish even those who have been most sure of it. In 1929 we thought we were prosperous enough, but since that time per capita expenditures on consumption, in real terms, have increased by more than 50 percent. The average person consumes half again as much, in the way of goods and services, as he did a generation ago, and with no visible signs of satiety. Surely the burden of proof is on those who would claim that this process has come to an end, and that we shall henceforth be unable to generate sufficient demand to keep an expanded economy growing.

That is not to say that there is no conceivable danger of depressed markets in the future. Goods are produced not simply because people want them but because they can be sold at a price which will repay their costs and yield some profit. Unworkable relationships between cost levels and the state of demand might make it impossible to keep our resources at a high level of employment.

But these are problems which ought to be dealt with on their own terms. They should be solved by preserving the flexibility of our economy in adjusting cost and price levels to changing conditions. Merely to offset such difficulties by increasing government spending is to risk converting the temporary maladjustment into a chronic one.

Of course it can be argued that we will not have to worry about these difficult problems if we simply resolve to keep government demand at a high enough level to keep everyone employed, no matter what maladjustments occur. But this is the fallacy of regarding production, rather than the enjoyment of the product, as the ultimate

aim of economic activity. Government spending which is motivated solely by the desire to increase total demand is not a support to economic growth but a dissipation of the benefits of growth.

All this is not to say that there is no minimum below which Federal expenditures may not fall without injury to economic growth. The Government has functions to perform which are essential to the well-being of the Nation generally, and therefore to economic growth. These functions cost money and unless the budget provides adequately for them, economic growth might be seriously impeded. But the basic function of the Government is to govern, and not to provide a market for the Nation's output. This still leaves a broad area of controversy as to the proper level of government expenditures, but it is helpful at least in clarifying the objective.

One other point which it may be well to clarify is that there is nothing wrong in principle with a government timing its purchases with some regard for the possibility of getting lower prices by waiting. Every prudent buyer will seek to time his purchases, whenever possible, so as to make them in the most favorable markets. But no prudent buyer ever buys something he does not need or want, simply because the market for that product is depressed.

FEDERAL EXPENDITURES AS AN IMPEDIMENT TO GROWTH

The discussion thus far of the impact of expenditures on growth has dealt with the question of the minimum expenditures necessary for growth. The conclusion has been that the minimum is set by the need for performance of essential Government functions, rather than by any need for contributing to market demand.

It remains to discuss the negative impact of Federal spending on growth. In a sense all Government spending has a negative impact since it is a withdrawal of manpower and other productive resources which might otherwise be used in expanding the economy. The most that can ever be said of any form of Federal spending is that we might be even worse off if the expenditure were not made. (For example, we certainly will not have economic growth if we lay ourselves open to external aggression through failure to provide an adequate national defense.)

It would probably be futile to attempt to specify the precise point at which Government spending would become totally destructive of economic growth—although some such limit must certainly exist. For a period during World War II the Federal Government took almost 50 percent of our national output. But this was under special circumstances and it seems unlikely that any such level of spending could long continue and leave anything over in the way of resources for expanding our economy.

The record of the post-World War II era is ambiguous. On the surface it appears to have been a period of economic growth and of expansion in our capital equipment. Yet it was also a period of rapid consumption of our existing stock of capital. (The rate of capital consumption is grossly understated in accounting records.) Only a relatively small percentage of our capital outlays represents a genuine net expansion of our productive facilities. Until we have more perspective it will be hard to judge the impact on economic

growth of postwar Federal spending, which in recent years has hovered between 16 and 21 percent of the national product.

The important point is that all Federal spending, to some degree at least, reduces the potential for economic growth. We come back again to the previous conclusion. Federal expenditures should be limited to the levels necessary to support the activities which only the Government can perform or which the Government can perform better than anyone else. Expenditures above this level: (1) are not needed to support demand; and (2) would deprive us of resources otherwise available for growth.

SPENDING OBJECTIVES IN A GROWING ECONOMY

We have examined the impact of spending on growth, and the next question is the impact of growth on spending—question 2, as posed at the beginning of this paper. This may be approached either from the point of view of needs for Government services or from the point of view of ability to afford Government services.

First, what will be the effect of economic expansion on our need for Federal services? At first blush it might seem that our needs in this respect might be expected to expand roughly in proportion to the expansion of the economy. However an examination of the specific objects of current Government spending indicates a quite contrary conclusion:

Federal expenditures, calendar 1956

[Billions of dollars]

Purchases of goods and services:	
National defense.....	40.4
Other national security.....	2.0
Other.....	5.2
Transfer payments.....	13.5
Grants-in-aid to State and local governments.....	3.2
Net interest paid.....	5.2
Subsidies less current surplus of Government enterprises.....	2.8
Total.....	72.3

Source: U. S. Department of Commerce.

National defense is the largest item. What our future needs for this purpose will be is unpredictable but there is no reason to suppose that these needs will grow *pari passu* with the growth of the economy. Economic growth will neither increase nor decrease our need for defense, which depends on other factors.

The same is true of Federal interest payments, which are determined by the size of the debt and the average rate of interest on it—factors which are only indirectly (if at all) related to economic growth.

The \$5.2 billion of outlays for goods and services, other than national defense or national security, may contain some items which would have to grow along with economic growth. These, however, must be an extremely small part of total expenditures.

The \$13.5 billion of transfer payments consists mainly of payments from social insurance funds (which are outside the regular budget) and veterans benefits. The social insurance benefits will probably increase, but this will be the result of maturing of con-

tractual obligations rather than of economic growth per se. Unfortunately the increase will occur whether or not the economic growth is realized.

Government expenditures of the type which are intended to relieve individual distress might be expected to decline with economic growth. As general economic well-being improves there is less need for such Federal aid. Although this principle may be of little help with respect to future benefits already contracted for, it might be kept in mind when questions arise of expanding such obligations or assuming new ones.

Similarly, there is reason to hope that grants-in-aid can be reduced as economic growth progresses. With improving economic conditions the States and localities should become better able to take care of their own needs, and the need for Federal assistance will decline.

Welfare expenditures generally are a process of taking money from one group of citizens and paying it to, or spending it for the benefit of another group. Whatever humanitarian reasons may be advanced to justify such a process, the need for it must become less cogent as economic growth makes us more prosperous.

Thus the Federal budget is a mixture of various kinds of expenditure. In some cases (covering the larger part of the budget) the needs which the expenditure is intended to satisfy will be unaffected by economic growth. In other cases the need will decline as the economy grows. A comparatively small part of total expenditures are for needs which will increase along with growth.

(This is by contrast with the expenditures of States and localities. These are mostly for the provision of essential community services and they do increase along with the increase in population and the growth of the economy.)

WHAT CAN WE AFFORD?

This whole problem can be approached from a totally different direction. Instead of asking: "What will we need?" one might ask "What will we be able to afford?" in a growing economy. If one cares to argue from the latter viewpoint he can claim that as our economy grows we will be able to afford more in the way of Federal expenditures and, therefore, we should have them.

This attitude is often met in practice. When the tax system begins to yield more than is needed to meet current expenditure levels, there are those who will view this as an opportunity for undertaking new expenditures, rather than for reducing tax rates. Now we can afford to do what we have always wanted to do, they will say.

However reasonable such an attitude may seem in particular cases, as a long-range proposition it is a way of getting nowhere. Its consistent application would mean that we are stuck forever with the existing tax levels. It would mean that any rise in taxes for meeting a temporary need would be built into the tax system permanently as new uses were found for the revenue thus yielded.

The rise since World War II in Federal expenditures to levels which would have been inconceivable in our previous peacetime history is, in part, at least, to be explained by just such a process. We have become inured to tax rates which we would have resisted vigorously a

generation ago and the Government has found ways of spending our larger contribution.

CONCLUDING REMARKS

The propriety, or impropriety, of any proposed item of Federal expenditures is only partly a subject for economic analysis. In an ultimate sense it is simply a question of what people want from their government and what they are willing to pay for. When they have made their choice it is not for the economist to say that what they want is wrong.

Yet, in practice, the desires of the people are usually oriented toward general objectives and are seldom formulated into specific measures. The task of the economist is to advise as to whether the specific spending proposals will in fact contribute to the general objectives, which he must take as given.

Since last January, the people have indicated rather clearly that they do not want a rising level of government expenditures. The preceding economic discussion can only add that a rising level of expenditures is not essential to economic growth and is in fact an impediment to it.

The conclusion of the analysis is that government expenditures should be limited to those necessary for performing essential government services. This rule does not, of course, answer all questions but it does answer some important ones.

There will be many problems as to what constitutes an "essential government service." Neither this panel, nor any other group, can produce a simple rule of thumb for deciding these questions. Legislators must be aware of what people want from their government and what they want to pay for it, and they must offer leadership in determining practical ways of attaining these goals.

FEDERAL EXPENDITURES AND ECONOMIC GROWTH

Stanley H. Ruttenberg, director of research, American Federation of Labor and Congress of Industrial Organizations

Serious discussion in the public arena of the economic policy implications of Federal expenditures has been increasingly hampered by the barrage of emotional sloganeering of the two major business organizations and lack of leadership by the administration.

If these hearings help to clear away only a small part of the emotional impediments to a calm appraisal of this issue, it will serve a most worthwhile purpose.

Unfortunately, however, academic discussions of this topic can be only partially helpful, at best. As long as the administration and the Congress deal with this issue in the 19th century cut-expenditures-enlarge-the-pork-barrel manner, little significant progress can be made in the necessary public understanding of the role of Federal expenditures in our national economic development. There is a huge reservoir of nonsense on this issue that has been spread widely by people in responsible positions.

Federal expenditures are neither good nor bad in themselves. They must be viewed in terms of their purpose, in relation to the gross national product, in relation to the level and trend of private activities, and in relation to fiscal and monetary policies.

It is sheer nonsense to say—as some have said or have implied—that any rise in Federal spending is a threat to our national well-being. To meet the needs of national security and some of the needs of our growing population may well require a rising level of Federal expenditures. Under such conditions—that characterize the current period of our history—it is the duty of Federal Government leadership to seek the adoption of adequate and fair tax and monetary policies to meet our national needs, rather than to ignore defense and social necessities.

It is ridiculous to proclaim—as some have declared—that a dollar spent by a private person is always somehow preferable to a dollar spent by government. There is a positive economic role for government—defense, education, postal services, roads, and conservation of natural resources are but a few functions that require some activities and outlays by one or another level of government.

It serves no purpose other than confusion to wield the broadax blindly at suggested Federal expenditures and, at the same time, to thank God that Federal expenditures have been helping to hold up the level of economic activities—as did many responsible people in the first half of 1957.

Neither does it serve any purpose of achievement or understanding to propose Federal programs on the one hand, to threaten the Nation with disaster if they are adopted, on the other hand, and to acquiesce

quietly to their defeat—as the administration did on so many public welfare program issues in the past session of Congress.

It is disgraceful that the Russians should have been first in firing successfully an ICBM. The budget and the legislated debt limit seem to be the major criteria for meeting defense needs, as well as public service needs.

I stress these factors because I am convinced that the subject of Federal expenditures and economic growth, in its economic policy implications, is more of a social and political problem than one of economic theory. Arrival at some general conclusions on this subject by this or any similar panel is not going to provide us with a bold national leadership. Economic theory alone is not going to produce serious concern among private and public policymakers with the social objectives of a rich and productive economic system such as ours.

To discuss properly this subject of Federal expenditures and economic growth, there are a number of questions that first must be posed and answered.

QUESTIONS ON FEDERAL EXPENDITURES POLICIES

Can we conceivably expect, within the near future, any substantial reduction of defense expenditures, by about \$10 billion to \$20 billion—and thereby obtain some significant cuts in Federal spending? I do not believe so, in the absence of some settlement of world tensions, because I do not believe that the world we live in will permit such cuts in Federal spending, unless we are prepared to face the alternative of a loss of national sovereignty and a collapse of the free world. I therefore expect Federal expenditures to be high and to remain high in the foreseeable future, by comparison with pre-World War II peacetime years.

Can we expect to meet the growing needs of a growing population with real or dollar outlays for public services that are no greater than in 1940? I think not, and I don't see how any thinking person can advocate chopping away at public service expenditures and expect the Nation to maintain adequate educational, health, road, and similar facilities. Furthermore, there have been 15 years of postponed and neglected public service efforts. Our population has grown almost 30 percent since 1940—and the proportion of the population below working-age at one end and above 65 at the other end has been rising. Not only have public service needs as a whole grown, but the public service needs of the young and the elderly have grown most rapidly. In addition to the expansion and the changing characteristics of the population, our standard of living, as well, has improved. There are greater demands and greater needs for education beyond the elementary school; technological changes in civilian pursuits and in the Armed Forces require an increasing degree of advanced scientific education and technical training; increasing leisure has increased the demand and need for adult education; paid holidays and vacations have resulted in pressing demands on our existing recreational facilities.

If we compare nondefense budget expenditures in 1940 and 1956, we find the following: in 1940, Federal budget expenditures for non-defense were \$6.9 billion in an economy whose gross national product

was \$100.6 billion—these outlays were 6.9 percent of total national output. Between 1940 and 1956, our gross national product rose more than four times and our population increased almost 30 percent. But in 1956, Federal budget outlays for nondefense purposes were \$25.8 billion—6.2 percent of \$414.7 billion gross national product.

Organized business and conservative politicians screamed to high heaven about these 1956 expenditures, predicting gloom and doom, despite the vast subsidies that go to business, largely in the indirect form of tax concessions. It seems to me, however, that the growth of the population and expansion of public needs justify some significant improvement of public and social services. Merely to have lifted nondefense budget expenditures to 7 to 7½ percent of gross national product would have meant Federal outlays for these purposes of \$29 billion to \$31 billion—it would have made possible an increase of some \$3 billion to \$5 billion over what was actually spent for public services and social programs.

As I look at these figures, I am utterly convinced that the problem is not whether we can afford some improvement of public and social services. The problem is a political one—with the administration and the Congress. The question is whether our national leadership desires a significant improvement of public and social services.

Should an expanding high-employment economy have social objectives that are somewhat more meaningful than rising lines on charts and a continuing outpouring of automobiles and other consumer durables? My answer is definitely in the affirmative. During the depression of the 1930's, we concentrated our attention on achieving full employment, more effective use of our productive capacity and a more equitable distribution of income. Since 1940, we have made vast strides in those directions. We now have the job of sustaining economic growth and high levels of employment and of achieving some further improvements in income distribution. But more than 15 years of generally high levels of employment and production have posed new questions that deserve the attention of national leadership.

What is the purpose of sustaining continuing economic growth and high levels of employment and output—is it merely to turn out more and more automobiles and electrical appliances? Should a rich and growing economy seek to wipe out remaining pockets of poverty? Should the benefits of economic growth be used to improve the Nation's health and educational facilities, to eliminate slums and provide improved housing, to revive decaying urban centers, to encourage cultural activities? Should an economy, such as ours, shift an increasing degree of attention to leisure and to leisure-related activities?

I would suggest that the Nation's productive ability, after more than a decade of generally high employment, makes it possible for us to turn at least part of our attention, to these social objectives. An expanding and productive economy, such as ours, can afford to devote a share of the gross national product—as well as imagination and leadership—to eliminate poverty, to improve health and educational facilities, as well as housing, to redevelop our urban centers, to conserve and develop natural resources, to expand recreational and cultural facilities.

Economic growth makes it possible for the Nation to devote increasing dollar outlays for public services and social advances. Seven

percent of a \$100 billion output in 1940 was \$7 billion—7 percent for public services, social programs and other nondefense purposes of a \$415 billion output in 1956 would have been \$29 billion. Furthermore, economic growth expands the tax base and revenues rise as output and sales grow. There is no doubt that the national economy can afford to improve and expand its public services and devote some portion of its total output to enrich our social order. In some of these areas the question, I believe, is whether we can afford not to make improvements—in education, for example, or resource development or urban redevelopment.

Can we expect the business community to finance such developments? I think not and it would be unreasonable to expect profit-seeking enterprises to do very much along these lines. It is a tragedy, however, that the business community traditionally blocks such advances by government, as revealed again, in the past few months, by the organized business attack on Federal aid for education. The record of the business community on these issues is overwhelmingly negative, except where it touches the pocketbook nerve of specific business interests, as indicated by the widespread built-in business support for Federal outlays for road building.

NATIONAL LEADERSHIP IS REQUIRED

Almost all of the efforts in improving public services and in enriching our social order, therefore, inevitably fall upon the government, upon both Federal Government leadership and expenditures.

A frequent answer to questions, such as those posed above, is to talk about States' rights and to declare that these tasks belong with the States. That reply is often a subterfuge and, more often, it is meaningless. Many of these tasks are national in scope and require national direction or coordination. Many of them are too costly for conventional financing by States and local governments—they require Federal outlays, grants-in-aid or long-term loans.

Few States have responded, with positive action, to these issues in recent years. With their current financial burdens and constitutional limitations on expenditures and new bond issues, it is unrealistic to expect much significant action on public welfare programs in most States without long time-consuming delays, at best—especially in the absence of courageous State leadership and national prodding to obtain necessary constitutional changes and improvements of State tax structures. It is no wonder that the States have done so little in these areas in recent years. Not only are they burdened with committed outlays, frequently inadequate revenues, and constitutional limitations, but most State legislatures are so constituted as to be far less than receptive to public service and social programs and improvements of regressive tax structures. Most State legislatures are poor examples of representative democratic government—with their "rotten borough" representation and substantial underrepresentation of the urban population.

To talk about shifting current social welfare programs, and future programs to the States, is to undermine the possibility that much action on such programs will be taken in the near and foreseeable future. It is hypocrisy on the part of the State-righters to say that the Federal Government should not engage in civilian public

services such as aid to localities with chronic unemployment and financial assistance for schools and hospitals. If the State-righters were sincerely interested in strengthening State governments, they would be in the forefront of efforts to make State legislatures more representative of the population, to modernize State constitutions, and to rebuild their State and local tax structures on the basis of ability to pay.

Federal expenditures, as I see it, have to be viewed in the light of these and similar considerations—high dollar outlays by comparison with pre-World War II peacetime years due to national security requirements, the growing public service needs of a growing population with changing characteristics, the need for social objectives of an expanding high-employment economy and the ability of such an economy to turn more of its output and attention to fulfilling these social objectives, and the reality that the States cannot be expected, without long delays, to take leadership on these issues. Federal expenditures have to be viewed, too, in terms of economic growth that expands the tax base and raises the revenue potential from a given tax rate.

This Nation is capable of meeting its currently "normal" defense requirements, as well as improving and expanding public services and social programs, if we are fortunate enough to avoid all-out war or a sudden sharp rise in defense outlays. The problem is essentially not an economic problem—it is a political one.

MEETING THE CHALLENGE OF ECONOMIC GROWTH

Foremost, as I see it, is the issue of meeting the public service needs and social advances of a growing population in a rich and highly productive economy. I think it is wrong to base Federal expenditure policies on compensatory financing alone. If we continue to concentrate all of our policies on the basis of compensatory government operations and to delay needed programs, as we have done since the start of World War II, we will be sadly neglecting important underpinnings of our economic system and society.

To think of economic growth as most economic-model theorists do, is to omit the important human and social aspects of economic development. Basically, economics is not numbers, graphs, or charts—it is human beings and society. The school system is a major factor in economic growth. So are the conditions of the people's health, housing and urban areas, roads, resource conservation and development.

In working on economic development plans for underdeveloped countries, economists have all too often planned complicated hydro-electric and irrigation projects, without thought for the need of engineers; steel mills before considering the need for technically trained workers; industrial activities while neglecting the requirement for continuing maintenance of the equipment. In thinking about future economic growth in the United States, we should not and cannot ignore the human and social requirements of continuing economic expansion.

This country's educational system has contributed much to improving productive efficiency and economic growth. The cultural heritage

of the Western World—and of the American people—must be adequately passed down to the new generation. To neglect our educational system at this time of rapid technological change will undermine the potential for economic growth and improving productive efficiency in the future.

Not only is there obvious need for adequate educational facilities—structures and equipment. There is also the need for teachers. Society must be willing to provide these necessities, if it is to continue its advances. Our educational system should be considered at least as important to the Nation as automobiles and washing machines which receive so much of the public's attention. National and State leadership is required to speak up clearly and forthrightly on the needs of our educational system. Federal aid for education is essential for the economic, as well as general, well-being of the Nation.

Resource conservation and development may be somewhat more directly related, in the public mind, with economic growth. But even here, practical efforts and achievements in most fields have been far from noteworthy since the start of World War II. It took many years of work by people like Theodore Roosevelt and Gifford Pinchot, before the various levels of government and sections of industry became concerned with conserving our timberlands. We would be hard put at present to find national leadership of similar force in the effort to preserve and extend our forest conservation programs, in efforts to move toward new river valley developments that would curb flood disasters and enrich the economic potential of several areas of the Nation, to conserve and develop water resources in an attempt to forestall serious water shortages for industry and agriculture in the Western States.

Although the administration has talked about the need for some program to assist economically distressed communities—ever since the 1952 campaign—no legislation on this issue has yet been adopted. Improvement of the economic conditions in such communities would obviously be of assistance in sustaining continued economic growth.

These and similar efforts that require Federal Government outlays and leadership are essential for continuing economic expansion. They form part of the social underpinning for economic growth. Such programs should be started as soon as possible and they should move forward at a steady pace—to be curtailed in the case of a sudden sharp rise of defense expenditures and to be stepped up when private economic activities decline.

What we need at present is not a backlog of public service programs and blueprints that can serve as a means for holding many conferences, but going programs to strengthen and enrich our society.

MEETING THE CHALLENGE OF THE BUSINESS CYCLE

In recent years, most attention to movements of the business cycle have been on inflation rather than on deflation. High Government outlays, by comparison with the past, we are told, are inherently inflationary and an excess of Government outlays over revenue will inevitably cause demand inflation. This is decidedly not what has happened in recent years, and experience should have taught us long ago that Government expenditures should be viewed in relation to the gross national product and the level and trend of private activities.

In fiscal years 1947 and 1948, Federal outlays were declining and there were substantial Federal cash surpluses—\$6.7 billion in 1947 and \$8.9 billion in 1948. Nevertheless, there were sharp price rises in those years due to the pent-up demand for all types of consumer and capital goods and to the untimely end of OPA. In fiscal 1951, the year of post-Korean sharp price increases, there was a cash surplus of \$7.6 billion, and in fiscal 1956, when wholesale prices moved up rapidly, there was a cash surplus of \$5.1 billion.

Sharply reduced Government expenditures, as in fiscal 1947, are not guaranties that price rises will not occur. Neither will substantial cash surpluses, in themselves, guarantee against a rising price level.

Federal expenditures, surpluses, or deficits are neither inherently inflationary or deflationary in themselves. The level of Federal outlays—as well as of cash surpluses or deficits—are of great importance when examined in relation to the levels and trends of activities in the other sectors of our economic system and in relation to fiscal and monetary policies.

Concentration of Government activity on anti-inflation policies and restrictive measures, rather than on economic growth, is a departure, it seems to me, from the intent of the Employment Act. It is the maintenance of economic growth to which the Federal Government is committed under the terms of that act, although the administration seems to be too little aware of its obligation under the law.

Continuing economic growth is essential for the maintenance of material strength and high levels of employment. It is likewise essential for meeting national security requirements and for improving living conditions. Economic growth in the past made possible the great material achievements of the Nation. It can make further advances possible.

As the economy grows, its tax base expands and increased revenues can be collected from a proportionately smaller burden on individual taxpayers.

Government policies and measures are important in maintaining economic growth. Changes in Federal expenditures have an effect on the direction of national economic activities, depending on trends in the private sectors.

A significant change in the dollar level of Federal expenditures has an obvious effect on the trend of economic developments, depending on fiscal and monetary counteraction, if any. The degree of effect would depend on the magnitude of the change, as well as on the direction of private activities.

A decline of Federal expenditures of \$11 billion between 1953-54 was bound to have a depressing effect, since no significant private activity was moving up sharply. The effect of the cut of Federal expenditures was to reduce orders, and induce business to cut inventories, output and employment in defense-related industrial plants, to reduce income from private activities and to depress expectations generally. The psychological effect of a significant change in direction of Federal expenditures can and does have an economic impact—as in 1953—even before the actual cuts, or increases, in government outlays occur.

One cannot forecast these effects with mathematical certainty. It is even more difficult to measure the precise effects of one type of pro-

gram, as compared with an alternative program. The direction, however, can more easily be foreseen.

Improvements in the unemployment compensation and social security systems help to bolster consumer income at a time when wages and salaries from private activities are declining. An increase in transfer payments of \$1.9 billion between 1953 and 1954 helped to produce a small rise in total personal income, despite a decline in labor and farm incomes. This maintenance of high levels of personal income during the 1953-54 downturn helped to reduce the impact of the decline in government spending and in industrial output. The reduction in personal income taxes, effective January 1, 1954, had a similarly strengthening effect on consumer buying power, which cushioned the economic decline.

Alternative types of programs have differing effects in specific areas of the country, specific industries and among specific groups of the population. The recent cutbacks of defense outlays, particularly aircraft, for example, have had the most notable effect as yet in California and seem to have dampened expectations generally.

Countercyclical policies, when economic activities are moving down, should require, I think, a stepping up of government expenditure programs, tax cuts or a combination of both. On this, there is little disagreement against most Americans. There is disagreement, however, on the issue of which part of the economy should receive most government attention.

During the downturn of 1953-54, the administration strongly emphasized its views that Federal efforts should be concentrated on stimulating business investment. We, in organized labor, opposed the administration's suggestions—we were convinced that the administration's proposals were based on faulty economics and would further erode the progressivity of the Federal tax structure. We are now convinced that the administration's success produced a lopsided economic development between the spring of 1955 and the end of 1956—sharply rising business investment in new plant and equipment, accompanied by sluggish consumer markets. We are now beginning to see some of the consequences of this lopsided development that was encouraged by administration policies.

With current cuts in defense outlays, at a time of a general lull in economic activities, it is my belief that a cut in the Federal income tax—by increasing the individual exemption from \$600 to \$700—is essential. It was my view before this committee, several months ago, that congressional action on reducing individual income taxes should have been taken immediately by the past session of Congress, accompanied by closing some of the many tax loopholes, if possible. Action on this issue by the forthcoming session of Congress may be too late to halt a downturn from getting underway.

Involved in any countercyclical policies, therefore, is the economic sector or population group to be affected and proper timing. It is my view that under most conceivable conditions of a turning down of economic activities, the major part of the Government effort should be aimed at bolstering consumer buying power. In our kind of economy, the long-run health of the system largely depends on consumer activities. This point, as I see it, should be kept in mind in pursu-

ing economic policies to forestall a decline in economic activities and, also, in pursuing policies to curb the possibility of demand inflation.

Built-in stabilizing forces should be strengthened so that their action may be forceful at the beginning of a downturn. That would mean, among other things, the development of Federal standards for the unemployment compensation system and a general improvement of that system. It would mean, too, a substantial overhaul of the Federal tax structure to restore that structure's progressivity—so that Federal revenues could be raised more on the basis of ability to pay than they are at present.

The built-in stabilizers, inherited from the New Deal and Fair Deal, are strengthening factors in our economy and society. They do not and cannot provide, however, in my opinion, a guaranty against depression.

While the built-in stabilizers would go to work automatically, in case of a downturn, their operations may conceivably only alleviate a downswing and not halt it. Tax cuts should be considered. Government public service and social programs, under those conditions, should be stepped up. Tax cuts and the stepping up of such programs should not and need not await economic disaster—quick Federal action is essential when production is declining and unemployment is rising rapidly.

In order to build confidence, strong countercyclical measures should be the announced policies of the Federal Government. The American people have a right to expect intelligent and courageous action from their Government.

In conclusion, I should like to emphasize my conviction that the subject we are discussing is much more a political issue than an economic one. We need government policies to encourage continuing economic growth—certainly not government measures to restrict the general level of economic activities. We need an expansion of Federal efforts to improve public services and to strengthen our society. We need an equitable and progressive Federal tax structure—and in the States, as well. We need more and better economic data and more information about current movements of the business cycle and the effects of specific types of Federal actions. But above all we need national leadership, worthy of a rich and productive democratic society.

FEDERAL EXPENDITURES AND ECONOMIC GROWTH: ANALYSIS AND POLICY

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Since the study of economic growth is itself in an early stage of growth, it is not possible to analyze one aspect of the topic with full confidence that everyone will recognize the niche into which it fits. Accordingly, I shall use the first part of my paper to summarize some important conclusions that economists have reached and to make some suggestions of my own regarding a theoretical and empirical framework for the analysis of economic growth. This will provide a basis for the subsequent discussion of the role and responsibility of the Federal Government with respect to economic growth.

THE ANALYSIS OF ECONOMIC GROWTH

As the best general measure of economic growth, I choose real, per capita, national income,¹ appropriately adjusted for changes in per capita leisure. Some correction also needs to be made for cyclical and other short-run variations, 10-year averages being perhaps the best solution. The aim of both corrections is to eliminate variations in the utilization of resources, thus emphasizing that, basically, what is being measured is the change in the volume of productive resources. A per capita measure is chosen as the most appropriate for public policy in the belief that the American public would not cheerfully accept a growth in aggregate income that failed to exceed the growth in population. I take the rate of growth of population as given, but I do consider some repercussions upon governmental expenditures.

For the hypothetical man in the street the chief concern with economic growth is that it be fast enough, so that he can enjoy the benefits of ever higher income. Such an approach is reinforced by external military threats and by the worldwide rivalry between free and collectivist economic systems. This aspect of growth has been subjected to increasing study by economists in recent years, particularly in relation to underdeveloped areas. Perhaps even more attention has been given by economists to a somewhat more technical, but nonetheless important, facet of growth, its relation to the stability of the economic system. As Professor Schumpeter was fond of emphasizing: "Business cycles are the price that we must pay for progress." The more significant of the business-cycle theories have always, in one way or another, stressed this relationship. Since Keynes directed attention toward short-run aggregative equilibrium in the 1930's, there has been

¹ Since growth is closely related to the supply of factors of production, national income has a slight advantage over net national product in being measured at factor cost. Gross national product overstates capital formation, and personal income is unsatisfactory because corporate saving is excluded and transfer payments included.

an extensive development of growth models that state the conditions for steady growth and show that failure to satisfy these conditions may lead to secular stagnation or exhilaration, prolonged periods of underutilization, or attempted overutilization of resources during which cycles might also occur. Thus, economic growth is no simple matter of projecting and following trends.

Any determinate model or theory of growth implies, or can readily be extended to imply, precise conclusions with respect to the role of Federal expenditures in economic growth. At the present state of knowledge, I do not think that we can place heavy reliance on any single theory. The growth models, for example, have been criticized as being overly rigid and dependent for their results on precise and invariant values of key parameters. I concur in this despite my general belief that growth is such a sprawling and complex phenomenon that we shall always have to rely on relatively limited and seemingly unrealistic models. There are, however, certain key general relationships that seem to underlie most treatments of the problem. Accordingly, I shall summarize for use in later sections several propositions regarding growth on which I believe there would be a reasonable amount of agreement among economists. The cost of this step must, however, be noted. I am one who believes that, ideally, policy recommendations should be strict inferences from well-established theoretical models and not intuitive eclectic improvisations, however inspired. By retreating to more general assumptions I am condemning such conclusions as I may reach to a comparable degree of generality or, if you will, vagueness.

Several propositions concerning growth

1. The growth of capital is both income creating in the present and capacity creating in the future, and the two properties have to be in adjustment for steady growth of income.

Our economic system is very much like an overly ambitious man whose state of psychological well-being in the present depends upon how fast he is advancing. However, the eminence that he attains this year makes it more difficult for him to perpetuate the rate of advance and, hence, the level of equanimity. Similarly, a high rate of growth of capital in the present insures that existing resources will be kept employed and that the level of income will be high. Yet the higher the rate of growth the larger will be future productive capacity and the greater the problem of keeping it fully employed. There can be no doubt about the two properties of capital formation and the importance of adjustment between them. Disagreement exists as to the ability of the economic system to adjust easily and quickly to different rates of growth of capital.

2. With unlimited natural resources but no change in technology, a rate of capital formation in excess of population growth will increase real per capita income, but the rate of return to capital will fall and ultimately check the growth of capital.

3. If no increase occurs in the quantity and quality of natural resources, and no improvement takes place in technology, growth in labor and capital will ultimately encounter diminishing returns. A sufficiently rapid growth of capital might permit rises in per capita real income, but the rapid decline in the rate of return to capital makes the continuation of such growth highly improbable.

4. The fourth proposition deals with the historical record of growth in the United States. For this there is no better statement than the conclusion of Abramovitz:

The source of the great increase in net product per head was not mainly an increase in labor input per head, not even an increase in capital per head, as these resource elements are conventionally conceived and measured. Its source must be sought principally in the complex of little-understood forces which caused productivity—that is, output per unit of utilized resources—to rise.²

Both the theoretical and the historical studies of growth are in clear agreement on one point, the importance of advances in scientific knowledge and technology. Past growth in per capita income and its continuation into the future depend heavily upon knowing how to get more out of given resources. At the same time, changes in technology are required in theoretical models to thwart diminishing returns and keep investment at a level that will insure a reasonably full utilization of the resources available at any one time.³

To the extent that advance in technology steps up the rate of increase in capacity and, at the same time, causes that capacity to be more productive, its leverage upon economic growth is very powerful. There are, however, various cancellations, offsets, and imbalances that reduce the leverage below the extreme just considered. For example, stimulating investment may require a high rate of obsolescence and scrapping of existing capacity, thus partially offsetting the productivity-increasing effect of the new capacity. Further, to the extent that new methods are highly capital saving, fewer dollars are needed for investment. Also, as Fellner has pointed out, the labor-saving, capital-saving, and resource-saving characteristics of inventions and innovations may be out of balance with the relative resource scarcities.⁴ To some extent, motivation may correct such an imbalance, since research is less likely to be directed toward saving resources that are already plentiful. However, there are long lags and the results of scientific investigation are to a high degree fortuitous, so present innovations may not be well adapted to today's conditions.

I have no doubt that very complex conditions have to be satisfied to secure the proper balance between the investment-stimulating and productivity-increasing properties of technological change, and between the differential productivity effects and supplies of resources. Further, balance is required between improved methods and the labor skills required. If these conditions are not satisfied, the consequence is, presumably, instability in rates of growth, employment of resources, and the level of income. There might also be an unfavorable feedback upon the source of technological change, research, and other productivity-increasing expenditures. I shall not at this time go deeper into this topic, but shall, instead, simply make the assumption

² Moses Abramovitz, *Resource and Output Trends in the United States Since 1870*, *American Economic Review*, May 1956, *Papers and Proceedings*, p. 6.

³ A careful analysis of the investment-demand curve will show that it can remain in place and maintain a constant level of income only if technological change offsets the inescapable tendency toward capital saturation. Further, the Harrod growth model, in which the warranted rate of growth appears to be self-sustaining, actually requires ever-increasing autonomous investment, the main stimulus for which is technological change. See D. Hamberg, *Economic Growth and Instability* (New York: Norton, 1956), pp. 80-82.

⁴ W. Fellner, *Trends and Cycles in Economic Activity* (New York: Holt, 1956), especially pp. 209-215.

that advances in knowledge, technology, and skills are, on balance, conducive to growth, and that the side effects on stability, if serious, should be offset by methods other than a deliberate slowdown of these advances in knowledge.

The importance of technological change and other means of increasing productivity suggest certain revisions in theoretical models and in the collection and classification of data. In the two centuries that they have been plying their trade, economists have probably devoted more time and space to the saving-investment process than to any other aspect of their subject. The original importance was the relation to growth, since saving frees resources and investment uses them to augment productive capacity. A vast literature has developed on the mechanism and the network of institutions by which the private economy divides resources between present consumption and future productive capacity. Partly because this mechanism did not appear to function efficiently in the short run, the saving-investment decision has received much attention since the midthirties as the principal determinant of the level of utilization of existing resources. It now appears that a decision of at least equal importance is the amount of current resources to be devoted to advances in knowledge, technology, and skills. These will be called productivity-increasing expenditures in contrast to capacity-increasing expenditures (investment).

For an effective study of growth, the private economy must be looked upon as a mechanism for determining not just a 2-way division of resources between current consumption and investment but a 3-way division that includes the use of resources for increasing productivity. Further, it can be shown that productivity-increasing expenditures are not correctly classified for the determination of current levels of income. Consider, for example, the sums spent by individuals for education, which are classified as consumer expenditures. A good case can be made for regarding at least part of educational expenditures as being, like investment, an offset to saving in the sense of increasing the demand for current resources without at the same time adding to the supply. A high-school graduate who goes to college rather than to work augments the demand for current resources but not the supply in much the same way as a business executive who constructs a plant for future use. Also, education, like capital formation, is often financed out of accumulated savings. A stronger case can probably be made for the research expenditures of colleges and foundations, which also appear under consumer expenditures. The research expenditures of business, except for the addition of fixed facilities, are similarly treated as a current expense, no distinction being made between hiring a production worker and hiring a research worker.

In the simplest income models the expenditures of the private economy are classified as $C+I$, consumer expenditures (consumption) plus capacity-increasing expenditures (investment). What I am suggesting is that, for the study of growth, a better classification would be $C+I+P$, the last being productivity-increasing expenditures.⁵ Productivity-increasing expenditures I define as those that

⁵ With saving conventionally defined, P falls into the class of offsets to savings.

tend to augment the quantity⁶ and quality of natural resources, the education and skill of labor, and the stock of pure and applied scientific and technological knowledge. Capacity-increasing expenditures are those that utilize given resources, skills, and knowledge to augment productive capacity. Like all definitions these are subject to fuzziness at the fringes, but they do serve to bring out the major distinction. It is interesting to note that P, like I, can be measured net or gross. Except for accidental loss, knowledge may not be subject to deterioration, but its human receptacles certainly are; part of current expenditures merely offset rates of mortality and forgetfulness.

Once the productivity-increasing expenditures are separately classified, important questions follow. Is P primarily an independent variable, little affected by changes in other economic variables? If not, how sensitive are productivity-increasing expenditures to changes in income, prices, and the interest rate? Finally, how great an effect do productivity-increasing expenditures have upon both the amount of capital added in the future and the productivity of that capital? In contemplating the last question I am sometimes inclined to think that the best solution is simply to take it on faith that research and education pay, without attempting to prove it. Unfortunately, even in a society that lives by faith there is the vexatious economic problem of deciding how much of the resources to devote to the building of cathedrals and the support of the clergy.

The classification of governmental expenditures.

For the study of growth it is governmental expenditures that suffer most from inadequate classification and analysis. In the national income accounts, all governmental expenditures are treated as final goods and services, whereas a distinction is made for the private economy between final goods and services sold to consumers and intermediate goods and services sold by one business firm to another. Some governmental expenditure, such as those for parks and recreational facilities, do provide final goods and services for the public and can appropriately be called collective consumption. Other expenditures are intermediate in the sense of providing goods and services for business that are then reflected in a higher value of output of the private economy. In many cases, such as highways, both purposes are served and disentanglement is difficult. Yet, as will be shown later, the distinction is significant.

A capital budget for governments has long been advocated on other grounds, but the study of economic growth gives added support to the proposal, since it is vital to know the extent to which governments have spent and are spending to augment their own productive capacity. Such additions are essential to the growth of the services governments provide as a component of real per capita income. Further, in terms of the stability of income and prices, recent experience has shown that it makes a difference whether the educational system has enough classrooms and Congress enough office space, or whether

⁶ It might be better to include augmentation of the quantity of natural resources in capital-increasing expenditures, but I follow convention in not doing so. Adding to natural resources is productivity increasing in the sense that it forestalls the diminishing returns that would otherwise occur in the future.

additions have to be made in competition with a rapidly expanding private economy.

As was true of the private economy, it is the productivity-increasing expenditures that are most in need of careful classification and measurement. The outline of the subcommittee's study raises the question of the effect on economic growth of different categories of Federal expenditures. The answer lies, I think, mainly in the extent to which those categories contain productivity-increasing expenditures. It is interesting to note how application of this criterion changes one's subjective evaluation of the different types of spending. There is, I think, some tendency to regard military expenditures as not intrinsically desirable but imposed upon us by external threats and likely to dwindle in a more peaceful world. Parks and recreation facilities provided by governments are, in contrast, looked upon as intrinsically desirable, regardless of world conditions. Yet in terms of the productivity-increasing expenditures essential to a high rate of growth the military budget, particularly if the Atomic Energy Commission is included, probably ranks higher than any other category of expenditure.

I have struggled to come up with a simple and significant classification of governmental expenditures, suitable for inclusion in a growth model of reasonable proportions. The basic difficulty is that governments participate in all forms of expenditure and their contribution is inextricably intermeshed with the activities of the private economy. With respect to capacity-increasing expenditures, governments may construct capacity for provision of greater collective consumption; may build roads, bridges, and dams that are necessary to private capital formation; and they may provide direct subsidies for private capital formation. Productivity-increasing expenditures, such as those of the Hoover Commission, may be designed to increase the Government's own productivity; or, as in the case of some research expenditures of the Department of Agriculture, the aim may be a specific effect on the productivity of the private economy; or there are expenditures, such as those on education, whose benefits are widely dispersed. This is the sort of vexation that emerges whenever one lifts the lid on aggregates. For the present I shall be content merely to classify governmental expenditures in the same way as private—current, capacity increasing, and productivity increasing—and to recognize that varying amounts of cross-fertilization exist between public and private expenditures of each type.

THE ROLE AND RESPONSIBILITY OF THE FEDERAL GOVERNMENT WITH RESPECT TO ECONOMIC GROWTH

In considering the role of the Federal Government with respect to growth I shall exploit the analogies with short-run income stabilization and thus utilize the wide experience that we have had in analyzing that topic. First, though, I should like to comment upon the limitations of knowledge within which the discussion of the topic must be confined.

Economic analysis deals primarily with the transmission of effects by way of changes in prices and income. Models of the economic system show how economic units are affected by changes in income and price and in turn transmit effects to others. Productivity-increasing

expenditures, like any other, can be analyzed with respect to the effects that the sums spent have on the economic system. This is not, however, the primary economic effect or significance of such expenditures. The primary effects are on the underlying conditions within which economic activity and economic analysis take place—"the state of the arts," to use a phrase rich in tradition. The process by which expenditures produce changes in technology is not primarily an economic process. Once the change occurs in the state of the arts, economics takes over and analyzes the repercussions that flow through the economic system. Thus, in terms of economic analysis as generally conceived, productivity-increasing expenditures are essentially parameter-changing expenditures. The same problem arises with respect to research expenditures of a firm. In economic terminology, shall the production function include the use of resources to change the production function? Of course, economic analysis might be extended beyond the traditional boundaries, but there are disadvantages to such a move.

The situation, then, is somewhat like this. Productivity-increasing expenditures alter the underlying conditions for economic activity, or the parameters of economic analysis. The process by which these effects are transmitted is largely noneconomic and not very well understood. We think we know the general nature and the general direction of these effects. We cannot say very much about the size of the effects, particularly the relation to dollars spent, nor can we be very definite about the relationship between specific effects and specific types of expenditure. We can, I believe, be reasonably confident that high levels of expenditure on science, research, and education, particularly if long continued, will cause appreciable improvements in technology and the productivity of resources.

I shall now briefly recapitulate what seem to me to be the salient aspects of stabilization policies. If one goes back far enough in time, the prevailing opinion among economists was that the Federal Government should simply confine itself to those activities at which it was more efficient. The economic case for income-stabilizing expenditures by the Federal Government rests on the conclusion, accepted by most economists, that the saving-investment mechanism of the private economy will not operate in such a way as to insure stability of income and employment. Compensatory Federal spending was proposed as a remedy but in time was seen to have the defects of requiring forecasts of private economic activity and also fairly specific knowledge of the response of the private economy to Federal spending. Built-in stabilizers then came to be recognized as the best device, since they did not require explicit forecasts of private economic activity. To counteract tendencies toward severe depression or inflation, built-in stabilizers are regarded as probably inadequate, and compensatory spending might be required.

I shall use the preceding summary of policy with respect to income stabilization as a guide for a tentative consideration of policy with respect to economic growth. It will be useful first to explore the consequences of a passive or neutral policy.

A passive or neutral policy

The effect that governmental expenditures have had on economic growth has depended largely upon the productivity-increasing ex-

penditures. To emphasize and clarify that relationship, it will be convenient to sketch out a neutral or passive role in which the responsibility for growth is left solely to the private economy. Since the problem of an optimal division of resources between the public and private sectors is the subject of another panel, I shall simply assume that they have found the answer. Imagine then that resources are growing over time and that at each point of time these resources are optimally divided between public and private production. This of course implies that both the public and private sectors are adding to capacity as well as providing current goods and services. Problems arise with respect to the adjustment of current production to the rate of growth, but let us pass over these. There are also difficulties in timing and a possible acceleration effect in that the growth of private productive capacity precedes and induces the augmentation of governmental productive capacity. I shall avoid this question by assuming that growth of productive resources is correctly anticipated and divided.

Under these restrictive assumptions what effect do governmental expenditures have upon growth? It is clear that governments are directly providing growth in the public part of real, per capita, national income. Otherwise, the resources would not be used at all or, the division between public and private expenditures being optimal, they would be used for goods and services of lower priority.

It has sometimes been argued that the intermediate expenditures of the government, like roads and dams, have external economies and cause income to rise by a multiple of the governmental expenditure. While there is probably some validity to this argument, it has to be carefully scrutinized. In many instances the governmental expenditures have lagged and created a bottleneck. Removal of the bottleneck then has magnified effects on the flow. To the extent that public and private expenditures are kept in proper balance, the effects are likely to spring from the productivity-increasing property of the expenditures.

Governmental expenditures that grow with the volume of resources may have a stabilizing effect upon income. In a more general sense, the policy with respect to growth outlined in this section lends support to measures for short-run income stabilization. The level of governmental expenditures should be determined by the wealth of the country, not its current income, by the total volume of resources available, not the amount of resources that the private economy is able to use at a given time. Yet the principle of continuous budget balancing would require that, whenever the private economy reduces the percentage of the total resources it uses, the government also reduces its percentage. Thus, some measure of short-run stability would be provided and this, as will be argued later, probably contributes to growth of the private economy.

An active policy with respect to growth

It is obvious that governments in general and the Federal Government in particular do participate heavily in productivity-increasing expenditures. These range from very general programs such as aid to education by the Veterans' Administration and the research of the Atomic Energy Commission down to advice to farmers about the proper cultivation of crops and assistance to uranium prospectors.

One justification for such governmental participation in the increase of productivity could be greater efficiency but since this is the topic of another panel I shall not pursue it further. The question at issue here is not how governmental expenditures should grow over time in relation to private expenditures. It is rather the use of governmental expenditures for the purpose of modifying the growth of the private economy.

The most serious charge that could be levied against the private economy and the strongest basis for action would be that the rate of growth is too slow. This could take the form of inadequate capital formation or it could be that all resources, capital included, are not productive enough. Under our type of economic system, we are not inclined to criticize any rate of capital formation however small, provided that it is equal to savings out of full employment levels of income. An inadequate rate of capital formation would, then, flash the warning signal of persistent unemployment, as was true in the 1930's. So far as I can tell, there is no alarm to warn us that the productivity of all resources is not increasing as fast as possible. Though there are cancellations, as mentioned earlier, a higher level of expenditure on pure and applied research would appear to be at least a partial cure for both deficiencies. This line of argument also supports the maintenance of high levels of expenditure on research as a cure for such hidden stagnation as may exist even when investment is adequate to maintain a high level of income.

Our experience after major wars buttresses the belief that governmental research programs would stimulate the growth of the private economy. Many writers have given wartime research as a partial explanation of high postwar levels of capital formation. To the extent that the results of governmental research remain outside the patent system, there may be a uniquely stimulating effect. It has often been remarked that the abolition of the patent system, though probably unwise in the long run, would give a powerful immediate stimulus to investment and income. To a slight degree governmental research has some of the effects of freeing patents, though it is probably partially offset by reduced incentive in the private economy.

Is it possible for productivity-increasing expenditures to be too large? Conceivably, technology could change so fast as to create uncertainty and temporarily slow down capital formation. I doubt that such a reaction will ever be very widespread. I have heard businessmen state that their plants were obsolete the day they opened, but there must have been some foreknowledge of this possibility, and it did not prevent construction. Further, the stalemate effect is spawned by a spurt in the rate of technological change; a steady rate, however high, would not be the basis for postponing investment.

Let us switch to the other side and ask whether productivity-increasing expenditures can be so large as to cause secular exhilaration, a prolonged period of attempted overinvestment. The present period might be cited as an example, though the boom in capital formation does appear to be coming to an end. The possibility exists but I am not inclined to worry about it. First of all, too high a rate of introduction of innovations can be checked by monetary controls supplemented, if need be, by fiscal policy. Secondly, from the social point of view ideas will keep without deterioration, but they may not be

producibile when needed except after a long lag. Thus, if we have an excess of new scientific and technological ideas 10 years hence, we can slow down their use, but a deficiency of such ideas may be correctible only by having taken appropriate action 10 years earlier.

Another line of argument is that a high rate of growth intensifies business cycles. If so, the appropriate action is not to slow down the rate of growth but rather to apply monetary and fiscal countermeasures. In other words, I favor shock absorbers but not a governor.

There are also arguments against relying too heavily on the private economy for increases in productivity. The educational expenditures of individuals and the research expenditures by business and endowed colleges and foundations are obviously dependent on the level of national income. It may also be that, apart from the greater availability of funds, prosperity has an unfavorable effect. In depression the research expenditures of business suffer because funds are short and the range of vision narrows. In prosperity, there is an abundance of profitable short-range projects and the interest rate is high, so the longer range research projects may be slighted. A somewhat similar phenomenon is the bidding away of teachers and scientists doing pure research into private employment during prosperous times. A firm can appropriate to itself the gain in hiring an able scientist before others do. The loss is spread over all firms. Hence, even when national income is high, productivity-increasing expenditures of the private economy may be inadequate and out of balance.

A different type of objection can be raised to heavy reliance on private productivity-increasing expenditures. A firm that devotes large sums to research must have fairly large earnings and be relatively free from short-run competitive pressures in order to plan for the more distant future. On both counts, the large firm is favored. The weak position of small firms is underlined by the fact that in agriculture most of the research is done by Federal and State departments of agriculture. Furthermore, basic or pure research requires the greatest freedom from short-run competitive pressures and may be justifiable only for the most secure of monopolists. There may then be a basic conflict between enforcement of our antitrust laws and reliance upon private business for scientific research. It is interesting to note that many corporations have been using their advertising in recent years to spread the message that only large firms can do sufficient research and bring the benefits to the public. I am inclined to think that even the largest firms are not likely to do enough basic or pure research to replenish the wellsprings of technological change. Apparently we have in the past been importers of pure science but probably cannot continue to be.

CONCLUSIONS

It seems desirable that productivity-increasing expenditures be high, stable, and growing with real income. Such expenditures by the private economy may be too low, too sensitive to income variation, and in some ways out of balance. To some extent, this may also be true of such expenditures by State and local governments. It is important, therefore, that Federal productivity-increasing expenditures be relatively high, stable, and, where possible, designed to preserve balance in the total. The possible consequences of high levels of pro-

ductivity-increasing expenditures in the form of intensified cycles and inflationary pressure seem negligible beside the consequences of too little expenditure. Short-run stabilization measures can be used to cushion any such effects as may occur. Furthermore, increases in productivity are themselves a partial corrective to inflation.

Because of the cumulative nature of the effects, productivity-increasing expenditures are not suitable for countercyclical variation. In the event of prolonged depression or stagnation, raising the level of such expenditures would be justified as a short-run stimulus to income and a possible long-run cure. It is certainly to be hoped that we will never permit such losses in education and research as occurred in the thirties.

GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH

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Fifty years ago the great economic oversimplification was that "supply created its own demand." Purchasing power would take care of itself. Today the equivalent error is that "demand creates its own supply." Spend more money and increased output and employment must follow. To untangle these problems will require careful thought.

There are really two questions raised by the outline for this hearing. The first concerns the direct efficiency of government outlay—in what lines does government activity do better, or contribute more to growth than the private economy. The second question concerns the effect of a given amount of government outlay (usually thought of as deficit financed) on economic activity generally. Naturally these two sets of problems overlap a good deal but we should try to keep them distinct in our minds as much as possible.

Concerning the first problem: Even if we decide that government enterprise is theoretically better in a given line than private, that still does not justify us in estimating the benefit of government action merely from the size of the appropriation. As in the case of private business, it could be greater than indicated, and it could be much less. In business the efficiency of a firm and the creativeness of its ideas may be just as, or much more important than, the size of its capital. So it is with governments. Benefits to growth cannot be deduced from the mere size of appropriation. Two factors must also be considered: (a) efficiency; (b) how much private activity in the same line may have been reduced.

Because there has just been a hearing on the question of objects of government activity (though I have not seen it while writing this statement) and because time is short, I will allot the rest of this statement to the problem of general economic activity. The committee may be interested, if more material on the general philosophy of public versus private outlay is needed, in reading my *Democracy and Progress* (Macmillan 1948) and *A Key to Modern Economics* (Macmillan 1955).

Turning now to the problem of government expenditure and general economic activity, I should like to submit emphatically that there is no mechanically foreseeable or 100 percent reliable relationship, in either direction, between government expenditure—however financed or directed—and general economic growth.

Take inflation. When one makes a prediction that increased government outlay in some line is going to cause inflation, this prediction must depend upon a battery of hidden (or, indeed, explicit) assumptions as to the behavior of the rest of the economy and the type of taxation or borrowing—none of which need prove true. For example, on

a basis of things as is—that is, on the basis of present trends, assumed rates of change, and assumed fiscal policy, the analytical core for an inflationary prediction might, in a given year, be overwhelming. But if there is one thing which the statistical record establishes it is that things do not always stay as is. History is full of infinite surprises. Any honest economist must admit that there is an inevitable element of hunch in all economic prediction.

The committee should also remember that even if a given increase in appropriations is covered by taxes this does not mean that inflationary danger is avoided. First of all, the tax may fall on money that was hitherto idle and thus increase the quantity of money in effective circulation. But next, consumers or private businessmen may try to keep up their expenditure, and, by encroaching on reserves or borrowing, the volume of money spent may not drop even while government is spending and taxing more. Thus inflationary pressure will continue. So always one has to consider not just the size of the appropriation, but the type of taxation, and the response of the rest of the economy.

We turn now to the question of depression, and less than “full” employment—there, of course, mechanical prediction has run riot. But there is one basic error. The consumer does not have to spend his money. Even if he does the businessman does not have to put in orders for more goods, even supposing he allows the stocks on hand to be sold. Always any increase in buying, to be translated into more employment and production, must pass through the decisions made in the minds of the managers of production—largely businessmen in our economy, government officials in a Socialist one—the discrepancy, in this connection, between appropriation by Congress to various agencies, and amounts actually spent, shows that the government official, also, is not a purely automatic responder any more than the businessman.

Coming now to the question of the business decision, since that is still a most important element in our country, this decision is cast in terms of expected profit and loss. There exists a certain amount of highly inconclusive evidence to show that some businessmen work for “love.” But the factual base is extremely shaky. Even if some men will do some work for little reward, will as many men do as much work as we want without incentive?

Now suppose, in depression, government spends more and in the first instance increases actual outlay. This still may not increase employment if, on the one hand, rapidly rising money wages, and on the other, increased taxation of profit leave the businessman and investor no adequate hope of reward. Increased government outlay may be neutralized by higher money wages. In this connection I should like to quote Dr. Kenneth Boulding’s little jingle from *The Impact of the Union*, D. McC. Wright, editor, Kelley & Millman, 1957.

“We all or nearly all consent
If wages rise by 10 percent
It puts a choice before the Nation
Of unemployment or inflation.”

The problem is that expansion is not a matter of moving smoothly upward. Even in a completely planned state one cannot expect all industries to grow at the same rate. Still less is this true of the un-

planned society. The result is that from time to time the various spontaneous rates of change will not add up to full employment. In that case, if depression is spreading rapidly and seriously, a case is made out for deficit finance. But the trouble here is that the money injected does not just die. And once the momentum of change picks up we will find ourselves with too much purchasing power—and have to tax. But this is a very unpopular thing politically. Witness our post World War II experience.

For myself I feel that if one does not hamstring society with unwise remedies the impact of technical change will soon pull it out of depression. Thus we have to use the utmost caution before throwing in purchasing power or we may find that we have done so prematurely.

The above statement gives my general philosophy. I can't cover so huge a field in detail and will wait for questions. I annex a statement on Lord Keynes' views—not that I think Keynes is infallible but simply because his teaching is so often misunderstood and cited as authority for doctrines he would have undoubtedly repudiated.

APPENDIX ON KEYNES

Keynes is generally thought to have taught that if the government ran a deficit it would necessarily and immediately raise income.

But in the General Theory, pages 122–124, he distinguishes quite clearly between the logical theory of the multiplier and the consequences of an expansion in the capital goods industries. In other words, he knew the difference between a theoretical model and reality.

Keynes is often thought to have advocated higher money wage increases as a cure for depression. This is entirely mistaken. On pages 270–271 he explicitly favors keeping wages stable.

Even more important he sometimes argues, pages 264, 265, that money wage reduction would stimulate recovery.

Keynes was extremely concerned with the need for an optimistic business climate, page 162.

He even admitted, page 172, that—

a large increase in the quantity of money may cause so much uncertainty about the future that liquidity preference [the desire to hold money rather than invest it] may be strengthened.

In other words, the deficit itself can sometimes scare the businessman out of activity.

Keynes thought a “scheme for the higher taxation of large incomes and inheritances” might lead to too low a rate of accumulation, investment, and economic growth, page 377.

VI. FEDERAL EXPENDITURE AND ECONOMIC
STABILITY

FEDERAL EXPENDITURE AND ECONOMIC STABILITY

GOVERNMENT SPENDING AND ECONOMIC STABILITY

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INTRODUCTION

Economic stability is one of the goals of public policy which almost everyone espouses and about which few seem to agree. The term "stability" has a ring of high purpose. It is a laudable and lauded objective—as long as it is left vaguely defined. As soon as discussion passes from pleasant generalities to what is meant by stability and the appropriate means for achieving it, controversy ensues. Disagreement becomes more intense when policy measures are proposed or put into effect which are designed to promote stability.

There are good reasons for this state of affairs. Economic stability as a policy goal in a changing world is not a simple concept. It is rather, in the jargon of Washington, a "ball of wax" of remarkable pliability. People do not want stable incomes; they want rising incomes. They want a stable general price level, but they also want higher prices for the products and services they sell and lower prices for the things they buy. They want technological progress, greater productivity, opportunity, and economic freedom of choice. They want normal market adjustments to allocate resources and direct production so as to obtain maximum output composed of the "right things" at minimum cost. But they are understandably vexed or alarmed when market adjustments affect them adversely, when they must move to another "line" or suffer permanently reduced income. It turns out that people do not want stability—at least not too much of it. They want security from the threat of unemployment, disagreeable economic pressures, and income losses. In short, stability as a policy goal, beyond the vague injunction to public officials that they must learn how to keep us out of situations of mass unemployment and advanced inflation, is actually a mass (mess) of conflicting goals.

Even when pragmatic agreement is reached for policy purposes on a reasonably acceptable concept of economic stability, major disagreements are bound to arise over the means of achieving stability. Again, with good reason. Legitimate differences of opinion will exist as to the correct interpretation of economic events, and the relative importance of the many economic and noneconomic forces operating in a given situation. There are differences in value judgments as to importance of other policy goals, the proper role of government, the role of the individual, the kind of economic system which is desirable,

and how different policy measures will affect the system in the long run. Moreover, since it is possible, at least theoretically, to achieve stability by various combinations of public measures, each individual group will plaintively or arrogantly demand that combination of policies which will secure for it maximum economic advantage or least disadvantage. The first maxim of special pleading, as legislators know so well, is to identify the particular interest with the general interest. This would be a strange world if it were otherwise.

Because of both the shifty character of economic stability as a policy goal and the shifting sands of argumentation over how it should be promoted, only the naive or tyrannical will expect or demand the impossible—spontaneous and harmonious agreement in the arena of public policy.

But all is not lost. Having stressed the inherent difficulties of the problem as a prophylaxis against dogmatism and oversimplification, we can, with good reason and fortitude, concentrate our attention on narrowing the range of disagreement—both as to practical goals and workable (perhaps even acceptable) solutions.

Economic stability is not a mirage. It is attainable, provided we define it as orderly economic adjustment or the avoidance of major economic maladjustments. What we really want, and the most we can legitimately expect, is fairly regular overall economic growth (rising real incomes) without having to endure the appalling social wastes and suffering of mass unemployment on one hand or the cruel penalties and social frictions of persistent inflation on the other. At the same time, of course, we want expanding economic opportunities and individual economic freedom. Stability, then, also demands flexibility and sufficient latitude for those normal and necessary fluctuations to occur in output, prices, incomes, and employment which must take place if the severities of major dislocations are to be avoided. In other words, a reasonable policy goal lies in a range of variability among the major economic processes or categories. If the limits of tolerance are set too tight, or if "stability" is used as a policy justification to shelter particular groups from economic change and adjustment, stability of the system in the larger sense makes no sense. All this may seem obvious, but the obvious is most often forgotten.

Essentially, flexible stability (or stable flexibility) boils down to the rule of reason—the golden mean between extremes. We cannot set arbitrary targets as to rates of economic growth, or expect these rates to be constant. We cannot overload the economy in response to special pleas during periods of inflation, or grossly mismanage our affairs by uncompromising attitudes during depression. We must adopt a realistic concept of the maximum employment goal of the Employment Act, which some people seem to interpret (in deed, if not in word) as meaning that the Federal Government should guarantee every individual a job doing exactly the kind of work he wants to do (however the consumer may feel about this) and at rates of pay which he individually or collectively demands. We cannot attempt to force continuous full prosperity on every industry, occupation, region, village, and farm at all times without destroying the viability of the system. We cannot drag a crowd of sociological problems, however important each may be, under a great tent called "economic stability" without confusing the issues and widening disagreements. In sum, a reason-

able stability goal must be viewed, not only as a technical economic problem, but as a problem of social discipline.

Turning, now, to the question of means as distinct from the ends themselves, it is again possible to narrow the area of disagreement. During the past two decades a vast literature, theoretical and applied, has mushroomed on questions of stabilization policy. The literature is diverse in policy implications and prescriptions, and much of it deals with narrow technical aspects of the problem, with very limited applicability to policy questions. Yet even the theoretical discussion provides important insights, and out of this mass may be distilled some important propositions which are highly relevant to policy formulation and which represent a consensus of the large majority of economists.

General stabilization policies may be grouped roughly into two categories: fiscal—having to do with government spending and taxing; and monetary—concerned with control of the money-supply and credit conditions. Debt management can probably be best characterized as a marriage of fiscal and monetary policies—a union for which, because of the large size of the Federal debt, no divorce is possible; though the marital relations are not always happy, the partners usually try to put on a brave show of affection in public.

The present debate is basically concerned with how these monetary and fiscal policies should be used and in what combination. The history of the debate clearly illustrates that the development of economic doctrines certainly follows no orderly growth pattern. In the 1920's monetary policy held full sway, only to be discarded or scornfully ignored during the 1930's when fiscal policy became the great hope of stabilization during the prolonged depression. With the problems of postwar inflation, monetary policy came back to the fore. It is now clearly recognized that any one-sided approach to stabilization is ill advised and likely to be ineffectual. Both fiscal and monetary policies must, of necessity, be used in concert. If they work at cross-purposes, stability depends on the coincidence of fortuitous circumstances, rather than on responsible direction of public affairs.

In the past 25 years the role of government in economic life has been greatly expanded. Both in absolute and relative terms, the public sector, as compared to the private sector, has grown so large that for good or ill the fiscal policies of government do have a very significant impact on the economy. Because of the continuing heavy expenditures for national defense and the wartime legacy of a large Federal debt, what the Federal Government does now and in the future with regard to taxing, spending, and debt management will necessarily loom large in determining an inflationary or deflationary course of events. In short, we have big government, and, therefore, cannot afford fiscal irresponsibility in government.

With the sobering experience of both a major depression and a great inflation in recent times, coupled with a recognition that big government will continue to play a major economic role whether we like it or not, there is general agreement that fiscal policies should be at least conducive to economic stability, rather than instability. To some people, direct manipulation of government spending will always be considered the least appropriate policy device of the whole kit of

stabilizers, but all will agree that government spending should at least work in the right direction. Few people would knowingly advocate that the Federal Government commit fiscal acts which are deliberately unstabilizing in effect—which worsen depressions or add fuel to an incendiary inflationary situation.

This rather lengthy introduction, it is hoped, will serve as a point of entry into (rather than a point of departure from) the rocky field of stabilization policy. More narrowly, it is intended to stress the fact that government spending policies occupy just one of several tracts in this field, perhaps one of the smaller tracts, but certainly one which cannot be properly cultivated unless the general outline of its boundaries and position is at least roughly delimited.

In what follows, an attempt is made to place stabilizing expenditure policy in perspective. Nothing new has been added, and much is repetition. But merely reviewing the state of the debate and focusing attention on the main policy implications of current economic doctrine may provide some orientation and clarification for the policy-maker.

Briefly, this paper attempts to outline the basic issues, summarize the limitations and practical problems, and develop a few general guidelines for government spending policy. This approach, it is hoped, will help to narrow the range of disagreement on how government spending policy can contribute to the achieving of the implicit and explicit aims of the Employment Act of 1946—without, it should be added, overriding other equally important social considerations.

THE BASIC POLICY ISSUES

The fundamental policy problem in most elemental form is twofold:

(1) Should the Government directly manipulate the volume of its expenditures in light of prevailing or expected economic conditions?

(2) If so, to what extent, according to what criteria, and how should such spending be financed?

The logical possibilities

Out of prolonged debate, several logical possibilities as to fiscal policy and their implications have emerged. In barest outline, they are as follows:

Compensatory spending

According to this school of thought, the Government should take positive stabilizing action by increasing expenditures during a recession to offset, at least partially, declining or deficient private demand for output. Conversely, during boom periods the Government should cut expenditures to reduce inflationary demand pressures.

In some formulations the compensatory principle has been linked with the so-called stagnation or mature economy thesis which holds that declining investment opportunity in relation to the volume of savings generated in a well-developed economy leads to a chronic deficiency of private investment and therefore to chronic underemployment. Under such conditions, it has been argued, government spending (largely financed by budget deficits) is necessary to close

the gap in aggregate demand in order to maintain high levels of income and employment.¹

Compensatory spending, in principle, is in no way related to the stagnation thesis. In its usual formulation this policy calls for deficit government spending during the downswing of the business cycle to compensate for falling private investment. During the upswing government spending would be cut back in the face of rising private investment. Budget deficits incurred during recession would be repaid from surpluses piled up during prosperity. Though annual budgets would be unbalanced, no permanent increase in government debt need necessarily occur as the budget would presumably balance out over the course of the business cycle. Compensatory spending would, it is pointed out, have multiplier effects in both directions. Additional government spending by also raising consumer spending to higher levels would create substantially more new income than the amount of the deficits incurred during recession. Conversely, a reduction of government spending would cause or induce a fall in consumer spending and income during a boom and thereby serve as a significant anti-inflationary influence. There are many possible variations of the compensatory principle. Largely, the variants involve qualifications as to kind of spending, methods of financing, and the degree of reliance to be placed on built-in or flexible features as opposed to ad hoc measures. In fact, other budget policies discussed below have some compensatory features in a broad sense.

A stable expenditure budget

According to this view, government expenditures should be kept stable, except for certain automatic or built-in variations, such as in relief payments, which take place in response to changes in economic circumstances. Expenditures, it is argued, should be based in each case on an evaluation of social benefits, social costs, and a proper allocation of resources between public and private uses—determined independently, in the main, of the stability problem. Primary reliance for stabilizing action, then, would be placed on either built-in flexibility in the tax structure or adjustable tax planning and on monetary policy.

The well known CED stabilizing budget is a variant of this approach.² According to the CED proposal, tax rates would be set so as to provide a balanced budget in normal times of reasonably high levels of economic activity and should be adjusted only to allow for variations in normal governmental expenditures. With progressive income taxes as the backbone of the revenue system, tax rates and revenues would automatically rise during inflationary periods and produce a budget surplus. Conversely, during periods of falling income, tax rates and yields would also fall and produce budget deficits. In short, stable government expenditures, coupled with built-in flexibility, would automatically and promptly keep the fiscal program working in a countercyclical (stabilizing) manner.

¹The stagnation thesis, though an odd grain of truth sprouted in some of the pro-argumentation, has been rather roundly debunked by theoretical analysis and recent history.

²Taxes and the Budget: A Program for Prosperity in a Free Economy, A Statement on National Policy of the Research and Policy Committee of the Committee for Economic Development, 1947. Elaborations on the basic theme have been embodied in a number of CED publications since the proposal was first set forth.

Advocates of a more extreme version of the stable expenditures approach would go further and pursue stabilization by manipulating tax-rate schedules themselves (either by formula or on an ad hoc basis). This approach has considerable appeal to many economists of diverse political and philosophical inclinations.³ Some even suggest negative tax rates or rebates in periods of severe depression or rapidly falling income as the correct therapeutic procedure.

Annually balanced budgets

The view that the budget should always be balanced under all conditions—except, perhaps, in periods of severe national emergency such as a war—has long been a hallmark of sound or orthodox finance. In its most rigid form, this approach requires that government expenditures should be promptly reduced or taxes promptly increased to maintain the balance regardless of economic circumstances. Such a procedure would contribute to instability. It would allow inflationary increases in government spending during a boom when incomes and tax receipts are rising (or inflationary tax decreases) and during recession call for reduced government spending (or increased taxes) when incomes and tax revenues are falling, and thus worsen the downswing.

A more sophisticated version of the annually balanced budget approach is embodied in the so-called balanced budget theorem which theoretically demonstrates how the unstabilizing features of annually balanced budget might be overcome.⁴ In periods of recession, an increase in Government spending, even though matched by increased taxes, would, under certain highly artificial assumptions, increase aggregate demand and work in a stabilizing direction. Conversely, in boom periods a decrease in Government spending, even though matched by tax reductions, would decrease aggregate demand.

There is nothing mysterious about the "balanced budget theorem." Assuming that there are no significant indirect repercussions from the changes in fiscal operations on private investment spending and the distribution of income, each dollar of increased Government spending adds directly to the Government component of aggregate demand. Each additional dollar added to the tax bill, however, does not reduce private consumer spending by a full dollar, since part of the taxes are paid from income which would have been saved anyway—that is, not spent on consumption. Looked at another way, the primary effect of the increase in Government spending is to increase the total demand and income by the amount of the added spending. In addition, as in the case of compensatory spending, there will be multiplier effects. Consumer spending will rise and create further increments of induced or supplemental income. At the same time, however, higher taxes work in the opposite direction to reduce disposable income, reduce consumer spending, and absorb it, as it were, or offset the supplemental or induced part of the income created originally by new Government spending. Thus, private spending remains unchanged. Aggregate

³ Cf. A. P. Lerner, *An Integrated Full Employment Policy, Planning and Policy for Full Employment* (Princeton; Princeton University Press), 1946, pp. 163–220; and K. E. Boulding, *The Economics of Peace* (New York: Prentice Hall), 1946.

⁴ There is a large literature on the mechanics and implications of the balanced-budget theorem. For a good explanation and references to the literature, see Haskill P. Wald, *Fiscal Policy, Military Preparedness, and Postwar Inflation*, *National Tax Journal*, II (1949), pp. 51–62.

demand for the economy as a whole is increased by precisely the amount of the increase in the Government-demand component.⁵ The mechanics are not important for our purposes here. What is important is that it is entirely possible to have both higher Government spending and larger tax receipts and yet no change in private spending. The analysis can be reversed and applied to inflation. A reduction in spending matched by an equal reduction in tax revenues reduces the Government component of aggregate demand but leaves private demand unchanged.

The uncomfortable alternatives

What appears to be, at first glance, a wide range of choices open in the matter of stabilizing fiscal policies soon narrows as the alternatives are examined.

A compensatory spending policy involves a considerable expansion of public spending and increased size of the public sector vis-a-vis the private sector during recession. Temporarily, at least, it also involves deficit finance and increases in Government debt. Such a policy will not be readily espoused by people who believe in limited government or view government debt with alarm. On the other hand, compensatory spending will also be repudiated quickly during inflation by those who advocate massive increases in the activities and responsibilities of government. They will find all sorts of reasons why Government expenditures "cannot" be radically reduced and substantial amounts of debt retired during inflation. As long as some balance of political power is maintained between the two opposing camps, the potential range of compensatory spending may be narrow, indeed, and what compensation is tolerated will likely operate with an inflationary bias. Politically, it is hard to reduce spending during inflation, especially when costs of Government are rising. Nor is it easy to keep taxes high enough to retire debt.

Maintaining stable expenditures and operating flexible fiscal policy from the tax side, likewise, presents uncomfortable problems of choice. Here, the fact that Government spending is supposedly determined on the basis of normal social functions and proper resource allocation, not subject to capricious manipulation, has great appeal. There is no undue expansion or curtailment of the public sector based on expediency and crisis, nor is there as likely to be inflationary bias on the spending side. Furthermore, primary reliance is placed on indirect changes in private demand which follow from tax adjustments. There are drawbacks, however. To achieve a given increase or decrease in aggregate demand via tax adjustments alone calls for much larger deficits during recession and much larger surpluses during inflation than would occur with compensatory spending. Also the drastic changes made in rate schedules would have serious repercussions and create uncertainties that few private persons or public officials would readily risk.

The balanced budget approach to stabilization also has disturbing implications. Superficially, it has a familiar cloak of apparent financial soundness. There would never be a deficit—except when expected

⁵ For those not familiar with the uses and limitations of an income-expenditure approach to these problems, the balanced budget theorem can be explained in terms of changes in the supply and velocity of money.

tax revenues were overestimated. But to balance the budget at high enough levels during a recession to buoy up total demand, calls for a much greater expansion of government spending—increase in the size of the public sector—than does compensatory spending. On the other hand, during inflation the balanced-budget approach might require such a large reduction in public spending and taxes that even the normal social services would have to be curtailed. Furthermore, the tax repercussions would be very large and unsettling indeed. Not only would the prospect of frequent tax-rate manipulations create unstabilizing uncertainties to complicate business decisions, but psychologically the tax changes required in this case would work in the wrong direction. Rates would have to be raised during recession and lowered during inflation. Such changes could be expected to influence expectations and private investment in a way which would promote instability. On close inspection, there seems to be little appeal in the balanced-budget approach to stabilization except the label.

The nature of the alternatives which theoretically (potentially) would achieve the same changes in aggregate demand for the economy as a whole via fiscal policy may be summarized for clarity in the following tabular manner: ⁶

	Compensatory spending with stable tax rates	Stable spending with adjustable tax rates	Balanced budgets
I. RECESSION			
(a) Policy procedure.....	Increase spending..... Tax rates unchanged..	Spending unchanged... Decrease tax rates....	Increase spending... Increase tax rates.
(b) Policy implications: Increase in Government spending.....	Substantial.....	Little or none.....	Greatest.
Tax repercussions.....	Few.....	Many.....	Most.
Size of deficit.....	Large.....	Largest.....	None.
II. BOOM			
(a) Policy procedure.....	Decrease spending.... Tax rates unchanged..	Spending unchanged... Increase tax rates....	Decrease spending... Decrease tax rates.
(b) Policy implications: Decrease in Government spending.....	Substantial.....	Little or none.....	Greatest.
Tax repercussions.....	Few.....	Many.....	Most.
Size of surplus.....	Large.....	Largest.....	None.

Clearly, when stripped naked all stabilizing fiscal policies have unsightly deformities which we prefer to keep covered in public and to keep out of polite political discussion.

Unfortunately, if they want any stabilizing fiscal policy at all, those who do not like government debt, must, then, be prepared to accept policies which involve the largest fluctuations in government spending and taxes. Those who want minimum manipulation of government spending must face the largest deficits. Those who honestly advocate compensatory spending must be prepared to fight vigorously for massive reduction of government spending during inflation. In short, in matters of fiscal policy, almost everyone, whatever his protestations of faith, either unknowing or because he prefers delusion to reality, adopts inconsistent attitudes or demands what is impossible.

⁶ All of the conclusions embodied in this table cannot be derived directly from the previous discussion which sketched only the barest sort of outline of alternative fiscal policies. But these conclusions do follow from the simple mechanics of income theory. It should also be borne in mind that these conclusions are based on unrealistic simplifying assumptions about the behavior of private demand. The practical value of this approach is to make clear the probable results of certain kinds of government action.

Happily, the theoretical dilemmas themselves exert a centripetal force on groups of differing political and social views and draw them closer together on questions of policy. The range of disagreement is further narrowed by other theoretical and practical limitations to which stabilizing spending policy is subject. To these we now turn.

THEORETICAL AND PRACTICAL COMPLICATIONS

The policymaker who is sincerely interested in adapting Federal spending policies to stabilization goals faces a host of theoretical and practical problems. Again in barest outline, some of them are as follows:

Oversimplification.

The theoretical alternatives are based on extremely naive and oversimplified models of reality which by themselves provide no basis for policy decisions.⁷ Simple models of income determination based on a few aggregate variables such as investment, national income, consumption, etc., mask the complexities and maladjustments which occur in economic life. No amount of manipulation of Federal spending will correct certain kinds of internal maladjustments of a temporary or short-run nature, and such action could conceivably aggravate temporary economic ailments. Moreover, most models reason from ignorance as to the possible interaction of many variables which cannot be known or taken into account. Professor Groves has eloquently warned us about the oversimplifications and dangers of aggregative thinking in these words:

* * * the aggregative point of view becomes frequently guilty of serious omissions. Business and households do not always react along functional lines, and the economic system is not like two quart jars into which one pours economic substances until the levels are equal and then all is well.⁸

The short, naive theoretical models provide useful clues and insights, but they are mainly useful in telling us what not to do and what to avoid. For example, the balanced budget theorem cannot be used as a policy rule of thumb. Theoretically, it postulates the existence of a single combination of spending and tax rates, which will provide full employment without inflation, and it makes impossible assumptions about the behavior of private spending. Yet it tells us that even a balanced budget may well be inflationary (or deflationary) and so warns us as to possible effects of budget and tax changes.

Forecasting

Spending policy, along with all ad hoc stabilization policies, must contend with the well-known problems of economic forecasting. While some improvements in forecasting techniques may be expected, and better statistics more promptly published would be of great assistance, the problem of guessing future developments will always be

⁷ For an extended discussion of this problem, see A. G. Hart, *Model Building and Fiscal Policy*, *American Economic Review*, XXXV (1945), pp. 530-548.

⁸ Harold M. Groves, *Financing Government*, 4th edition (New York: Henry Holt), 1954, p. 334.

a frustrating game, especially for the policymakers who have to make the decisions.

There is no need to dwell on this point. Suffice it to say, short-run forecasting always will, in the nature of the case, be a slippery proposition which will militate against setting policy targets except in the most general terms. The problem is particularly serious for manipulation of government spending because of the timing problem noted below and the limited scope for automatic or built-in adjustments in the volume of expenditures as economic conditions change. It should also be remembered that compensatory variations in spending based on a misplaced certainty about uncertain forecasts can be unstabilizing rather than stabilizing.

Timing

One of the oft-repeated limitations of manipulating government expenditures is the time element. The budget process is long—too long for prompt adjustment of spending to counteract changes in the private economy as they occur. For this reason, there are grave doubts that government spending can ever play a major ad hoc role unless things really get out of hand. In our constitutional setup, the Congress cannot abdicate its responsibilities in controlling the public purse. It cannot, except within narrow limits, give discretionary authority to the executive branch of Government. Yet, it is well known that once cumulative upward or downward movements get underway, ever larger offsetting increases or decreases in spending would be required—assuming primary reliance were to be placed on fiscal policy. While there has been much desultory discussion about a reserve shelf of engineered public works to be promptly started as economic slack appears, there seems little possibility the Federal spending can and will be adjusted promptly and often enough to cushion deflationary developments.

On the inflationary side, not only is it difficult to make downward adjustments in government spending to reduce the economic overload (where should the cuts be made?), in the face of rising costs, but the decisionmaking process takes too long to provide prompt relief.

Timelags

Closely related to the mechanical problem of policy timing and the general oversimplification issue mentioned above are timelags in the economic system itself. Most economic analysis on which stabilizing expenditure policies might be based is concerned with different economic positions or effects after certain types of adjustments to changed conditions have taken place. But the process of adjustment itself takes time, and there may be long delay before significant economic effects of policy action become apparent.

We cannot here go into the various technical problems involved, but one example will suffice to illustrate the complexities. It may be assumed that if the level of government expenditures is increased by a given amount (say, \$2 billion per time period) the stimulative impact on aggregate demand will be greater than the incremental increase in government spending. In this example, total demand would rise by some multiple of \$2 billion. This is the well-known "multiplier" process of national income theory. The increase in the volume of government spending creates new demand and new income

in the first instance. In addition, some part of this new income will be spent by consumers causing demand and income to rise still higher. Successive rounds of consumer spending will follow, each adding successively smaller increments of demand and income until the impact of the initial increase in government spending has been completely absorbed by the system. In the end the new equilibrium level of demand and income is higher than the old level by an amount which is significantly greater than the new government spending. But this process takes time. Because of many factors (such as the savings-spending behavior of the public, income velocity of money, the length of income propagation periods, credit market repercussions, and many others) the hoped-for stimulative effects may not be felt with any force for 12 to 18 months—by which time economic conditions may have changed. In fact, the changed conditions might well call for policies which would exert the opposite or counteracting effects.

Many examples of timelags in the economic processes and events could be cited to reinforce the main observation here: that direct manipulation of government spending aimed at achieving precise (predicted) results presumes a rapidity of economic adjustment which is not possible and cannot be expected. Furthermore, it is presumed that other things will stay equal long enough for the expected results to be obtained. Needless to say, economists are (or should be) rather humble and careful about such presumptions.

Minimum sensible changes

Another serious problem for the policymaker is to determine how many and what kind of changes are necessary or desirable. This problem is also related to some of those previously raised—oversimplification, timing, and so forth—but merits a separate word or two.

Obviously, in an economy with a \$400 billion gross national product, a given increase in spending of, say, \$5 billion, will have less impact than in an economy with a \$100 billion gross national product. Although we may seem fairly confident at times as to the right direction, no one really knows how much. The problem and some of its implications have been summed up neatly by Professor Smithies, though he probably exaggerates for emphasis, as follows:

If we were properly conscious of the margins of error to which our economic analysis is subject, I doubt whether we would expect that a \$5 billion change in any one factor would have an ascertainable effect on total economic activity. This, incidentally, points to a basic dilemma in the use of fiscal policy as an economic stabilizer. To produce decisive results, changes in the budget surplus or deficit of from \$10 billion to \$20 billion may be needed, and then there is always the danger of overshooting the mark in the direction of inflation or deflation as the case may be. But budgetary changes of such magnitude might disrupt if not debauch the regular budgetary process. In view of the practical limits on changes in the budget, I do not believe that fiscal policy alone can be relied on as an economic stabilizer. But there is no

reason why its influence should not be exerted in the right direction.⁹

The question of "how much" cannot in practice be separated from the question of "what." The leverage effects of changed government expenditures will vary with direction or kinds of expenditure. In this connection, it is usual to separate "transfer payments" from "government purchases" of goods or services. Transfers which merely redistribute income from one group to another may, it is assumed, be mildly stimulative in the short run. To the extent that they tap idle savings and are promptly spent by recipients on consumer goods, some rise in total demand might occur. Redistribution on too large a scale, however, obviously might be self-defeating, aside from the disturbing long-run implications of such a policy.

Government purchases of output, on the other hand, are directly income creating. Public works, the object of flattering consideration in the past, now have to compete with national defense and an ever-increasing host of prolific "social priorities" which seem to have tremendous multiplying powers. One of the "knotty" issues of direct manipulation of government spending lies in the fact that "stability" may well conflict with "social priorities." The particular increases or decreases in spending which would be most stimulating or tranquilizing for the economy are not necessarily the ones which could easily be adjusted in light of other political and social considerations.

Increasing certain kinds of government purchases might have little stimulating effect. For example, government spending might serve to bid up wages and prices in a particular sector and thereby cause an offsetting reduction in private demand. Conversely, in boom periods a cut in certain types of government spending—research as a possibility—might have a negligible effect in reducing total demand.

Our wartime experience indicates that leverage effects from different kinds of expenditures may differ greatly from time to time. To achieve maximum stabilizing action via government spending, there probably should be a good deal of internal shifting in expenditure programs—not an easy policy to devise or follow. No attempt is made here to assess the conditions which would favor one type of expenditure as compared to another. The point here is simply to draw attention to one aspect of the problem which receives too little attention.

The determination of norms

Another problem which must be mentioned, at least in passing, is the determination of norms or criteria for policy formulation. Since criteria for spending policy are being dealt with at some length in other papers in this compendium, only two items will be mentioned. First, what constitutes reasonable or realistic "full employment" goals? This matter was touched on in the introduction. Second, and just as important, is the choice of a general price level goal which is consistent with "normal" (as opposed to stabilizing) changes in government spending and the tax structure. There is real danger that even well-meant policy will place the Government in a never-ending series of inconsistent positions. The problem is particularly acute

⁹ Arthur Smithies, *The Twin Objectives of Tax Reduction and Reduction of the Budget Deficit*, National Tax Journal, VIII (March 1955), pp. 30-31.

for a "stabilizing budget" policy which relies heavily on built-in tax flexibility. A tax schedule and tax structure consistent with both high employment and stable prices could be established only by a difficult process of trial and error. When the difficulties of forecasting growth factors are taken into account, the determination of policy criteria becomes an even more complicated problem. Changing price levels and rising equilibrium levels of output put the policymaker out on an uncomfortable limb. What constitutes an appropriate high employment goal becomes more uncertain, and margins of error in other estimates likewise become greater. All this really boils down to the not very helpful observation that stabilizing policy would be ever so much more simple if we only had stability.

Market discipline

The problems of any stabilization policy are intricately related to the operation of the market and the willingness of policymakers to work with the market rather than against it. In periods of inflation, stabilization policy calls for restrictions which always evoke outcries from special interests who will seek Government shelter from market pressures. It goes without saying that the Government will undermine its own stabilizing procedures if it spends to subsidize indiscriminately those groups who feel the restraints.

Inflationary price movements are not only the result of economic overload but also are intimately related to the problem of market structures which fiscal policy can do little to solve. When money wage rates are pushed up more rapidly than productivity gains over broad sectors of the economy, costs and prices must rise. Cutting back Government spending may reinforce monetary policy and help to discipline "cost push" inflation, but perhaps only with the pain of some unemployment. Here the basic problem can be solved only by vigorous enforcement of competition in both the product and labor markets.¹⁰

In depression, likewise, well-meant attempts to protect particular groups or shotgun tactics may be of little help and even will impede recovery if they clumsily interfere with automatic compensatory adjustments in the market places.¹¹

The perversity of State and local finance

It is well known that State and local finance may misbehave in a manner similar to sensitive segments of the private economy. In a period of recession, State and local spending governments are faced with declining tax revenues and are forced to reduce total expenditures, though certain kinds of expenditures, such as relief payments, may rise. During prosperity, on the other hand, State and local expenditures for construction and public services expand. As a result, Federal stabilizing expenditures are at least partially offset by "wrong way" changes in spending at the State and local level. Moreover, when the Federal Government shows a willingness to increase spending on public works, State and local governments have a natural incli-

¹⁰ Cf. E. Despres, M. Friedman, A. G. Hart, P. A. Samuelson, and D. H. Wallace, *The Problem of Economic Instability*, *American Economic Review*, XL (1950), pp. 505-538; also *The Mechanics of Inflation* (Washington: Chamber of Commerce of the United States), 1957.

¹¹ Cf. Gerhard Colm, *The American Economy in 1960* (Washington: National Planning Association), 1952, ch. VI.

nation to allow Federal financing to displace local financing to the extent they are allowed to do so. This perversity of State and local finance will probably always be a discouraging, unstabilizing influence. While this is a drawback, it provides no argument against Federal stabilizing action. It is just another unavoidable complicating factor—a bad example which the Federal Government should certainly not follow.

Public attitudes

Finally, public attitudes, whether rational or irrational, impose serious limitations on the use of government spending as a stabilizing device.

Fiscal orthodoxy which demands annually balanced budgets will always have a strong appeal. There are good reasons for this state of affairs. A balanced budget provides an easily understood rule of cost for transferring resources from the private to the public sector.¹² Compensating expenditures and deficits, it is argued, delude the public as to costs and provide a vehicle for ever greater expansion of government. Many, in desperation, see strictly balanced budgets as the only realistic means of keeping government spending in bounds. Who can really say that this is a naive approach—especially since there are other stabilizing procedures available, such as monetary policy, which may be adequate to cope with the smaller economic fluctuations? Until there is more evidence of fiscal responsibility in government, direct manipulation of government spending to meet changing economic circumstances will be opposed by many as a dangerous practice. In dire emergency, of course, exigency will dissolve some of the resistance to deficits. In less dire circumstances, resistance is bound to be stiff. At least, there is fairly general agreement that government spending-taxing policies should, at minimum, be neutral—never positively unstabilizing. This represents a real advance in the level of economic literacy.

IMPLICATIONS FOR SPENDING POLICY

It is now time to shake some policy implications out of the foregoing estimate of the situation. Some readers will feel that the outlook for stabilizing expenditure policy is bleak, indeed—that the complexities, problems, and differences of opinion will preclude rational adaptation of Federal spending in ways which will contribute to the attainment of the economic goals of the Employment Act. But such a pessimistic conclusion does not follow. The inherent difficulties, the policy discomforts which arise from extreme positions, and the practical problems which must be faced in the real world, all work to narrow the range of disagreement and bring more closely together diverse groups with conflicting views and values. To be sure, there is always danger that stalemate rather than compromise might occur. Moreover, there will always be disagreements—even major disagreements—but these will arise mainly over questions of degree, the appropriate combinations of policies, and the economic outlook. There is, nevertheless, good reason to be optimistic—though not complacent—in the hope that

¹² Cf. Jesse Burkhead, *The Balanced Budget*, *Quarterly Journal of Economics* (May 1954), pp. 191–216.

there exists a sufficiently broad area of general agreement on fundamental matters of policy to promote workable and acceptable solutions.

Set forth below are a series of observations based, largely, on the preceding analysis, which may provide some positive guidance for the policymaker. This writer believes, perhaps presumptuously, that they will command fairly widespread assent among most economists and a majority of thoughtful nonspecialists.

(1) Government spending is only one element of overall stabilization policy—one which will normally occupy a secondary, or even minor, position, especially in combating minor economic fluctuations. Monetary policy is obviously the first line of defense against instability, though it is potentially more effective against inflation than deflation. Monetary policy is general in application, can be promptly applied, and is aimed at stabilizing private spending. Tax policy is at least as important a spending policy as a stabilizer—perhaps more so, because it is more automatic, indirect, and general in application. Also, tax adjustments probably are more widely acceptable than is direct manipulation of government spending.

(2) Spending policy, in concert with other fiscal measures, can make a major contribution to stable employment and price levels, as a firm and effective "backstop" to monetary policy. In other words, changes in Federal spending should work in the same countercyclical direction as credit restraint or credit ease.¹³ This means that, in recession, some expansion of government expenditures—whether on an ad hoc or an automatic basis—is both necessary and desirable. But this does not mean that, in every lull in the rate of economic growth or in a minor readjustment period, the Federal Government should rush excitedly into new or expanded spending schemes to encumber the economy with unneeded help.

During inflation, on the other hand, the Federal Government should adopt a rigorous prosaving attitude toward spending which makes every Government activity and project "fight for every dollar"—to use one of the late Professor Schumpeter's vigorous phrases. This does not mean that inflation can be used as an excuse to cut all types of spending. Basic governmental services are either necessary and appropriate or they are not. Each should be decided on individual merits. But it does mean that, where cuts cannot properly be made or expansion of spending is deemed absolutely necessary, taxes must be raised high enough to cover all spending and provide for a substantial budget surplus, as well. Stabilizing expenditure policy cannot be a 1-way street and still merit public support. If increased spending is necessary during recession, reduced spending is likewise necessary during inflation. Clearly, monetary policy cannot be expected to serve as an economic policeman, to guard against disorder during recession and to arrest inflationary excesses during boom, if the superintendent of police—the Congress—in fiscal matters fails to give support in hard times and tears up most of the arrest tickets during inflation.

¹³ Because monetary policy can be reversed more quickly than spending policy, and because changes must be made occasionally in the "normal" level of Government spending for other reasons, there will be times when monetary and spending policies will, and quite properly should, work in opposite directions.

(3) Adequate budgetary procedures and control are essential ingredients of stabilizing spending policy. Long-run spending policies as to government services, programs, and responsibilities should be decided on the basis of what constitutes the proper agenda of Government, "social benefit-social cost" considerations and optimum resource allocation, without direct reference to the problem of economic instability. Rational adjustment in government spending, however, presumes some initial ordering of priorities and perhaps subsequent reordering as economic conditions change and the questions of economic impact must be taken into account. Budget preparation and procedure should make it possible for the Congress to evaluate spending proposals—to select the least important and pressing programs which can be eliminated during inflation or postponed to be undertaken during periods of economic slack. Likewise, better budgetary procedures would help eliminate make-work spending schemes during depression which are not consistent with long-run spending plans.

(4) Serious consideration should be given to ways and means by which a greater degree of automatic flexibility could be built into Government spending programs, without, of course, weakening congressional control of the public purse. This is a difficult and touchy issue which has often been discussed and dropped. But the fact remains that until some way is found to overcome the problem of selection and timing, the potential contribution of government spending to stabilization policy will be seriously constricted. There is already some built-in flexibility in certain kinds of government expenditures, mainly in transfer payments for relief and in farm subsidies. In principle, it should be possible to build substantial countercyclical flexibility into some other types of expenditures, especially in long-range, social-investment programs which can be adjusted to changing economic conditions without creating serious hardship.

The present long-term, Federal highway program is a case in point. It has been suggested that this program, as it is now set up, may have perverse effects on economic stability. Basically, under the trust-fund arrangement, spending from the fund is geared to tax receipts flowing into the fund. If tax revenues fall, construction would be delayed. Although there is some discretionary authority on the part of the Secretary of Commerce to release additional money when the trust fund has a surplus, regular congressional action would be required to make temporary appropriations (loans) from the general fund to the trust fund before spending could exceed current receipts and surplus. This writer is not familiar enough with the details of the Federal highway program to know how it will work out in practice, or to evaluate the suggestions that the program might work in an unstabilizing manner. This program has merely been singled out as an example of long-range social-investment spending which has already been undertaken on its own merits and which could be so rigged as to make a positive, rather than a negative, contribution to economic stability.

State and local governments simply cannot regularize their expenditures, but in joint Federal-State ventures they could be helped to do so. Furthermore, there is no reason why long-range, Federal spending on public works should follow the perverse pattern of State and local finance. Surely, formulas could be devised, consistent with adequate budget control, to make Federal spending a more sensitive

and automatic instrument of stabilization policy. It will not be easy to get agreement on how this can be done, but solutions in this direction should be patiently and persistently pursued.

(5) Annually balanced budgets, or overly balanced budgets to provide for secular reduction of debt, are a necessary policy rule in normally prosperous times. In times of economic stress, much beyond a mild recession, the Federal budget simply cannot be balanced without making recession more severe. Tax revenues will drop much more rapidly than expenditures can be reduced. Moreover, even if it were politically possible to cut spending at such times, few people would suggest that public spending should be cut simply because private demand was falling, or that the Government add to downward pressures.

A recognition of the fact that under deflationary conditions the rigid insistence on an annual balance in the Federal budget would make the Government a promoter of depression throws out of court schemes which call for debt retirement according to a fixed annual schedule or formula. While systematic secular retirement of debt, when economic conditions are favorable, is a desirable policy goal, plans for debt retirement must be flexible enough to allow the Federal Government to discharge its minimum responsibilities under the Employment Act.

But a recognition of the fact that an annually balanced budget is neither possible nor desirable under adverse economic conditions also makes it essential for the administration and the Congress to take forthright steps to eliminate the inflationary bias which seems, inevitably, to creep into fiscal policy. It is, of course, politically difficult to reduce spending, to keep taxes high, and to retire substantial amounts of debt during periods of inflation, but public support for stabilizing fiscal policy can be greatly widened and strengthened if there is also public confidence that fiscal discipline can really be expected even in election years. "Social priorities" and "emergencies" cannot be used as meaningless catch phrases to justify any and every scheme for expanding governmental programs without reference to costs—costs both in terms of the resources required and the costs of inflation. Economic overload by government contributes to inflation and a course of economic events which is diametrically opposed to the goals of the Employment Act. Furthermore, many well-meaning and thoughtful people distrust and oppose compensatory finance, built in or pushed in, because they see in it the mechanism for ever expanding the scope of government under the appealing guise of "stabilization policy" whereby government spending is expanded in depression and expanded some more during inflation. If Federal spending is to make its important, albeit limited, contribution to greater stability, the Congress must demonstrate that the goals of the Employment Act, including the implicit goal of fairly stable price levels, are more than a pious declaration of faith.

(6) Because of the many problems, theoretical and applied, involved in the direct manipulation of Government spending, the financing of expenditures—tax policy—must play a major policy role. Built-in flexibility in the form of income taxes makes a healthy contribution to stability, especially in dealing with minor fluctuations. In addition, tax rate adjustments should be used judiciously to augment and reinforce spending policy. By working from both sides of the fiscal equa-

tion, some of the serious dilemmas of extreme positions can be alleviated, although never entirely eliminated. Frequent changes in the tax code are not desirable because of administrative difficulties and the unsettling repercussions they have on the private economy. Business decisions are difficult at best without creating additional uncertainties. For this reason, it behooves us to develop a tax structure which permits tax rate adjustments to be made with minimum adverse effects on business decisions and private demand. Tax problems are beyond the scope of this paper, but they cannot be divorced from the expenditures problem in rational policy formulation.

POSTSCRIPT

No attempt has been made in this paper to be comprehensive or to innovate. An attempt has been made throughout to maintain a policy, rather than a technical, orientation. As was stated at the outset, the purpose of the paper has been to discuss the issues and problems with a view to staking out a sizable area of agreement on policy goals and procedures. The summary of policy considerations immediately above is far from being either exhaustive or precise. But it may provide some guidance on difficult and important questions.

Fortunately economics has no political affiliation—though the public is no doubt often perplexed on this score. No amount of economic analysis, however thorough and relevant, can provide ready policy prescriptions or relieve us from the inescapable, and often uncomfortable, necessity of choosing among various alternatives. Economics is a dismal science because it tells us that we cannot have our cake and eat it too. It becomes less dismal when we realize that economic analysis may equip us to choose more intelligently. If this paper has helped in a small way to clarify certain choices and their implications with respect to Government spending policy, its addition to the vast existing supply of printed pages dealing with the same subject may be justified.

ANTICYCLICAL EXPENDITURE VARIATION

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Relief payments and public works during bad times can be traced back through a long history. At least toward the end of the great depression, a more systematic development of fiscal policy in order to stabilize the performance of the economy has been tried. In good times business expands, spending more than its revenues. Therefore, business must borrow, partly from the banking system, or must in other ways acquire additional funds. In bad times business contracts; that is, spends less than its revenues. Fiscal policy attempts as nearly as possible to stabilize the flow of expenditure in the economy and thus presumably the level of economic performance as a whole. Thus, government spending must become compensatory spending moving in the opposite direction as business spending moves. Government revenues should be greater than expenditure in prosperity, less than expenditure in depression.

During the last decades, we have become more aware of a great number of related problems. There is a delicate interdependence of fiscal and monetary measures. Moreover, fiscal policy is not only expenditure policy. The 1955 papers and hearings before the Subcommittee on Tax Policy of the Joint Committee on the Economic Report have considered tax policy. Debt management has become more relevant because of the size of the debt and the necessary amount of yearly refunding.

It is widely held that the major contribution of monetary policy is to be expected during prosperity and that the main contribution of fiscal policy is to be expected during depression. Yet, the prevailing economic situation of the last 15 years makes it imperative that the possible contribution of fiscal policy in times of prosperity and inflation be more fully explored. The present situation has been called an uneasy triangle. Full employment, price stability, and absence of direct controls (over wages and/or prices) are not easy to achieve simultaneously. Full employment and price stability may be had, perhaps, at the price of direct controls—with far-reaching adverse economic and sociopolitical consequences—but direct controls are, at least in peacetime, ineffective and on the whole destructive of our economic, social, and political system. Price stability and freedom from controls may be achieved, perhaps, at a more modest level of employment—again with far-reaching adverse economic and sociopolitical consequences. High level employment without direct controls may involve creeping inflation. The indirect and extended consequences of prolonged creeping inflation have not yet been fully explored. To this present situation, we have to apply expenditure policy. A high rate of growth likely does ease conflicts. In addition,

measures of market policy like making the market structure more competitive, prices more sensitive, may be helpful.

Finally, we have become increasingly conscious of the fact that economic analysis cannot simply relate the large aggregates and hope to find useful, stable relationships between them. Such an analysis would be at best only the first step. We shall have to strive at more disaggregation, at consideration of smaller, more restricted aggregates having more complicated and possibly less stable relationships between them.

Stabilization—shall refer throughout this paper to the short period of essentially cyclical variation as contrasted to problems of growth or of stagnation. Existence of cyclical patterns is assumed and no inquiry is intended into the length, regularity, type, and recognition of these fluctuations. Stabilization entails primarily stabilization of output and of employment, not primarily of prices. The relation of stability to growth has been discussed in preceding papers. Possibly, too much insistence on stability (absence of cyclical variations) may affect unfavorably the rate of growth. Questions of the immediate future will also be excluded from this paper as they have been discussed in hearings before this committee in June 1957.

In order to avoid overlapping and repetition as far as possible I shall consider exclusively the expenditure aspects of Federal fiscal policy in regard to short-run (anticyclical) stabilization, that is, mitigation of cyclical fluctuations in output and employment. Three areas will be touched upon:

1. Some relevant aspects and measurements of aggregate output and employment as yardsticks of expenditure policy.
2. Some relevant aspects and measurements of expenditure and expenditure change in regard to anticyclical policy.
3. Some relevant criteria and measures of repercussions of expenditure change in regard to short-run stabilization.

NATIONAL INCOME AND EMPLOYMENT AS MEASURES OF SHORT-RUN STABILIZATION

Concepts of aggregate output and equivalent concepts of aggregate income serve different and possibly conflicting purposes. We can, of course, construct simply convenient pragmatic devices for a study of economic relations. But when we look at national income (the money equivalent of output) as a measurable achievement, we have in mind the net yield of economic arrangements in the sense that more income means that people are better off. Changes in the purchasing power of money should be taken into consideration. Much thought has been given in the literature to the index number problem. It seems, though, that the choice between different index numbers is not of major practical importance. Real income (as a rule per capita) is a widely accepted measure of economic performance. It would be outside the scope of this investigation to discuss difficulties which arise from comparing incomes under different social systems, in fully developed and underdeveloped countries or in countries of very different income distribution. Yet in connection with public finance other pertinent problems arise.

First let us consider a minor technical problem. We arrive at national income by subtracting from gross national product capital

consumption allowances and indirect business taxes. This treatment of the latter means that the measured achievement (national income) is different according to whether it is financed by these indirect business taxes or by a corporate income tax. In fact it is rather likely that both taxes are frequently shifted in a very similar way. It is very doubtful whether the different manner of taxation means a significant difference in the price level. If we justify deduction of indirect business taxes because they supposedly are equivalent to the value of government services to business and hence must be deducted in order to avoid double counting, the arbitrariness of such an evaluation is only too apparent. Yet, as in the short run the structure of the tax system probably does not change greatly, this question may be dismissed as being of minor importance.

There is, though, a more fundamental difficulty, which cannot be overcome. We consider the "product" of government a part of and an addition to the gross national product. A final purchase is, according to customary terminology, determinative for the national product and income aggregates. A final purchase, that is a purchase not for resale by the individual, is either one for consumption (and thus indicative of anticipated satisfaction from consumption directly) or for final investment (and thus indicative of anticipated satisfaction through the roundabout process provided by investment). This relation to "satisfaction" cannot be ascertained for government purchases of goods and services. In the absence of evaluation by a market, that is of market prices, a valuation at cost is a customary and wise business practice leaving the correction one way or the other to the final realization through future action in a market. Such final correction is missing if we evaluate the government product at cost. The judgment of the economic subject that cost spent by him measures approximately the expected advantage to the individual until corrected by later realization is basically a useful assumption. Extension of such reasoning in order to maintain that cost incurred by the Government approximates the value of the services to the citizenry never to be corrected by the action of buyers and sellers in any market, generates grave doubt. This is as true for democratic as it is for totalitarian government. Elections serve many other complex functions; they cannot be considered ratifying specific government spending by every individual taxpayer. Proposals have been made to evaluate the government product. It has also been proposed to distinguish government services which may satisfy the individual citizen and which he would presumably buy if they were offered in a market and consider only those an addition to the gross national product. Health services are an example. The bulk of other services which are, perhaps, more necessary, as for example maintaining the framework of society through security measures, may not qualify under such a test.

The difficulty of evaluation and classification are quite clearly not mere matters of statistical procedure. The statistical details of which expenditure goes or does not go into making gross national product as defined by the Department of Commerce can be learned from the estimates of Federal receipts and expenditures published by the Department.¹ It has been proposed that for the purpose of making

¹ See Young, *The Government Sector. A Reconciliation of Alternative Budget Concepts*. Conference on Research in Income and Wealth, Studies in Income and Wealth, vol. XX. Princeton, 1957.

welfare judgments we should use two indexes, one for private services and private consumption using a market price index as deflator, and another for "final collective welfare goods" using a cost index as deflator. The two subtotals cannot be added up in a meaningful way for measures of welfare. They should better be regarded as providing some evidence, which people may use to assist them to make welfare judgments.² The usefulness of customary national income aggregates at least for welfare purposes must be doubted. Where the problem is whether increased government expenditures are helpful in some way, the use of government expenditures as measure of income creation at cost, that is as measure of achievement, simply begs all questions. An evaluation of government product is at best a difficult and frequently an arbitrary value judgment. To include some and to exclude other services according to whether they are similar to privately furnished services is quite unsatisfactory. Certainly, government activity does frequently increase human welfare, satisfy what one may call collective wants. In fact, many government services (like national defense) are of overriding importance, but their importance cannot be simply measured for our purposes in the manner appropriate to the measurement of the private sector of national income. Public expenditure may, in addition, indirectly lead to increased private consumption and possibly private investment, though overwhelming negative effects on private investment in real terms are also possible. These indirect effects come about over a prolonged period of time; they cannot easily be measured or predicted as to size. It is frequently uncertain whether these total indirect effects are negative or positive, smaller or larger than the government expenditure. This is especially true when the expenditures are made during a time of relatively high level of employment or if they are financed from tax receipts. If, on the other hand, national income is only meant to denote a goal of a certain amount of employment opportunities at certain wage rates, then any national-income figure does not mean more than the corresponding employment figure. To state the employment figure directly is preferable, if only for greater clarity.

The Employment Act of 1946 is on solid ground to consider employment directly as a measure of economic stabilization. Measures of unemployment are somewhat less reliable than measures of employment. The former require measurement of the labor force as well as of employment with a possible statistical bias in opposite directions.

Defining full employment as the situation where more vacancies than unemployed exist in the aggregate or the like (unfilled vacancies approach) leads to setting required employment at a figure where serious inflationary pressure and other distorting influences will be overwhelming. The serious shortcomings of this type of definition do not have to be discussed any more. Full employment can also be defined as the degree of employment that exists when the aggregate demand for commodities is at the highest level that is compatible with the condition that demand at existing prices (or at the prices of the last previous peak) is balanced by current supply or the like (price approach). This type of definition is of small help for policy forma-

² I. D. M. Little, *A Critique of Welfare Economics*, Oxford, 1950.

tion because full employment as defined may be reached at a very low level of unemployment (Lerner's high level full employment) or quite possibly at a very high level of unemployment (Lerner's low level full employment). The latter situation may be caused by rigidities, bottlenecks, monopoly situations in business and labor, and so forth. Price rises sufficient to cause price level rises may, indeed, start at a fairly low level of employment. Reliance on large aggregates and their average behavior may be misleading. We may have to consider the different behavior of industrial and agricultural prices, of prices of manufactured goods and services, etc. It bears investigation whether monetary and fiscal policy can well stabilize price levels if prices in large areas are administered and hence less responsive to overall measures. In this case at least a very great, more than proportional, impact on the responsive, sensitive prices in the more competitive sector of the economy may be needed to reach any desired overall level. It seems that in the balancing of objectives under the Employment Act of 1946, maintenance of a certain price level must not be a necessarily overriding consideration.

The market structure in the markets for the outputs, and the workings of the institutional setup of employment influence employment and wages and have to be considered every time, especially if they do not stay invariant over the change. Generally speaking, there will be less unemployment in a growing economy than in a stationary one. On the other hand, a growing economy requires changes and a high level of investment. For that reason, frictional unemployment due to industrial and regional change will be relatively high. This type of unemployment in a growing economy such as ours has been estimated as high as 4 percent of the labor force. This kind of unemployment cannot properly and successfully be alleviated by overall monetary—fiscal measures.

We have to be satisfied with the use of benchmarks, guideposts, or similar rules of thumb. In fact, we do not need to establish a single benchmark for full or maximum employment. What we need are several benchmarks, every one denoting a number of unemployed for a stated period of time. The term "unemployed" may have in every case a different definition. Every benchmark should give us an occasion to consider when certain anticyclical expenditure measures ought to be started. We may use a figure or a percentage, but we have to be careful which definition of unemployment we relate to that figure or percentage. Different definitions of unemployment can, perhaps, be used equally well in connection with different benchmarks. Different benchmarks might be in place for considering more time-consuming legislative action and for starting swifter administrative action. The most important signpost is the figure of unemployed required for large-scale public works to be financed largely by budgetary deficits. There must also be signposts developed for restrictive government action in an employment situation where inflationary pressure becomes too great.

In general, if the public understands and approves governmental action, such publicly supported action is likely to be more effective. Nevertheless, it does not necessarily follow from these premises that contemplated tentative benchmarks should be made available to the general public. The situation is somewhat though not fully simi-

lar to the situation common to monetary policy. As a rule a policy is the more effective the less the general public knows in advance the means available to and the specific measure of, let us say, the Open Market Committee of the Federal Reserve System, and therefore is not able successfully to counterspeculate. The tentative nature of our knowledge may also be a good reason not to state goals publicly in advance.³

Presently, our knowledge of desired achievement, means, time, and dosage is much too uncertain to consider the enactment of programs to be started automatically at the reaching of a certain benchmark (formula flexibility). Foreign experience in that matter seems inconclusive and on many grounds not applicable to the United States.

MEASUREMENT OF EXPENDITURES AND EXPENDITURE CHANGES FOR PURPOSE OF SHORT RUN STABILIZATION

Measurement of public expenditure (or more specifically of Federal public expenditure) is dependent on the purpose to which we want to apply the result. We are presently concerned with spending for stabilization. For stabilization purposes the actual cash flow will be of primary importance. The administrative (conventional) budget is of little help. A statement of receipts from and payments to the public (consolidated-cash budget) will be of greater significance. The Bureau of the Budget as well as the Treasury provides us with statements of this kind. There are a number of steps in the process of spending that can be distinguished; further refinements may easily be made.

1. Statutory enactments and administrative action, which will lead in due time to expenditure; e. g., a civil servant is hired or a soldier joins the Armed Forces. They will in due course acquire rights or at any rate will have to receive benefits of some kind. Authority to make contracts may exist preceding appropriations as for example in military procurement and in construction. Government enterprises may have authority to spend money they have been authorized to borrow from the Treasury or from the public without further appropriations.

2. Appropriations proper (authority to obligate and to spend).

3. Actual administrative incurring of obligations or making of commitments.

4. Actual production of goods for the Government, which as a rule leads to private expenditures in producing them.

5. Actual delivery of goods and services to the Government whereby claims against the Government arise.

6. Payments actually made under appropriations (outlays). These come about under previously incurred obligations but also without previous obligation.

Unobligated obligation authority carried over as well as unspent obligated appropriations carried over complicate the budgetary picture; so do—to a much smaller extent—supplementary and deficiency appropriations.

There is a wide and growing range of Government activities, the exact classification of which may be somewhat in doubt but which

³ Samuelson in Colm, ed., *The Employment Act, Past and Future*, Washington, 1956.

should be included with the expenditures. In a technical sense, loan guaranties (e. g., Federal Housing Administration, Veteran's Administration) are not expenditures. As the Government as a rule does not have to reimburse anybody due to the guaranty, this guaranty will not even lead to a governmental expenditure. Such activity might be considered stimulating, promoting, making possible private expenditure. But for the purposes of stabilization these activities should be treated like governmental expenditures. The same is true for long term leases of, for example, specially built postal and office facilities. Technically only the rental is an expenditure, but the economic effect is the same as if the Government had spent the money to build the facilities. Abatement of taxes due to carryback provisions should be considered an expenditure, because the tax reduction is due to facts which have largely occurred after the tax has been paid which is now reduced by the carryback of losses. Tax refunds due to tax litigation, though they also do improve the cash situation of the recipient and are paid out of appropriated funds, may better be treated as decreasing receipts from taxes.⁴

Every one of the steps enumerated above has economic consequences. Some effects will occur during the earlier stages in anticipation of expected government expenditure, some repercussions will come about after the receipts from government are respent by the recipients. The former effects are not easily treated in a formal manner, as it happens frequently with attempts at formal treatment of expectations. Privately financed deficit expenditure on government account (to borrow a term Professor Hart has used in the June hearings) is important in military procurement, especially in the earlier stages of industrial planning and of preparation of actual production.

Control of spending is divided between the legislative and executive power. Congressional control ends as a rule with appropriation. This control is further complicated by unused and carryover obligational authority and spending authority. Administrative control concerns itself with the steps following appropriation.

Generally speaking a step that makes very likely the occurrence of those following it will be the most important step. Much depends on when anticipatory action can and will be taken. An appropriation that conforms to a willingness of the administration to spend it will be an important step. Sometimes the letting of contracts will have the strongest impact leading to anticipatory private spending. Sometimes only actual expenditure will count. The relative importance of every step is different according to circumstances. Anticipatory private spending and anticipatory private use of resources, not only the periods of income propagation following the expenditures, have to be considered. Expenditurelike activities (guaranties, etc.) may be very important. The use of large aggregates and the use of single time points to judge the process will lead to serious oversimplification.

Variation of government expenditure can be measured in terms of flexibility. Flexibility may mean an absolute (dollar) change or a percentage change relating government expenditure and an external variable (like gross national product or employment). As discussed above expenditure in the wider sense may be measured at any of the

⁴ See on these problems C. Lowell Harris, *The Journal of Finance*, 1954.

steps outlined above, though actual spending is the most important step; the relevance of the large aggregates to which expenditure is to be related is also open to doubt. The change is usually measured without reference to the time which has to elapse before the measured result comes about, though lags are important.

Built-in (automatic) flexibility of expenditure should mean that under existing programs and statutes (without legislative change or major exercise of administrative discretion, though appropriations may be still needed) expenditure will change as the result of change of the gross national product or of employment. Unemployment benefits or relief payments may serve as an example. The expenditure change in turn may influence the size of gross national product and employment. In actual measurement change in gross national product causing expenditure change and change in gross national product modified by expenditure change will not be easily distinguishable, though the economic processes are distinctly different. Built-in flexibility of taxation has increased very much over the last generation due to the increasing importance of personal and corporate income taxes. This flexibility may be too great and thus cause instability, or it might just be sufficient. Nevertheless, the opinion is widely held today that the effects of built-in flexibility of taxation are not strong enough to mitigate economic fluctuations sufficiently. Built-in flexibility of expenditures, like relief payments, would add to the stabilizing influences. The fluctuations of payments in agricultural programs do not follow a clear anticyclical pattern. Unfortunately, flexibility on the whole has declined considerably as against the thirties largely due to the preponderance of military expenditure. Only the slightest degree of flexibility can be assumed in that area and that only in the sense that if there were widespread unemployment and social unrest in the Western World the aggressive propensities of the Soviet Union would probably increase and then require more expenditure for defense and foreign aid. We may measure built-in flexibility in a very simple way such as A. G. Hart's formula:

$$\frac{\text{Dollar Increment of Deficit}}{\text{Dollar Increment of Gross National Product}}$$

We may develop more specific formulas using specified models of the economy. Due to the present size of governmental expenditures even relatively small variations must exert considerable influence. Nevertheless, our reliance on built-in flexibility of Federal expenditure should be slight.

Legislative and administrative flexibility is an autonomous change, measured by the dollar or percentage change of expenditure. Such change will presumably bring about a change in gross national product or employment. One must compare the situation with the one which would have developed in the absence of the expenditure change.

The degree of variability and the speed of variation do not go hand in hand. Frequently speed of expenditure change will be greater than speed of revenue change. The speed of possible increase of expenditure is different from the speed of decrease of expenditure. The measure most frequently proposed to speed up expenditure increases is the public works shelf. If the (necessarily inexpensive and long

drawn) planning stage of public works would precede the time of need, faster spending would be possible when need arises. This procedure is not without danger as every planned project has an innate propensity to be executed irrespective of the business cycle. The speed with which projects once started can be stopped is something else again. Canals are likely to be completed. Road improvement can be done piecemeal and is easily terminated; this adaptability in terms of anticyclical policy should not lightly be sacrificed for a long-range program—except if it were suggested such a program were necessary to counteract stagnation. Grants-in-aid and subsidies can seemingly be easily terminated but this termination may not be feasible due to actual or presumed socioeconomic consequences for the recipients, be it private individuals or governments.

Legislative deliberation frequently takes more time than administrative deliberation. Nevertheless, legislative speed (from the beginning of deliberation to the actual expenditure) may well be in any specific case greater than administrative speed. Again, consideration of every case on its merits without much reliance on supposed general considerations will be necessary.

Surpluses and deficits might balance out over the business cycle. We may or may not use a capital budget; at any rate, for true capital items debts may be incurred and capital-consumption allowances may be spread over the useful life of the capital item. For cyclical stabilization, depreciation taken may well be higher in years of prosperity and lower in years of depression. Surpluses and deficits certainly must not balance over the cycle in a progressing economy. The rate of permissible debt rise in relation to the rate of growth of the economy, though, is outside of the scope of this paper.

A debt rise may be also permissible within a fairly unchanging economy, but stringent limitations are to be observed lest the public demand for funds dry up the supply of funds necessary for private investment. There is also the great danger that funds are provided in an inflationary way through the banking system. Finally, the increasing size of the recurrent debt-service burden may have an unfavorable effect, though this seems to be somewhat less likely. Different ways of debt management make for important differences. In general, additional expenditures are expansionary, but expenditures made on servicing the public debt may be contracting due to their asset effects. More spending on interest of the public debt may make it possible to have a public debt of longer duration; such securities will be harder to liquify and more other liquid assets will have to be held by the public or the banks. High interest rates also may make possible a transfer of the securities from the banks to private holders, thus decreasing private funds available. Such a transfer can also be a first step toward monetary restraints in the banking system; that is, it may make possible the application of more restrictive monetary policy. All these considerations, however, go beyond expenditure policy proper.

REPERCUSSIONS OF EXPENDITURE CHANGE ON STABILIZATION

Repercussions can be measured by effected changes in the large aggregates or in some more specific manner. Repercussions may result

from anticipated public spending. On the whole, though, the primary determination of effects of Government expenditures on gross national product, national income, or on employment is primarily through the concept of multiplier effects following spending. The increase in gross national product or national income is measured which is not only due to the initial autonomous increase in investment of Government spending but is also due to the consequent increases in consumption. The multiplier might be a specific public-works or public-expenditure multiplier, or it might be a more generalized investment multiplier. Such multipliers are quite useful in model building, but it sometimes becomes difficult to distinguish between monetary effects (incipient inflation) and effects in real terms (increased level of output). An employment multiplier, that is, the final increase in employment due to public works, though less fitted for model building, does measure directly the desired main result in real terms. Moreover, an increase in income and hence in consumption will lead to voluntary increase in inventories and to increases in investment in facilities producing the consumption goods when the existing facilities are already fairly well used (acceleration). Sometimes increased investment will lead to induced additional investment followed by new multiplier expansion. The total effect has sometimes been called leverage, measured by a supermultiplier (A. Hansen).

In any situation where there exists, at going prices and wages, considerable unemployment and considerable unused resources, any additional compensatory public spending which does not create a compensating reaction through decreased private spending will lead to some additional private spending when the public expenditures are repaid by the recipients. This repaying will lead with leaks and lags to some additional use of resources and additional employment—that is, additional output at going prices. This additional income will lead again with leads and lags to some additional output and employment and so forth. Any increase in real terms is only possible as long as there is sufficient unused labor and resources available. Studies made before the Second World War about the numerical size of the multiplier effect are largely obsolete due to the changed structure of the economy. These are also presently inapplicable due to the higher level of use of labor and resources. Little recent empirical work has been published due to the fact that employment and output have been rather uniformly high over the last 15 years. Any multiplier effect in real terms is presently presumably very low, and unfavorable effect on private spending likely to be high. Multiplier models have, as a rule, been insistent that the initial step is an increase in autonomous investment or Government spending and the following steps are increases in consumption. In reality, the neatness of the distinction between investment and consumption is somewhat blurred. Recent models consider certain additional repercussions in investment and in consumption. For policy purposes, measurement of repercussions in the past is of help only to the extent that stable relations can be safely assumed over a considerable period of time or a safe estimate of the importance of the changes were possible.

At any rate, fluctuations in investment during the business cycle are much greater than fluctuations in consumption; investment goods play a strategic role in the business cycle. For that reason, as well as for

others, emphasis on spending on investment goods (including construction) seems quite justified.

In a depression, fiscal policy relating directly to expenditures is more forceful than monetary policy which only can make borrowing easier if borrowers want to borrow. Expenditure increases are in depression more powerful than tax reductions, because tax savings may be used for debt repayment, increased cash holdings, and so on. Higher taxes show probably more powerful restraining effects in prosperity than expenditure reductions, though this is somewhat controversial. Sometimes the feasibility of any tax or expenditure variation will depend on the established level of taxation and of expenditure and their socioeconomic consequences. It may be questioned whether Colin Clark's 25-percent maximum level of taxation has empirical validity. Certainly, there are, somewhere, limits to tax increases in a democratically organized society.

A Government surplus will have a restrictive influence if the resultant surplus is sterilized, e. g., in the rainy-day fund, preferably not deposited with the commercial banks. The surplus may be used for debt reduction and still retain its restrictive effect if care is taken that the increase in the spending power of the recipient of the money is in some way destroyed. The classical case is the repayment of public debt to the banks with simultaneous reduction of their money-creating power. If this reduction of the money-creating power of the banks cannot properly be safeguarded, the debt reduction out of surplus will have hardly any restrictive effect.

If expenditures are balanced by revenues the countereffects of the raising of revenues have to be considered. National income is defined as equivalent to the sum of private consumption, net private investment, and labor and resources used by government, neglecting for this discussion the small net foreign investment. Then, most of the time, government, by taxation, absorbs some existing funds which are "income" in the everyday sense of the word, and repends these funds in their entirety. The Government prevents some fraction of the amount taxed from being "saved." If we define "realized" savings as equal to investment, and if we assume they fall short of "intended" savings, that is, savings in the everyday sense, in the situation described above, the decrease in consumption and investment must then be less than the increase in the Government sector of national income (always measured by expenditure, that is, cost). This would be so because the decrease in investment (which investment is less than intended savings) is less the increase in government spending, as some of the taxes fall on savings that would not be invested. Thus, taxing and spending seem to raise, almost by the powers of definition, national income. Under conditions of full employment, people may work in part for the Government instead of for themselves; but, if there is a sufficient amount of idle manpower and resources, the amount of employment and productive services required by the Government may come forth in addition to what is wanted by the private sector of the economy. The money value of all goods and services produced for private as well as for public needs will have increased. In fact, from the employment point of view, the result for the society as a whole will be exactly the same as if the Government had ordered idle manpower and resources without any direct compen-

sation. The additional quantities of goods produced and services rendered may be paid for at unchanging prices. But, it cannot be inferred in which way well-being will be affected. The effect will depend on whether the Government services add to the well-being of individuals otherwise dependent on their net average private incomes. Moreover, it should also be noted that total net private income divided by the number of people who work in both sectors and hence receive income, that is, average net income of people employed, will fall. Only the net private average income—that is, the total net income divided by population or labor force—will stay unchanged. Whether well-being is maintained for the average working person will depend on the additional well-being created by government services. Only if additional people are employed for private needs and their output is sufficiently high to provide the additional goods necessary for themselves, as well as for the people employed producing for public needs, only then will the average amount of privately used goods and services for people working in production for private needs remain unchanged or rise. There might be, in addition, adverse influences of high taxes on investment or on effort.

Certainly no general assumption is possible that such management of government finance is probable or in any way preferable to any other policy. Thinking that balanced budget expansion of the public sector raises the national income by the amount of the expansion can hardly be upheld. The indirect increase in national income, the latter term defined in the customary sense, will be small. In fact, the effects may be negative due to unfavorable indirect repercussions.⁵

Fiscal policy will have some influence on income distribution and hence on the relation between consumption and investment and thus on multiplier values. The change in income distribution will be accentuated if we include in the measure of consumption free or under-priced public services available to and relatively more used by low-income groups. Any pertinent measurement of effects of fiscal policy will require measurement of the distribution of the tax burden as well as of the distribution of governmental payments and services. If the expenditures made and services rendered out of a deficit could be separated from those paid out of taxes it would be possible to speculate whether these additional expenditures tend toward further income equalization. But it is not likely that the equalizing effect of deficit financing over the business cycle will be very pronounced.

Some government expenditure will strengthen, some will weaken private investment; sometimes investment will be weakened by even more than the amount of public expenditure. Effects will not only depend on how the funds have been acquired (taxes, borrowing from private borrowers, borrowing from banks) but very much on the specific manner in which they have been put to use. It is also important how the use of funds influences the general climate of opinion, especially of investors' opinion. Building of pyramids is not deterrent to any kind of private investment yet it will have an unfavorable effect on investors' attitudes in our society.

Total fiscal effects will not only depend on revenue and expenditure of the Federal Government. On the other hand, the financial systems

⁵ See Baumol and Preston, *American Economic Review*, 1955, 1956.

of States and municipalities are not well organized for contracyclical policy. Stringent constitutional or, in case of localities, even statutory debt limitations, and required earmarking of funds make flexibility very difficult to obtain. Individual State and local budgets by themselves are too small to have any recognizable influence on overall fiscal policy. These governments can hardly have any incentive to follow a Federal pattern, except for grants-in-aid that require matching or for similar such devices. It can be shown that Federal deficit spending in the thirties, small by itself, was largely counteracted by disinvestment and debt repayment by States and localities and therefore could not have had under these circumstances any significant stabilizing influence.

CONCLUSIONS

A few tentative conclusions may be drawn :

1. For the purposes at hand large aggregates like total expenditure, but especially such as gross national product and national income, hide significant problems. Their use is frequently dangerous. We need more specific knowledge about relations between more restricted aggregates. We lack sufficient quantitative measurements of repercussions and know little about the degree of stability of established relationships.

2. Deficit spending is as a stabilizing device more powerful than revenue-covered spending. Deficit spending seems very useful (and available alternatives to it most restricted) at low levels of output and employment. At what levels of output and employment the usefulness of this device diminishes and finally ceases is difficult to state. Empirical measurements of final repercussions, but even only of multiplier and related effects, are very rough and uncertain and tend to become soon obsolete. Final effects in real terms change not only with changing levels of output; there are important indirect repercussions from which we cannot abstract. Predictability of final effects in quantitative terms is very limited. The behavior of the general price level or cost-of-living price level is not always necessarily of overriding importance. The influence of certain types of expenditure, of prolonged deficit spending, and of debt increases on the prices and on the climate of public opinion necessary for strong private investment has always to be kept in mind.

3. Emphasis should be on public expenditure favorable rather than on such unfavorable to private investment. For that reason it seems that such expenditures should preferably not be competitive to private investment. On the other hand, such expenditure must have a considerable degree of usefulness not only for the welfare effects to be derived from these expenditures but also because of their impact on public opinion as prevailing in our society. This poses a familiar dilemma in planning and executing public works.

4. A relatively high degree of potential variability and potential speed in starting as well as ending spending programs is important. Built-in flexibility of expenditure can only be relied upon to a very moderate extent. A high degree of social usefulness persisting over the different phases of the business cycle makes spending more desirable by itself. Yet such usefulness poses a very serious problem when termination becomes important. There are, therefore, additional distinct limitations on the desirable kind and intensity of social usefulness

of expenditure when speedy contracyclical variability is considered necessary.

5. Coordination of Federal and State-local policies is desirable but is distinctly limited by the established Federal system.

6. Fiscal policy is supposedly only concerned with levels of output and employment. Different economic activities are influenced in different ways by different ways of spending. It is generally considered within the scope of overall fiscal policy to emphasize that spending favorable to the general level of investment (in real terms) is desirable. The behavior of the investment goods industries (in the wide sense of the word, to include, for example, construction) has a crucial impact on the economy.

7. Anticyclical policy does not necessarily require that the public debt fluctuate around a predetermined size. Sterilization of the surplus may be preferable to debt repayment despite the loss of interest savings. There are distinct and strong limitations to permissible debt rises. The danger of inflation is only one of several limiting factors. The limitations, to be accepted, must leave some room for the feasibility of at least some sudden debt rises due to war or warlike situations.

8. Anticyclical fiscal policy should be content with less than complete success in achieving a set employment and price level. We know too little to permit fairly precise timing and dosage. Attempts at stringent stabilization will have undesirable side effects. Expenditure policy can be used, though, successfully to mitigate considerable fluctuations. The effects of expenditure increase in depression have been much more thoroughly explored than the effects of expenditure decreases in an inflationary prosperity. The determination of the extent of permissible fluctuations in output and employment and in prices should be a primary policy decision. Our restricted knowledge about final repercussions is an additional reason why some degree of fluctuation should be unavoidable. The development of even only tentative benchmarks for legislative and executive action would be of greatest help, though they would not necessarily have to be made public.

A discussion of anticyclical compensatory spending together with a discussion of policies promoting a desirable and feasible rate of growth point toward a framework within which the study of specific expenditure programs should take place. A thorough investigation of specific programs and their specific repercussions at different levels of output and employment is necessary. Repercussions on prices and price levels have to be studied most carefully. At times these repercussions might be of overriding importance. The value of generalized models which relate in money terms the large aggregates to each other is restricted. Such models should be considered only as a very first step toward specific investigations of expenditure programs.

FEDERAL SPENDING AND THE STABILITY OF THE POSTWAR ECONOMY

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Federal expenditures for newly produced goods and services have averaged 11 percent of the gross national product annually since the end of World War II, as compared with shares of 1 and 4 percent in 1921-29 and 1930-40. An increase of this magnitude in the relative importance of Federal spending must have ramifications touching practically every phase of the Nation's economic activity. It is commonly supposed that one major result of the growth in the size of government has been to increase the stability of the postwar economy. That is the proposition to be examined in the present paper. It is not my purpose, however, to discuss deliberate contracyclical fiscal actions, such as changes in government expenditures or tax rates designed to offset unwanted fluctuations in private demand. I will confine my attention to the structural effects of big government as a factor influencing the exposure of the economy to disturbing forces, on the one hand, and the manner in which it reacts to those forces, on the other.

Let us make a start on the problem by distinguishing two principal kinds of demand for final output: Expenditures which are closely linked to the level or rate of change of national income, and those which are importantly affected by other factors and may therefore vary independently of income. Fluctuations in the latter type of expenditure can initiate or prolong movements in aggregate economic activity, but the character of the movements is also influenced by the manner in which income-related or induced expenditures behave as income changes.

It is important to notice that expenditures which are independent or autonomous with respect to income are not necessarily unstable. Autonomy permits variation but does not require it. Conversely, expenditure streams which display a high degree of instability through time may do so either as a consequence of autonomous factors or because they respond strongly to variations in income or its rate of change. It is apparent, then, that if an increase in the relative importance of a given category of demand is to exert a stabilizing influence on the economy, it must either decrease the variability of autonomous expenditure, or reduce the magnitude of the response of induced expenditure to income changes, or result in some combination of these two influences which is favorable on balance. These are the possibilities which will be considered in reaching a judgment about the stabilizing influence of big government as a structural feature of the economy.

¹The views expressed in this paper are those of the author. They do not necessarily reflect the views of other members of the Brookings staff or of the administrative officers of the institution.

It follows from what has been said that the effects of a given amount of government expenditure are likely to differ according to its mixture of autonomous and induced components and the specific characteristics of each. It must also be stressed that the effects will vary with the method of finance. However convenient and enlightening for analytical purposes it may be to separate the receipt and expenditure sides of the budget, this must not lead to the complete neglect of the one when attention is directed primarily to the other. Accordingly, taxes as well as expenditures will be discussed at the appropriate places in the subsequent pages.

AUTONOMY OF FEDERAL EXPENDITURE

The first question to be decided is the degree of independence or autonomy of Federal expenditure. A distinction must also be drawn between government expenditures which represent an outright demand for newly produced goods and services and those which do not. Since our interest lies in the role of government as it actually exists in the postwar economy, these matters may be discussed with reference to the prevailing pattern of Federal outlays.

Federal expenditures in 1956, as measured in the national income accounts, are shown in table 1. These figures differ somewhat from those contained in the conventional and cash budgets, in that they exclude certain capital and lending transactions, expenditures for goods and services are timed with delivery instead of payment, and CCC guaranteed nonrecourse loans are recorded as expenditures when the loans are made rather than when they are redeemed by CCC. Also, they include the transactions of the trust accounts, which are omitted from the conventional budget although counted in the cash statement. In addition to these conceptual differences, the expenditures are given on a calendar year basis rather than for the fiscal year. The figures may appear unfamiliar to persons accustomed to the cash or consolidated budgets, but they are conceptually the most desirable for present purposes.

It will be seen that about two-thirds of total Federal expenditure last year was devoted to the purchase of goods and services, while the remainder consisted of various items which transferred income from taxpayers to one or another sector of the economy. Such transfers may affect the demands of households, businesses and State and local governments and will be dealt with later. For the present, however, attention will be confined to direct Federal purchases of goods and services. These were comprised in 1956 of \$40 billion for national defense, \$2 billion for other national security, and \$5 billion for all other purposes.

TABLE 1.—*Federal expenditures as shown in the national income accounts, calendar year 1956*

[Billions of dollars]	
Total expenditures.....	72.0
Purchases of goods and services.....	47.2
Transfer payments.....	13.5
Grants-in-aid to State and local governments.....	3.3
Net interest paid.....	5.2
Subsidies less current surplus of government enterprises.....	2.8

Source: Survey of Current Business, July 1957.

How might these expenditures for goods and services be expected to change in response to movements of aggregate economic activity? The answer to this question will partly depend on the period of time allowed for the occurrence of induced responses. A certain amount of short-term built-in flexibility exists in the form of movements within previously defined and budgeted programs. According to recent careful estimates, however, such expenditure changes are likely to be comparatively unimportant, both absolutely and relative to the much larger induced movements of tax receipts and transfer payments.² Much of such flexibility as does exist is due to the price changes which accompany movements of national output. Price-induced expenditure fluctuations are cyclically perverse in monetary terms although neutral in real terms unless administration officials take discretionary steps to use the resulting monetary savings to accelerate real expenditures during contractions, or act to absorb price increases by curtailing real operations during expansions. Apart from the uncertain area of price effects which might or might not alter real expenditures, sizable automatic or quasi-automatic variations may occur in activities like the agricultural price support and stockpile programs. The potential contribution of such variations to changes in Federal spending is limited by the small size of the programs in the total budget, however, although on occasion they may account for a substantial fraction of the actual total change.

If sufficient time elapses so that programs can be altered by congressional action, induced responses of another sort become possible. The character of these responses would depend upon the fiscal attitudes of administration officials and legislators. Thus at given tax rates, tax receipts will rise and fall in conformity with national income. If actual or expected increases in revenue were viewed as favorable opportunities to augment expenditures, and decreases were regarded as signals that retrenchment was necessary, much of the potential stabilizing influence of Federal spending would be dissipated. While deliberate contracyclical changes in expenditures or receipts have been excluded from discussion in this paper, it is relevant and important to emphasize that one corollary to the view that large-scale Federal expenditures may be stabilizing per se, is that they are determined independently of induced fluctuations in revenue. This thought may be clarified by a simple example.

Let us compare three hypothetical situations. In the first, it is assumed that when national income declines, the entire brunt falls upon disposable personal income. Thus, a \$10 billion decline in gross national product produces an equal fall in disposable income, which in turn induces a reduction of, say, \$8 billion in personal consumption expenditure. In situation 2, we take account of induced changes in tax receipts. Now when gross national product falls by \$10 billion, personal and corporate income taxes decrease by \$4 billion, and disposable income falls by only \$6 billion, rather than the \$10 billion of the preceding example. If the relative response of consumption to disposable income remains the same as before, the induced reduction in consumption expenditure will be only \$4.8 billion, or 60

² See the papers by David W. Lusher and Samuel M. Cohn in *Policies to Combat Depression*, a Conference of the Universities National Bureau Committee for Economic Research, Princeton University Press, 1956, pp. 77-100.

percent as much as in the first situation. Automatically induced changes in tax receipts have cushioned the decline of income after taxes and therefore of consumption expenditure, adding to the stability of the economy. But this conclusion will not necessarily hold in situation 3, in which a behavioral response of government spending to changes in revenue is postulated. If a successful effort were made to keep the budget balanced at all times, for instance, the net effect of government fiscal operations would be destabilizing. Thus in situation 2, the \$4 billion fall in tax receipts prevented a decline of \$3.2 billion in consumption which otherwise would have occurred. If the fall in tax receipts induced an equal reduction in government expenditure, however, the latter would decline by \$4 billion, hence more than offsetting the \$3.2 billion cushion to consumption expenditure. The combined reduction in expenditures by consumers and the government per \$10 billion drop of gross national product would be \$8.8 billion, or more than the \$8 billion drop in consumption which would have resulted if there were no change in tax receipts at all.³

I do not mean to assert that this last is an especially likely result. For one thing, the adjustment of expenditures to receipts would not be exact even if a continuously balanced budget were the goal, or perhaps something less than an exact adjustment would be sought. In these circumstances, expenditures might not change as much as receipts. If the proportional response of government expenditure to tax receipts were the same as the response of consumption expenditure to disposable income, the government fiscal operations would leave national income unaffected; whereas if government spending changed less per dollar of tax change than consumption spending did per dollar of income change, the net effect would be stabilizing, although less so than if government spending did not change at all. Again, it may be that advocates of a balanced budget would behave differently; that they would react to increases or decreases in tax receipts by seeking decreases or increases in tax rates rather than changes in expenditure. The important thing to notice in this connection, however, is that such actions would also be destabilizing. Yet, again, possible effects on private investment have been neglected in the example. These could go either way, since the adverse effects of unstable government expenditures on business sales might be augmented or diminished by psychological reactions of the business community to the policy of continuously balanced Federal budgets; reactions which are uncertain in direction and strength and may change with the attending circumstances. Finally, Federal expenditures in the present economy may in fact be largely autonomous with respect to induced fluctuations in tax receipts, so that instability does not arise from that source. My concern has simply been to emphasize that any conclusion that a large volume of Federal spending is inherently stabilizing implies, among

³ The potential extent to which these situations differ may not be immediately apparent to the nontechnical reader. Taking the three cases in order, the total change in gross national product per \$1 initial change in, say, investment, would be \$5, \$2, and \$8. The comparatively small differences in the amount of induced expenditure per dollar of change in gross national product add up to sizable amounts when successive rounds of income and expenditure are considered, since each drop of income reduces expenditure in this period and therefore leads to a further decline of production, income, and expenditure in the next period. The reader should also note that the figures I have used are illustrative only and are not to be taken as estimates of actual relationships in the economy, and that no allowance was made in the example for changes in business saving.

other things, an expenditure policy which if not actively countercyclical, at least is not of the countercyclical, balanced-budget variety.

It will be assumed in the remainder of the discussion that income-induced changes in Federal purchases of goods and services are comparatively unimportant, and that postwar variations in government expenditure have been due primarily to autonomous factors. This is a reasonable supposition if for no other reason than the fact that expenditures for national security bulk large in the total and have fluctuated widely with changes in international tension.

THE INSTABILITY OF FEDERAL SPENDING

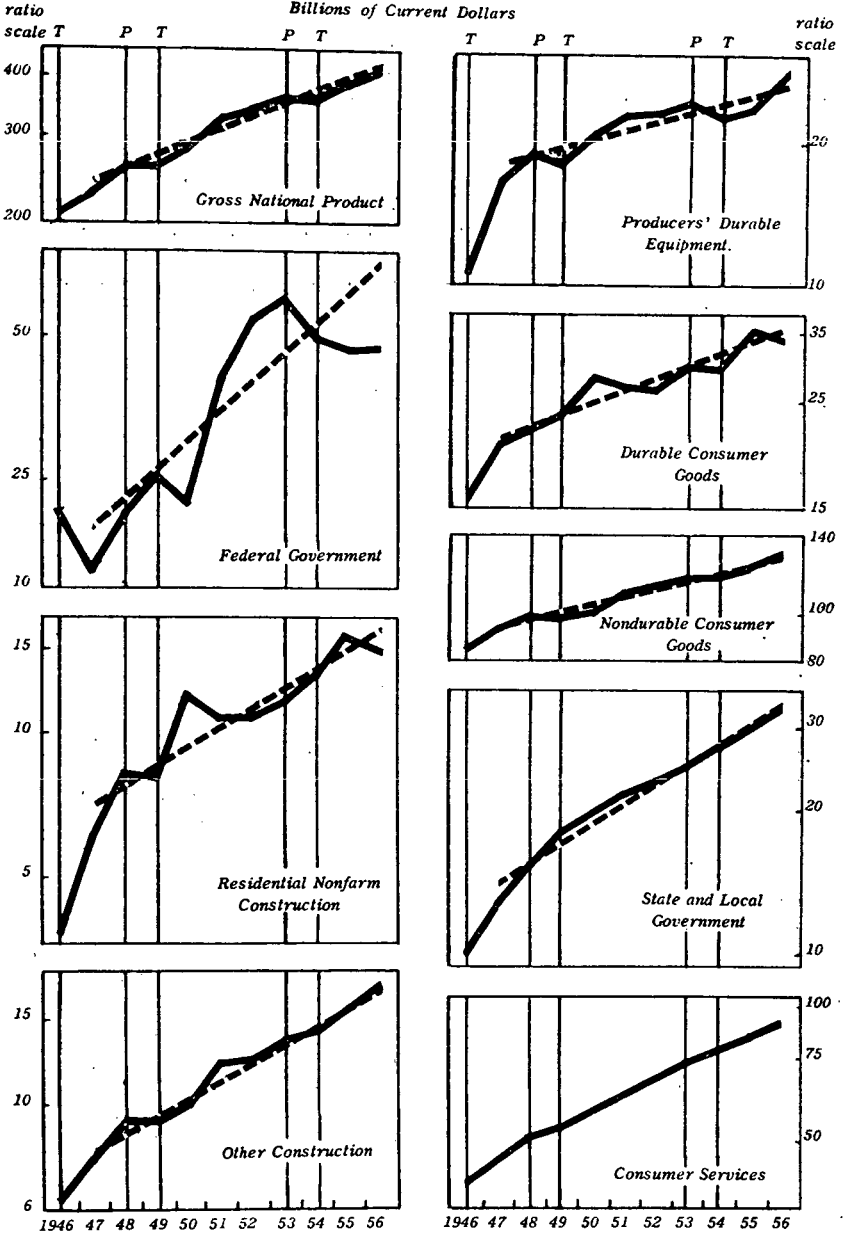
Granted that Federal expenditure is a largely autonomous source of demand for output, is it a stabilizing or destabilizing source? To ask this question is to raise several others. Is it subject to frequent or wide fluctuations? Do its fluctuations tend to counteract or to augment the ebb and flow of private expenditure? Have Federal purchases grown at the expense of the less or the more stable of other demands? Has a higher floor been placed under the economy by the enlarged share of Federal spending? Let us deal with each of these queries in turn and in the light of experience since World War II.

Chart 1 depicts the course of the major categories of domestic demand for final goods and services during 1946-56. The chart is drawn on a ratio scale, so that increases and decreases are pictured in relative terms. Similarly, the straight lines which have been drawn through each curve to indicate its upward drift are more or less steep according to the average percentage rates of increase during the period. Since 1946 was a disturbed year of postwar transition, it had been eliminated in establishing the drift lines, which may be regarded as defining the average rate of growth for the decade 1947-56.

Foremost among the interesting features revealed by the chart is that in most meanings of the term, Federal expenditure has shown the least short-term stability of all major components of final domestic demand during the postwar years. To mention the exception first, if stability be defined in terms of the number of reversals of direction during a given period, the Federal sector was more stable than producers' durable equipment and no less stable than consumer durable goods or residential construction. Frequency of change of direction is not the only criterion of stability, however. It is surely necessary to distinguish between what may be called instability in the small and in the large. The postwar history of durable goods—either producer or consumer—exemplifies instability in the small, in the combination of frequent but moderate oscillations. In contrast, the swings of Federal expenditure occurred nearly as often and were considerably larger.

Stability measures which reflect relative amplitudes are readily constructed. Two types are presented in table 2. In the first column, the average annual percentage change is shown for each of the series displayed on the chart. The increase or decrease from one year to the next is expressed as a percentage of the average level in the 2 years, and an average of the resulting annual percentage changes is struck without regard to sign for the entire interval from 1947 to 1956. The

Chart 1
Gross National Product and Selected Major Components, 1946-56
Billions of Current Dollars



Note: The vertical lines represent business cycle peaks (P) and troughs (T) as dated by the National Bureau of Economic Research. The dashed growth lines are fitted to the data for 1947-56 by the method described in footnote (2) of Table 2. No growth line has been drawn for consumer services, since it would be scarcely distinguishable from the actual data. For source of data, see Table 1.

outcome is a measure of average year-to-year variability, in which account is taken of the size of the economy at the time of the change, but not of its growth throughout the period. In effect, the position of the economy in a given year is accepted, and we ask how much each category of expenditure expanded or contracted from that year to the next. A glance at the table will demonstrate that by this test, Federal spending outranked every other category in degree of instability, and that only residential construction ran a close second.

A drawback to the foregoing measure of variability is that it makes no allowance for smoothness or regularity of change. This disadvantage largely disappears when the measure is supplemented by a chart, but it may be preferable to handle the difficulty more directly. Suppose that the drift lines of chart 1 are taken to be representative of the prevailing growth tendency of each series during the decade. A movement along the line would then signify stable growth at a constant rate, and fluctuations about the line would be evidence of instability of growth, either in the sense of accelerations and retardations of the rate of increase, or in some instances, actual declines. An index of instability of growth has been computed for each of the charted series by averaging the annual percentage deviations of the actual data from the growth line (table 2, third column). By this criterion also, Federal spending was the least stable of all categories during the past decade; indeed, this is true by a wider margin than in the preceding set of measures.

TABLE 2.—*Measures of stability and growth of selected categories of expenditure, 1947-56*

[In percent]

Expenditure category	Average annual ¹ change	Average rate of growth ²	Index of stability of growth ³
Gross national product.....	6.6	6.7	3.4
Personal consumption expenditures.....	5.4	5.5	1.0
Durable goods.....	8.5	5.9	4.6
Nondurable goods.....	4.4	4.0	2.0
Services.....	7.4	7.6	.7
Gross private domestic investment.....	17.8	6.6	11.1
Residential nonfarm construction.....	15.4	9.8	9.5
Other construction.....	9.7	9.0	3.6
Producers' durable equipment.....	9.2	4.3	6.1
Government purchases of goods and services.....	14.3	13.3	13.3
Federal.....	20.3	15.2	20.5
State and local.....	10.5	10.1	3.2

¹ The arithmetic mean of annual percentage changes, signs disregarded.

Each annual percentage change is computed as the ratio of the absolute change from the previous year to the average level in the previous and current year.

² Computed from an exponential curve fitted to the data by the use of Glover's mean value table (J. W. Glover, *Tables of Applied Mathematics*, George Wahr, Ann Arbor, Mich., 1923, pp. 468 ff.). The average rate of growth is the slope of a straight line drawn on a ratio scale, as in chart 1.

³ An arithmetic mean of the percentage deviations of the annual observations from the fitted exponential curve.

| NOTE.—For source of data, see table 1.

The reader may be tempted to enter a mental reservation at this point, to the effect that the post-World War II swings in Federal spending have been due to unusual conditions of warfare and its aftermath. It should be remembered, however, that my topic is the effect of big government on the inherent stability of the postwar economy. Throughout the past decade and at the present time, the great bulk of Federal expenditure has been for purposes of national security.

Under the circumstances, the sensitivity of security expenditures to changes in the international situation is a property which cannot be left out of account.

Instability of individual components of aggregate expenditure is not intrinsically undesirable, since the fluctuations may be offsetting rather than reinforcing. The retardations or declines of expenditures for privately purchased durable goods and residential construction during the Korean war, for example, provided stabilizing offsets to rising Federal expenditure. Counterbalancing fluctuations may at times result from essentially accidental causes, at others from the self-adjusting properties of the economic system, and at still others, from deliberate governmental actions. These reflections suggest two further questions about the postwar record of Federal spending: From the viewpoint of its contribution to economic stability, were its fluctuations accidental, deliberate, or induced; and did they augment or diminish overall stability?

A look back reveals that the postwar oscillations in Federal outlays were largely accidental in the sense used here, and that, as would be expected of accidental movements, they were sometimes stabilizing and sometimes not. The initial, huge post-World War II cutback in security expenditures was accomplished between mid-1945 and mid-1947. For the first 6 or 9 months of this period the cutback was a powerful deflationary force, to which, however, the economy adjusted rapidly and successfully. Thereafter until mid-1947, Federal expenditure fell slowly as private spending mounted, moderating the inflationary influence of the latter rise. The downward course of Federal expenditure was reversed during the summer of 1947 and it rose steadily until midyear 1949. Again security outlays led the movement, and again the movement first strengthened and later weakened the prevailing tendency of the economy, helping to prolong the expansion and inflation in 1948 and providing an important offset to deflationary declines in private demands during 1949. The economy also received an assist during the contraction of 1948-49 from a substantial induced increase in government outlays under the agricultural price-support program.

Federal expenditure did not lead on the upswing in late 1949, although the previously mentioned support during the preceding months had helped to foster conditions making for prompt recovery. In fact, government purchases of goods and services decreased somewhat during the latter part of 1949 and the first 8 or 9 months of 1950, owing to reductions under the security and price-support programs. This situation was altered radically by the outbreak of hostilities in Korea, of course, and for the next 3 years the economy was driven upward under the impetus of defense expenditures. That the subsequent decline of defense spending was a major cause of the contraction of 1953-54 is a matter of recent history. The decline abated about the middle of 1954, however, and for 2 or more years thereafter, Federal expenditure was quite stable as the private economy expanded. A sustained rise of the Federal sector set in during the latter half of last year and has contributed to the increase of gross national product since that time, although in common with other categories of expenditure, much of the rise reflects higher prices rather than greater volume.

The principal conclusions of this brief survey of the postwar behavior of Federal expenditure may be summarized as follows: It has been the least stable of the major components of domestic expenditure for final goods and services. This instability was primarily a reflection of changes in the climate of international relations, which several times exposed the economy to potent inflationary or deflationary shocks. In some instances these shocks acted to initiate or to quicken the prevailing tendencies toward expansion or contraction, and in others to mitigate them. Since 1954, however, Federal expenditure has remained comparatively stable, and until recently it was not an active factor in the expansion of aggregate activity which got underway in that year. It is evident from earlier experience, nonetheless, that Federal expenditures cannot be counted among the inherently stable components of aggregate demand for so long as they consist predominantly of outlays for national defense and security.

FEDERAL EXPENDITURE AND THE NEW COMPOSITION OF DEMAND

The stabilizing potential of Federal spending is affected by its own stability, but is not fully determined by it. Measured in current dollars, the share of Federal expenditure in the gross national product has risen nearly tenfold since 1929, yet this development will not have increased overall stability unless it has decreased the variability of total demand in at least 1 of 2 ways: By reducing the range of fluctuation of autonomous expenditures, or by moderating the response of induced expenditures to changes in income. Whether this has occurred depends in good part on the characteristics of the demands which have declined in relative importance as Federal expenditures have grown.

At first thought, the only relevant characteristic would appear to be the inherent stability of the displaced demands. If Federal expenditure is steadier than the demands which have diminished in importance, then stability has increased, and vice versa. Now this is substantially true, but it conceals two difficulties. The most important from the present point of view is that the very growth of the government share may have affected the stability of other demands, so that a simple before-and-after comparison does not suffice to settle the issue. The other difficulty has already been touched upon: suppose that Federal expenditure were highly variable but always moved against the tide. It could then be stabilizing even if less stable itself than any other component of expenditure. As we have seen, however, accidental fluctuations cannot be relied upon to be compensating. Deliberate changes could always be compensating if properly timed, but that subject falls outside the scope of this discussion of stability in the absence of discretionary fiscal actions.

For the moment, I will blink the first difficulty as well, and proceed as if the growth of the Central Government had not influenced the variability of any other category of demand. This would mean that other autonomous demands were as stable as before, and that induced demands responded to fluctuations of income in the same way and to the same degree as in former years. The latter assumption permits us to disregard induced expenditures entirely for the time being.

That is, induced expenditures can be disregarded if they can be identified. A complete specification is conceivable in principle but

probably impossible in practice. Theoretical and empirical considerations suggest, however, that investment demands may fluctuate rather widely with changes in technology, population, terms of finance, expectations, and the like, whereas consumption demands are more closely dependent on income. A provisional division may therefore be made by classifying all investment as autonomous and all consumption as induced. State and local expenditures may also be treated as autonomous demands. This is to overlook the cyclical perversity of State and local expenditure—the prewar tendency for it to vary co-cyclically with tax revenues and favorable psychological conditions for loan finance—but the response is a slow one and has not been pronounced in the postwar years. Net foreign investment is comparatively unimportant in our economy and will be ignored.

The shares of the various categories of expenditure in gross national product are shown for 1929 and 3 postwar years in table 3. All comparisons are for years of full employment. The nadir of postwar Federal expenditure came in 1947 and its maximum in 1953. The figures for 1956 are representative of the current position of the economy.

TABLE 3.—*Distribution of components of gross national product, selected years*

[In percent]

A. MAJOR COMPONENTS OF GROSS NATIONAL PRODUCT

Expenditure category	Gross national product in current dollars				Gross national product in 1947 dollars			
	1929	1947	1953	1956	1929	1947	1953	1956
Government purchases of goods and services.....	8.1	12.3	23.2	19.3	9.1	12.3	22.8	17.7
Gross private domestic investment.....	15.5	12.8	13.9	15.9	17.9	12.8	12.6	14.3
Personal consumption expenditures.....	75.6	71.0	63.5	64.4	71.9	71.0	64.7	67.0
Net foreign investment.....	.8	3.9	-.6	.3	1.1	3.9	-.1	.9

B. SUBCOMPONENTS OF GROSS NATIONAL PRODUCT

Government purchases of goods and services:								
Federal.....	1.2	6.8	16.4	11.4	1.5	6.8	16.7	10.9
National security.....	(¹)	5.7	14.2	10.2	(¹)	(¹)	(¹)	(¹)
Other.....	(¹)	1.6	2.3	1.3	(¹)	(¹)	(¹)	(¹)
State and local.....	6.9	5.5	6.9	8.0	7.5	5.5	6.1	6.8
Gross private domestic investment:								
Fixed investment.....	13.9	13.2	13.8	14.8	16.5	13.2	12.7	13.3
Residential nonfarm construction.....	3.5	2.7	3.3	3.7	4.6	2.7	3.1	3.5
Other construction.....	4.9	3.3	3.8	4.3	6.2	3.3	3.4	3.8
Producers' durable equipment.....	5.6	7.2	6.7	6.8	5.7	7.2	6.2	6.1
Change in business inventories.....	1.6	-.4	.1	1.1	1.4	-.4	-.1	1.0
Personal consumption expenditures:								
Durable goods.....	8.8	8.9	8.2	8.2	8.7	8.9	8.7	9.2
Nondurable goods.....	36.1	40.1	32.8	32.2	38.9	40.1	34.5	35.2
Services.....	30.7	22.1	22.5	24.1	24.2	22.1	21.4	22.6

¹ Not available.

Source: See table 1.

The first thing to be noticed is that autonomous demands as defined above have increased as a percentage of postwar gross national product. When gross national product is measured in current dollars, the share of consumption is found to have decreased fully as much as the proportion of Federal expenditure increased between 1929 and 1956. There was no relative displacement of investment. The picture is altered somewhat when account is taken of price changes, but

consumption still remains a smaller proportion of gross national product than in 1929, though this is now also true of investment.

The enhanced importance of autonomous demands could work in either direction. If government expenditures—Federal as well as State and local—prove to be stable elements of demand in the future, the fact that real private investment is now relatively less important is favorable to stability, even though taken altogether autonomous expenditures are larger than before. Historically investment demand has been a highly variable factor, and its diminished share has restricted its maximum potential range of fluctuation. Lest this make us overly complacent, however, it is well to note that at its present 13 percent of real gross national product, fixed investment still bulks large enough to decline as far relative to full employment gross national product as it did between 1929 and 1933. In the latter year, fixed investment amounted to 4.3 percent of the 1929 gross national product, having fallen from an actual 1929 share of 16.5 percent, or by about 12 percentage points. Clearly, there is still room for a marked reduction of investment demand. It is not as if stable government expenditure had been completely substituted for unstable investment expenditure and had reduced the latter to insignificance. Incidentally, the same inferences hold if the autonomous demand category is broadened to include durable consumer goods, since expenditures of this type are a somewhat larger percentage of real gross national product than in 1929 and have a correspondingly larger maximum range.

It cannot be maintained, then, that the potential range of investment demand has been substantially diminished by the growth of Federal expenditure. A high floor may have been placed under the economy by that growth, but if so, it is due to effects less direct than a simple displacement of hitherto unstable demands. In particular, the inherent variability of investment demand may have been reduced through the expansion of governmental activities or for other reasons. It would take us far afield to discuss all the possibilities in this connection, especially since many are related tenuously at best to the amount of spending by the Central Government. A listing would have to include such financial reforms as the development of the amortized home mortgage, government programs to insure or guarantee mortgages and other loans, regulation of the security exchanges, and insurance of bank deposits and saving and loan shares. The enhanced importance of labor unions should also be mentioned among the major structural changes, along with such postwar developments as the increased use of long-run economic projections and of capital budgeting techniques by business firms. Finally, there is the significant fact that under the Employment Act of 1946, the Federal Government assumed responsibility for the promotion of maximum employment, production and purchasing power.

These and other structural changes—including the automatic tax and expenditure stabilizers to be discussed in a moment—affect stability by modifying the reactions of businessmen, workers, consumers, and other economic agents to changes in economic activity. They do not, however, act in the first instance to diminish fluctuations of demand caused by innovations, shifts in tastes, variations in population growth, resource discoveries, and war, to name some of the more

important autonomous forces. There is little in our experience since World War II to suggest that these sources of instability have been eliminated, and as long as that is so, it is not safe to conclude that wide fluctuations in investment demand are either impossible or improbable. On the other hand, most of the structural developments cited above tend clearly to moderate the secondary repercussions of cyclical contraction, including those on investment, so that a decline as severe as in the 1930's is not likely to recur.

THE FEDERAL GOVERNMENT AND THE AUTOMATIC STABILIZERS

The stabilizing properties of induced changes in tax revenues and transfer payments are among the most analyzed and best publicized features of the postwar economy. This is partly because there has been a notable expansion of Federal transfers along with purchases of goods and services by the Central Government, and tax revenues have kept pace with the total of both types of expenditures (table 4). From the standpoint of stabilization, however, the particular forms taken by the expansion of transfers and taxes are just as important as the expansion itself. This is because—deliberate alterations in payments or tax rates aside—the stabilization potential of these items depends upon their responsiveness to changes of income, rather than their size at a given income. No matter how large they were, if they were steady over time neither transfers nor receipts would tend automatically to mitigate fluctuations of income. On the other hand, it is difficult to conceive of a sizable response of receipts to changes of income unless they were also a large share of income, since there would be little purpose or popularity in a tax structure designed to collect a small percentage of a given gross national product and a large percentage of any departure from that level. What has actually occurred, of course, is that the total tax take has increased quite substantially and that most of it has been levied in the form of the cyclically sensitive corporate and personal income taxes. The situation differs somewhat with regard to transfer items. Unemployment insurance benefits account for a minor fraction of all transfer items but do most of the stabilization work in the category.

TABLE 4.—*Government expenditures and receipts as percentages of gross national product, selected years*

Item	1929	1947	1953	1956 ¹
Federal expenditures, total.....	2.5	13.4	21.3	17.4
Purchases of goods and services.....	1.3	6.8	16.4	11.4
Transfer items.....	1.3	6.6	5.0	6.0
Transfer payments.....	.7	3.8	2.7	3.3
Grants-in-aid to State and local governments.....	.1	.7	.8	.8
Net interest paid.....	.4	1.8	1.3	1.3
Subsidies less current surplus of Government enterprises.....	.1	.2	.2	.7
Federal receipts, total.....	3.6	18.7	19.4	18.9
Personal tax and nontax receipts.....	1.2	8.5	8.9	8.5
Corporate profits tax accruals.....	1.2	4.6	5.4	5.1
Indirect business tax and nontax accruals.....	1.1	3.4	3.1	2.8
Contributions for social insurance.....	.1	2.2	2.0	2.5
State and local expenditures, total.....	7.4	6.2	7.5	8.6
Purchases of goods and services.....	6.9	5.5	6.9	8.0
Transfer items.....	.5	.7	.6	.6
State and local receipts, total.....	7.2	6.7	7.5	8.2
Taxes.....	7.1	6.0	6.8	7.4
Federal grants-in-aid.....	.1	.7	.8	.8
Government expenditures, total.....	9.9	19.6	28.8	25.9
Purchases of goods and services.....	8.1	12.3	23.2	19.3
Transfer items.....	1.8	7.3	5.6	6.6
Government receipts, total ¹	10.8	24.6	26.2	26.3

¹ Excluding Federal grants-in-aid.

Source: See table 1.

Automatic stabilizers reduce the amplitude of cyclical fluctuations to the extent that they diminish the response of induced expenditures to prior changes of income and inhibit the spread of expansionary or contractionary impulses from one sector of the economy to another. This result is accomplished by affecting the relationship between changes of gross and net income. Again we assume that consumption is the major category of induced demand, and that it depends upon the amount of disposable personal income available to the public for spending or saving. This means that the smaller the change in disposable income for a given change of gross national product, the smaller is the secondary fluctuation of consumption and hence of gross national product in response to an initial disturbance. It is because induced movements of taxes and transfers do diminish the reaction of disposable income to changes of gross national product that they have come to be called automatic stabilizers. But there are other important leakages between gross national product and disposable income—depreciation charges and undistributed corporate profits—and part at least of the support currently given to the consumption of the unemployed by social insurance was formerly achieved in other ways. Thus not only the postwar economy but earlier experience should be consulted in an evaluation of the net effectiveness of taxes and transfers as automatic stabilizers.

The materials for an evaluation are presented in tables 5 and 6. Neither the data nor the techniques employed in these comparisons permit of more than a first approximation to the relevant relation-

ships, but it is an approximation which is not apt to mislead. The first of the tables refers to periods of cyclical expansion during the 1920's and the years following World War II, while the second deals with contractions during the same intervals. The figures for the 1920's are based upon incomplete source data and are probably less reliable than the estimates for recent years.

Examination of table 5 discloses that during each of three recent periods of business expansion—1946-48, 1949-53 and 1954-56—disposable income increased about 60 percent as much as gross national product. The reasons were rather different in the last two expansions than in the first, however. Approximately one-sixth of the increase of gross national product between 1946 and 1948 was absorbed by taxes, including those of State and local governments, whereas the proportion in 1949-53 and 1954-56 was more than one-third. This contrast primarily reflects the fact that Federal tax rates were substantially higher after 1950 than before, but it is also influenced by the fall in tax rates between 1946 and 1948 and the rise in rates between 1949 and 1953. The figures have not been corrected, in other words, for changes in tax rates between the initial and terminal years of the expansions, and therefore are not a measure of the increase in tax yields induced by income expansion alone. Let us ignore that fact for the moment, however, and inquire what other leakages declined in relative importance when taxes were boosted after Korea. We find that the major compensating change was in undistributed profits, which actually were smaller in 1953 than in 1949 despite an increase of \$10.8 billion or 41 percent in profits before taxes. Owing to the increase of tax liabilities due to higher profits and higher taxes on those profits, net corporate profits increased merely \$1 billion, and since dividends were up \$2 billion, undistributed profits declined.

TABLE 5.—*Relationship between changes of gross national product and disposable personal income during selected business cycle expansions*

[In millions]

Item	Change between initial and terminal year of expansion of—					
	1921-23	1924-26	1927-29	1946-48	1949-53	1954-56
Increase of GNP.....	\$13,089	\$11,054	\$8,500	\$48,079	\$105,917	\$53,519
Less: Increase of taxes.....	1,314	1,447	1,107	8,013	38,573	18,783
Indirect business taxes.....	1,049	758	460	3,041	8,579	4,867
Corporate profits taxes.....	233	385	86	3,399	9,893	4,530
Personal taxes.....	30	280	504	2,334	17,110	6,729
Social-security contributions.....	2	24	57	-761	2,991	2,657
Less: Decrease of transfer items.....	69	-68	-23	327	-1,673	-2,734
Government transfer payments.....	-32	-117	-73	312	-1,265	-2,189
Net Government interest.....	101	49	50	15	-408	-545
Less: Increase of business saving.....	5,946	1,623	1,720	10,183	7,151	8,369
Capital consumption allowances.....	788	869	755	4,828	8,055	5,343
Undistributed corporate profits.....	5,158	754	965	5,355	-904	3,026
Less: Increase of other items.....	-4,669	1,160	290	1,137	-212	-3,638
Corporate inventory valuation adjustment.....	-4,669	1,160	-125	3,113	-2,940	-2,241
Statistical discrepancy.....	(¹)	(¹)	268	-3,042	2,517	-63
Excess of wage accruals over disbursements.....	(¹)	(¹)	0	60	-31	0
Surplus minus subsidies of Government enterprises.....	(¹)	(¹)	147	1,008	242	-1,334
Equals: Increase of disposable personal income.....	10,429	6,892	5,406	28,419	62,078	32,759
Addendum: Increase of personal consumption expenditures.....	5,930	5,050	6,082	30,992	49,944	30,603

¹ Not available.

NOTE.—The dates of the business cycle troughs and peaks upon which this table is based are from the National Bureau of Economic Research, except for 1956, which is merely the most recent year for which data are available.

Sources: 1921-28, all items except personal consumption expenditures are from Raymond W. Goldsmith, *A Study of Saving in the United States*, vol. III, Princeton University Press, 1956, pt. V. The data shown in the source were adjusted by the present writer to the level of the most recent estimates of the Department of Commerce for the year 1929. The data on personal consumption expenditures are unpublished estimates prepared by Simon Kuznets for the National Bureau of Economic Research, with direct taxes deleted from the service component to conform to the concepts of the Department of Commerce. 1929 to date, see table 1.

This last behavior was rather unusual, since dividends ordinarily increase much less than net profits. Indeed, it is this fact—the tendency for dividends to be stable relative to net profits—that makes for the large swings in undistributed corporate profits that act as “automatic” stabilizers. What happened in the present case is not really an exception, however. Profits after taxes rose sharply from 1949 to 1950 and dividends increased one-fourth as much. Net profits then declined between 1950 and 1953, and when dividends were maintained at the 1950 level, undistributed profits fell in consequence. In short, the movements of undistributed profits during the expansion were consistent with the corresponding fluctuations on net profits, but because of the peculiarities of the period the net changes between the trough and peak years were not representative of the entire expansion.

It is in connection with the present expansion that the operation of the automatic stabilizers at the enhanced postwar levels is most easily observed, since no significant changes in tax rates have occurred during its course. About one-third of the increase of GNP between 1954 and 1956 was offset by the induced rise of tax receipts. Part of the

deterrent effect of this rise was nullified by an increase of transfer items, however, so that taxes net of transfers—a measure of the net governmental offset—increased only 30 percent as much as GNP. The rise of transfer payments occurred in the face of a decline of \$700 million in unemployment benefits, but the latter was more than outweighed by higher transfers for other purposes.⁴ The steady advance of depreciation charges associated with capital growth continued, of course, while undistributed profits accounted for \$3 billion of the \$5 billion increase in net corporate profits during the year. All told, gross business saving offset some 15 percent of the rise of GNP, or about half as much as net taxes. Finally, the correction for inventory profits plus a few minor adjustments acted as a negative offset of about 7 percent.

It will be instructive to compare this recent expansion with those of the 1920's, but a further point of interest about the contemporary economy may be mentioned first. Apart from the obvious fact that the automatic changes in tax receipts and unemployment benefits may be swamped by deliberate changes in tax rates or other transfers, it is important to remember that the relationship between increments of disposable income and consumption is also subject to disturbances. Consumer spending increased more than disposable income between 1946 and 1948, only 80 percent as much as income from 1949 to 1953, and about 93 percent as much from 1954 to 1956. As a percentage of disposable income, personal saving fell from 7.9 in 1946 to 5.3 in 1948; whereas it rose from 4.0 to 7.9 between 1949 and 1953 and was 7.0 in both 1954 and 1956. During the 1930's the saving ratio tended to rise during expansions and fall during contractions of disposable income. To the extent that such behavior is consistent, personal saving is itself a kind of automatic stabilizer, not only in a sense analogous to a proportional income tax, but also in one which makes allowance for the additional effectiveness provided by progressivity in the tax structure. The fluctuations in the saving ratio have been erratic at times during the past decade, however, sometimes reinforcing instead of mitigating the prevailing tendency of the economy.

Estimates of offsets to increases of gross national product during 3 expansions of the 1920's may now be compared with the relationships for recent years. Tax collections accounted for a considerably smaller share of the increments of gross national product in the earlier period, of course, ranging from 10 to 13 percent. Since transfers were unimportant, the offsets provided by net taxes were substantially the same as for gross taxes. Gross business saving contributed a larger deduction than taxes in each of the expansions. This was especially noticeable in 1921-23, because the 1921 trough had been deep with heavy inventory losses and negative undistributed profits. This meant that the swing from negative saving in 1921 to positive in 1923 was quite large. The offsets from gross corporate saving in 1924-26 and 1927-29 were, respectively, 15 and 20 percent of the increment of gross national product, however, and these values may fairly be

⁴ Only Government transfer payments, as defined in the national income account and net Government interest, are included under the heading of transfer items in tables 5 and 6. The entry for net subsidies of Government enterprises is included with "other items," and Federal grants-in-aid are not shown since they are a transfer to another governmental unit rather than to a private party. Grants-in-aid used to finance current State and local purchases of goods and services are reflected in earned incomes from production.

compared with the corresponding figures of 21 and 16 percent for 1946-48 and 1954-56. Apparently the drag exerted in expansion by corporate saving is on the same order of magnitude today as in the 1920's, so that the increased offset now provided by net taxes amounts to a net gain insofar as reduction of the response of disposable income to gross national product is concerned. This inference will be checked a bit further in a moment, after a look at the behavior of income offsets during contractions.

Four business contractions are covered by the data for the 1920's and the present decade (table 6). All were mild and, in the first, gross national product actually increased a little when measured in the crude unit of annual observations. During the contractions of 1923-24 and 1926-27, net taxes increased and so, of course, did depreciation allowances. Large reductions in undistributed corporate profits more than compensated for these increases, however, so that disposable income rose substantially relative to gross national product during both recessions.

TABLE 6.—*Relationship between changes of gross national product and disposable personal income during selected business cycle contractions*

(Millions of dollars)

Item	Change between initial and terminal year of contraction of—			
	1923-24	1926-27	1948-49	1953-54
Decrease of gross national product.....	-451	1,562	24	2,051
Less: Decrease of taxes.....	-185	-329	2,809	4,815
Indirect business taxes.....	-327	-324	-1,254	90
Corporate profits taxes.....	51	90	2,099	2,875
Personal taxes.....	102	-74	2,481	2,817
Social security contributions.....	11	-21	-517	-967
Less: Increase of transfer items.....	-133	21	1,235	2,263
Government transfer payments.....	-9	55	1,080	2,074
Net Government interest.....	-124	-34	155	189
Less: Decrease of business saving.....	892	1,137	2,745	-1,161
Capital consumption allowances.....	-224	-281	-1,937	-2,437
Undistributed corporate profits.....	1,116	1,418	4,682	1,276
Less: Decrease of other items.....	-230	679	-6,209	362
Corporate inventory valuation adjustment.....	-230	679	-4,093	-679
Statistical discrepancy.....	(¹)	(¹)	-2,181	926
Excess of wage accruals over disbursements.....	(¹)	(¹)	75	-76
Surplus minus subsidies of Government enterprises.....	(¹)	(¹)	-10	191
Equals: Decrease of disposable personal income.....	-795	54	-556	-4,228
Addendum: Decrease of personal consumption expenditures.....	-4,190	24	-2,989	-6,015

¹ Not available.

Notes and sources, see table 5.

An important role was again played by net corporate saving in 1948-49, owing partly to large inventory losses, but this time net taxes declined nearly as much. Corporation income tax rates were unchanged during the contraction, but the bulk of the decline in personal tax receipts between calendar years 1948 and 1949 reflects rate reductions which became effective after the early months of the former year.

Tax cuts were even more important in 1953-54, when on an annual basis all of the decline in personal taxpayments and roughly one-third of the fall in corporate income taxes was accounted for in this manner. In addition, reduced Federal excises more than compensated the rise of indirect State and local taxes. The decline of net corporate saving was comparatively small this time, since inventory losses were minor and a larger fraction than formerly of the decrease in gross profits was absorbed by the fall in corporate profit tax liabilities. Expanded depreciation allowances swamped the reduction in undistributed profits, so that on balance gross business saving was destabilizing. Depreciation charges are insensitive to mild contractions because net capital formation continues and the bulk of the allowance is based upon previous investments; hence, this source of business saving is automatically stabilizing during expansions but destabilizing in all but severe contractions. This tendency is partly counteracted, however, by the behavior of Government transfers. Unemployment benefits rise and fall with business activity, but the upward march of pension and retirement benefits augments expansionary and diminishes contractionary tendencies. Only one-half of the sizable increase in transfer payments in 1953-54, for example, was due to unemployment insurance.

What conclusions emerge from this brief review of four contractions? First, that net corporate saving acted as an automatic stabilizer before the Government stabilizers became important, and that it was sufficiently effective so that disposable income rose substantially relative to gross national product during two mild recessions in the 1920's. Second, that although taxes were a greater mitigating factor than gross business saving during the two most recent recessions, a good part of this increased importance stemmed from rate reductions instead of induced declines, and this was especially true of personal income taxes. Third, that a positive impulse to recovery was furnished in at least three of the contractions when consumption expenditure rose considerably more than disposable income. In these instances, the decline of the personal saving ratio from peak to trough was evidence of more than automatic mitigation of a contraction by a struggle to maintain previous standards of consumption as disposable income fell—the situation in 1929-33 and 1937-38—rather, it was a symptom of an autonomous increase of consumption demand which helped to reverse the cyclical tide.

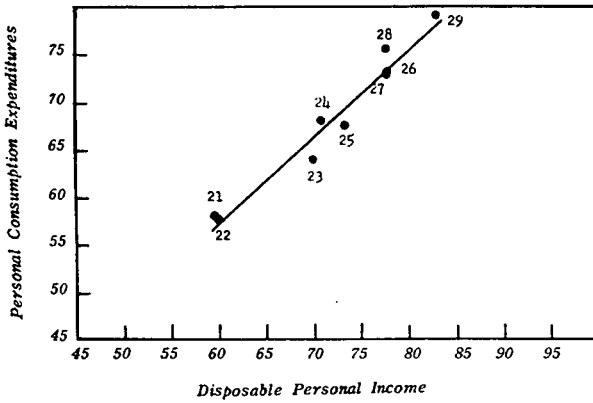
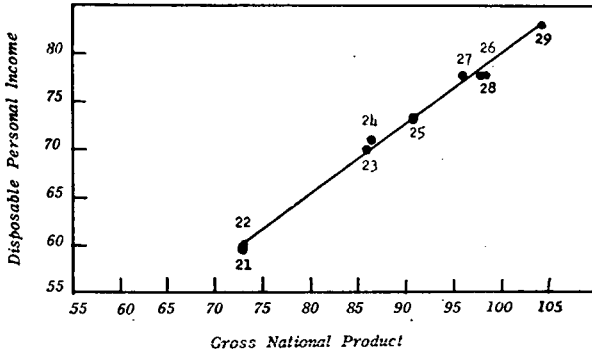
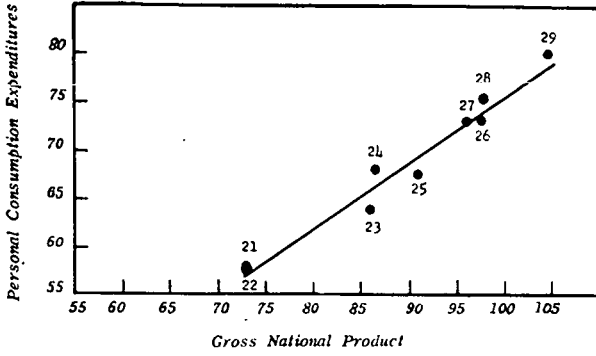
The problem that has engaged us in this comparison of business cycles in the 1920's with those of recent years—that of forming a judgment about the net contribution of the newly important Government stabilizers to overall stability—can be attacked in a different way with the assistance of chart 2. The chart makes use of the same estimates of gross national product, disposable personal income, and consumption expenditure which entered the previous discussion. Three relationships are diagramed side by side for the two postwar periods. The top panel shows the relationship of consumption to gross national product. This, in turn, is resolved into two components in the middle and lower panels: one relating disposable income and gross national product; the other, consumption and disposable income. Straight lines have been fitted to the data in all panels by the method of least squares. The reader is reminded that the estimates for the earlier years are less reliable because of gaps in the basic source data.

Comparison of the two lines relating consumption and gross national product shows immediately that the one for the 1920's is steeper than that for the recent period. The first line implies an increase of 67 cents in consumption expenditures for an increment of \$1 in gross national product, whereas the second places the increase at 54.5 cents. Apparently the induced response of consumption to gross income is smaller now than formerly, a factor making for greater stability.

Further inspection of the diagrams reveals that the diminished response of consumption is due primarily to the fact that disposable income increases less for a given change of income than in former years; that is, to the fact that the postwar growth of taxes and transfers has added to rather than replaced the stabilization potential of induced swings of business saving. The increment of disposable income per dollar increase of governmental product may be estimated from the fitted lines at 73.6 and 62.5 percent, respectively, in the earlier and later periods. The corresponding values for the ratio of changes of consumption and disposable income are 90.0 and 87.2 percent. It is easily calculated that with the earlier relationship between consumption and disposable income and the present one between the latter and gross national product, the ratio of increments of consumption and gross national product would now be equal to 57.1 (90.9 multiplied by 62.5) instead of the actual 54.5 percent. The same tax leakages and corporate saving as formerly in combination with the present behavior of personal saving, on the other hand, would yield a ratio of 64.9 percent, or not much lower than the actual 67.2 percent of the twenties.

Although the foregoing comparisons are probably of the correct order of magnitude, little weight should be given to the precise numerical results. Even if the statistics on incomes and consumption were completely accurate, the variables themselves are subject to autonomous disturbances and random variations, and the estimated relationships could not be more than approximations to the average strength of the induced responses. Inspection will quickly convince the reader that the changes from one year to the next do not always parallel the lines of average change, even during expansion, and that vertical movements of consumption relative to gross national product were the rule for the years of mild cyclical contraction covered by the charts. We know that several leakages operate in one direction during expansion and another in mild contractions—depreciation allowances, old-age and survivors insurance benefits, and indirect taxes come to mind—and that induced changes in at least one other leakage—net corporate savings—may vary considerably in magnitude from one cycle or phase of a cycle to another. It is also apparent that autonomous increases of consumption occurred during three of the contractions. All in all, it seems best to regard the estimates as approximations to the average induced responses of disposable income and consumption to increases of gross national product during expansions from comparatively high cyclical troughs. Even then, it is essential to remember that significant year-to-year variations in the strength of the responses can and will occur. The ratio of increments of disposable income and gross national product was 0.52 in 1954-55 and 0.74 in 1955-56, the one far below and the other

Chart 2
 Some Relationships Among Gross National Product,
 Disposable Personal Income, and Personal Con-
 sumption Expenditures: (Billions of Dollars)
 Part A. 1921 - 29

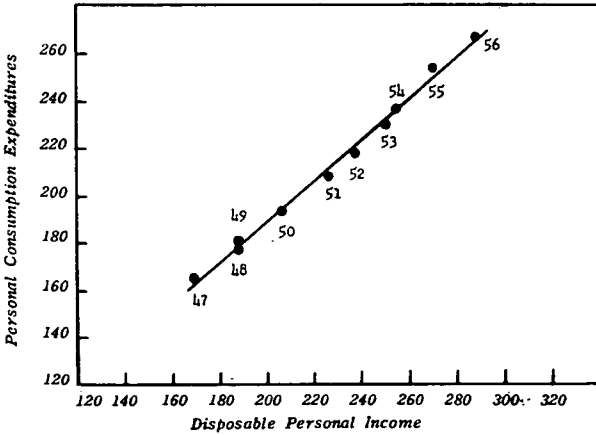
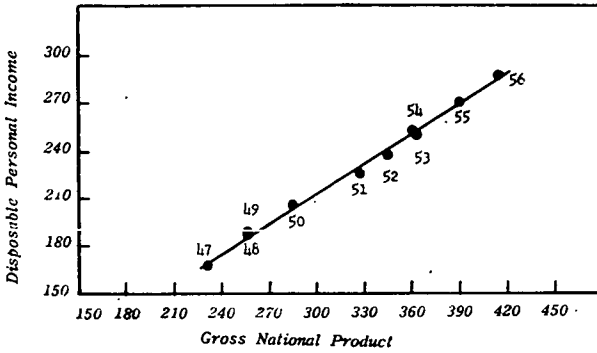
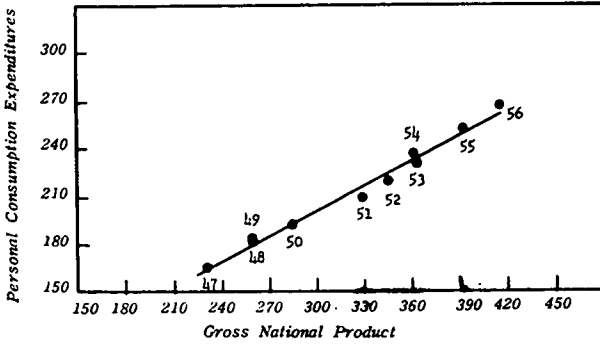


Note: The straight lines were fitted by the method of least squares.

For sources of data, see footnote to Table 5

Chart 2 (Cont.)

Part B. 1947-56



about equal to the average value estimated for the entire period 1921-29.

FEDERAL SPENDING AND STABILITY IN A GROWING ECONOMY

The discussion thus far has been limited to problems of short-term fluctuation. The implicit benchmark of perfect stability was a constant level of gross national product in money terms, and increases and decreases from that level were regarded as evidence of instability. What modifications of previous conclusions become appropriate when it is recognized that the goal is not merely stability for a year or two but stable growth over the long run, including the avoidance of chronic unemployment or inflation?

The first fact to be stressed is that the historical analysis has dealt with certain characteristics of the actual postwar economy; that is, of an economy unmarked by serious contraction and experiencing more than a decade of high-level activity. Federal expenditure was shown to be the least stable of the major components of final demand during that decade, and the conclusion was reached that on several occasions it contributed importantly to overall instability. The dominant impulse was toward expansion, however, so that Federal expenditure increased more rapidly on the average than other components and after each retrenchment remained a larger share of gross national product than before. Does this mean that the net effect of the autonomous demands of national security was to foster expansion and to prevent severe contraction, albeit at the cost of a moderate degree of short-run instability?

There are really two issues raised by this last question: What was the actual effect of large-scale Government spending, and what would have occurred in its absence? I will not speculate about the second issue, but I would like to comment on the first.

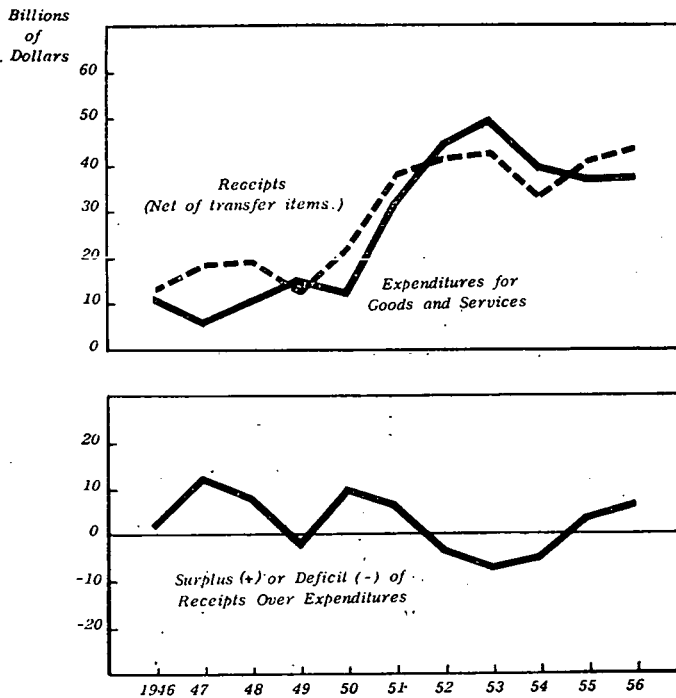
Suppose that an autonomous increase of Federal expenditure occurs at a time when unemployed resources are available to expand national output. Will an expansion actually develop, and, if so, how vigorous will it be? Clearly, more information is needed before an answer can be given. We need to know whether the additional expenditure raises autonomous demand, and, if it does so, by how much induced expenditures will rise in consequence.

If other demands remain unchanged at the time of the increase, autonomous expenditure will rise by the amount of the additional Federal outlay, and further gains will result from the subsequent rise of induced expenditure. The direction of the impulse is plainly evident in this simple case, and a tolerably good estimate of its strength is possible. But will other demands be initially unchanged? In general, no. In the first place, the private sector may respond directly to the same stimulus that spurs Federal spending. There were dramatic instances of this in the forward-buying waves during the early months of the war in Korea. Less startling than this sort of simultaneous reaction to an outside stimulus is the regular tendency for private investment to be made in inventory and plant in anticipation of subsequent Federal purchases for which orders have been placed. This is an important problem for short-term analysis of the impact of Federal spending, but it need not occupy us here. We also

leave aside the case in which the new expenditure is directly competitive with private investment and causes an offsetting reduction in the latter.

What we do need to consider is the method by which the new Government expenditure is financed. If tax rates are increased in order to raise the additional revenue, private demands will be diminished, and at least part of the stimulus of the added expenditure will be lost. Just how much will be lost depends upon the amount and type of the tax increase and the effect of the resultant reduction in private, disposable income upon private expenditure. The possibilities are manifold, but a simple example will suffice to illustrate the basic point.

Chart 3
Expenditures for Goods and Services, Net Receipts, and
Surplus or Deficit, Federal Government, 1946 - 56



For source of data, see Table 1

Assume that an increase of \$10 billion in expenditure is contemplated, and that personal income-tax rates are adjusted upward to raise an equal amount of additional revenue at the same level of national income as prevailed before the new expenditure is made. Since the initial effect of the tax increase is a \$10 billion reduction of disposable personal income, consumption expenditures will fall by, say, \$8 billion, offsetting that much of the increase of Government expenditure. A net gain of \$2 billion of autonomous expenditure still results, however,

and, when transformed into earned incomes, will induce further increases of aggregate demand. Notice that, although the initial effect of these fiscal operations was a balanced-budget increase of Federal expenditure, the induced rise of taxes due to the secondary expansion of incomes and demand will yield a surplus on Government account. The emergence of this surplus (or diminished deficit, if the initial position was one of deficit) is a sign of the restraining or deflationary influence of the automatic tax stabilizers, but it is a restraining influence that was called into being by the initial net expansionary increase of Federal spending. A before-and-after comparison would show an increase in the surplus, yet the end result of the entire fiscal operation would be expansionary. The expansion would be smaller than if the increase of expenditure were loan financed, but it is not necessary that a deficit be incurred in order to raise gross national product by raising Government expenditures.

What the foregoing example means when translated into practice is that an observed increase of Federal expenditure may have a net expansionary effect even if matched by an approximately equal rise of receipts. It is not enough to observe whether a deficit or surplus exists or is developing in order to gage the expansionary or contractionary influence of Government fiscal operations. A further complication results from the fact that the effect on private expenditure depends upon the type, as well as the amount, of the additional taxes. For instance, because part of the incidence of a given increase in corporate-income taxes will fall upon undistributed profits, dividends and hence disposable personal income will fall by less than if the same amount of tax revenue were raised by an increase in taxes on personal income. The smaller reduction of consumption per dollar of tax increase may or may not be compensated by a tax-inspired reduction of corporate-investment demand, but, in any event, a direct comparison of total tax revenue with total Government expenditure will not settle the question. With these strictures in mind, let us turn to a brief assessment of the impact of postwar changes in Federal expenditures and revenues on aggregate economic activity.

Federal purchases of goods and services, net tax receipts, and the excess of receipts over expenditures are shown annually for 1946 through 1956 in chart 3. There is no need to discuss the year-to-year changes in details. It is sufficient to note that the generalizations offered earlier about the expansionary or contractionary effects of the postwar swings in Federal expenditure remain valid when cognizance is taken of the concomitant changes in revenues. Thus, during 1948 and 1949, the expansionary stimulus of expenditure increases was strengthened by the tax cuts which stabilized receipts in the former year and by the induced decline of receipts in the latter. The rise in expenditure from 1950 to 1953 was less expansionary than if automatic and discretionary increases in revenues had not also occurred, but that it was, nonetheless, expansionary can scarcely be doubted in view of the history of the upswing. Again, the deliberate and induced reductions of receipts in 1953-54 helped to cushion the impact of the cutback in Federal expenditure, but did not prevent it from exerting a net deflationary pressure on the economy. I do not have the space here to support these assertions in detail, and it must be made plain that full assessment of the economic impact of fiscal operations

requires close analysis of the causes, timing, and magnitude of the changes in receipts and expenditures, and also of both the related and the independent fluctuations in private demand which are occurring at the same time. These qualifications do not alter the main point, however, that Federal expenditure was a substantial factor making for general expansion after 1947 and especially after 1950, and that the 18-percent drop in Federal spending from 1953 to 1954 left it on a high plateau and did not lead to a major contraction. These facts stand out despite the short-term shifts in the balance of receipts and expenditures and despite their general correspondence in level throughout the period. Viewing the postwar era as a whole, then, the longer run effect of the autonomous demands of national security has been to foster expansion, notwithstanding the instability of growth of Federal expenditure.

Modification of another previous conclusion is indicated when stability is considered in the context of growth. This was the conclusion that Federal spending would become a destabilizing factor if it were altered to keep pace with induced movements of tax receipts. This still holds unreservedly for declines. When it comes to stable growth, however, it may be desirable that Federal outlays rise along with revenues, lest the expansion of income be restrained unduly by an uncompensated increase in tax collections. Whether increased Federal expenditure (or tax cuts) would in fact be desirable from the standpoint of stability would depend upon the degree of prevailing inflationary pressure—upon whether the effect would be primarily to raise prices or real income—and also upon the probable expansion of private autonomous expenditure.

VARYING PUBLIC CONSTRUCTION AND HOUSING TO PROMOTE ECONOMIC STABILITY

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A periodic reexamination of old theories is useful. Changing times, new institutions, increased knowledge all call for significant reinterpretations of even well-established ideas. The task of this paper is to review, in the light of experience since the passage of the Employment Act of 1946, the basic principles and criteria relating Federal spending for construction and housing to the maintenance of economic stability.

RÉSUMÉ

General agreement exists as to certain basic propositions. The Government spends large sums of money. Because of the magnitude of its expenditures, both their level and any changes in that level affect vitally the economy's income, production, and prices.

Any increase in Government expenditures has a direct inflationary (antideflationary) effect, but expansion of income is far from identical for each dollar spent. The type of governmental expenditure, whether for public construction, durable or nondurable goods, purchases of services or of financial assets, or transfer payments may lead to widely divergent results.

The individuals and corporations receiving the Government's money differ as do the sectors of industry and sections of the country. The total increase in production and prices depends on how these groups alter their production or inventories, how much they spend of their new receipts, how fast, and on what. Some may spend it all immediately. Some may save it all. In addition to affecting the production and the spending desires of their recipients, higher governmental expenditures may also influence the spending decisions of third parties who may be encouraged or discouraged from using their funds. The total inflationary effect of a dollar of Government spending depends on the new output purchased directly by the Government plus the total amount of induced expenditures (the multiplier).

Examination shows some governmental expenditures whose timing pattern may be altered without a significant loss in public welfare or efficiency. The economic justification of others depends upon their not competing with high private expenditures. They are beneficial only if planned so as not to increase inflationary tendencies and not to raise the total cost structure unduly. In contrast these expenditures have a heightened value if made during periods of underemployment. Labor and other factors will be employed which would otherwise be underutilized. Advantageous indirect effects will accrue as this added income percolates through the economy.

This then leads to the conclusion that a successful formula for varying Government expenditures—one that would lower spending in booms and raise it in deflations—would help to insure the best use of resources and would aid in maintaining the proper level of employment as well as preventing price inflations.¹ The indirect effects of Government spending on the total economy occur whether desired or not. They are so important that the Government should not neglect them in its spending decisions. They must enter into any careful determinations of budget policy.

The application of this principle in any concrete situation is complex. A decision to cut spending requires agreement: (a) that an inflationary situation exists and that it will continue unless expenditures are lowered; (b) that it is preferable to cut expenditures rather than to raise taxes; and (c) that a specific type of outlay should be reduced. This last means accurately measuring the relative value of separate categories to determine which is needed least, and assurances that the resources made available will serve to reduce inflationary pressures in general while not dislocating a specific industry so as to raise its costs.

To date, the knowledge on which to base such decisions has been deficient. Only slight improvement has been made in measuring the relative priorities of separate needs. The actual mechanism of inflation is too uncertain to allow accurate tracing of the consequences of a proposed expenditure or curtailment. As a result, conflicts of the following type cannot be resolved.

Many observers are convinced that the current need for houses and public construction is overriding and that if demand must be reduced to ease inflationary pressures, it can be cut as effectively for other goods as for these either through taxes, specialized borrowing, or particular monetary controls. If these assumptions are correct, it follows that a proper policy would maintain spending for public construction while cutting it in other less essential parts of the economy.

On the other hand, some experts assign lower utilities to building than to other items the economy has been eagerly purchasing. They believe that problems of raising taxes or of invoking special monetary controls to cut other types of spending make it simpler and cheaper to cut demand for housing and construction. If these contrary assumptions are the valid ones, it follows that a proper policy will aim at curtailing spending in the sphere of construction.

Without the requisite knowledge to decide which set of assumptions is correct, the basic principle that spending should be reduced to counteract inflation does not offer a method of selecting one line of action in preference to another. Proper policy for the future will depend upon success in gathering more valid data so as to apply the existing criteria intelligently.

Much more effort has been expended on the analysis of expanding spending in deflations. The result of such studies has been to diminish the importance placed on contracyclical public works expenditures. The problems of forecasting, resource use, administration, and technical timing are all complex. Except for periods when excess resources exist primarily in the construction industry, analysis of the

¹ For a more complete exposition of this entire theory see: S. J. Malsel, *Fluctuations, Growth, and Forecasting* (Wiley, New York, 1957), chs. 14, 21, and 22.

difficulties involved in such a program have tended to lower the priority assigned to it in battling depressions. Conversely, added utility has become apparent for programs either to maintain fiscal stability or to increase tax remissions, transfer payments, and public spending on less durable goods or services in periods of deflation.

Rather than constituting a major weapon for economic stability, the following analysis indicates that the fluctuation of public works and housing is primarily useful in periods of extra high construction demand, in serious and lengthy depressions, or when the demand and supply situation within construction is in basic disequilibrium.

METHODS OF ALTERING SPENDING

The Government can curtail or increase expenditures in the field of public construction or housing by several types of action.

Most obvious are its powers over the directly budgeted Federal spending programs. In recent and past inflationary periods, attempts to decrease the level of public construction have been made through spreading out, cutting, or completely halting existing or proposed programs. Expenditures on Federal buildings, dams, airports, parks, etc., have been curtailed. The opposite policy has been followed in depressions. Programs administered directly by the Federal Government are the easiest to control and react most readily to a shift in policy.

Secondly, Federal action can alter a large volume of spending not appearing in the current budget. Many programs, such as those for housing, construction of public buildings, expansion of plants, and urban redevelopment are carried on through a wide variety of credit, grant, and subsidy aids. Their support may come from a pledge of Federal credit, a long-term lease, or a promise of annual subsidies. Adjustment of the terms on which aids are granted can increase or decrease demand sharply.

A third type of control is exercised through monetary policy. While most analysts agree that monetary changes can do little toward increasing demand in a deflation, its powers appear much stronger in a boom. Construction goods are extremely durable. Because a higher percentage of construction activity is financed by borrowing than is true of other goods, policies aimed at increasing interest rates have their greatest impact on this type of spending. Experience has shown, as theory predicts, that housing and local government investments are more vulnerable to tight money than are other expenditures, such as those on producers or consumers durables or on public-utility expansions.

Because general monetary policy is effective, the Government must decide whether or not to interfere with its operation in specific fields. If it is satisfied with the degree of curtailment brought about by monetary stringency, no additional action is required. If, on the other hand, it decides that alterations in the interest rate are not a proper method of rationing resources among potential users, it can decide to take counteracting steps and must select among them.

The laws and instructions to the Federal Reserve System can be changed to require that the qualitative as well as the quantitative aspects of monetary policy receive attention. Monetary policy can be

shaped so as to control demand specifically. Such action has been taken in the past.

Another possibility is to offset the effects of general monetary policy by altering the level of spending through other means. There has been wide support recently for programs aimed at counterbalancing the effect on housing of the deflationary interest rate through direct Veterans' Administration loans or by increased purchases of the Federal National Mortgage Association or Government trust funds. Similarly, school subsidies would cut down the effect of high interest rates on school construction. On the other hand, much pressure has been generated behind suggestions to eliminate such programs entirely so as to reinforce rather than offset monetary policy.

BASIS OF CRITERIA FOR POLICY DECISIONS

An axiom for Government expenditures is that a dollar should be spent on a specific project by the Government when the marginal social benefit derived is as great as or greater than could be obtained by spending the dollar elsewhere either in the private or public sphere.

Two criteria for policy appear most important. The first is really that of efficiency—the direct comparison of costs and utilities for the specific item purchased. How does the proposed spending policy affect the use of resources and the benefits gained thereby? Every expenditure entails certain costs and gains, but some produce proportionately more goods and services at a lower cost than others. One object of a spending decision must be to maximize this direct gain.

The second criterion can be thought of as effectiveness, a measure of the indirect effect of the spending on the production and price picture for the total economy. The ability of a spending policy to achieve its aims depends on the direction of its impact, on the accuracy of forecasting, on the time it takes to get underway and to finish, and on the problems of administration. Some, although lacking force, may be started and stopped quickly. Others may reach high peaks of demand but only after considerable delay.

In applying these criteria, some actions may rate high on one and low on the other. In such a case no objective economic basis need exist for choosing one over the other. As in most decision functions, the proper weighting of the separate criteria must be a political decision reflecting the desires of the Nation as a whole.

THE VALUE (EFFICIENCY) OF FEDERAL SPENDING

Much of the uncertainty concerning proper spending policies arises from our present inadequate measurements of the true efficiency of public spending. For example, assume that a cutback in housing and public construction could effectively free resources for other purposes. Should such a slice in spending be made? The answer depends upon the importance to public welfare of the housing compared with that of the uses to which the freed resources would be put if it were cut. Government expenditures cover a wide area of public consumption of goods. Moneys for defense, basic research, agriculture, education, health and welfare, public construction, and housing are only a few. Resources consumed for any goods may mean fewer available for other purposes or for private consumption and investment.

In theory, allocating resources should not be difficult. The Committee for Economic Development recently stated that decisions could be arrived at by answering the following questions:

Is the program necessary to enhance the security and welfare of our citizens? Can these needs be reasonably accommodated by the States and local governments or by private business? Is the expenditure worth more to the Nation than an equivalent reduction in tax rates? Can the program be undertaken with the available resources or will it simply add to existing shortages and increase prices?²

In practice our national budgeting system is not adequate to allow clear decisions on these facts. The measurement of benefits is far from complete.

The comparison to private spending

In a boom or inflationary period, a major difficulty is that of weighing the value of projected governmental spending compared to that of leaving equivalent purchasing power in private hands. Some observers argue that when private spending is adequate, high governmental spending must be wasteful per se. In their opinion, the Government always spends too much. Because expenditures are paid for by taxes rather than out of an individual's own pocket, they expand too fast. On the theory that everybody's business is nobody's business, public money, they believe, is spent less efficiently. Increased values are always received for moneys spent by private decisions. Others disagree violently. The fact of high demand does not remove the need for proper spending priorities. The optimum point of spending for any dollar is not necessarily in either the public or private sphere. The very existence of governments is proof that some spending can always be done best in a collective manner.

Full employment of resources does mean, however, that spending cannot be justified by its secondary effects. These consequences are now inflationary and unwanted. The added welfare effects generated by public spending in periods of deflation are not now beneficial. Some programs justifiable on the basis of these secondary effects in other periods may have to be cut because of them during boom times.

The basic problem of adequately measuring the relative benefits remains. The fact that people are willing to pay for the resources to increase the average length of their private autos by a foot or two does not lessen the need for public highways or parking spaces. The advantages of public education received from larger and more numerous TV sets need not outweigh those obtainable from larger and more numerous schools. A splurge of office building does not reduce the value of decent houses.

This lack of accurate measures means that under our democratic system decisions as to the most valuable or efficient spending must remain primarily political—in the best sense of the term. The people through their votes make known their preferences. Economists and public administrators, by demonstrating the real costs of alternative policies, can aid them and their elected representatives in forming

² Committee for Economic Development, *Tax Reduction and Tax Reform—When and How* (New York, May 1957), p. 15.

proper judgments. Better data would narrow the limits of controversies, although they would not completely eliminate them.

The relative efficiency of different types of public spending

Policy problems in deflations are likely to be of a different type from those described above. Private and public spending are now not competitive, and increased public expenditures will be worthwhile for both their primary and secondary effects.

Early studies put most of their stress on stepping up the public-works program. The idea that high spending during deflations should be brought about by expanded programs of public construction and housing still enjoys wide acceptance. But is there any reason to believe that the public will benefit more by increasing spending in these two categories than elsewhere in the wide range of public programs? The answer seems to be "No."

Public works appeared especially desirable because they are durable. The Government ends up with useful goods to show for its money. Deficits could be justified as simply borrowing to invest, like any corporation. Furthermore, increased public construction might be merely an expansion of normal policy. Because expenditures made at other periods and under other circumstances, furnished proper benchmarks, efficiency could be judged more accurately.

Only gradually was it recognized that other types of spending might have equal or even greater value. Durability is not a sound basis for measuring the worth of an expenditure to the public. It makes little sense to build beautiful schools and then to close them because of unwillingness to pay the teachers to staff them. Defense expenditures, cut because of budget stringency, might well have a high priority if additional expenditures become possible. Money spent to feed hungry people is likely to offer a greater return than beautiful monuments.

Backlogs of needs

The discussion and analysis of the past 10 years has removed much of the fear that the scope of public spending could not be expanded in a deflation without spreading into inefficient areas. As an example, the backlog of public construction, over and above that which would be built at existing rates during the next 10 years, has been estimated as at least \$100 billion to \$150 billion (in 1957 dollars).³ Similarly large estimates exist for urban redevelopment and housing.

One might well ask why such huge backlogs do not disappear in the face of recent record levels of public construction. The reason is that effective economic demand falls far short of the projected needs. These estimates reflect the ideas of the experts formulating them on how much government expenditure it would take to raise the level of capital in their own areas of interest to some predetermined standard of adequacy, usually based on engineering, educational, health, or similar grounds. Under existing institutional and political pressures, we are unwilling to build up to these standards. Some fields lack a clear decision as to which level of government should attack the backlog. In other cases the fiscal ability is inadequate. Some are needs

³ R. Newcomb, *Public Works and Economic Stabilization, Problems in Antirecession policy* (Committee for Economic Development, New York, 1954), and M. A. Edwards, *Requirements for State and Local Public Works Construction, Construction Review*, May 1955.

which the economy feels should rate a low priority in periods of high private investment. They may be desirable, but not in boom times.

Implicit in most of these statements is an assumption that in deflations many of the forces separating demand from need would disappear. Local fiscal difficulties would vanish as Federal aid came forth. Government expenditures would have an increased marginal utility, because instead of competing for resources, they would lead, through the multiplier, to the employment of otherwise wasted private means.

Finally, in a depression the sphere of legitimate public spending might broaden. This would be particularly true in the housing field, where the line between public and private has fluctuated widely with the existing economic and political climate.

Costs of institutional change

Another possible source of inefficiency arises if the cyclical fluctuation of expenditures creates heavy costs for institutional change.

For example, the present Board of Governors of the Federal Reserve System has objected strenuously to receiving instructions which would require them to consider the specific (or qualitative) results of their action in contrast to their overall (or quantitative) effects. Recalling that in the past when they used selective credit controls they were subject to much criticism and pressure, they recommend that if the country believes the present situation with respect to any market to be unsatisfactory, action should be taken by Congress or other branches of the Government, rather than by themselves. They concede that if particular markets are being exceptionally hard hit, methods of altering the situation could be devised, but they don't want the responsibility.

A vocal opposition refutes these Federal Reserve views. The cost of such institutional changes will be less than the gain. We do not abolish police or building departments because they are subject to pressure and at times create enemies by enforcing worthwhile laws. The popularity of the Federal Reserve Board is not necessarily a measure of its success.

A further possible source of inefficiency originates in the increased role which the Government must play if it intervenes to increase the level of construction in both a boom and possible deflation.

There has been much disagreement over whether or not the Government should attempt to hold back high demand in a booming but not inflationary period in order to save some for the future. Increased capacity has been needed to handle a backlog plus a high current level of demand. People worry that when this backlog is used up, the industry may have too much capacity. The resources attracted in the boom will be unemployed. This is the familiar case of over-expansion due to the acceleration principle. Many feel that no real problem exists. If a deflation occurs, governmental action can increase the demand.

But at this point, an institutional problem arises. Private demand has fluctuated widely in the past and probably will again. Is there a hidden cost in using government action to make up for the lack of such demand in a deflation? Would it be cheaper instead to have the Government hold back some of the demand in high periods?

A cost somewhat similar to the above is the possible inefficiency of having to expand and contract the governmental organization rapidly. Some feel that the Government should simply attempt to hold its expenditures as constant as possible, on the theory that any gains from spending at better times will be offset by the lowered organizational efficiency.

THE EFFECTIVENESS OF A PUBLIC CONSTRUCTION PROGRAM

The previous sections have discussed some of the problems of the efficiency to be lost or gained by expansions or contractions of public works. The remainder of this paper examines the second criterion—that of effectiveness. The effectiveness of a program depends on its purchasing or freeing the right resources in the appropriate period. Can a contracyclical policy succeed in raising and lowering demand in the correct places and at the proper times? ⁴

Forecasting

Any change in expenditure patterns to improve economic stability must be based on a forecast of economic conditions. Unfortunately, if, the economy moves in the opposite direction to that predicted, a worse situation will develop than if no shift in spending had been undertaken at all.

The record of forecasts made since the Employment Act of 1946 has been only fair. Shorter forecasts for 1 or 2 quarters have been better than the longer ones covering a year or more.

The consequence of failure to perfect forecasting skills is an increased relative effectiveness for spending which can be started and stopped rapidly and which can be tied to the more accurate short-run forecasts. If the forecasts prove wrong, the spending stream can be cut off. Public construction programs do not meet this condition. They are both slow to start and hard to stop once they get rolling. Forecasting has to be more exact and farseeing. If public construction programs had been undertaken to combat the recessions of 1948-49 and 1953-54, they would have poured out their funds after the recessions were over. Their primary effect would have been to interfere with later attempts to contain inflationary pressures.

The availability of resources

For an increased public spending to have the desired effects, it must hire resources being underutilized and avoid using resources already in short supply. The more homogeneous are resources and the greater their transferability, the higher will be the effectiveness of a program. Public construction and housing use rather specialized resources. Furthermore in many categories, they normally purchase a high proportion of the existing supply.

Tables 1 and 2 list the major resources used by new construction activity in 1956. They also show that widely different resources

⁴ Cf.: E. J. Howenstine, *Compensatory Public Works*, *Journal of Political Economy* (June 1951) and *Public Works Programmes and Full Employment*, *International Labor Review* (February 1956); International Labor Office, *Public Investment and Full Employment* (Montreal, 1946); S. J. Maisel, *Timing and Flexibility of a Public Works Program*, *Review of Economics and Statistics* (May 1949); Julius Margolis, *Public Works and Economic Stability*, *Journal of Political Economy* (August 1949); J. A. Maxwell, *Federal Grants and the Business Cycle* (National Bureau of Economic Research, 1952), and R. Newcomb, *op. cit.*

are required for an equal value of work in the major-building categories. Even a casual glance at the tables reveals that the various types of construction differ radically from each other. Still clearer is the fact that the resources used have little bearing on other areas of the economy which might be depressed, such as farming, textiles, autos, etc.

Examination of such data has led to rather pessimistic views on stabilizing value. An expansion of Government spending adequate to fill much of a gap in private demand if it merely multiplied existing programs would use far too many resources of some types and far too little of others.

Any expansion, to be of much use, would have to be carefully planned. While a program to utilize all unemployed resources of the construction industry could probably be worked out, it could not merely be a replication on a larger scale of existing public construction programs. Attempts to utilize resources unemployed in other industries would be far more difficult and would probably not be very successful.

TABLE 1.—Relationships of building materials required for specific types of construction in 1956

Material	Total in units	Estimated percentage distribution in 1956				Estimated consumption required for equal values of work in place (public works=100)				
		Public		Private		Public		Private		1956 average, all construction
		Works ¹	Building	Housing	Other	Works	Building	Housing	Other	
		Percent	Percent	Percent	Percent					
Lumber.....million board-feet..	20,700	10	6	54	30	100	160	317	209	228
Steel.....thousand tons..	15,900	20	12	9	59	100	124	21	177	97
Wire nails and staples.....thousand tons..	460	6	4	51	39	100	163	460	414	348
Asphalt roofing.....million squares..	50	3	14	30	53	100	885	437	935	530
Brick.....million bricks..	6,300	8	15	48	29	100	420	310	225	252
Clay sewer pipe.....thousand tons..	2,000	77	2	16	5	100	5	10	4	25
Gypsum board and lath.....million square feet..	4,700	1	6	81	12	100	2,086	7,230	1,317	3,456
Portland cement.....million barrels..	260	51	6	12	30	100	26	12	35	38
Cast-iron pipe.....thousand tons..	660	6	11	65	18	100	346	500	165	300

¹ Includes all public construction except building.

Source: U. S. Department of Commerce, Construction and Building Materials (March

1952). Table 3: U. S. Department of Labor, Value of New Construction Put in Place 1943-56 (revised May 1957).

TABLE 2.—Relationships of labor required for specific types of construction in 1956

Labor	Total man-hours (in millions)	Estimated percentage distribution in 1956				Estimated labor required for equal values of work in place (public works=100)				1956 average, all construction
		Public		Private		Public		Private		
		Works ¹	Building	Housing	Other	Works	Building	Housing	Other	
Skilled:		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>					
Bricklayer.....	290	5	13	53	29	100	499	492	323	361
Carpenter.....	1,386	8	8	47	37	100	201	277	259	230
Electrician.....	200	11	13	20	56	100	231	87	293	169
Equipment operator.....	290	58	5	6	31	100	18	5	32	33
Ironworker.....	140	18	19	6	57	100	215	16	188	107
Lather.....	20	5	14	59	22	100	519	497	221	328
Painter.....	240	6	11	51	32	100	378	424	322	325
Pipefitter.....	140	10	19	4	67	100	403	18	421	202
Plasterer.....	100	1	10	63	26	100	1,686	2,485	1,216	1,535
Plumber.....	170	7	11	41	41	100	332	293	357	282
Sheet-metal worker.....	30	4	15	38	43	100	1,040	623	832	628
All other.....	290	24	12	15	49	100	106	32	122	81
Total.....	3,340	14	10	36	39	100	157	131	171	140
Semiskilled and unskilled:										
Laborer.....	1,250	24	9	22	45	100	75	46	112	80
All other.....	530	36	6	17	41	100	36	24	69	54
Total.....	1,780	27	8	21	44	100	60	37	95	70
Nonmanual.....	220	32	17	18	33	100	111	29	63	61
Grand total.....	5,340	19	10	30	41	100	108	79	127	101

¹ Includes all public construction except building.

Department of Labor Bulletin No. 1146, table 20, International Labor Review (February 1956) table I.

Administration and timing

The administration of public works programs is complex and time consuming. Public construction is a melange of Federal, State, and local responsibilities and authority. Housing is even more complex since it falls more completely in the sphere of private enterprise. Construction requires prior plans, surveys, investigations, and studies of needs and sites. In addition to blueprints and specifications, land must be acquired. Present legal methods are slow. Prior acquisition is usually difficult.

Work has been done on systems of prior planning of public works to cut the lag between the start of a program and expenditures. Results indicate that important savings in time are possible if enough work is done in advance. To date, however, progress in the speeding up of non-Federal programs has been slight.

Advance planning has failed because a really large-scale expansion would require a change in political and institutional relationships. States and localities have a perverse financial ability. They cannot finance appreciable expansions during contractions even if they so desire. Furthermore, their planning and engineering staffs are not equipped for advance planning. Increased responsibility for leadership, planning, and financial assistance in any depression would devolve on the Federal Government.

A new and different type of program would be even more necessary to permit enlargement of urban redevelopment and housing programs. Private demand in this sphere is almost certain to decline precipitously if adverse winds blow in the general economy. The small additional flexibility available under present programs by easing financial terms or other aids would not be sufficient to do much good.

The time patterns of public construction and housing programs vary widely even after a program has been started. In addition to planning and land problems, contracting delays may occur. Projects move toward completion at widely divergent rates. Work on soil conservation, roads, airports, levees, repairs and rehabilitation of existing buildings can be started and completed fairly rapidly. On the other hand, major engineering projects, large-scale buildings, and housing all move slowly.

These technical differences in timing, in resource use, and in administration all affect the successful planning of an anticyclical construction program. Most of these factors mean that it is more difficult to shape an effective program for public works than for other types of public spending. That is why so many who have looked into the possibility have been skeptical of the usefulness of a public works program.

On the other hand, Howenstine and Newcomb, who have spent the most time on these problems, are still relatively optimistic. They believe that, providing enough time and effort were put into its planning, an effective program could be developed. Newcomb has estimated that with existing techniques Federal construction spending could be expanded by about a third in a year. Even with preplanning and new institutional arrangements, the expansion of State and local spending would be somewhat slower. Still with adequate preparations, a public construction and housing program probably could

raise the level of spending in these fields by about a quarter at the end of a year. Expansion could then continue more rapidly.

This seems to indicate that expansions of public construction can be used primarily in cases of long contractions—when total demand stagnates and long-run programs are called for to raise the equilibrium spending level. The technical problems of shifting construction make it extremely difficult to coordinate it with programs aimed at stabilizing shorter employment fluctuations.

THE EFFECTIVENESS OF PROGRAMS TO CURB CONSTRUCTION

In contrast to improved knowledge of the factors involved in expanding public construction in a deflation, little progress has been made on theories applicable to inflationary periods.

We have already noted the inability to measure the relative inefficiency of cutting out particular spending items. Further disagreement exists over the effect of the proposed curtailments. What will happen if construction demand drops? Repercussions will be of two types: (a) The specific (micro) effects on costs, prices, and incomes in the industry itself; and (b) the overall (macro) results which depend not only upon these specific happenings but also on the interrelationships of demand and supply for the entire economy.

Specific effects

Few object to cutting back demand when construction resources are inadequate. Such inflationary situations should be halted. A possible alternative to halting demand would be increased action to augment supplies, but the few attempts along this line have not been very effective.

More controversy arises over attempts to lower demand when the resources in construction are merely fully employed or perhaps somewhat underemployed. This reflects the general analytical uncertainty as to the cause of recent inflationary tendencies. Two rather strong opposing points of view exist.

One holds that spiraling costs and prices in construction result from a very inelastic supply curve. When demand rises, prices are driven up. When demand falls, prices should fall. Any tendency for prices to rise is taken as a signal that construction's specific demand is too high for supplies. This then means that construction resources are inadequate and demand should be cut.

The opposition believes that rising prices in building have little to do with the specific demand and supply situation of the industry, but are simply the result of the general cost-push forces at work in the economy. They point to increases in steel prices with falling steel demand and to rising wages in industries with growing unemployment. They feel that holding back demand in this specific field will have but slight impact on the general forces causing the cost push.

They go further and state that under existing conditions a cut in building demand will lead to higher costs and prices. This they believe will occur because their concept of the supply curve for construction, and especially for housing, is one in which costs decrease with volume. Curtailing demand will raise costs and prices both immediately and far into the future. They point to many years when housing has greatly increased its production with slight or nonexistent

price rises. Housing's one experience with lower prices came with an increase in scale and a shift from a contract to an operative basis. Contract firms tended to minimize overhead, land development, and forward planning. The postwar period of sustained strong demand brought forward larger, stronger operative firms with lower costs. Because of problems of overhead and of land and community development, these firms need a lead time of assured demand. The uncertainty brought about by Government action to curtail demand has particularly penalized these firms with a larger planning horizon and more future commitments. The result has been to raise costs by hindering or removing the most efficient type of producers.

Overall effects

A policy has also been suggested of lowering demand in construction as a means of combating the general inflationary situation. Here the issue is not what happens to building prices, but how spending in this area affects other demand. If surplus resources exist in the housing field, would it be improper to employ them on the assumption that any additional spending would increase the total pressure on the economy?

The overall inflationary effect of spending in a specific field depends on the source of funds and on the multiplier. Construction paid for by creating purchasing power will have an inflationary effect as it spills over from its initial spending purpose into other areas. However, if the purchasing power already exists and is simply taken from other uses, an inflationary impact need not occur. Its effect on prices will depend on the total consequences of the expenditures in their new channels as contrasted to how this money would have been spent if not taxed or borrowed to increase construction demand. (The results will, of course, be more inflationary than if the Government had taken the purchasing power and saved it.)

Provided there are underutilized resources in the industry or its supply curve leads to falling prices with increased volume, spending money for housing even in a period of high aggregate demand is likely to be deflationary. The purchasing power absorbed cuts back on the demand for all other goods. This money instead employs resources which otherwise would be wasted (assuming they could not easily be moved into high-demand areas). The result is to augment the total amount to goods produced. Aggregate prices will fall because total purchases have not been increased while the total utilized supply has.

Another erroneous impression is that there is a necessary difference between the effect of purchasing power taken through taxes and that borrowed. Provided the Federal Reserve maintains a constant level of credit (and contrary to their statements), borrowing to increase housing demand by the Government may have a deflationary effect.⁵ For example, when the Federal National Mortgage Association borrows in the money market to lend to house purchasers, this may raise interest rates and stop other potential borrowers. The available funds might, if not borrowed, have augmented consumer expenditures or business purchases of durables. Expenditures in areas with shorter supplies could lead to larger price increases.

⁵ U. S. Senate Subcommittee on Housing of the Senate Banking and Currency Committee. Hearings on Housing Amendments of 1957 (85th Cong., 2d sess.), p. 279.

The overall results will depend also on the effectiveness with which the funds are taken. But little effort has been made to judge the relative costs of using programs of taxes, borrowing, or qualitative monetary controls to obtain funds for specific fields, even though each may have definite advantages in a certain situation. If important differences prevail in the secondary effects of money spent in separate fields, then these must also be taken into account. No obvious divergent secondary effects appear to exist, however.

ACTUAL MOVEMENTS OF EXPENDITURES

The history of shifting Government expenditures in the postwar period bears out the previous analysis. There has been a great deal of difficulty in determining when it would be efficient to expand or cut public construction. As a result, with the exception of the housing field, only mild action has been taken to promote stability by varying expenditures in this sphere. The few attempts have not been very effective.

In the recession of 1948-49, increased Government spending and decreased Government taxes played a significant role in maintaining stability. Because of poor forecasting, however, most of this occurred in an unplanned manner. Moreover, as would be expected in a short recession, the best results were achieved by nonconstruction items. The excess of Government "withdrawals from" over "additions to" the income stream dropped at an annual rate of \$13.3 billion between the first halves of 1948 and 1949, the period when such a drop was most desirable. Of this sum income taxes decreased by \$4.3 billion, and \$1.6 billion was from other falls in revenue. The largest increase in spending, at a rate of \$2.4 billion a year, occurred in payments to farmers through loans and crop purchases. Purchases for foreign aid went up at the rate of \$2.1 billion. Other increases totaling \$2.9 billion were spread among unemployment compensation, wages, higher defense spending, and a few miscellaneous categories. During this most critical period, public construction expanded somewhat, but at less than its normal postwar recovery rate. Housing slumped. As a result, the desired expansionary effects of public construction and housing were less than normal.

Again in the recession of 1953-54, public construction played only a slight role in halting the decline. In this period, although the President apparently issued instructions to speed up public works, Federal construction actually fell.⁶ State and local construction expanded slightly, while housing did make an important contribution to income. Other Federal expenditures contracted sharply. The sharp fall in military expenditures was, of course, one of the major causes of the general decline.

One other lesson can be drawn from the postwar experience. In the initial planning under the Employment Act of 1946, it was hoped that public housing and urban redevelopment could make important contributions to anticyclical policy. The Housing Act of 1949 contained specific authority for the President to speed up these programs if necessary to promote stability.

⁶ Cf., the article by R. J. Donovan, *New York Herald Tribune*, May 4, 1956.

Table 3 shows the time required to complete expenditures of the first year's authorizations under this act. From this record, there appears to be slight likelihood that these items could become an important anticyclical device. Redevelopment was a brand new program that had to set up new organizations and establish new procedures. Contracts for the spending of the first year's authorizations of Federal grants took over 4 years to write, and the period for contracting loans was more than 7½ years. Over 8 years elapsed before the funds were finally disbursed. Clearly, this time will be cut in the future if the agencies stay in operation. Even so, considerable time must elapse between authorizations and contract approvals. Furthermore, the average lag between contract and expenditure, which depends more on technical problems, was from 2 to 3 years. Only one project was actually completed in the program's first 8 years.

TABLE 3.—Time to complete 1st year's program authorized under the Housing Act of 1949

	Years from passage of act	
	Average (median)	Total
Public housing (135,000 dwelling units): ¹		
Put under construction.....	2.0	3.0
Construction completed.....	3.7	4.8
Urban redevelopment:		
Capital grants (\$100,000,000):		
Contracts authorized.....	3.3	4.3
Grants disbursed.....	6.0	8.1
Project loans (\$250,000,000):		
Contracts authorized.....	5.1	7.5
Grants disbursed.....	7.2	8.5

¹ Program was delayed 2 to 5 months by Korean war.

² Estimated.

Source: U. S. Housing and Home Finance Agency, Housing Statistics.

Because the housing program was actually in operation, the initial steps for this program went much faster. Even so, it was about 4½ years (correcting for the delay of Korea) from authorization to completion of the first year's program. The physical construction lag was about 20 months from start to completion of construction.

These programs seem to show again that public construction cannot be speeded up so as to increase stability in any but fairly long, severe depressions. Since the additional efficiency of these programs is also in doubt, recent policy statements putting greater stress on adjustments of other types of Government spending and receipts seem sensible.

FEDERAL SPENDING AND ECONOMIC STABILITY

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Manufacturers

These hearings are to be welcomed as providing an opportunity for looking at the problems of government spending in long perspective. We are concerned not with devising specific measures for meeting immediate problems, but with developing a basic understanding which can serve as a guide in the indefinite future.

As a contribution to such understanding, I offer two basic principles:

1. Federal spending policies can and do have very important effects on the stability of the economy.
2. The deliberate and persistent reliance on Federal spending as an instrument for preserving economic stability will tend to have the contrary effect and promote instability.

Taken together, these two principles seem to form a paradox. If it is granted that Federal spending can have an important impact on stability, it might seem to follow that we can, and ought to, make use of that impact as a means of keeping our economy in balance.

But paradoxes are often the beginning of wisdom. The remainder of this paper will be devoted to a discussion of why the two principles stated above are not mutually contradictory. It will be necessary to begin with some discussion of the nature of economic stability, and the possible dangers of instability we will face in the future.

ECONOMIC STABILITY AS AN OBJECTIVE

A stable economy would certainly not be defined as an economy in which no change occurred, or if it were it would be dismissed immediately as an aim of policy. Our previous history has been one of growth and change, and we surely do not want the type of "stability" which would prevent that process from continuing.

But economic growth does not mean a uniform rate of increase for all areas of economic activity. Our past growth has resulted in striking qualitative changes in character—from a predominantly agricultural economy to one in which agriculture plays a relatively minor role, for example. Although we cannot foresee them in detail, the only safe assumption is that similar qualitative changes will occur in the future. There is no worse illusion than to assume that economic growth will produce an economy which is identical with the present one, except on a larger scale. It is of the very essence of economic growth that its effects on different types of activity will be uneven. Uneven growth should not be confused with economic instability.

This basic point is worth dwelling on. We had better face the fact that all of us, as individuals, will have to make personal adjustments as the economy grows and changes, and for some of us the adjustments

will be quite drastic. If, in the name of "economic stability" we try to prevent such adjustments from taking place we shall sacrifice the chief benefits of economic change. For example, the improvement in our agricultural productivity would not have been much help to us if we had insisted on retaining as large a percentage of our work force on the farms as we had a century ago.

Our free enterprise economy has within itself resources for guiding and facilitating such adjustments. But there is real cause for concern that, by confusing change with instability, we may devise policies which will retard or misdirect the process of adjustment.

All this makes the problem of maintaining stability—and there is a problem—much more difficult. It cannot be dealt with by efforts to freeze the status quo, or to insure that all sectors of the economy will grow at an equal rate. At least it cannot be so dealt with unless we are willing to surrender our hopes for economic growth.

THE REAL PROBLEM

In the past, we have had not only economic growth and the accompanying economic changes. We have also had episodes of economic development which cannot be defended as either desirable or inevitable. Certainly neither periods of prolonged large-scale unemployment nor periods of persistent inflation can be defended on these grounds.

In what follows, the problems of instability will be taken up under two headings: The danger of recession and the danger of inflation. This is the customary procedure, although it is adopted here with some reluctance. Recession and inflation are in no sense opposites of each other, and they may not even be mutually exclusive. One of the gravest dangers of the future is that we might have both at the same time.

A recession, or depression, is a period in which a substantial part of our manpower and other productive resources is not being utilized. For an explanation of why such periods occur, we must turn first of all to a consideration of profitability.

Despite the inroads of government in recent years, this is still a profit-oriented economy. Things happen because someone believes it will be profitable to take the steps which cause them to happen. Other things fail to happen because no one finds it profitable to take the steps which might bring it about.

(There are some who say that it should not be so and that the guiding criterion should be "human welfare" rather than profitability. It is assumed, however, that this point need not be argued here.)

A period of unemployment, then, is a period in which there are insufficient opportunities for making a profit through the employment of people to produce goods. Since profit is an excess of selling price over cost, we must conclude that in such a period there is something wrong with the relationship between the price which may be obtained for finished goods and the cost of producing them.

This type of imbalance is by no means a hypothetical danger. At present wage costs, the largest element of total cost, are set not by market action, but by arbitrary fiat, in a wide and critical sector of our economy. As a result, the profitability of employment-creating

activities has been seriously reduced. Just how close we are to the margin where it will be impossible to maintain our recent high levels of employment is not precisely determinable, but we have been moving nearer to it.

It is not our purpose to discuss this danger in all its ramifications, but only as it relates to government spending. It is clear that government spending cannot penetrate to the heart of this problem and correct the condition which have brought it about. The most that government spending might do, conceivably, is to offset the evil effects of such job-destroying situations.

The Federal Government can create new opportunities for earning a profit through employing people and producing goods. It can do this by bidding for additional goods on a cost plus basis. It can also create new jobs by spending its money so as to employ people directly.

Whether or not such new opportunities would be a net addition to the number of opportunities for making a profit through employing people to produce goods is another question, and a difficult one. It would depend on the way the money was spent and on the way it was raised.

Spending money raised by taxation is a very doubtful way of stimulating business activity. The question of how those who bear the tax burden would otherwise have spent this money must be raised. Beyond this, it must be remembered that private business activity can be stimulated only by creating new opportunities for profit and most forms of taxation have an adverse effect on profitability.

The spending of borrowed money is also doubtful in its effect. If the Government offers to pay a competitive interest rate it may simply attract away loanable funds that might have been used for expending existing enterprises.

If the Government borrows money through persuading the monetary authorities to create new liquid funds for its accommodation another question must be asked. If the problem of the economy is the need for increased liquidity, why should the Government spend money and divert productive resources from their natural uses simply to bring about this result? The responsibility for providing sufficient liquidity, together with other responsibilities of course, belongs to the Federal Reserve System and there is no necessity for the intervention of government spending with its many side effects.

But suppose, for argument, that a technique could be found whereby it could be assured that government spending would provide a new addition to the opportunities for profitable production and employment. Would not this be the perfect and painless answer to all our fears of recession?

In the first place, it is not a painless solution. It involves surrendering to the Government some part of the productive potential which could otherwise be used to produce goods for us to enjoy as individuals. It is one thing if government spends money for performing its necessary functions. It is another thing if the Government purchases goods for the purpose of providing a market for them.

Second, it is not a perfect solution since it does not deal with the root causes of the difficulty—costs that are too high in relation to

market conditions. At best, it can only offset the depressing effects of that imbalance.

Many will brush this argument aside as irrelevant. What difference does it make, if it works? If government spending can put people back to work, why should we care whether it corrects the condition which originally put them out of jobs?

The answer is that government spending of this character would counteract the economic forces which would otherwise tend to bring the economy back into balance. With the corrective forces eliminated, the malady could be expected to become progressively worse. What might have been a temporary maladjustment is preserved indefinitely.

Picture our condition if we decide, as a fixed policy, to offset the effects of cost-price maladjustments through government spending: Everyone who makes major economic decisions is assured then that, however economically absurd his actions may be, the Government will spend money to offset their harmful effects in curtailing output and employment. There would be no incentive for the entrepreneur to resist any of the claims which would result in higher costs, since he is assured that government will provide the market.

With a fixed policy of government spending for this purpose, the total of such expenditures could be expected to rise periodically as each new cost-price crisis arose and was offset rather than cured. There is no theoretical limit short of the Government purchasing 100 percent of the national product, although it is probable that the absurdity of the policy would become apparent well before that point and it would be abandoned.

The only safe policy is for government to limit its expenditures to those necessary for the performance of governmental functions. Expenditures specifically motivated by the intention of promoting "economic stability" must in the long run intensify instability.

SPENDING POLICY AS AN ANTI-INFLATION WEAPON

One of the gravest dangers in the future is the possibility of a gradual, but cumulative, erosion of the purchasing power of our money. This does not exclude the possibility of simultaneous recession and unemployment. In fact both might result from the same cause—cost levels that are arbitrarily and unrealistically set too high. But continuous inflation cannot result from the cost side alone, unless rising costs are accompanied by efforts to validate the higher costs by monetary expansion.

In a situation like this it is difficult to see how Federal spending policies can be of much help. If monetary powers were being used to validate the arbitrary cost levels, then a reduction in government spending would simply necessitate an even greater injection of new money.

If and when an inflationary danger arises from the demand side (rather than the cost side) a reduction in government expenditures might be of some help. But this device is available only if the expenditures were too high in the first place. Certainly we would not want to reduce expenditures below the level necessary to provide essential services.

It might be argued that we ought to maintain a high level of expenditures in normal times, so that we might reduce them when in-

flation threatened. This would be a little like arguing that personal extravagance is a good habit since it leaves plenty of margin for cutting expenses when the need arises.

THE SO-CALLED COMPENSATORY BUDGET

In recent years, the "compensatory budget" view of Federal fiscal policy has attained a certain currency. In this view, Federal budgets of the general type we have had since World War II should be regarded with satisfaction since they exercise an automatic stabilizing effect on the economy.

This alleged stabilizing effect is the product of three features of our recent budgets:

1. The emphasis in our tax system on income taxes, and especially on progressive taxes. This means that tax collections are extremely sensitive to business fluctuations.
2. The growing importance of welfare-type expenditures, which increase automatically as times get bad and decrease as conditions improve.
3. The magnitude of the budget, which means that the effect of 1 and 2 will be substantial in the economy generally.

From these considerations, it is argued that the budget will exert a strong influence in counteracting cyclical fluctuations. When purchasing power is declining in the private economy, federal fiscal policy will automatically increase it, and vice versa.

There is a curious, perverse, sort of logic in this thinking. It can be said that by saddling ourselves with a high budget and high progressive tax rates we tend to stabilize the economy. But it is equally true in about the same sense that a man who is tied hand and foot may be said to be stabilized in his activities.

In its application as an antirecession weapon, the compensatory view seems to depend on the fact that by collecting excessive amounts in taxes during good times, we have an opportunity to improve conditions in bad times by reducing the amount of tax collections. This is like arguing that it is a good policy to hit one self on the head with a hammer every day, since it leaves one with the opportunity to improve his well-being by ceasing to do so.

There are signs that enthusiasm is waning for the compensatory budget views. One of the services this panel might perform is to announce its final demise. It is bad enough to have to meet arguments that high spending and high taxes are unavoidable necessities. It is far worse to have to meet the contention that they are to be regarded as causes for self-congratulation.

CONCLUSION: THE PROBLEM OF STABILIZATION

Economic stability is generally accepted as a desirable objective, although no one has succeeded in defining it precisely. There are extreme situations which everyone would agree represent undesirable instances of instability. There is also a vast borderland of cases where there might be a dispute as to whether they are to be considered evidence of instability or merely the normal accompaniment of growth and change.

Our market system generates forces which guide the economy and tend to keep production, employment, etc., in rough adjustment. It is true that these forces sometimes act with distressing sluggishness. It is also true that these forces may be rendered inoperative by deliberate interference with market operations—e. g., by monopolistic setting of wage costs. But the impersonal market forces must always be our major reliance if we are to preserve an economic system which is recognizable as free enterprise.

Government spending cannot directly influence these equilibrating forces. The most it can do is to substitute itself for them, when they do not seem to be operating satisfactorily.

Government spending policies would have to be designed with almost superhuman wisdom, if they were to have this effect, even in the short run. But let us concede that it can be done, and government spending can offset the maladjustments which occur from time to time.

The trouble is the government spending, by offsetting the unpleasant effects of the maladjustment, also offsets the corrective forces which would eliminate it. Thus a consistent policy of using government spending to promote stability must result in a constant accumulation of unstabilizing influences.

Moralists preach that it is good for us to suffer for our sins since we are then fortified in our resolve to sin no more. Perhaps somewhat the same principle applies in economics, and government spending which protects us against the unpleasant consequences of our own wrongheadedness is the road to perdition.

GOVERNMENT INTEREST PAYMENTS: THEIR RELATIONSHIP TO ECONOMIC GROWTH AND STABILITY

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Any study which attempts to examine the ways in which the pattern of Government expenditures may contribute to the achievement of the twin goals of economic growth and economic stability must come to grips with the problem of interest payments. The magnitude and variability of interest expenditures have made them a budgetary problem of the first order and have increasingly attracted to them the attention of both public officials and students. In analyzing the interest issue, one must examine the role of the rate of interest, the relationship between the interest expenditures and the Nation's fiscal capacity, and, finally, alternative means of monetary organization which may hold out the possibility of alleviating the burden of the debt. Prior to the investigation of the analytical issues, however, it is desirable to view our present interest problem in the light of history.

Since the onset of the depression, despite a sharp decline in the average rate of interest paid on the public debt, the sums spent by the Federal Government in the servicing of its debt have crept steadily upward. The increased interest expenditures reflect the vast expansion of the public debt which resulted from the emergency expenditures of the thirties and the immense cost of the Second World War. In the past 12 years, the rise in interest charges has also reflected the gradual increase of the interest rate from the lows reached during the period of wartime controls. In table I will be found the basic data relevant to the rise of the public debt and of interest expenditures and, in addition, statistics on budget expenditures and the gross national product. Interest charges during the current fiscal year are anticipated to be \$7.4 billion, more than 10 percent of total budget expenditures. It will be recognized, however, that relative to the total budget, interest charges are now lower than they were in the twenties and even in the period prior to the Korean war. This simply reflects the lower level of total expenditures during these earlier periods. Relative to total output, interest payments are now about 1.8 percent of gross national product—a level 3 times greater than that prevailing in 1929. They have, however, declined from the high point, 2.3 percent of gross national product, which was reached in 1946.

It is useful to view current interest charges in historical perspective, since this helps to dissipate some of the more frenetic attitudes on the subject that have been generated by the continual increase of the absolute amount of interest payments. From the standpoint of history, the present costs of servicing the debt are not unduly heavy relative to our capacity.

Nevertheless, the increased charges should not be viewed with complacency. In national income accounting, Government interest payments are viewed as transfer payments. They add to personal income, but they do not—in contradistinction to other interest—add to national income, since they are not paid for services currently rendered in the productive process. Government interest payments serve no productive function. For the most part, the public debt is a kind of spurious capital. Since it has arisen largely as a result of war expenditures, it has, unlike private debt, little counterpart in real productive assets. National income statisticians make no attempt to impute a return to socially owned capital. The servicing of the debt constitutes a drain on the budget, absorbing funds which might otherwise be used for different purposes. It represents a burden for the taxpayer. What purposes, then, do Government interest payments serve in the maintenance of strong economy?

THE ROLE OF THE RATE OF INTEREST

At the present time, the chief variable influencing the magnitude of Government interest expenditure is the rate of interest. If the money market is not to be disrupted, the rate of return on governments must be consistent with that available on other instruments. Variability of Government interest payments reflects the changes in the rate of interest. The rate of interest on Government obligations cannot be "pegged" without simultaneously stabilizing the rate of interest generally, and, on the other hand, if the general rate of interest is permitted to vary, the rate paid on governments must also vary. In order to understand why the rate of interest must vary and, therefore, in order properly to assess the function of interest payments, we must indulge in a theoretical digression on the question: the role of the rate of interest.

According to the traditional view, the chief function of the rate of interest is to serve as a deterrent to the desire to borrow. In this way it governs the demand for investable funds, thereby limiting aggregate spending from borrowed funds. In recent years it has been recognized that the effective mechanism may be something more than the deterrent effect upon potential borrowers resulting merely from an increase in the cost of borrowing. Borrowers may still wish to borrow, despite the increased cost, but are unable to find lenders. In any event rising rates of interest do imply the cutting off of fringe borrowers.

TABLE I.—Amount of interest-bearing public debt, interest on the public debt, budget expenditures, gross national product, and their relationship, 1929-57

	Interest-bearing debt	Interest on the public debt	Budget expenditures	Interest charge as percent of budget expenditures	Gross national product	Budget expenditures as percent of gross national product
	<i>Millions</i>	<i>Millions</i>	<i>Millions</i>		<i>Millions</i>	
1929.....	\$16,639	\$678	\$3,299	20.6	\$104,436	3.2
1930.....	15,922	659	3,440	19.7	91,105	3.8
1931.....	16,520	612	3,577	17.1	76,271	4.7
1932.....	19,161	599	4,659	12.8	58,466	7.9
1933.....	22,158	689	4,623	14.9	55,964	8.3
1934.....	26,480	757	6,694	11.3	64,975	10.3
1935.....	27,645	821	6,521	12.6	72,502	9.0
1936.....	32,756	749	8,493	8.3	82,743	10.2
1937.....	35,803	866	7,756	11.2	90,780	8.5
1938.....	36,576	926	6,792	13.7	85,277	8.0
1939.....	39,886	941	8,858	10.6	91,095	9.7
1940.....	42,376	1,041	9,062	11.5	100,618	9.0
1941.....	48,387	1,111	13,262	8.4	125,822	10.5
1942.....	71,968	1,260	34,046	3.7	159,133	21.4
1943.....	135,380	1,808	79,407	2.3	192,513	41.4
1944.....	199,543	2,609	95,059	2.7	211,393	45.1
1945.....	256,357	3,617	98,416	3.7	213,558	46.2
1946.....	268,111	4,722	60,448	7.8	209,246	28.9
1947.....	255,113	4,958	39,032	12.7	232,228	16.8
1948.....	250,063	5,211	33,069	15.7	257,325	12.5
1949.....	250,762	5,339	39,507	13.5	257,301	14.9
1950.....	255,209	5,750	39,617	14.5	285,067	13.9
1951.....	252,852	5,613	44,058	12.7	328,232	13.4
1952.....	256,863	5,859	65,408	9.0	345,445	18.9
1953.....	263,946	6,504	74,274	8.8	363,218	20.4
1954.....	268,910	6,382	67,772	9.4	361,167	18.7
1955.....	271,741	6,370	64,570	9.9	391,692	16.3
1956.....	269,883	6,787	66,540	10.2	414,686	16.4

Source: Annual Report of the Secretary of the Treasury on the State of the Finances for the fiscal year ending June 30, 1956. Department of Commerce, Survey of Current Business, July 1957.

The supply of investable funds need not be affected. As a weapon of control, the interest rate does not affect the allocation of resources between investment and consumption activities save insofar as it affects the society's willingness. The interest rate is simply a surface phenomenon—underlying the monetary relationships are the real forces which, in the final analysis, determine the allocation of resources between present and future needs. Of main importance in this respect, during periods of full employment, is the willingness of the citizenry in their individual and corporate capacities to free resources for investment activity by voluntarily refraining from consumption expenditures. In this inclination, they may be abetted by the willingness of the Nation as a whole to save, as reflected by a surplus in the Government budget.

Taken in conjunction with "thrift"—the source of funds—the demand for funds (which is largely a reflection of the expected productivity of capital) tends to determine the rate of interest. If we assume full employment, there is considerable truth in the idea, developed by Knut Wicksell, of a natural rate of interest determined by the real forces of demand and supply. If we are willing to tolerate inflation, the market rate of interest may be held down, and more investment may be carried on through the process of forced savings. It may be assumed, however, that normally, we would wish to avoid inflation. Though serving temporarily to supplement the resources devoted to investment, inflation is undesirable on long-run grounds since it serves to dry up the chief source of investment resources—i. e., voluntary

savings. Inflation causes an inequitable redistribution of income and wealth; it may also, therefore, be considered abhorrent on moral grounds.

In the contemporary economic context, the chief contribution that interest rates may make to economic stability is in controlling the inflationary process. During periods in which there is some danger that resources may fall idle, interest rate should be lowered in order to encourage additional investment activity. But our present-day problem is not one of idle resources. The interest rate must be used as the vehicle for curtailing investment demand within the limits of the available supply of resources. It may be that present inflationary symptoms are due to the upthrust of wages and other costs, but this hardly implies that we should wish to superimpose a demand inflation upon a cost inflation. Use of the rate of interest does imply a rationing of credit through the price mechanism among the various claimants to resources. It may well be that those claimants excluded from access to investable funds are just those individuals and firms that could use capital most productively and would add most to the long-run growth of the economy. To this possibility we must return later.

It is desirable to keep in mind that the interest rate is a two-edged weapon, having side effects which tend to spur, as well as control, inflation. To the extent that prices are administered in accordance with a cost-plus formula rather than being set by competitive forces, a rise in the rate of interest by adding to costs may be reflected directly in a marking up of prices. This is particularly true in a highly oligopolized economy operating under a full-employment guaranty. In addition, it has been pointed out, government interest payments are a part of personal income, but are not a part of national income—they do not constitute payments for services rendered in the turning out of national production. An increase in government interest payments may, therefore, swell demand without swelling output; by thus serving as a feedback to demand they may add to inflationary pressure. From this standpoint, a rise in the interest rate may be viewed as a built-in destabilizer, adding gradually to demand as inflationary pressures rise. Some protection against this destabilizing effect may be obtained by the funding of the Federal debt into long-term issues. Nevertheless, it may be seen that a rising rate of interest has offsetting facets which tend to spur inflation to some extent on both the demand and cost sides.

On balance, it is generally believed, the offsetting facets are of minor importance—the function of the interest rate in the control of investment demand is the crucial one. Interest costs are a minute percentage of the final cost of finished goods. In certain sectors of the economy, a small, once-for-all increase in prices may occur in order to bring about equilibrium in the markets concerned. It may be regarded as the price paid to bring to an end inflation as a continuing process of rising prices. It is desirable to keep in mind the distinction between higher prices and rising prices. On the demand side, some portion (perhaps 30-40 percent) of additional interest payments will be recaptured by the Government in taxes; some will be saved. This is, of course, true of any increase in spending that gives rise to an increase in income. It does suggest, however, that, even if interest payments were to rise by a billion dollars, the net addition to effective demand would be in the

order of perhaps \$500 million—an infinitesimal sum relative to the total demand for final goods and services, which is well over \$400 billion. The curtailment of investment demand is, therefore, of critical importance. Its relative importance should not be lost sight of because it is only one of a complex of influences emanating from a change in the rate of interest, from which no one part can be disassociated.

Though occasionally we may like to fool ourselves on the issue, there is, in reality, no acceptable alternative¹ to flexible interest-rate policies. To approach the problem from another direction may help to cast it in the proper perspective. In the absence of direct controls, which are probably unacceptable to the American people, in a period of rising demand for investable funds, the maintenance of a fixed interest rate would simply imply the abandonment of control over the supply of money and the creation by the banking system of all the additional purchasing power that all potential borrowers might desire. Without direct controls, it is impossible to control both the price and the quantity of any commodity. The implication of a fixed interest rate in the face of rising investment demand is a permanently enlarged money supply with consequential inflationary repercussions. That there is really no issue seems to be confirmed by the recent report of the Subcommittee on Fiscal Policy to the Joint Economic Committee.²

INTEREST PAYMENTS AND THE NATION'S FISCAL CAPACITY

Granted that flexible interest-rate policies are essential in the attempt to stabilize a free-enterprise economy, and that interest payments must, therefore, rise on occasion, one cannot disregard the relationship of the interest burden to the total budget and to national income. On the other hand, before reaching the conclusion that it is always most desirable to cut interest payments, one must keep in mind that there are valuable educational, charitable, and commercial institutions which are, in part, dependent upon interest income for support. Yet, the general presumption must remain that reduction of the interest burden is to be desired since it will alleviate budgetary pressures.

Economists have gotten over their infatuation with the idea that a domestically held public debt is no burden because "we owe it to ourselves." Because a burden is "merely financial," it does not mean that it cannot be burdensome. The element which we term the Nation's fiscal capacity" is an essential ingredient of a discussion of any major component of the budget. This concept refers to the fact

¹ In theory, fiscal policy could serve as a complete substitute for monetary policy. In principle, the interest rate could be held at a predetermined level by the adoption of appropriate tax and expenditure policies. To the extent that a restrictive fiscal policy is adopted during periods of rising demand, the need for interest-rate variation will be lessened. As an instrument of control, however, fiscal policy is crude in operation and cumbersome in administration. Politically, it is not suitable for quick adjustments. As a practical matter, it cannot cope with the delicate regulation of demand that is required. To imply the contrary is to expect too much of fiscal policy, a "perfectionist" attitude reminiscent of Beveridgism. A more refined tool is needed. In practice, therefore, it is necessary to use monetary policy.

² Fiscal Policy Implications of the Economic Outlook and Budget Developments, Report of the Joint Economic Committee to the Congress of the United States, June 26, 1957. See, especially, p. 5, on which it is stated " * * * public policies to cope with increases in the price level must take the form of general fiscal and monetary restraints on the expansion of total spending."

that there exist economic limits and even more stringent political limits on the Nation's capacity to tax its citizens. For brief periods, under certain circumstances, this limit may run as high as 40 to 50 percent of gross national product. In the United States, and for extended periods of time, it is likely to be significantly smaller. The existence of a limit on the capacity to tax imposes a limit on (non-inflationary) government spending. The higher interest payments are, therefore, the less will be the funds that are available for other purposes. It is conceivable that, when no consideration is given to the growth of the public debt, an intolerable budgetary situation may develop in which interest payments, in addition to other necessary expenditures, add up to more than the amount supportable by the state's fiscal capacity, with the implication that the debt must perennially grow. Something of this sort did develop in France during the 17th and 18th centuries, and was in no small measure a cause of the revolution. We must remember, however, that the fiscal capacity of a modern state is vastly greater than that of an 18th-century state.

Another related danger which is more germane to the United States is the menace of building in inflation via the public debt. In its ultimate form, the Nation faces the dilemma whether to service the debt by borrowing or to hold down the rate of interest and, therefore, expenditures through its control of the central bank. Rising prices bring about a rise in the natural rate of interest, which tends to increase the burden of servicing the debt. This contingency may be countered by holding down the market rate of interest and thereby stimulating excessive spending, further spurring on the inflation and so on. Happily, we seem to be nowhere near this state of affairs at the present time, though we may have been caught in its toils for a brief period after the Second World War. The rapid fall of the burden of the debt (relative to gross national product) in the last decade has steadily reduced the urgency of this problem.

THE CONTRIBUTION TO STABILITY AND TO GROWTH

In attempting to summarize the relationship of government interest payments to stability and growth, it must be observed at the start that their main direct relevance is the vital role they play in stabilization. In order to contribute to stabilization, interest payments must be accommodated to the natural tendencies of the rate of interest. The obstinate desire to hold down the interest rate on the public debt may simply bring inflationary consequences.

Interest payments are the price of proper debt management. Debt management ought to be designed to relate the liquidity of the debt to the liquidity needs of the economy. Short-term debt or long-term debt with pegged prices is highly liquid; an excess of such instruments adds to the inflationary bias of the economy. To reduce liquidity, a large proportion of the debt must be put into the hands of "firm holders"—preferably on a funded basis. So long as our present monetary arrangements last, adequate interest payments are essential to the achievement of a firm holding of the public debt. If Treasury issues are obliged to compete with private issues for the available funds, the interest rate on government securities must be competitive and must, therefore, reflect market forces. Once again it appears that

there is no alternative to a flexible interest rate, and in this respect, rising interest payments in good times are a *sine qua non* of stabilization policy within our present monetary framework.

In regard to growth, interest payments can contribute little save indirectly. To the extent that destablization militates against growth, the contribution that interest payments make to stabilization may be essential to growth in the long run. In the short run, however, the rate of growth is largely dependent upon the rate of capital formation—and thus merely reflects the resources made available through nonconsumption of national output. It is sometimes asserted that the capital-rationing process associated with rising interest rates discriminate unduly against the type of investment which in the long run is most productive both industrially and socially—to wit, construction, railroads, public utilities, and borrowing by local school boards. There is certainly some truth in this assertion since these are the segments of the capital market most sensitive to changes in the interest rate. Unless we are willing to accept direct controls for the allocation of capital with all that this implies, there is, however, no alternative. From the economic standpoint, the proper remedy is to increase the rate of saving, by supplementing private savings via a surplus in the Federal budget. The rationing process is implicit in the interest-rate mechanism.

THE QUESTION OF ALTERNATIVES

Since there is little doubt that present interest payments do constitute a drain on the resources available for other governmental activities and a burden on the taxpayer, can anything be done to lower the cost of servicing the debt? Since the interest rate, in itself, ought not to be controlled, are there possibilities for the reformation of our monetary framework which might alleviate the burden of the debt?

Over the long run, it is worthy of note, the growth of Government trust funds promises to promote an attenuation of the problem. The social-security fund is now approximately \$24 billion and, it is hoped, it will continue to grow for the rest of the century. In all, trust funds and other accounts of the Government hold some \$53 billion worth of Federal securities. The Federal Reserve System, which remits 90 percent of its profits to the Treasury, holds an additional \$24 billion. As the holdings grow, increasingly the effect of interest payments is to swell the size of the funds, thus permitting a level of social-security taxes somewhat lower than they might otherwise be (and also, lower insurance deductions for Government employees and others). Payments to the Federal Reserve System are in large measure simply paper expenditures. As the proportion of the public debt in the hands of the trust funds and the Federal Reserve System increases, it implies (a) a lessened net drain on resources, and (b) firmer holding of the public debt, reduced shiftability, and, therefore, lessened danger of a "liquidity time bomb."

Yet, on the other hand, interest rates are rising internationally. This may reflect rising demands for capital, the inflation itself, and, perhaps, some fall in the tendency to save. The Congress, in framing new banking legislation, may wish to keep this problem of alternatives in mind. In a modern economy the money supply in no inconsiderable measure is created through the monetization of public

credit. When the commercial banks monetize public credit, they receive the interest payments; when the Federal Reserve monetizes the public credit, most of the interest payments revert to the Treasury. If the burden of servicing the public debt is regarded as too onerous, the Congress might desire to force a larger portion of the debt into the Federal Reserve System. This could be accomplished by raising reserve requirements and, thereby, reducing the expansion power of the banking system. The Federal Reserve would then find it necessary to supply additional reserves and in the process would acquire additional debt. For example, the required reserves of the member banks are at present about \$18 billion; doubling of the present reserve requirements would imply that the Federal Reserve System would expand its debt holdings by an approximately equal amount.

Such action would imply a retreat from the fractional reserve system. Before embarking on such a course the advantages of the fractional reserve system ought to be weighed. It is more flexible and better adapted to the needs of the economy than, for example, is a 100-percent reserve system relying solely on the monetization of public credit. It has the advantages of the status quo; it is understood; it is institutionalized. Any attempt to change it would be vigorously resisted. Yet, it is true that one way of dealing with the problem of a large interest-bearing public debt is to reduce the burden by moving away from the fractional reserve system. Whether the benefits are equal to the costs is a question of political judgment.

In mentioning this possibility of institutional change, it might be in order to reiterate that short of outright inflation there is no real alternative to permitting variation of the interest rate under our present institutional arrangements. Interest-rate variations, it may be demonstrated, have some inflationary impact in themselves, yet these side effects are negligible when compared to the loss of control over the money supply. Interest-rate variation means changing interest payments, and the latter are indispensable to the maintenance of economic stability. Restraining increases in interest payments by funding the debt, however, may serve to protect the process of economic growth.

FEDERAL EXPENDITURE AND ECONOMIC STABILITY: THE FALLACY OF THE BALANCED BUDGET

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There is a prevailing opinion in both lay and expert circles that a balanced budget is substantially neutral in its effects on the economy. This opinion is fallacious.

There are a great many things to be said in favor of a balanced budget. In particular, if we are fearful of a growing debt, a balanced budget, by definition, means a stable debt. This financial consequence of a balanced budget does not, however, mean that the balanced budget leaves the economy substantially unaffected. A balanced budget may be highly expansive in its impact on the economy and may cause inflation. A balanced budget may also be highly restrictive in its impact on the economy and may cause depression. Likewise a budget that shows a surplus—generally regarded as being restrictive in its effects on the economy—may in fact be inflationary. A budget that shows a deficit (hence requiring borrowing—usually regarded as being expansive in its effects on the economy—may, in fact, be restrictive. It is necessary to examine the nature of the expenditures and the taxes (and the borrowing) before any conclusion can be drawn as to the impact of any budget on the economy, whether it is a balanced budget or shows a surplus or a deficit.¹

FEDERAL EXPENDITURE IN THE BUDGETARY CONTEXT

It is undoubtedly possible to discuss the relation between Federal expenditure and economic stability by treating the Federal expenditure in isolation. We would then ignore other aspects of the Government's fiscal operations, such as tax revenues and borrowing. As a practical matter, however, it is budgetary policy as a whole that is the concern of policymakers. If we set as our aim the achievement of economic stability we cannot evaluate the effects of any particular amount or type of Federal expenditure unless we know many things about the economy. One of the most important of these is the revenue side of the Federal budget. For instance, a large Federal expenditure may have a small expansive effect if there exist certain taxes which drain off the expenditure as quickly as it reaches the economy. Budgetary policymakers should, in fact, consider both expenditure policy and tax policy more or less simultaneously because of the fact that the impact of the one is determined in part by the nature and extent of the other.

For these reasons our discussion of Federal expenditure and economic stability is set up in the context of the Federal budget as a

¹ Harold M. Somers, *Public Finance and National Income*, Blakiston, Philadelphia, 1949, pp. 485-527.

whole. We shall indicate the various consequences of a given amount and type of Federal expenditure under a variety of different assumptions as to the prevailing tax structure. Since our primary interest in this paper is with Federal expenditure, the references that are made to tax policy are in the nature of assumptions as to prevailing institutional conditions. Among other important institutional conditions are the nature of the banking system and the state of the money market as a whole.

THE STRUCTURE OF BUDGETARY POLICY

Most of the individual instruments of budgetary policy—expenditures, taxation, borrowing, and debt repayment—have been subjected to meticulous examination by economists. The multiplier theorist has explored the effects of expenditures, and the tax theorist has built up an enormous literature dealing with every nook and cranny of tax incidence and effects. Borrowing and debt repayment have not been studied quite so thoroughly but there is a substantial literature even on these subjects. Although the individual instruments of budgetary policy have been studied carefully, the theory of budgetary policy as a whole lacks integration. The terminology and interests of the tax theorist have not been the same as those of the multiplier theorist while the borrowing and debt repayment expert has busied himself with matters monetary and capital to which the others have, in the main, paid only passing attention. As a result, it is difficult to make adequate allowance for the effects of taxation, borrowing, and debt repayment in trying to determine the consequences of any particular volume of government expenditures. Instead of being an integral part of the analysis, these effects usually take the unsatisfactory form of “modifications” or “qualifications.”

The immediate task is to study each instrument of budgetary policy on some comparable basis and then construct a comprehensive picture of the budgetary impact as a whole. In every case the same broad types of effects are considered. Printing of new money has economic effects only insofar as the money is spent, hence printing of new money is not considered separately. Credit creation for government expenditures forms part of borrowing, in this case from the banking system. Since we wish to see how budgetary policy influences consumption, investment, and national income as a whole, we must consider the extent to which each instrument of budgetary policy involves some impact on the Nation's supply of income and capital funds. The impact on income funds serves as a starting point for the study of subsequent effects on consumer spending and the impact on capital funds serves as a starting point for the study of subsequent effects on investment.

Expansive effects of Federal expenditure

An elementary approach to the problem of measuring government spending for the purpose of determining the effects on economic stability would be simply to look at the amount of spending. Government expenditures of \$20 billion would be expected to have an expansive impact twice as great as government expenditures of \$10 billion.

Brief reflection will show that this approach is inadequate. There is no doubt that it is necessary to break down the amount of government spending in order to get an accurate measure of the effects

on economic activity. It is important to know who receives the money paid out by the Government. If the money is received by persons who will spend it immediately the impact is much more expansive than if it is received by people who will save most of it. Any amount that is saved may be assumed to be available for use on the capital market if suitable terms are available. Some items listed as Federal expenditures are in fact entirely capital items making available funds for loans, e. g. an appropriation to a Federal lending agency. In some cases the Government merely pays money to itself, leaving the economy unaffected.

Another distinction that should be made is that between government transfer payments and government income-producing payments. The former represents merely a transfer of funds from the government to individuals and does not in and of itself involve any employment or income creation. Government income-producing payments represent the purchase of goods or services by the Government and therefore in and of themselves result in employment and income. In the case of transfer payments we must wait for the spending of the money before there is any impact on the economy.

What is done with funds received from the Government is not fixed and invariable. It depends on the psychological climate, the state of expectations, which will in turn be affected by what the Government does and how it does it.

Through the medium of expenditures the Government induces both consumer spending and capital lending. For the most part, income-creation is involved, as in the case of administrative expenses, relief, public works, and most national defense items. By purchasing goods or services the Government directly transfers income funds to the firms and individuals concerned. As pointed out above, there has also grown up another type of government disbursement of funds whereby the Government merely lends its money (nominally, at least), and does not give it away or purchase outright any goods or services. The extension of credit tends to have the same sort of ultimate effects on national income as the outright purchase of goods and services by the Government, but the path taken by these effects is different. Government expenditures associated with lending activities augment the supply of capital funds and thus tend to ease the terms of private borrowing. The effects of this depend on the nature of the inducement to invest and on the possibility of obtaining funds from other sources, for instance, the banks. On the other hand, the direct purchase of goods and services by the Government means, in and of itself, means that the community's supply of income funds in hand is augmented. Government expenditures that directly result in the production of income we shall call "release of income funds"; expenditures that result merely in making loanable funds available (although if invested they too will create income) we shall call "release of capital funds." Thus we carry over into our later discussion the two categories of government disbursement of funds—those which involve a release of income funds and those which involve a release of capital funds.

Restrictive effects of taxation

In the case of tax revenues we have an absorption of funds by the Government; and here again we may consider the funds involved to

be of two types. To some extent, the process of taxation transfers to the Treasury funds which would have been spent on consumers' goods. This is true in some degree of sales taxes and of income taxes on low-income groups. But some taxes impinge on savings, which may have augmented the supply of capital funds. These two parts of taxation have different effects on the national income. The first part directly reduces consumers' expenditures and national income while the second has only an indirect effect operating through the availability of capital supplied by individual income recipients. As a result of this type of taxation the terms of borrowing for private investment may be less favorable than they would otherwise have been. Where bank credit is freely available the restrictive effects arising from the absorption of capital funds through taxation may be negligible. Taxation, then, involves both an absorption of income funds and an absorption of capital funds.

Restrictive effects of borrowing

When we turn to borrowing we again find an instance of government absorption of funds. It might seem that since the money is borrowed the funds involved must necessarily be capital funds. But if we are concerned with the use to which the funds would have been put if they had not been lent to the Government, then we can see, paradoxically perhaps, that not all funds lent to the Government need be capital funds. In the case of some bonds issued during the war and more clearly in the case of compulsory savings, the money lent to the Government would, to some extent at least, have been spent on consumption goods. If the borrowed money comes from a restriction of consumption as a result of public pressure accompanying the borrowing campaign, the effects are different from those which result when the borrowed money comes from credit expansion or from savings which would have taken place anyway. The ordinary multiplier analysis usually takes it for granted that the borrowing of the money in itself is completely innocent of any effects as far as expansion and contraction are concerned. But Government borrowing might reduce private consumption and, depending on the state of the banking system, might discourage private investment. Hence, in the case of borrowing as in the case of taxation we should consider separately the absorption of income funds and the absorption of capital funds.

Expansive effects of debt repayment

We should not leave out of account the release of funds through debt repayment which goes on even when a net increase in the debt is taking place. The repayment of the debt (interest payments being considered part of expenditures) might seem to involve solely a release of capital funds. For the most part, this is true, since the funds paid out by the Government in retiring debt will probably be put on the capital market for the purchase of securities. But in some cases, the Government bonds represent a definite savings program on the part of the individual, with the retirement of the bonds marking the culmination of the program and the spending of the money involved. The repayment of bonds sold in wartime through the use of public pressure or compulsion will also have the effect of stimulating con-

sumer spending. Debt repayment may then be considered to involve a release of income funds as well as a release of capital funds.

OPERATION OF THE BUDGETARY MECHANISM

The several instruments of budgetary policy operate as a unit. Their respective releases and absorptions of income and capital funds combine to achieve the total budgetary impact on the national income. It is useful to consider the various income and capital funds elements separately and then analyze the relation between the two.

Net government release of income funds

Having completed the isolated examination of each instrument of budgetary policy we can obtain an estimate of the extent to which the Government adds directly to the community's income funds. It is generally considered a mistake to regard the whole of Government expenditures as a net addition to income funds because there are offsetting effects in the form of taxation. Hence the magnitude of the deficit, sometimes modified to take account of capital items within expenditures and taxation, is generally regarded as the appropriate indicator of the Government's net contribution to the community's purchasing power. The deficit (or some variant of the deficit) has been generally used as the appropriate multiplicand of the multiplier principle. But if the foregoing dissection of budgetary policy has any validity, the deficit (that is, the extent to which expenditures are financed out of borrowing) gives a misleading picture of the Government's contribution to the community's income funds. Nor should we regard the whole of taxation as being an item to offset expenditures; some taxes are completely innocent of any detrimental effects operating directly on consumption. Finally, we should take account of the debt repayment activities of the Government.

In short, we should add together those parts of expenditures and debt repayment which involve a release of income funds; and deduct those parts of taxation and borrowing which involve an absorption of income funds. In this way we can take account of the income effects of each instrument of fiscal policy and obtain a measure of the net Government release of income funds. This, not the expenditures nor the deficit, is the appropriate measure of the Government's direct contribution to the Nation's purchasing power and is the appropriate multiplicand of the multiplier principle. It may conceivably be negative in some circumstances, that is, there may be a net Government absorption of income funds.

Net Government absorption of capital funds

The other effects of each instrument of budgetary policy must not be ignored. Government borrowing involves mainly (and, in ordinary times, entirely) an absorption of capital funds. Likewise, taxation almost invariably absorbs some capital funds. These elements which involve an absorption of capital funds should be added together, and from them should be deducted those parts of expenditures and debt retirement which constitute a release of capital funds. In this way we obtain a measure of the net Government absorption of capital funds. In other words, we obtain a measure of the net amount of funds the Government withdraws from the money and capital

markets. To take only the amount of Government borrowing, as is usually done, is incorrect, because taxes also involve a withdrawal of capital funds to some extent, and, at the same time, the Government puts some of these funds back into the capital market through its expenditures and repayment of debt. There may be a net release rather than absorption of capital funds on the part of the Government in some circumstances.

In deriving the overall measure representing the net absorption or release of capital funds, we should not lose sight of the individual segments making up this overall measure. The overall measure must be treated with the care required wherever we deal with broad concepts and ignore qualitative considerations. In the case of capital funds, in particular, quality is a vital consideration; a plenitude of funds in the call-money market is of no use to a family desiring to build a house; nor need a scarcity of funds in the long-term capital market have a detrimental effect on a business seeking to renew a 30-day note.

Conversion of capital funds into income funds

Each instrument of budgetary policy may, then, be considered to have a consumption-funds element and a capital-funds element. Borrowing and taxation absorbs both income funds and capital funds, while expenditures and debt repayment release both income funds and capital funds. We may say that expenditures and debt repayment have expansive effects, while borrowing and taxation have restrictive effects. We have broken up each of the expansive and restrictive effects into two parts: the effect on income funds and the effect on capital funds. There is usually a net absorption of capital funds and a net release of income funds. Where there is no change in the government's cash balance and no government printing of money to finance expenditures, the net government absorption of capital funds is identically equal to the net government release of income funds.

The fisc is essentially a mechanism which converts capital funds into income funds. In determining the extent of this conversion, we must not confine our attention to deficit spending, as is so often done. Each instrument of budgetary policy—expenditures, taxation, borrowing, and debt repayment—affects the availability of both capital funds and income funds and plays a part in the Government's conversion of capital funds into income funds.

EFFECTS OF BALANCED AND UNBALANCED BUDGETS

It has been suggested above that the net government release of income funds rather than the deficit is the appropriate overall indicator of the direct expansive impact of budgetary policy. This emphasis on the net government release of income funds directs attention to the expansive effects of expenditures financed through certain types of taxes. Since it is possible to have a net government release of income funds when the budget is balanced, it is possible to have an expansive effect on consumption, and thus national income, when the budget is balanced. For instance, if expenditures are \$70 billion, made up of \$65 billion release of income funds and \$5 billion release of capital funds, and if tax revenues are also \$70 billion (thus

balancing the budget), made up of \$50 billion absorption of income funds and \$20 billion absorption of capital funds, the net government release of income funds is \$15 billion (\$65 billion release through expenditures minus \$50 billion absorption through taxation). At the same time, the indirect restrictive impact is potentially \$15 billion in the form of a net absorption of capital funds (\$20 billion absorption through taxation minus \$5 billion release through expenditures). Whether this indirect restrictive influence is actually felt depends on the state of the banking system and the general availability of capital. In any case, there is a direct expansive impact of \$15 billion, even though the budget is balanced.

The direct expansive impact of budgetary policy may be greater than that indicated by the size of the deficit. For instance, if tax revenues were only \$50 billion in the above example, and borrowing were \$20 billion, both involving solely an absorption of capital funds, the net government release of income funds would be \$65 billion (\$65 billion release through expenditures with no absorption through taxes and borrowing). Thus, there would be a direct expansive impact of \$65 billion with a deficit of \$20 billion. There may also be an offsetting restrictive impact of \$65 billion absorption (50 plus 20 minus 5) of capital funds in a tight-money market.

There may be a direct expansive effect even with a budget surplus. For instance, if expenditures are only \$50 billion, constituting solely a release of income funds, and tax revenues are \$70 billion (making a budget surplus of \$20 billion), constituting \$30 billion absorption of capital funds and \$40 billion absorption of income funds, the net government release of income funds is \$10 billion (\$50 billion release through expenditures minus \$40 billion absorption through taxation). In this case, there is a direct expansive effect of \$10 billion, even though there is a budget surplus of \$20 billion.

On the other hand, the direct expansive effect may be less than that indicated by the size of the deficit, and there may even be a direct restrictive effect when there is a balanced budget or when there is a deficit. If expenditures are \$70 billion, releasing \$50 billion income funds and \$20 billion investment funds; if tax revenues are \$60 billion, absorbing \$45 billion income funds and \$15 billion capital funds; and if borrowing is \$10 billion, absorbing capital funds of the same amount, the net government release of income funds is only \$5 billion (\$50 billion release through expenditures minus \$45 billion absorption through taxation). Thus, we have a direct expansive impact of only \$5 billion when there is a deficit of \$10 billion.

If expenditures are the same as above and tax revenues are also \$70 billion, absorbing \$60 billion income funds and \$10 billion capital funds, there is a net absorption of \$10 billion income funds (\$60 billion absorption through taxation minus \$50 billion release through expenditures). Thus, there is a direct restrictive effect of \$10 billion, even though there is a balanced budget.

If expenditures are again the same but tax revenues are \$60 billion, absorbing \$55 billion income funds and \$5 billion capital funds, and borrowing is \$10 billion, absorbing only capital funds, then the net absorption of income funds is \$5 billion (\$55 billion absorption through taxation minus \$50 billion release through expenditures). Thus, we have a direct restrictive effect of \$5 billion, even though there is a deficit of \$10 billion.

In all cases, there is a net absorption (or release) of capital funds equal to the net release (or absorption) of income funds. If investment capital is plentiful, however, a release or absorption of capital funds by the Government will have little overall impact on the amount of investment that actually goes on. In a tight-money market, on the other hand, any release or absorption of capital funds will have a corresponding effect in stimulating or restricting actual investment.

SIGNIFICANCE OF FEDERAL RESERVE POLICY

It was indicated above that a balanced budget of \$70 billion may involve a net release of consumption funds of \$15 billion and a net absorption of loanable funds of \$15 billion. Although these figures are hypothetical it is reasonable to assume that a balanced budget of large magnitude involves a net release of income funds and a net absorption of capital funds. The release of income funds is undoubtedly expansive. Whether or not the absorption of capital funds is restrictive depends on the state of the money market. In a sufficiently tight-money market the absorption of capital funds may be highly restrictive, offsetting completely the expansive effects of the release of income funds. In an easy-money market, however, the absorption of capital funds may have little effect. Then the balanced budget as a whole would be expansive and under conditions of full employment inflationary.

Federal Reserve policy can determine the state of the capital market, hence the effect of the balanced budget. The balanced budget will be substantially neutral if and only if the Federal Reserve System tightens the capital market so as to make fully felt the effects of the Government's absorption of capital funds and thus offset completely the effects of the Government's release of income funds. In an easy-money market or even a moderately tight-money market the balanced budget is expansive, hence inflationary under conditions of full employment.

CONCLUSION

Federal expenditure in itself is expansive, hence inflationary under conditions of full employment. Federal expenditure matched fully by Federal revenue—i. e., a balanced budget—also tends to be expansive unless capital funds are scarce. A balanced budget is thus generally not neutral. The balanced budget becomes neutral only if it is accompanied by a Federal Reserve policy of tight money.

**VII. PROCEDURES FOR DETERMINING FEDERAL
SPENDING PROGRAMS**

PROCEDURES FOR DETERMINING FEDERAL SPENDING PROGRAMS

THE HIDDEN EFFECTS OF FEDERAL CREDIT PROGRAMS

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In any appraisal of the impact of the Federal Government on private economic activity, on economic growth, and on price levels, a convenient and useful starting point has been, since its introduction in the budget for fiscal 1944, the consolidated cash budget. That it is no more than a starting point, however, is well illustrated by the Federal credit programs. The majority of these appear only on the payments side of the cash budget on a net basis—i. e., receipts are treated as negative expenditures and are subtracted from gross cash payments—even though, as we shall see later, there are good reasons for supposing that in some cases gross loans made are a better measure of economic impact than is the net change in credit outstanding.² In addition, a number of highly important credit programs are omitted almost completely. These are the ones that involve governmental insurance or guaranty of private loans, activities which result in only very small cash payments to the public although their impact on the private sector of the economy may be anything but small. It is the purpose of this paper to explore the problems involved in deriving a quantitative measure of the economic importance of these programs. Were such a figure, or perhaps a range of figures, available, its inclusion along with the consolidated cash budget and the other special analyses of the Bureau of the Budget would make possible a more comprehensive and realistic evaluation of the influence of the Federal Government on incomes, employment, and prices.

FEDERAL INSURANCE AND GUARANTY OF PRIVATE LOANS

At the present time the Federal Government has a dozen or so programs under which private lenders are protected against default on the part of the borrower and sometimes against the risk of falling prices on the loan securities held. The Federal Housing Administration insures the principal amount of loans made to finance the acquisition of homes, the construction and operation of multifamily housing projects, and the improvement and repair of existing houses, while the Veterans' Administration guarantees housing, business, and farm

¹ The author is currently on leave from the University of California to direct for the National Planning Association a study of those governmental activities whose economic effects are reflected only partially or not at all in the Federal budget. This paper is an outgrowth of preliminary work on that project.

² Since 1952, fortunately, additional information covering the gross disbursements of the main credit-extending agencies has been made available in the Bureau of the Budget's special analysis of Federal credit programs.

loans extended by private lenders to veterans of World War II and the Korean war. Local governmental authorities engaged in urban renewal projects or in the construction and operation of low-rent public housing units may pledge as security for private loans the Federal Government's commitment to pay the debt charges (both principal repayment and interest) if the local agency is unable to do so. The Farmers' Home Administration not only insures private loans to farmers to buy and improve farms, to develop water facilities, and to carry out soil-conservation practices but also agrees to repurchase the loans at the request of the lender after the first 5 years of the loan contract. The Maritime Administration insures private construction loans and mortgages on cargo and passenger ships, and various Government agencies guarantee a portion of any defense loans made under the V-loan program. The Small Business Administration has carried on the Reconstruction Finance Corporation's deferred participation loan program whereby the private lender advances the full amount of the loan but the SBA agrees to purchase part of it at any time on demand. Finally, the Commodity Credit Corporation guarantees both principal and interest on private loans made to farmers under the CCC's price-support, farm-storage facility, and mobile drying equipment programs.

In table I both the total amounts of private loans made under these Federal loan guaranty and insurance programs and the net change in such loans outstanding (i. e., disbursements-repayments) are given for fiscal 1956. For various reasons to be discussed below, neither of these two sets of figures can be taken to measure the effects of the programs on the level of private incomes. Nevertheless, it is clear that the group as a whole is important enough to warrant careful consideration in any economic analysis of the Federal budget and that within the group the FHA and VA housing programs and the defense (V-loan) program far outstrip the others.

TABLE I.—Gross and net volume of private loans insured or guaranteed by Federal agencies in fiscal 1956

(Millions of dollars)

Agency or program	Gross volume of private credit insured or guaranteed	Net change in private credit insured or guaranteed
Federal Housing Administration: All programs.....	3,711	+1,186
Veterans' Administration:		
Home loans.....	6,776	+4,837
Business and farm loans.....	27	
Public Housing Administration.....	(¹)	+83
Urban Renewal Administration.....	31	+18
Farmers' Home Administration.....	50	+41
Maritime Administration.....	17	+17
Small Business Administration.....	24	+9
Expansion of defense production (V-loans).....	1,006	-11
Export-Import Bank.....	(¹)	-62
Reconstruction Finance Corporation.....	(¹)	-8
Commodity Credit Corporation.....	(¹)	-401
Total.....	11,642	+5,709
Cash surplus (+) or deficit (-).....	+4,473	
Budget surplus (+) or deficit (-).....	+1,600	

¹ Not available.

Sources: Gross-volume data were supplied by the Federal agencies in question except that (1) the figure for the Small Business Administration was computed from the cumulated totals of deferred-participation loans approved, given in its semiannual reports, and (2) the volume of loans guaranteed under regulation V was supplied by the Board of Governors of the Federal Reserve System. Net-volume data were computed from the figures on outstanding guaranteed or insured loans given in special analysis F in the 1937 and 1958 Federal budgets.

ECONOMIC EFFECTS OF THE PROGRAMS

The immediate effect of any governmental guaranty or insurance of private loans is to reduce default and liquidity risks borne by lenders. Chances of loss on loans held to maturity are lowered both directly, because the Government places its financial resources behind those of the borrower, and indirectly to the extent that the Government (as in the case of FHA's stimulus to the use of fully amortized home mortgages) induces changes in the lending market which facilitate repayment of principal by the borrower or uses its insurance programs effectively to stabilize the economy as a whole. Risks that loan securities will fall in market price while in the portfolios of the original lenders are reduced if Government guaranties stimulate the development of a private, nationwide, secondary market for such securities. Still more directly, agency agreements (such as those of the Small Business Administration) to purchase part of a private loan on demand eliminate completely the chance of a fall in market price on that portion of the lender's investment.

Lower lending risks as a result of a new Federal loan-guaranty program will bring about some increase in the volume of private lending. Lenders will be induced both to grant funds to people whom, without the Government action, they would have considered as unacceptable credit risks and to liberalize the terms (interest rates, maturities, and downpayments) on which they lend to all customers. Borrowers, in turn, will react to the changed terms on which loans become available. Some borrowers who wanted funds before but were unable to obtain them will now be satisfied, and others who did not wish to borrow will be induced by the more favorable market conditions to do so. On both counts, there is an extension of loans which otherwise would not have been made, and the loanable-funds market is widened. Finally, borrowers who would have obtained loans anyway may be induced by the more favorable terms to increase their demands for funds. To this extent, the market is deepened.

An increase in the volume of private lending will, presumably, raise to some extent the level of income-generating expenditures. It is in the magnitude of this rise that we are primarily interested. In estimating it, we may treat the widening and the deepening of the private loan market either separately or jointly.

The housing program

In the housing area, for example, the deepening effect would, in principle, be determinable from cross-sectional data such as are provided by the 1950 housing census. Families could be grouped according to the main variables affecting the demand for housing, and then the average amounts spent for new homes by groups having similar family incomes, family sizes, and, perhaps, also family types, but borrowing money under different contract-mortgage terms, could be compared. Market widening could be estimated from a multivariate statistical demand study, using the number of houses upon which construction was started each year as the dependent variable and incorporating into the analysis one or more variables measuring contract-mortgage terms. Alternatively, use of the dollar volume of expenditures on new houses as the dependent variable would yield an estimate

of the elasticity of demand with respect to mortgage terms which would include both the deepening and the widening effects.³

Given estimates of the sensitivity of housing demand to changes in contract-mortgage terms, the next step in the analysis is to determine the effects of the FHA and VA programs on mortgage terms. A minimum estimate can be derived from the differences between the terms on insured and guaranteed mortgages and those on conventional mortgages. These differences will not tell the whole story, since the government programs have, undoubtedly, induced a liberalization in conventional-mortgage terms themselves. It is not likely, to be sure, that any very precise estimate of this effect can be obtained. Nevertheless, it should be possible to derive a maximum measure of the governmental influence on contract-mortgage terms. In this way the true answer can at least be placed between two boundaries.

From these two steps, then, emerge both maximum and minimum estimates of the direct and immediate impact of the Government guaranty program on the housing industry. The indirect effects, however, will be much more difficult to assess, since they are far reaching, both in distance and in time.

In the first place, people employed in the construction and sale of new houses will be induced by their increased incomes to spend more money on various goods and services; these expenditures will raise incomes elsewhere; still more spending will be induced, and so on, in the familiar multiplier fashion. These additional rounds of spending, which will spread their effects throughout the economic system, may be expected to occur largely within a 1- to 2-year period after the original increment in spending on housing and to equal or exceed the amount of that initial impact.

Secondly, any loan-financed increase in private-housing expenditures will lead to later repayments of principal which may induce (or force) borrowers to reduce their spending on consumer goods and services.⁴ These deflationary effects, however, are likely to be rather slow in making their appearance. Consider, for example, a new housing program which is expected to increase the demand both for mortgage credit and for new homes by 100 each period. Table II shows the pattern of repayments which will result if the loans all carry 20-year maturities and require the repayment of an equal amount of principal each period. The last line of the table will also show the way in which the deflationary effects of the program will increase over time if every dollar of principal repayments induces a decrease of \$1 in the borrower's spending on current output.⁵ The induced decrease, however, is unlikely to be this large. Many borrowers, if they did not have to make the principal repayments, would save at least part of the funds thus freed, and, to this extent, the repayments will

³ None of these approaches takes explicit account of the effects of a reduction in the nonprice rationing of loanable funds—i. e., the extent to which Government guaranties induce lenders to grant mortgage funds to submarginal borrowers—on the housing market. Since, however, changes in mortgage terms and in nonprice rationing are likely to be closely correlated, the separate effects of the two factors would not be determinable statistically, and the mortgage-term variable could be taken to incorporate the influence of the other factors.

⁴ Increased interest payments may also induce borrowers to cut their spending on current output, but, unlike principal repayments, these transfers represent income to the lenders and, hence, are likely to lead to increases in their spending, which will offset the reductions made by borrowers.

⁵ The shorter the maturity of the loans, of course, the more rapid the increase in these effects.

not depress the level of consumer spending. Other borrowers may have been induced by the Government guaranty program to buy houses sooner than they otherwise would have done. In these cases, the deflationary effect of the program is concentrated entirely in some later year. Whenever these induced cuts in spending do occur, they will, of course, lead to a further succession of rounds of reduced spending on the part of other consumer units.

TABLE II.—*Pattern of repayments of principal accompanying a stable credit program of 20-year loans amortized on a straight-line basis*

	Period								
	1	2	3	4	5	18	19	20	21
Additional loans induced.....	100	100	100	100	100	100	100	100	100
Repayments of principal on additional loans..	5	10	15	20	25	90	95	100	100

In summary, then, governmental guaranties of home mortgages stimulate the housing industry directly to the extent that they induce spending which otherwise would not have taken place, and other industries indirectly because an increment in spending on housing will generate waves of additional spending on all kinds of goods and services. In opposition to these forces, however, are the depressing effects on spending which flow from the additional repayments of mortgage principal. Together, these two sets of effects, neither of which is likely to be closely related to the actual amount of loans disbursed or principal repayments made, determine the total impact of the Government program on the economic system.⁶ The marginal impact (and this is the aspect of the program in which makers of fiscal policy are primarily interested), however, is largely a function of the first set of effects. At any given moment the volume of new loans to be made in the near future under the guaranty program may be altered by changing the program;⁷ repayments of principal within the same period, however, are mostly a result of loans already made in the past and hence are not subject to control. Short-run fiscal policy, then, may largely neglect the potential deflationary effects of principal repayments. The controllable effects of a mortgage insurance or guaranty program are predominantly those flowing from the increase it induces in spending on new homes.

The business and farm programs

In principle, the same techniques of analysis are applicable to the remaining Federal loan insurance or guaranty programs which aid either business or farm groups. In some cases, however, a considerably simpler procedure may yield adequate answers. Agencies such as the Small Business Administration, the Reconstruction Finance Cor-

⁶ In the 20th year of the program illustrated above in table II, for example, gross loans disbursed and repaid might be 250 (i. e., no new credit is extended under the program) at the same time that the direct expansionary effect of the loan guaranties is 100 (as already assumed above), and the direct contractionary effect is, say, 75. Each of these direct changes in the level of private spending will have its own multiplier effects. If, for simplicity, we assume that each multiplier is equal to 2, we can estimate the total expansionary influence of the housing program, most of which will be felt during years 20 and 21, at $2(100-75)=50$.

⁷ The old program will, of course, exert some carryover effects as a result of loan commitments which have not yet resulted in actual credit disbursements.

poration, and the Farmers' Home Administration were set up specifically to service submarginal borrowers, and if they are efficient in accomplishing this purpose, the main effect of their activities is to make private loans available to people who otherwise would have been unable to obtain credit. The extent to which this does, in fact, occur may be estimated approximately by an analysis of the terms of the loans made and of the financial characteristics of the borrowing groups in relation to similar data for nonguaranteed loans made by the same lending institutions.

Given such an estimate of the additional loans stimulated by government guaranties, the next two steps are: (1) to classify the loans according to the extent to which the proceeds are used to generate additional incomes, and (2) to estimate the probable depressing effects of loan principal repayments on the spending of the borrowers. On the first score, all loans obtained in order to acquire newly produced goods and services may be classified as income generating and distinguished from credit which refinances old loans or pays for the acquisition of land or old assets. Refinancing loans generate no increments to private incomes, and although loans used to purchase old assets do generate income in the form of capital gains by bidding up the prices of the assets in question, they may be classified as non-income-generating without serious loss of accuracy. From the total amount of additional income-generating loans induced by the Government program must then be subtracted any depressing effects flowing from the corresponding repayments of loan principal. As in the case of the housing programs, this final subtraction is not likely to be important to makers of fiscal policy unless they are taking a relatively long-range view into the future or unless the loans guaranteed by the Government are largely very short-term loans.

THE AVAILABLE EMPIRICAL EVIDENCE

The literature on Federal credit programs contains numerous qualitative judgments on the effects of those activities, but quantitative evidence is sparse indeed. There appears to be virtually unanimous agreement among the experts that the loan and guaranty programs do have net expansionary effects but that one cannot simply use as measures of their influence the gross or net sums of money disbursed under the programs without running the risk of overestimating that influence. Grebler, Blank, and Winnick, for example, conclude that "It would be rash to assume that all of the new construction financed with FHA and VA loans represented additional volume that would not have been produced without these aids. Much of the building sponsored under the FHA and VA programs would probably have occurred without them, for the two facilities have operated largely in a period when rising or high incomes have increased demand for new residential construction. It would be equally rash to deduce that these programs have had no influence on the volume of residential construction."³

Two postwar studies will illustrate the kinds of quantitative evidence now available. In a survey of the credit restrictions imposed

³ Leo Grebler, David M. Blank, and Louis Winnick, *Capital Formation in Residential Real Estate: Trends and Prospects* (Princeton: Princeton University Press, 1956), p. 148.

by regulation X, drawn from personal interviews with 1,368 randomly selected persons who had purchased 1- or 2-family nonfarm houses for owner occupancy between mid-October 1950 and mid-March 1951, the Federal Reserve Board found that the median price of houses purchased by veterans was \$9,650 and by nonveterans \$9,250, and that " * * * veterans generally paid lower interest rates, had longer maturities, and obtained higher loan-price ratios on their mortgages than was the case for nonveterans."⁹ It is, of course, possible that the higher price paid by veterans is attributable not to the more liberal mortgage terms which they enjoyed, but to a higher average income among them than among the nonveteran group. The relevant income data, unfortunately, are not given in the study, but the reported fact that the veterans were, on the average, younger than the nonveterans casts considerable doubt upon that possibility. The Federal Reserve study further showed that when the median prices of new and existing houses were compared for home purchasers within a given income group, the new house price was typically the higher of the two. Since mortgage terms were generally more liberal on new houses, these data suggest the extent to which changes in credit terms may deepen the market for houses.¹⁰ In addition, it was found that the distributions of monthly payments on new and old houses were similar, a result which is consistent with E. M. Fisher's hypothesis that in a sellers' market the level of debt service tends to remain constant as mortgage terms are relaxed.¹¹

A second study, by Herbert Shapiro, contains evidence that changes in contract mortgage terms may widen or narrow the housing market.¹² Liberalized terms on lower priced houses in 1948 and 1950, for example, led to a decline in the median new-home property value and in the median mortgagor's income in 1949 and 1950 as compared to 1948. Conversely, the fact that property values in 1951 and 1952 on FHA-insured homes rose faster than construction costs and that the median mortgagor's income rose faster than median nonfarm income suggests that the larger downpayments and shorter maturities required under regulation X may have narrowed the market as far as FHA-insured transactions were concerned.

Finally, three recently published studies of installment credit extended to finance the purchase of consumer durables highlight the importance of the terms on which that credit is available with evidence that, while not directly related to mortgage credit terms, is nevertheless highly suggestive of the influence that changes in those terms may have. A comprehensive statistical analysis made by Avram Kisselgoff for the 1929-41 period showed that both the size of monthly installment payments and the length of the installment contract had significant effects on the demand for installment sales credit.¹³ On the average he found that a 10-percent increase in the size of monthly payments decreased the demand for credit by 11 to 14 percent, while

⁹ House Purchases in the Five Months Following the Introduction of Real Estate Credit Regulations. Federal Reserve Bulletin (July 1951), pp. 787-789.

¹⁰ *Ibid.*, pp. 783 and 795. For similar results over the 1938-41 period see Ernest M. Fisher, *Urban Real Estate Markets: Characteristics and Financing* (New York: National Bureau of Economic Research, 1951), pp. 83-84.

¹¹ Fisher, *op. cit.*, p. 82.

¹² Herbert Shapiro, *Characteristic of 1-Family Houses With FHA Mortgages, 1949-54, Construction Review*, 1 (November 1955), pp. 4-9.

¹³ Avram Kisselgoff, *Factors Affecting the Demand for Consumer Installment Sales Credit*, Technical Paper No. 7 (New York: National Bureau of Economic Research, 1952).

a 10-percent increase in the length of the credit contract increased the demand by approximately 11 percent. Milton Moss, concentrating on automobile installment credit, found that between 1954 and 1955 when new-car prices were declining somewhat, the average maturity on installment contracts for new cars increased from 24½ months to 28 months while the average monthly payment remained constant at \$80.¹⁴

In other words, the increased credit granted in 1955 on the average installment contract was $3.5 \times \$80 = \280 , of which approximately \$80 went into increased finances and insurance charges. If other factors affecting the demand for new cars were either constant between 1954 and 1955 or offsetting in their influences, it would be possible to derive from these figures, together with the numbers of new cars purchased on credit in the 2 years (3 million in 1954 and nearly 4,500,000 in 1955), an estimate of the extent to which the increase in contract maturities deepened the market for new cars. Since the number of new cars that would have been purchased on credit in 1955 if maturities had not been lengthened at all must lie somewhere between the figures of 3 and 4½ million given above, this estimate must be at least \$600 million but less than \$900 million. Finally, a national sample survey covering the 1954-55 period found, by means of extensive personal interviews, that larger downpayments on new cars would have discouraged 49 percent of the new-car buyers interviewed from buying at that time and that larger monthly payments would have removed almost 60 percent of them from the new-car market.¹⁵ Of those buyers who indicated that they would not have bought the same car under tighter credit conditions, 79 percent said that they would have bought no car, and 17 percent that they would have purchased a cheaper car, either new or used.

Statistical investigators of the demand for housing have been virtually precluded from measuring the effects of contract mortgage terms by the absence of comprehensive and consistent time series for mortgage interest rates, downpayments, and maturity lengths. The series for these variables compiled recently by the National Bureau of Economic Research for the 1920-47 period come closest to filling the void, but the Bureau's sample was biased by a high degree of non-response among the smallest lending institutions.¹⁶ Furthermore, since its data are confined to first mortgages, they undoubtedly underestimate the costs of credit during the 1920's when short maturities on first mortgages forced the extensive use of higher-cost second mortgages and frequent expensive refinancing on the part of homeowners unable to repay in full at maturity. The National Bureau's mortgage-terms series has so far apparently been included in only one statistical demand study for housing—that of John Mattila, and he was prevented from obtaining significant results by a high degree of inter-correlation between that variable and two other independent variables.¹⁷

¹⁴ Milton Moss, *Effects of Changes in Installment Credit Terms*, in Board of Governors of the Federal Reserve System, *Consumer Installment Credit*, pt. I, vol. I (Washington: Government Printing Office, 1957), p. 128.

¹⁵ Board of Governors, Federal Reserve System, *Consumer Installment Credit: Pt. IV, Financing New Car Purchases, A National Survey for 1954-55* (Washington: Government Printing Office, 1957), pp. 98-100.

¹⁶ J. E. Morton, *Urban Mortgage Lending: Comparative Markets and Experience* (Princeton: Princeton University Press, 1956), appendix A.

¹⁷ John M. Mattila, *An Econometric Analysis of Construction* (Madison: University of Wisconsin, 1955), especially pp. 73-76.

The empirical evidence so far available concerning the effects of the Federal loan insurance and guaranty programs, then, is far from satisfactory. A detailed exploration of methods of filling the gaps is to be undertaken as part of a research project which the author is carrying out for the National Planning Association. Although work on this study has just begun, one example of the use of statistical demand studies to estimate the effects of changes in contract mortgage terms on housing demand may be given.

In his study of interwar business cycles in the United States Lawrence Klein derived estimates of the influence on expenditures for owner-occupied, single-family, nonfarm houses of changes in rents, construction costs, disposable income, and the number of new nonfarm families.¹⁸ On the basis of these estimates we may compare, for the 1936-41 period, the actual increase in housing expenditures from one year to the next with the increase that should have occurred as a result of the concurrent changes in rents, construction costs, disposable income, and the number of new nonfarm families. This has been done in the second column of table III. It will be noted, for example, that between 1937 and 1938 housing expenditures increased by \$430 million more than Klein's equation predicted they would increase. If Klein's measures of the influence of rents, construction costs and the other two variables on housing expenditures are accurate, this discrepancy must be the result of the operation of factors which were omitted from his equation. The omitted variables in which we are interested, of course, are the various terms on which residential mortgages were granted between 1936 and 1941. Three different measures of the year-to-year changes in these terms are given in the remaining columns of table III. In column (3) we have the annual increase in the mean duration of FHA-insured mortgages on new homes, in column (4) the increase in the mean percentage of the new home value borrowed under the FHA program, and in column (5) a composite "conditions of credit" variable constructed by Mattila from National Bureau data on both FHA-insured and conventional mortgages. Each of these variables has been ranked, from the greatest liberalization in contract mortgage terms to the least, and when these gradations are compared with Klein's predictions, ranked from his greatest underestimate of the increase in housing expenditures to the least, it will be noted that the correlations are remarkably close. Klein's greatest underestimate (that for 1937-38), for example, coincided not only with the largest increases in the mean length of FHA mortgages (3 years) and in the mean loan-to-value percentage (7.1 percent), but also with the greatest liberalization in the terms of both FHA and conventional mortgages as shown by Mattila's composite variable.

There is a strong suggestion, therefore, that liberalization of the terms on which mortgage credit was granted during the late 1930's did stimulate expenditures on new housing. When the influence of other factors is allowed for on the basis of Klein's estimates, unexplained increases in housing expenditures still remain for those years when mortgage terms were liberalized most. These results must, of

¹⁸ Lawrence R. Klein, *Economic Fluctuations in the United States, 1921-41* (New York: Wiley, 1950).

course, be regarded as highly tentative until other demand equations have been analyzed, other variables included, and the data obtained from cross-sectional sample surveys of housing scrutinized.

TABLE III.—A comparison of Klein's predictions of the increase in housing expenditures, 1936-41, with changes in the terms on FHA-insured mortgages and on all mortgages included in the National Bureau's 1947 sample

(1) Period	(2) Actual increase in housing expenditures minus Klein's estimate of the increase		(3) Mean duration of FHA-insured mortgages on new homes		(4) Mortgage as a percent of FHA-determined new-home value		(5) Mattila's "conditions of credit" variable = $\frac{\text{mortgage interest rate}}{\text{loan-to-value ratio} \times \text{duration}}$	
	Millions of dollars	Rank	Change in years	Rank	Change in percent	Rank	Change	Rank
1936-37.....	-70	3	+0.7	3	+1.4	2	-1.0	2½
1937-38.....	+430	1	+3.0	1	+7.1	1	-1.3	1
1938-39.....	-170	5	+ .6	4	+1.3	3	- .3	4
1939-40.....	+90	2	+1.0	2	+1.0	4	-1.0	2½
1940-41.....	-130	4	+ .3	5	+ .8	5	+ .2	5

CONCLUSIONS

The last two decades have witnessed the introduction and rise to prominence of a number of Federal programs involving the insurance or guaranty of privately made loans. Since these programs, typically, involve little use of Federal funds, their expansions and declines have occurred without significant effects on either the regular or the cash budget. Yet, presumably, these Federal operations do have important effects on the level of economic activity. To the extent that they do, a significant portion of the influence of the Federal Government on incomes, spending, and prices is hidden from view by being omitted from budgetary figures. Some information about these activities is now included in the Bureau of the Budget's special analysis of Federal credit programs, but there is need of further supplementary material—an expansion of this special analysis to include gross private loans authorized and disbursed through the insurance and guaranty facilities, an economic classification of the main purposes for which the funds are to be used, and, in addition, a comprehensive, quantitative analysis of the effects which these money flows are likely to have on various parts of the economic system.

It need hardly be stressed that fiscal policy should take these extra-budgetary programs into account. In a period of threatening inflation, either the introduction of new loan guaranties or the expansion of existing programs will tend to increase the rate of price rise unless offsetting adjustments are made in cash expenditures or tax revenues. At the moment, only very rough estimates of the size of the needed adjustments are possible. Recent improvements, both in the quality of the available data and in the statistical techniques of analyzing them, however, promise a steady refinement as fiscal research is continued. The hidden hands of Federal credit agencies may yet have their fingerprints taken.

GUIDES AND PROCEDURES FOR DETERMINING FEDERAL EXPENDITURE PROGRAMS

Gerhard Colm, chief economist, National Planning Association ¹

The Employment Act of 1946 states that the Federal Government should "utilize all its plans, functions, and resources for the purpose of creating and maintaining * * * conditions under which there will be afforded useful employment opportunities * * *"

The Federal Government's spending programs certainly belong to these "plans, functions and resources." Therefore, according to the act, government spending programs, if possible, should be so formulated and conducted that they contribute to economic growth and stability. Although few people would question the validity of this legislative mandate, there is a real question whether Federal spending programs have adequately implemented this aspect of the Employment Act.

The bulk of Federal expenditures have in recent years been determined by considerations for national security or by legal commitments made in the past. Economic consideration in the formulation of Federal spending programs have been introduced primarily as a negative or restraining influence; namely, as an effort to delay non-security programs in the interest of not adding to inflationary pressures. In fact, some of the increase in nondefense programs has taken place largely in spite of economic considerations and rather as the result of political and social necessity. Thus, there has been little occasion to develop procedures for a positive economic approach to expenditure programs. If, however, requirements for national security should level out, or if it should be possible to reduce them, the opportunity and the necessity may well arise for giving greater emphasis to evaluating the contributions which Federal expenditure programs can make to economic growth and stability. In that event, the examination of fiscal policy in the perspective of economic requirements could become of growing importance. The studies initiated by the Joint Economic Committee might, therefore, prove to be very timely.

In both the executive and the legislative branches, the budget is considered by agencies (Budget Bureau, Appropriations Committees) other than those entrusted with considering the economic aspects of the Federal program (Council of Economic Advisers, Joint Economic Committee). Also, the structure of the budget and the method of presentation are not tailored to provide guides for an economic consideration of expenditure programs.

Originally, the principles and procedures for budgeting were developed primarily as instruments for legislative control of the purse,

¹In this paper I am expressing my own views, not necessarily those of the National Planning Association. I acknowledge the assistance of Manuel Helzner in the preparation of this paper.

and secondarily as instruments or executive control over the farflung administrative activities of the Government. An economic evaluation of government expenditure programs, however, is needed to assist in developing priorities among competing programs. The contribution a specific program promises to make to economic growth is not the only criterion for establishing priorities, but it should be an important consideration. The appraisal of government expenditure programs in the perspective of economic growth must, by necessity, also include the consideration of tax and debt policies. This is needed in order to determine how, in a specific situation, economic growth is best promoted. For example, might it be more desirable to adopt a new or expanded program, even if this means increasing taxes or postponing an otherwise possible tax reduction? What guides and procedures, then, have been or could be developed in order to evaluate the effect of government expenditures on economic growth and stability?

PROGRAM EFFECT AND SPENDING EFFECT

Before attempting to answer this question, it is necessary to clarify what is meant by the effect of government expenditures on economic growth and stability. In this respect, a distinction should be made between the program effect and the spending effect of government expenditures.

The spending effect consists of the additional purchasing power created by government expenditures and put into the hands of consumers or business. Let us consider the example of a hydroelectric project undertaken by the Government. While the dams and generator stations are under construction, money is being spent for labor and material. This adds to the payrolls and earning of industry and constitutes the direct spending effect. Since consumers and business, in turn, spend all or part of this additional income, a secondary spending effect (multiplier) takes place. If the increase in total sales should induce additional investments, one then speaks of an accelerator effect derived from the original government spending.

The spending effect of a government program may be offset, in part, by the effect of taxation or government borrowing which would tend to restrict the private availability of funds. Different spending programs and different systems of taxation or borrowing will exert different types of positive or negative multiplier and accelerator pressures on the economy.

The program effect, meanwhile, takes place not while the money is being spent, but usually after the government project has been completed (except where there may be some anticipation of this effect). In the example of the hydroelectric project, when construction has been completed and electric power is produced, the creation of this additional source of electricity may have an effect on power rates or may help to meet an otherwise unsatisfied industrial demand for electric power. New industries may be attracted by the availability of cheaper power, and the entire area may undergo an economic transformation. This represents the program effect of government expenditures.

In some areas the relations between the program effect and economic growth may not always be readily identifiable. All expenditures, including those for national defense, foreign aid, veterans' bene-

fits, social-assistance payments, have a spending effect but may not necessarily have a program effect on economic growth. Expenditures for research, training, health, conservation, or development of natural resources, etc., may affect economic growth generally. Other types of expenditures may benefit one or another group in the population (e. g., farm subsidies) but may affect general economic growth only indirectly. Some programs may indirectly affect general economic growth in a negative way. For example, one type of farm-subsidy program may tend to hold submarginal farmers on the land while another type of program would encourage them to shift to nonfarm occupations where their contribution to higher productivity and economic expansion would be greater. In any case, when examining the effect of government expenditures on economic growth and stability, it is essential that the distinction between the program effect and the spending effect be clearly recognized.

There may at times arise a conflict between policies guided by considerations of the program effect and those of the spending effect of government expenditures. During recent years spending for certain nondefense programs was held to a minimum in order to reduce the inflationary effect of government spending. This may well account for some of the delays in programs for education, training and research, conservation of water, and other programs which contribute to economic growth. It is a difficult task of economic and fiscal statesmanship to reconcile in each situation the objectives of policies designed to promote economic stabilization with those designed to promote economic growth. Only in a period of slack do the two objectives largely coincide.

GUIDES FOR AN ECONOMIC CONSIDERATION OF GOVERNMENT EXPENDITURES

Guides for estimating program effects

Subsequent papers will discuss the effects of government expenditure programs on specific areas such as natural resources, human resources and skills, transportation, and research. I do not know of any general method by which the program effect of a contemplated or actual government expenditure program can in any precise manner be quantitatively ascertained. Some progress in developing quantitative measurements of benefits and costs has been made in appraising water resource programs (e. g., irrigation) and transportation programs (highways, navigation). However, even in these areas program considerations appear to give inadequate attention to the longer run economic implications of government spending with the result that some government investments may not be making the maximum contribution to economic growth which could be achieved with the funds actually used.

There is great need for government to examine proposed expenditure programs in the light of their possible contribution to an expanding economy. Although methods have been worked out for appraising government programs in the light of long-range economic needs, it does not appear that such considerations have been decisive in the formulation of many of these programs. In this respect, private enterprise has made more progress in that most larger corporations

formulate their investment programs with the aid of long-range projections which are designed to indicate the probable future developments for their products or services.

The health program of the Government might also be appraised in view of its contribution to economic growth. We know that many man-days of labor are lost by sickness. A Federal program which could improve the health of the people would increase the available man-hours of the labor force and make further increases in production possible. Therefore, in considering the economic effect of Federal health programs (in addition to their humanitarian values), account should be taken of the possible consequent decrease in labor absenteeism. Attention would thus be given to the relationship between economic productivity and government health programs. I doubt that it ever will be possible to present an exact economic calculus of the relationship between the cost of the health program on the one hand, and the potential increase in production on the other. However, to deny that such a relationship may exist would also be an error.

Or, let us consider the example of a flood-control program. It is possible to make a comparison between the costs of such a program and the expected savings over time resulting from the control of floods. However, this is in no way an exact cost-benefit calculation because if the program were not undertaken certain vulnerable industries might not settle in the areas exposed to the possibility of flood damage. Were the flood-control program to be undertaken, an unknown number of enterprises might settle in the no longer endangered area.

The difficulty of making a precise evaluation regarding the program effect of government expenditures increases the need for providing decision makers with an effective approach to program determination.

An entrepreneur uses judgment in addition to statistical analysis before making an investment. So also government officials can never be certain about the extent of the contribution a particular program could make to economic development. The entrepreneur may ask himself: If I do not make the contemplated investment, how will this influence the investment decisions of other entrepreneurs? Likewise, government officials should ask: Would private interests in the absence of a government program attempt to do what the Government might decide not to do? If there is the likelihood that private interests may consider performing that function, the question should then be asked as to how the private performance would compare in costs and benefits with the public performance of the same function. Thus, in considering whether the Government shall undertake proposed expenditure programs which may have an effect on economic growth, government officials who have to make the program decisions should evaluate the following information:

1. The estimated monetary and nonmonetary costs of the program as a whole (including an estimate of the time needed for its completion).
2. The estimated economic and noneconomic benefits to be derived.

(A) In economic terms—the estimated effect of the Government program on future production and its contribution to economic development. In proposing an irrigation project, for example, consideration should be given to what the need

will be for additional agricultural production. Also growing any needed additional produce on newly irrigated land should be compared with the alternative of increasing production by more intensive use of fertilizer or other improvements on land already in cultivation. In addition, an economic appraisal should present estimates concerning:

(a) benefits for which the Government may collect fees (e. g., water fees).

(b) benefits for which no fees will be collected (e. g., higher productivity resulting from improved health or educational programs).

(c) the effect of the increase in productivity on future tax returns.

(B) In noneconomic terms—the social and other benefits or humanitarian considerations to be evaluated (such as from national defense programs or old-age assistance).

3. The probability that either private organizations or State and local governments may undertake the proposed or a similar project if the Federal Government does not undertake it. Such an evaluation should include a consideration of the advantages and disadvantages of such alternatives.

Quantitative estimates should be provided where possible; otherwise, qualitative statements with indication of likely order of magnitude or judgment should be made.

For each program an object breakdown of proposed expenditures should also be made in terms of wages, capital equipment, materials, etc., which could form the basis for evaluating the spending effect. Periodic studies should be undertaken to determine which programs contribute to economic growth, particularly in those areas where government activity may supplement and promote private endeavor. Such areas might include—

(a) The educational training and health needs of the labor force.

(b) The promotion of basic or applied research.

(c) The development of natural resources or substitutes.

(d) The need to foster more adequate transportation facilities.

(e) The problem of providing private capital facilities for specific purposes (e. g., small business).

(f) The need for promoting more comprehensive statistical programs.

In many of these areas an evaluation of program needs has been undertaken, but such studies should periodically be reexamined and brought up to date.

In the past a number of valuable studies in the economic and fiscal field have remained unutilized because no committee of the Congress had the responsibility for examining them and for making legislative recommendations based on their findings. The Joint Economic Committee could undertake to evaluate the need for government programs to contribute to economic growth and could make these studies the basis for its recommendations to the appropriate committees of the Congress.

Guides for estimating spending effects

The budget summary.—The Government's budget will always be the point of departure for an analysis of the spending effect of Government programs. The summary tables of the budget document offer a first approximation of the amounts which government activities either add to, or deduct from, consumer income or business funds. For this purpose, the summary tables which present the payments to and receipts from the Government (consolidated cash budget) are particularly useful. At first glance, a budget deficit might be assumed to indicate the amount of funds added to the stream of funds available to consumers and business, while a budget surplus might represent the extent of a curtailment of such funds. Such an approach, however, would be an oversimplification. A fiscal policy based merely on the criteria of a surplus or deficit in the budget summary could be seriously misguided. Additional factors must also be considered:

1. The effect of a budget surplus or a deficit on income, production, and employment is influenced by the way the budget surplus is used or the deficit met. A budget surplus used for repaying a Government debt held by banks may exert an anti-inflationary effect if accompanied by the appropriate monetary action. Such may not be the effect of other Government debt is redeemed. Similarly, a budget deficit financed through the banks will, under most circumstances (but not under all circumstances), have an expansionary effect. If financed through purchases by individuals of savings bonds, it would tend to absorb purchasing power which might otherwise be available for other purposes. Thus, debt-management policy must also be considered, in addition to the budget data.

2. The economic effects of a budget surplus or a budget deficit may vary, depending on the factors which brought the surplus or the deficit about. A budget deficit, for example, may result from an economic decline when payments for the unemployed are rising and tax yields are declining. This situation could result from the so-called built-in stabilizers, which would cushion the decline in private income. These stabilizers, however, cannot turn a downswing into renewed expansion. A budget deficit otherwise arising from a substantial cut in tax rates or the adoption of new or expanded Government programs could create additional demand and not merely reduce the shrinkage of purchasing power. This is the reason why, in case of a serious economic decline, the effect of built-in stabilizers should be supplemented by fiscal-policy measures, such as a speeding up of expenditure programs and/or of tax cuts. The reverse situation would be true with regard to an anti-inflation fiscal program. Tax increases and expenditure reductions should supplement the effect of rising tax yields. In any case, it is not enough to focus attention only upon the budget surplus or deficit.

3. Increases in expenditures may add to total effective purchasing power, even if financed by tax increases. Conversely, curtailment of expenditures accompanied by corresponding tax reduction may result in contraction. A balanced budget is not necessarily a neutral budget. The reason is that the multiplier and accelerator effects (positive or negative) of expenditures and of

taxes differ depending on the kind of expenditures and the kind of taxes which are adopted.

4. The budget summary does not reflect the economic significance of all Government operations. (I need not go into this aspect as the preceding paper by George F. Break is devoted to it.)

5. The budget summaries are classified according to an administrative and functional division. There is no overall classification of expenditures by economic criteria. (An incomplete object classification of obligations is the closest approximation to it.) It would be desirable if a detailed object classification of expenditures could be developed in line with the standard industrial classification system.²

6. An evaluation of the Government's effects on the economy as a whole must consider not only the transactions of the Federal Government, but also those of the State and local government.

7. Most important, the economic effect of Government transactions must be seen in the perspective of actual and expected developments in the private sectors of the economy.

National economic accounts.—The spending effects of Government programs (including the effects of changes in taxes and debt) can best be evaluated using the tools of national economic accounting. National economic accounts depict the incomes and expenditures of the various economic sectors—consumers, nonprofit organizations, business, and government.

In order best to appraise this effect, projections of the national accounts should be prepared for a number of years under the two following assumptions:

1. If present government programs are continued; and

2. If certain changes in government programs appear necessary in order to promote conditions under which maximum employment levels are likely to be achieved.

It would be most desirable if various alternative changes or alternative combinations of changes in government programs would be assumed. Consideration should be given to the feasibility and possible implications of speeding up certain programs in the event of an economic slack, or of slowing them down in case a high level of private activity or a high level of other government activities (e. g., national security) creates an inflationary situation. The national economic account projections would reflect changes not only in the Government account but also in the incomes and expenditures accounts of consumers and business.

If estimates of consumer and business spending under assumption No. 1 indicate a decline or an inadequate rise ("adequate" being defined as a rise commensurate with the increase in the production potential), alternative methods for bolstering consumer purchasing power and/or business investment would have to be contemplated. The Government could consider several steps. Government spending could be increased or tax rates reduced, or both. Other methods would include a reduction in interest rates (hoping to stimulate private in-

² See the National Economic Accounts of the United States Review, Appraisal, and Recommendations, by the National Account Review Committee of the National Bureau of Economic Research, June 1957.

vestment) or making mortgage funds available at more attractive terms.

Thus, with the aid of national economic account projections, an appraisal could be made of the need for government measures in support of consumer purchasing power or business investment or both. These projections—which, in effect, are hypothetical economic forecasts—would state what economic developments are likely to be assuming (a) no change in government programs; (b) adoption of certain changes in the programs.

The original full-employment bill provided for exactly this kind of projection of the Nation's economic budget as part of the President's Economic Report. In the version finally approved, however, the language of the legislation was made less precise, because there was doubt that the President would always be able to provide specific forecasts for the various component parts. Nevertheless, the present language of the Employment Act still suggests the legislative intent that the President should state the levels of employment, production, and purchasing power which would achieve the purposes of the act; the levels that are likely to be obtained under existing programs; and the changes in Government programs which are deemed necessary to attain the desired level of economic activity.

A projection of "needed levels" implies an estimate of the full-employment potentials for economic activity. Such a projection, particularly in a longer range perspective, is feasible, and less hazardous than a forecast, particularly a short-run forecast. Also, there is often some reasonable basis for judging the probability that these levels could or could not be achieved under existing programs. The likelihood of error increases, however, if the conditional forecast undertakes to specify not only the direction of the economic movement but also its expected magnitude and the timing of cyclical turning points. Therefore, I still believe that the Congress was wise in not requiring a specific and detailed forecast, but only a statement of foreseeable trends of economic activity.

This skepticism about making specific forecasts does not exclude the possibility of appraising, in terms of national economic account projections, the spending effect of contemplated changes in expenditure programs. Rather, I would offer the following specific proposals for consideration:

1. In each Economic Report, the President should include a statement of "needed levels of employment, production, and purchasing power," in terms of a projection of national account aggregates. The projection might cover a 5-year period.

2. In each Economic Report (or in a special report issued intermittently), a number of alternative projections should be presented, describing possible economic developments under existing programs, assuming, e. g., (a) an inflationary trend; (b) a sidewise movement of economic activity (i. e., failure to expand); (c) decline of, say, 5 percent per year in terms of gross national product in constant prices. By presenting such alternatives, it should be made perfectly clear that none of these trends is predicted. However, it would be desirable if the text of the report would discuss the probabilities of these various alternatives in the light of the current outlook.

3. In connection with these alternative projections, the report should also review the programs contemplated by the Government and their likely effect on consumer and business incomes and outlays.

Should the economic outlook suggest that changes in programs are called for, a specific recommendation should be presented for Government action, as well as an estimate of the expected effect of the recommended change on economic activities in terms of the national economic accounts. If it should be desirable to delay and stretch out, or speed up and enlarge, expenditure programs, the President and the Congress would take into consideration both the spending effect and the program effect of the changes which were being recommended.

BUDGET CONSIDERATION AND ECONOMIC CONSIDERATIONS

Coordination in the executive branch of the Government

The Budget Bureau assists the President in the formulation of the budget. Its concern is that Budget recommendations implement the President's program, and that the objectives of Government are pursued with the greatest economy and efficiency.

The Council of Economic Advisers assists the President in the preparation of the economic report. Since the President is responsible both for the budget and the economic report, some consultation between the two agencies takes place as a matter of routine. Nevertheless, there have been instances in which the economic assumptions implied in the budget document appeared not to be consistent with statements about the economic outlook expressed in the economic report.

Two recommendations have been made by the National Planning Association for promoting greater coordination between the budget and economic report.³

1. Each budget message should include a budget outlook covering the same number of years as the economic projection suggested above for inclusion in the Economic Report. The Government programs included in the budget outlook would correspond to the programs (expenditures, taxes, and debt transactions) consistent with the Government's responsibilities under the Employment Act. The budget also would state the legislative changes which would be required for effectuating the proposed changes in future expenditure and tax programs.

Inclusion of such a budget outlook would permit an examination of expenditure and tax policies in the perspective of several years. This is a necessity for effective budget control, because legislation and appropriations often have their full impact only on future budgets. This fact leads to repeated frustrations when Congress in the spring attempts to take action designed to affect the budget which becomes effective in July of the same year. That "the budget is out of control" is due largely to the fact that the budget of one particular year is, to a considerable extent,

³ See National Planning Association Planning Pamphlet No. 90, *The Need for Further Budget Reform—A Joint NPA Statement; The Federal Budget and the National Economy*, a staff report by Gerhard Colm, with the assistance of Marilyn Young (March 1955).

determined by congressional action of previous years. The budget outlook would facilitate more effective congressional consideration of the budgetary implications of contemplated legislation. At the same time, it would help to coordinate economic and budgetary considerations.

In order to achieve consistency between the economic projections and the budget outlook, closer cooperation between the agencies responsible for the preparation of these two related sets of estimates would become a necessity.

2. The expenditure and revenue estimates of the budget document should be based on the assumption that reasonably full employment and price stability will be maintained during the ensuing year. Basing the budget on such an assumption rather than on an economic forecast of actual conditions removes a major source of possible inconsistency between expenditure and revenue estimates and also between the basis of the budget document and statements in the Economic Report. It would, however, be desirable if congressional appropriations would make a budgetary allowance for some contingencies; e. g., if there should be greater unemployment than implied in the expenditure estimates. If economic developments are less favorable than assumed, the President could release these contingency reserves in addition to speeding up the long-range expenditure programs for which appropriations have already been made.⁴ Presumably, the President would undertake to use the contingency funds only on the advice of the Council of Economic Advisers and would report such action to the Congress.

Coordination in the legislative branch of the Government

The Joint Economic Committee has the responsibility for advising the various legislative committees of Congress and the Congress as a whole on matters relating to the implementation of the Employment Act. The scope of this responsibility certainly includes consideration of the impact of Federal expenditure programs on economic growth and stability. The NPA joint statement referred to above states:

It would be desirable if Congress would adopt each year a concurrent resolution which would outline the broad order of magnitude of the budget over a period of years and the recommended principles of financing. Such a resolution could state that there should be an excess of revenue over total expenditures, or a balance, or that a part of the expenditures should be financed by loans. It would also set forth the changes in the longer range program if any, which are considered necessary for the purpose of counteracting business fluctuations.

The annual report of the Joint Economic Committee is well suited to provide a basis for the formulation of such a resolution.

The Joint Economic Committee has the responsibility under the Employment Act to provide "a guide to the several committees of

⁴ Adoption by the Congress of the proposed shift to an accrued-expenditure basis for appropriations would materially reduce the flexibility of the Government to vary the rate of expenditures for purposes of promoting economic growth and stability. (See the testimony of Gerhard Colm before the House Committee on Government Operations, April 5, 1957.)

the Congress dealing with legislation relating to the Economic Report." In fulfillment of this function, the committee each year prepares a report containing its findings and recommendations as they relate to the principal economic proposals of the President. In addition to this, it would be highly desirable if members of the Joint Economic Committee would appear before the Appropriations and Tax Committees of both Houses to present the conclusions and policy recommendations which the Committee has reached with respect to budget matters.

BASIC WEAKNESS IN FEDERAL BUDGET PROCEDURE

George Y. Harvey, director, Bureau of Government Research,
University of Missouri

The rising cost of government has prompted many suggestions of methods to improve the budgeting process. In practically all instances, these suggestions have dealt only with the mechanics of budgeting, the methods of presenting fiscal information for the use of the Bureau of the Budget, the President, and the Congress in considering the annual financial requirements of the Government. This is a superficial approach in that it fails to come to grips with the basic problems involved: (1) The kind and degree of control which the legislative branch will exercise over the executive branch, and (2) the extent to which policy decisions, not measurable in arithmetical terms, control recommended budget estimates. Reliable financial statements showing the cost of government programs are necessary in the budgeting process in reaching intelligent decisions as to the level of financial support required, but they are of little use in determining the basic policy as to whether a particular program should be carried on. Frequently, also, the size of the program is largely determined on policy rather than arithmetical grounds.

The mechanical process is under constant review and revision. Every year some refinements and innovations—not always improvements, however—are introduced. The one definite statement that can be made is that there is no best method. Some methods are better than others. Some persons, thoroughly familiar with the subject, may prefer one method while others, just as expert, prefer another. A system sufficiently flexible to permit variation necessary to the adequate presentation of the case with respect to an individual program would seem to be the most logical. Certainly, too much uniformity, with the necessarily attendant rigidity, will tend to produce unreal results in many cases. The real key to the situation is integration of the budgeting and accounting systems to the end that the accounting system realistically produces accurate cost data and the budgetary statements clearly reflect the accounting results.¹

ORIGINAL PURPOSES OF THE BUDGET SYSTEM

The support which finally enacted the budget system into law came from groups whose major concern was reduction in the cost of government. However, original proponents of the budget system did not claim economy as a major purpose. Their primary concern was to strengthen the Executive power, and some of the opposition in Congress was on this account. Hon. Joseph G. Cannon, of Illinois, who, at that time, had served longer as chairman of the House Committee on Appropriations than any other chairman and had been Speaker

¹ For elaboration of this point, see *Contract Authorization in Federal Budget Procedure*. Public Administration Review, vol. XVII, No. 2, spring 1957.

of the House, voiced the extreme opposition on this point in these words:

When Congress consents to the Executive making the budget, it will have surrendered the most important part of a representative government and put this country back where it was when the shot at Lexington was heard "round the world."

Whether for better or for worse will be a matter of individual opinion, but, certainly, the executive branch is in a far stronger relative position now with respect to control of the public expenditure programs than prior to adoption of the central budget system. It should hastily be added that, with the complexities of greatly enlarged modern government, no one would seriously consider scrapping the present system for a return to the rather haphazard prebudget methods. It is fair to suggest, though, that, after these years of experience, perhaps a searching reexamination of the basic system is in order with a view to determining whether some method can be devised which will enable the Congress to act with somewhat more freedom than is possible under present circumstances.

The budget is not a budget in the sense of a businesslike document providing sources of revenues and distributing them in such fashion as to assure adequate support for necessary government functions within ability to pay. Rather, it is a collection of estimates of funds required for purposes ranging all the way from the cost of operation of necessary service organizations to purely political vote-getting activities. If the total expenditure is within total receipts, then that is a happy coincidence.

"It's in the budget" is the strongest argument that any pressure group can make for a pet item. That means it has had the Presidential blessing, is part of the President's program, will be fought for by all agencies of the executive branch. Formerly, the hardest job of the lobbyist for funds was to persuade the Congress of the value of his project, whereas, under present procedure, it is most important that he get it in the budget. Items not budgeted are at a great disadvantage on Capitol Hill because the budget always is presented with little or no leeway for items to be added without offsetting reductions unless budget totals are exceeded, which Congress, understandably enough, has always been most reluctant to do. In fact, the question each year when the budget is sent to Congress is: "How much can the budget be reduced?"

BASIS OF FINANCIAL PROGRAM

When President Garfield, then a Member of the House of Representatives, was chairman of the Committee on Appropriations, he made the following statement to the House:

The necessary expenditures of the Government form the baseline from which we measure the amount of our taxation required, and on which we base our system of finance. We have frequently heard it remarked that we should make our expenditures come within our revenues, that we should cut our garment according to our cloth. This theory may be correct when applied to private affairs, but it is not appli-

cable to the wants of nations. Our national expenditures should be measured by the real necessities and the proper needs of the Government. We should cut our garment so as to fit the person to be clothed. If he be a giant, we must provide cloth sufficient for a fitting garment.²

Whether or not acceptable in theory Garfield's view of the basis of government financing has been followed in practice. Government costs have increased steadily for various reasons but all within the framework of the Garfield theory. The simplest example, of course, is in the postal service where more population equals more mail and inevitably more expenditures, but such simple answers are not available for the important questions. Preponderantly the problem lies in two areas:

Domestic services of government

New activities are constantly being added and regarded as necessary functions of government and the additional tax burdens accepted with a high degree of tranquility. This is true not only at the Federal level but at State and local governmental levels as well. While there is always much public clamor against high taxes, that clamor seems to be lacking in the voting booth and is altogether missing from the high pressure drive on the town councils, school boards, State legislatures, and Congress for more and better services of government costing more money which can be secured only through increased taxes. Each legislative session sees enlargement of existing activities or the establishment of entirely new ones.

The public attitude is such that lipservice is adequate political response to a demand for reduced taxes, but when appropriations are sought for additional government services, then the officeholder had better stand and deliver or suffer dire consequences at the polls.

National defense

More than half of current Federal expenditures are for purposes of national defense, and this is the most difficult area over which the Congress must exercise control. America has never been a military nation. In time of peace this country has frugally—at times penuriously—maintained a skeletal military force and then, in time of war, we turned the keys to the Treasury over to military authorities, only to return to peacetime frugality after the war was over. Now the situation is different and there are no historic guideposts. Young men, now being drafted into the Armed Forces, never knew the day when there was no compulsory military service in America. They have gone through school accepting a period of military service as part of their future. It is now a way of life and every indication is that it must be so accepted for some years to come. This presents a budgetary consideration which should be studied and met on a long-range basis. It must receive annual scrutiny but it cannot be handled 1 year at a time. A preparedness program which must be constantly modernized in order to meet obvious competition must be planned well into the future but kept under constant review. The United States cannot afford to build a Maginot line. On the other hand it cannot afford to turn all of its available resources into military pre-

² Congressional Record, March 5, 1874.

paredness over too extended a period lest there be no reserve for the all-out effort necessary in the event of "hot" war. Perhaps the opponents of the American system would be just as pleased to see the Western World financially bankrupt 30 years hence as militarily inadequate now. Just how much of the resources of the country can be diverted to military preparedness over an extended period without resulting bankruptcy and natural resource depletion is the question to which an early answer is urgently required. Military decisions as to necessary level of defense may be based too largely on military requirements without adequate concern for effect on long-range economic factors. Active civilian participation in such decisions is the only assurance of balanced determination of the necessary relationship between militarily desirable and economically supportable levels of national defense.

IS THERE A SOLUTION ?

The primary considerations in both of these problem areas are of such nature that they do not lend themselves to the usual annual budgetary approach. As to domestic services only vigorous public reaction against cost can ever bring about real curtailment. In 1940, during heated discussion over increasing the limit on the public debt, Secretary of the Treasury Morgenthau was asked for his judgment as to the amount of debt the country could stand. His answer was, "We will know when we get there." When the public is no longer willing to foot the bill then government can shrink in size. In the meantime the cheese-paring process of minor reduction through elimination of wasteful and extravagant practices of administration will continue but the results cannot be startling in comparison with total expenditures.

Particularly in the defense area consideration should be given to availability, over long periods, of natural resources and their utilization as well as both military and civilian production manpower needs. The final budget presentation must, of course, be presented in terms of dollars, but this stage should be reached only after careful consideration of the economy of the Nation in terms of plant capacity, manpower, and available resources.

UNOBLIGATED BALANCE

There is currently—and has been for sometime—a great outcry against the large unobligated and unexpended balances accumulated by various agencies, principally in the Department of Defense. Various superficial suggestions have been made to use accounting procedures and techniques to control these balances. All of these suggestions are an "after the horse is stolen" approach. The balances exist because Congress has acceded to the urgent demands of the military authorities and provided funds for a level of national defense which the executive branch has said was absolutely vital to the Nation's welfare, and the executive branch has not provided the amount of defense for which Congress appropriated. The existence of the balances is proof positive of failure of executive authority to carry out programs at the levels contemplated in budgetary proposals. The explanation for the existence of the balances cannot be found in books of account. The real explanation lies in the answers

to the question: Where is the defense Congress in all good faith provided funds to purchase? Have the funds not been expended because of administrative failure? Have the estimates been prepared without sufficient regard to the ability of the economy to produce? The responsibility lies in the executive branch. In only a few instances has the Congress provided more funds than requested in the budget and then usually on the basis of testimony by important executive branch representatives. In the aggregate Congress, over a period of years, has provided considerably less than total budgetary requests and still there are balances of such magnitude as to attract attention and bring to the fore suggestions for remedial measures. What would have been the situation had Congress granted all the funds requested?

The Air Force stated in January 1953 that it had available for obligation for "Aircraft and Related Procurement" for the fiscal year ending June 30, 1953, \$12 billion, all of which would be obligated; it requested for the next fiscal year, 1954, \$6.7 billion, all of which would be obligated during that year.³ Congress appropriated only \$3.5 billion for 1954, yet the Air Force carried forward into 1955 an unobligated balance of \$4.6 billion.⁴

In other words, instead of contracting for the acquisition of \$18.7 billion worth of aircraft in a 2-year period, contracts let totaled \$10.9 billion and it was later learned that many of the so-called contracts were far from firm. The unanswered question is, Why is there so little relationship between estimates and accomplishments? The real answer can be found only through examination of program planning procedures and policies. There is no denying the fact the Nation must maintain a maximum defense effort but there is grave question whether it is sound policy to continue to supply funds entirely out of proportion to production capabilities.

The situation in the aircraft procurement program described above is cited only as illustrative of the financial problem in military procurement and construction programs generally.

Year after year they return to Capitol Hill asking for additional funds and predicting dire consequences if the Congress fails to grant every dollar requested. Curiously, the showing of great balances of funds unexpended, not even obligated, on their books seems not to embarrass them in asking for additional funds.

In view of the gravity of the world situation the Congress has had little choice but to accept military recommendations but the day is fast approaching when drastic action must be taken. To permit the situation to continue is dangerous to the stability of the Nation's economy. Reference was made in recent months by a Cabinet officer to hair-curling depressions which could result from continued high-level Government expenditures. Booms and busts have historically maintained a definite relationship and there is nothing to support the hope that the pattern will be different in the future.

³ Budget of the United States, 1954, p. 615.

⁴ Budget of the United States, 1957, p. 563.

POLITICAL NATURE OF THE BUDGET PROCESS

The executive budget system was borrowed from the parliamentary governments in Europe. Great Britain had such a system from about 1822. The importers of the system seem to have failed, however, to appreciate the full significance of the separation of the executive and legislative powers in the American system in relation to the executive budget. In parliamentary government, where the executive is directly dependent on the legislative for its continuance in power, the legislative branch can afford to delegate powers beyond the point practicable under the American system.

Under congressional rules of procedure, it is contemplated that annual appropriations will be made only for those activities of government which have been previously authorized by law. It is often fallaciously assumed that from there on the task is simply one of determining on some mechanical basis the cost of administering such laws. The basic authorizing statutes for the most part—and of necessity—are broad in scope and grant to the Executive rather wide latitude. The only continuing congressional control over activities within such statutes is through the annual budgetary review and legislative authorization of funds. The budget document, the message from the President, includes the recommendations of the executive branch for continuation, increase in scope, or curtailment of these activities. It is a policy proposal reflecting the political philosophy of the current executive authority. It is a political document. As such it is submitted for final determination to the elected representatives of the people, each of whom must take his own responsibility for his part in it before his own constituency. On that account it is of first importance that any budgetary system be so devised as to protect the legislative prerogative of the individual member. For this reason the item veto has never been acceptable to the Congress. Similarly, suggestions that while motions from the floor of Congress to reduce the budget be made in order, motions to increase the budget be outlawed have never found favor. Certainly, if the Congress ever agrees to such proposals, it will have greatly enhanced the power of the Executive and, considering the obvious political nature of the budget message and its own responsibilities thereon, Congress must move most cautiously in that direction. There are occasions when the political philosophy of the two branches of the Government are not in complete accord, but regardless of that fact the Congress must never permit itself to become merely an adjunct to the executive branch.

CENTER OF THE ANNUAL POLITICAL STAGE

The presentation of the budget to the Congress is the signal for the annual political controversy. The administration's political program is there presented in such form and under such circumstances as to focus attention immediately on the points of difference and to set the stage automatically for the great debate. Other legislative recommendations, presented piecemeal, may be delayed, sidetracked, subjected to drawn-out debate, and when involving political hazards, endless and pointless discussion purely for the purpose of delay. But work must begin immediately on the budget. There is an automatic deadline. Funds must be provided for the Government to operate the

following year, and the political issues presented in the budget must be faced and settled. On occasions, when it seems politically desirable, new and not previously authorized programs may be presented in the budget in order to force action when orderly, regular procedure would indicate separate legislative enactment authorizing such programs prior to requests for funds. Congress has itself used the annual appropriation bills as vehicles for extraneous legislation which might not otherwise, standing alone, have been able to clear all the legislative hurdles to final enactment. Much as the idealists may deplore these conditions, cognizance must be taken of the simple fact that the enactment of the annual appropriations is a normal part of the legislative business, and legislative business is political business.

These are the reasons why many aspects of the budget process do not lend themselves to the formalities of pure accounting statements. Too often the rigidity of formal statements leads to the idea that the budget is purely a matter of arithmetic and, on the face of the document, this appears to be true. However, the policy considerations which have governed the arithmetic have involved many mathematically indeterminate factors. By the time the budget reaches Congress these factors either have disappeared from the picture or have been converted to dollar marks to support the budget figures.

At that point, the great political question is whether or not the President will be supported. The executive branch has prepared the budget and has had ample opportunity to develop the case in support thereof. The Congress then sits and listens to a carefully prepared case disclosing only those facts which will present the budgetary requests in the best possible light.

PRESSURE GROUPS

Most of the agencies of the executive branch are in direct communication with private pressure groups who can be counted on to whip up support for the budgetary requests of their pet activities. Though the rules require that administrative budget decisions be not disclosed until the budget message is transmitted to Congress, the agencies having special problems usually find devious ways of letting the pressure group know what to expect so that they can be fully prepared to move directly on Congress at the time the budget arrives. This is a practice so often followed as to be well known in budget circles in Washington. While the executive agencies, having made the bullets, stand piously by, the pressure groups take over and bombard Congress from all sides.

The Congress is never in position, therefore, to reach an objective decision on fiscal requirements. It is always in the position of a besieged force standing off attack, knowing that, at best, some casualties must result.

There is, of course, no complete cure to this situation. Congress would be in a more advantageous position, however, if some method could be devised to permit congressional participation at the decision-making stage before battlelines are so definitely formed.

In earlier years much was heard of "pork-barrel" legislation, bills originated by Congress in which Members allegedly helped each other by providing politically desirable public-works projects. Now the distribution of "pork" is handled in the budget by the executive branch. This tends to gain for the executive branch all the benefits

accruing from such practices while Congress takes the responsibility for not reducing the cost of government. It seems that everyone wants to support the President's program while Congress reduces the cost of government.

The historic control by Congress of the executive branch has been definitely lessened, and it is safe to assert that those who proposed the budget system as a means of aggrandizing the executive power have gained more of their objective than those who supported it as a means of reducing the cost of government. As a matter of fact, there is ample evidence of the enlarged powers of the executive and none to prove that the budget has resulted in better controlled costs.

UNSUPPORTED CRITICISM

Those involved in the processing of the budget frequently become restive under the constant, and sometimes seemingly capricious, criticism by those who have only one well-proved fact on which to base their protest; the total expenditure figure. It is easy to view with alarm the total number of employees of the Government if no notice is taken of the work required to be done by those employees. Few of these headline-making objectors ever get to the point of definitely pointing out the items in the budget which they want to reduce. Pressure groups in favor of specific items of appropriation are so numerous as to clog the corridors of the Capitol but pressure groups in favor of reduction rarely identify items to be reduced or eliminated. They prefer the easy path of glittering generalities.

It would be foolish not to admit that usually there are surplus employees in some agencies of the Government. On the other hand, calling attention to total numbers is no contribution to the pure drudgery involved in ferreting out the overloaded payrolls in individual agencies, which is the only means by which economy may be accomplished.

The members of the Appropriations Committees of the Congress are not in position to enjoy the luxury of the clear conscience resulting from promptly discharged responsibility merely by citing a few startling statistics and saying the budget is too large; the Federal payroll must be reduced. They must spend long hours studying the individual items making up the budget and finally take the responsibility for a judgment as to the smallest amount requisite for necessary governmental functions. At the end of the session annually, they stand condemned alike by the special pleaders for economy for not having reduced enough, and those interested in items they did reduce, for wrecking the country.

INVESTIGATIONS

The most frequently advanced method for furnishing Congress the wherewithal to stand against this well-organized annual attack is investigation and this has been tried in various ways. Results obtained have been worthwhile and have brought about many administrative economies but have not been spectacular, as the investigative approach seems of little assistance in policy determinations. Investigations can and do produce factual data about administrative matters which can and do result in remedial action. However, investigation

cannot produce the basis for policy judgments which control the largest items of expenditure. Evidence that airplane parts have been buried in a snowbank is evidence of maladministration demanding vigorous attention but is of little use in determining the size of a more modern Air Force in future years.

CONGRESS MUST EXAMINE DETAILS OF ESTIMATES

In view of the fact that the annual budgetary review and enactment of appropriations furnishes the only opportunity for Congress to exact an accounting for administration of laws and to assure that congressional intent is carried out, detailed examination of the estimates for individual activities is vital and the Congress has always insisted on this prerogative. This was a major contributing factor to the utter failure of the legislative budget proposal included in the Legislative Reorganization Act of 1946. Of course, in the first place it was purely advisory and had no real effect on final allocation of funds. Secondly, and probably more importantly, it required action on total budgetary figures without an opportunity to examine the individual proposals making up those totals.

In adopting the British system it appears that adequate consideration was not given to this point. Parliamentary review or amendment of the expenditure items in the British budget is of a very cursory nature. The primary concern there is the rate of taxation which is included in the budget. In that sense the American budget is no budget at all inasmuch as it requires legislative action only on the expenditure side and does not require simultaneous action to provide the necessary tax receipts. Taxes are always handled separately, separate recommendations from the President and separate legislative enactment.

In England, the departmental minister is a member of Parliament and subject directly to its will, whereas in the United States the Cabinet officer or agency head is in no wise directly controllable by the legislative branch except through the annual budget.

COSTS HAVE NOT BEEN CONTROLLED

In the 169 years of its history, the United States Government has operated with an annual deficit 66 times. Of those 66 years, 22 have occurred during the 37 years since adoption of the budget system. Of the 44 deficit years, prebudget, 18 were war years; and since adoption of the budget, 9 of the 22 deficit years have been war years.⁵ At the present time taxes and expenditures are at an all-time high during peace years and the present rate of expenditure has been exceeded only three times even in the war years. A combination of so many factors has brought about this situation that it cannot be contended that the budget system is responsible. However, it can be argued that the budget system has failed to control government expenditures as was intended by those who supported it as an economy measure.

In many ways the budget system bears little resemblance to the ideas and plans advanced at the time of its adoption. Even the Bureau of the Budget is an altogether different instrumentality from

⁵ See annual reports of the Secretary of Treasury.

that intended by the original act. It was intended that the Bureau would be a small, professional organization to screen estimates of the executive agencies and reduce them to such amounts as would be commensurate with efficient, economical operation. Now, however, the Bureau of the Budget has become a much larger organization than was originally contemplated and has many duties and responsibilities not within the original scope. It has become a functioning policy arm of the President's office. These changes have come about as a result of a change in basic philosophy within the executive branch as to the role which should be played by a budget bureau, and because of the inevitable political nature of the budget process.

In view of all the changed circumstances since the adoption of the budget system, it would seem that a careful reexamination of the whole process is now in order. For a number of years prior to the adoption of the budget system, many research agencies, colleges, and other groups had devoted a great deal of time and attention to the problem. It was out of their work that the budget system was devised. From the contemporary literature it is apparent that they contemplated a more direct relationship between proposals for taxation and recommendations for expenditure than has been found to be practical within the budget system finally adopted.

The Select Committee on the Budget, in reporting the bill providing for a national budget system to the House, stated that the primary, basic defect then existing was "expenditures are not considered in connection with revenues."⁶ It was their hope and expectation that the new system would remedy this situation, but the record is such as to lead inescapably to the conclusion that these hopes and expectations have not been realized.

A DIFFERENT APPROACH

The weaknesses in the present system are deepseated. They do not lend themselves to superficial treatment. It is easy to say that Congress has not the control over the expenditures by the executive branch that it once had, but no mere change in format of the budget, or rearrangement of financial statements, will accomplish the needed improvement. The decision-making stage when policies are determined upon is the vital area. This is a subject worthy of the examination and thoughtful consideration of the best minds available to devise workable solutions. It involves a reexamination of one of the foundation stones in the system of government: the separation of powers. It is not the kind of situation which can be handled by a group of experts recruited for a few months to make a survey. In this modern pushbutton world there seems to be a popular idea that answers to questions are available just as readily from the proper experts as are new household furnishings at the department store. There has been too much of this "buy it at the department store" approach to basic government problems which are of such nature as to require careful philosophical consideration.

The research groups and students of government might well give some thought and attention to the present situation just as they did

⁶ H. Rept. No. 363, 66th Cong., 1st sess., October 8, 1919, p. 4.

in the early decades of the century when they became enamored of the budget idea and furnished the impetus for its final adoption. They would do well to go back to the ideas advanced at that time, find out what has happened to them since, and see just how their theories have fared in a practical world. Many of the earlier writers wanted to enhance the powers of the executive branch and there is ample evidence that they have attained their objective. The question to raise now is: Has the country benefited? But this time it is hoped that notice will be taken of the fact that it is not possible to engraft pieces of one system of government onto another without taking into account the limiting factors involved in basic differences in governmental processes.

SYSTEMIC IMPROVEMENT IN THE FEDERAL BUDGETARY PROCESS

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Chamber of Commerce of the United States

Much has been written in recent years about methods and procedures which conceivably would reduce the problem of budgeting to a somewhat rigid science. Improvement in accounting systems, new advances in developing and understanding cost accounting and standard costs, plus the growing interest in organization and management analysis, have led many to believe the problem of budget planning and control can be solved by the development and application of principles as precise as those of applied science. As a result, there has been a proliferation of one-shot approaches which presumably offer hope for the effective accomplishment of governmental goals more economically and efficiently.

Although many of these have merit, some are valueless or are based upon misunderstanding. Generally speaking, all suffer from a lack of comprehensiveness. There is no single method or "gimmick" which will provide an easy path to better Federal budgeting. The approach to the problem must be comprehensive and must recognize the relationship of each procedural change to the whole pattern of the system.

Therefore, any attempt to discuss systemic changes in the Federal budget process must be placed in proper perspective. Assuming the objective of the budget process is effective planning and control of the use of resources made available to the Government to successfully accomplish its objectives, it must be recognized that organization or procedural changes in and of themselves will not achieve that end.

Budgeting is basically a judgment-making process. Primarily it involves a series of value judgments at every stage. It seeks answers to such fundamental questions as: What proportion of the total economy should be devoted to governmental activity? What functions should be performed by the respective levels of government in our Federal system? What are the relative values to be placed upon one public function as against another, or all others? What type of revenue structure should be established to distribute the governmental burden? What improvements in government organization structure, procedures, methods, and techniques will yield the most effective, economical, and efficient results? ¹

Any consideration of systemic arrangements or an evaluation of organization, methods, procedures, and techniques employed by the Federal Government in doing the budget job must recognize this

¹ U. S. Bureau of the Budget, *Budget Formulation, 1945*. This document sets forth five kinds of policy questions which are involved in the Federal budget: (1) What proportion of the whole economy should the Government comprise? (2) What should be the relationship between the Government's expenditures and its current receipts? (3) How should the burden of cost be shared? (4) What share of available funds should be used for each purpose? (5) How can the desired results be achieved at the lowest possible cost?

fundamental fact. For the judgment-making nature of the budget process presents at the same time both the governing rules for conducting it and the essence of the problems which must be overcome. At best procedural change can provide only the framework within which effective budgeting can be accomplished.

The dynamics of the problem resulting from human nature and the philosophical tenets which underlie its operation will always present an imponderable as in all cases of human administration. To bring about most effective budgeting, it must be understood that the problem is at least, if not more, one of human dynamics as it is one of mechanics.

It is within this context that the following discussion is offered. It deals with:

- (a) certain general concepts and aspects of the budget process;
- (b) specific features of budget structure and format; and
- (c) organization problems and selected procedures.

Observations regarding the validity of present arrangements or suggestions for change and improvement are presented.

DEFINITIONS

To promote clarity, it is advisable to set forth the concept of budgeting used herein and to identify the sense in which other terms employed in succeeding paragraphs are used.

Budgeting is recognized as the process by which a plan of activities (in this particular case that of the Federal Government) is formulated for a prescribed period of time; reviewed and adopted by Congress; and the management of the plan of activities previously approved in the form of a budget according to a schedule and at a cost within resources available.² It is the primary means by which the executive branch plans and controls the administration of Federal activities and the fundamental action taken by Congress annually in controlling Government programs and the utilization of Federal resources.

Other terms employed follow the normal vocabulary of Federal fiscal operations. They are those contained in the Budget Treasury Regulation No. 1, as amended by Circular A-34 of the Bureau of the Budget, Circular A-11 of the Bureau of the Budget, entitled, "Instructions for the Preparation and Submission of Budget Estimates," and other budgetary or fiscal documents.

GENERAL ASPECTS AND CONCEPTS

Many concepts underlying the budget process appear to need re-evaluation and/or change. Many are adequate in theory but deficient in practice. It is the purpose of this section to examine certain general features of the budget system and selected concepts which underlie them. It concerns itself with (a) the determination of budgetary requirements; (b) the role of the executive branch; (c) the role of the legislative branch, and (d) the role of public officials and employees.

² A. E. Buck, *Public Budgeting*, New York, N. Y., 1929, pp. 3-4; U. S. Bureau of the Budget, *Budget Formulation and Budget Execution Manuals, 1945-46*; Harold M. Groves, *Financing Government*, New York, N. Y., 1952, pp. 513-514.

Determining budgetary requirements

No mechanism for determining true "needs."—For many years it has been an inherent concept of Federal budgeting that a fundamental determination required is the development of the "needs" of the people of the Nation in order to select those which should be performed by government and the National Government in particular. From a purely theoretical standpoint this provides a convenient explanation of the contents of the Federal budget. However, it fails to recognize at least three important points. First, there is no adequate or standard mechanism for determining "need" in the public sphere, such as exists in the private economy. Second, it places emphasis upon the desires and wants as developed by interested individuals or groups, and not upon general welfare or the ability to support such requirements. Third, it stresses the development of such requirements by a presumably omniscient Federal bureaucracy.

This concept of budgeting thus often results in the development of glorified "wish lists" rather than programs of essential needs. It in effect directs Federal agencies to determine the needs of people in both the limits of this country and to some extent abroad. Further, it establishes in them the prerogative of ascertaining whether or not such functions should be performed by the National Government, the State or local governments, and other nations.

To assume that the first of these determinations should be unrestrained in character contributes materially to the constantly increasing cost of government and its claim on a major portion of the economy. It is recognized that some attempt to contain these alleged "needs" is accomplished through the use of the target figure process employed by the Bureau of the Budget. Nevertheless, this feature is to a great extent undermined when the budget reaches the legislative level, where no such basic decision is made.

Governmental needs must be related to limited resources.—Failure to cast the budget job in terms of accomplishing programs within limited resources magnifies the problem of controlling Federal spending. It must be recognized that virtually all items in the budget can be justified from one standpoint or another. It is not a question of their true value in most cases nor of the ability of some interested administrative unit or special interest group to develop sufficient statistics to support their inclusion in the budget. The problem to be overcome is to relate such recommendations to limited resources.

Establish the concept of budget ceiling.—Since there is no automatic mechanism for determining a public need such as there is in the private economy, it would seem wise to build into the conceptual framework of the Federal system a target level for the annual Federal budget which would provide for essential public services and a systematic reduction of the Federal debt. The primary need for such a concept is in Congress, although it should pervade all budget activity. Such a target should have as its objective the elimination of all budgetary items which are not truly responsibilities of the National Government, even though the same problem might be manifested in many regions of the country and be considered nationwide in character. Thus, it is not enough simply to apply the test of generality to the problem. One must go further and apply the tests of federalism—the spirit as well as the letter of the law in the Con-

stitution—the principles of a free-enterprise system and the possible impact of the budget on the total economy before including programs or activities in the Federal budget.

Unless substantial progress is made toward developing and utilizing such a concept in Federal budget operations, there is little hope for bringing about truly effective budget control. History is replete with illustrations showing that “needs” of the Federal Government are measured by elastic yardsticks and seems to be governed principally by the availability of revenue.

Role of the executive branch

Executive budget system sound.—Although there may be variances of opinion as to the advisability of an executive budget system as against a legislative or commission budget system, the executive budget system in a government based on the doctrine of separation of powers constitutes a fundamentally sound arrangement. As in all social organizations or institutions, there are weaknesses, but many of these are attributable directly to inherent difficulties in the separated powers theory itself.

By far and away the advantages of our executive budget system outweigh its handicaps. Structurally, it provides an intelligent framework for moulding proposals for Congress on public policy and enables the effective administration of public activities with both efficiency and economy. Both of these are functions assigned to the executive branch. Thus the role of the executive branch in the budget process, conceptually speaking, is that of developing a planned program of activities in dollar terms for a period of time ranging from 1 year to an indefinite term. Similarly, it requires the executive branch to effectively, economically, and efficiently administer approved budget programs as an inherent responsibility of the public trust which reposes in governmental officials and employees.

President's proposed budget properly subject to change.—There is a concept which has been built up over the years, as an outgrowth of both our constitutional and political systems, that the President's budget program as presented must be adopted by Congress with little if any change, lest the country be maltreated and the President “lose face.” Justification for this stand needs specious reasoning, for under our system of separated powers it is certainly the President's prerogative to submit to the legislative branch a proposed budget program of activities, but certainly it is not his right to have such a program accepted and implemented without change.

Value judgments differ between branches of government.—Obviously, with the inherent weakness in determining governmental needs described above, budget programs will, of necessity, contain some questionable requests. All of the estimates will reflect the sundry judgments of the governmental officials and employees who have presented them. They will embody the political, economic, and social philosophies of those who were responsible for building each individual part of the budget and the document as a whole. Similarly, it will have built into it the prejudices and interests of specialized groups who stand to lose or gain most by the budget determinations made. All of these, when combined into a budget by the President, contain the imponderables which are present in human activity as broad and far reaching as the making of the President's budget.

They are logically subject to reasonable examination and change. Adequate yardsticks to make decisions which are unchallengeable do not exist.

It is proper that the legislative branch give full and thoughtful consideration to budget proposals for the purpose of bringing its perspective into play. Certainly it will be, if the democratic processes are working properly, much more representative of the wishes of the people. This does not overlook the fact that there are inherent weaknesses in the present system of representation but this is no excuse for assuming that such vital determinations as those in budgeting should be transferred to the administrative structure in the executive branch.

The role of the legislature must be positive and penetrating. Under our system of government, exercise of judgment in determining related values can well be accepted as a substitute for that presented by the President in his budget without the assumption that a President has "lost face" in the exercise.

The role of the legislative branch

How can Congress make its budget review most effective?—If it is assumed the role of the executive branch is as described above; i. e., one of formulating programs and effectively, efficiently, and economically administering them, and that this process necessarily involves varying degrees of detail, with basic decisions being generated at each successive level in the hierarchy of the budget system, a logical question is raised as to what is the proper and most effective role for the legislative body. Is it the job of Congress to engage in a series of repetitive actions which invite a rehashing of detail which has been the subject of executive deliberations? Does it not have the same basic questions to answer in its budgetary decisions which face all those primarily engaged in the Federal budget process? If so, can an examination and approval of the Executive's proposals be effectively accomplished without reevaluating or redoing each action which has taken place preceding submission of the President's budget?

Should it concern itself rather with broad program levels and program relationships irrespective of the details which comprise or underlie each program? If the sum of the budget truly equals the parts, can Congress wisely decide on a sum without delving into such questions as to the consistency of the parts of the budget which comprise it?

It is the contention of this paper that it is not within the proper role of Congress to redo or reexamine each detail of the budget proposed by the President. To examine such detail line item by line item would not necessarily enhance its control but would actually impair it. The activities of the Federal Government are entirely too vast and complex for busy Congressmen or their staffs to attempt to second-guess each decision made by Federal administrators on the budget, even though each may be looking at the same problems from slightly different vantage points.

Gear congressional judgment to highest possible level.—Congressional value determination must be geared to the highest possible level consistent with effective evaluation. Its role in the budget process could most profitably be devoted to determining (a) the proportion of the total economy which should be devoted to conducting the Federal

Government; (b) determining the relative values of each major function and activity of Government in light of modern concepts and needs; (c) assuring that all possible detrimental effects to the economy have been removed from the budget programs which it approves; (d) evaluating each demand for a new public function to determine its propriety as a responsibility of the Federal Government as contrasted to having it performed by the States or local governments, or the private economy; (e) insuring that an equitable revenue structure is provided to cover, under normal conditions, a level of budget program it approves; and (f) reviewing the efficiency and economy applied to conducting Federal operations and insuring that the budget is used to remedy such deficiencies as may be found to exist.

Use "rule of exception" in examining detail.—All this is not to say that there is not need for a detailed examination of certain phases of budgetary activities. To the extent that an examination is required to understand a program, it must be made. However, such endeavors should be premised on the rule of exception. Unless the application of general yardsticks to each of the determinations suggested above reveal soft spots or areas which require more detailed examination, it seems inappropriate for Congress to delve into such detail.

Although there are several possibilities for reducing the need for congressional delving into the minutiae of executive budget decisions, there are at least two which offer substantial promise of reward. First, the proper organization and simplification of the budget and appropriation structure would be helpful. It should be designed to reflect more clearly (a) what funds are being requested for; (b) how much is being requested for some meaningful unit of end product, and (c) how in general terms it is proposed this be accomplished. Secondly, it would certainly be fruitful to direct efforts at the development of simple yardsticks for use in making the above decisions with rapidity and understanding.

Should appropriations govern pending congressional actions?—A practical difficulty manifest in the system of congressional control of the budget stems from different concepts on the function of appropriations in the legislative process. Should the annual review of budget proposals to accomplish Government programs be considered an action superior to previous determinations by Congress regarding the level or type of program to be carried on? This was pointed up in the first session of the 85th Congress when the economy bloc made its first sustained drive to cut appropriations. This occurred on the Labor-Health, Education, and Welfare bill and was characterized in remarks to the House by Representative Howard Smith:

Now, my friend says, "We have to appropriate this money because Congress authorized these things." Congress, I expect, makes some mistakes because Congress has not been above making mistakes in past years. But no previous Congress can bind this Congress to continue appropriations on matters that a previous Congress authorized or appropriated money for, if this Congress thinks it is in the best interest of the country to reduce those appropriations or to eliminate them. If you do not accept this as a theory of government, then you cannot do anything with these bills. You

cannot reduce them because they are going to keep on going up and up and up. You have to be willing to just face this issue and say this thing has got to be cut, these budgets have got to be reduced and these appropriations must be reduced, and we have to have the courage to stand up and do it and I hope that we will.³

Reviewing the function of budgeting in the governmental system, Congressman Smith's stand would seem most appropriate. The annual budget gives Congress an opportunity to review in realistic dollar terms the consequences of its previous work and the ability of the Nation to support its adopted policies. Thus, it would seem proper that, even though Congress may have passed by previous action certain formulas, adopted certain programs, or established certain levels of performance, it may in its budgetary considerations decide to change or modify its previous stand in view of current fiscal realities. To look at it otherwise presents a standing invitation to special-interest spending groups to circumvent the annual congressional review of Federal programs through the enactment of fixed formulas and programs outside usual budget controls. The ultimate of such a development would be a negation of budgeting.

Appropriations should be overriding.—In view of the notable rise in the amount of funds which have become relatively uncontrollable by normal budget processes, Congress should adopt the concept that appropriation actions are overriding except for payment of the obligations on the national debt or similar contractual responsibilities. Where the Government stands as benefactor to a special group of individuals through grants or gratuities, the level of appropriations voted should determine the amount of funds to be distributed and not some formula which may have been concocted many years previously and fixed in law.

The role of public officials and employees

Personnel with sound concepts and training essential.—Since budgeting is a dynamic, judgment-making process, personnel constitutes the most important ingredient in the budget system. The extent to which they are grounded in sound conceptual bases, and properly trained, will determine to a considerable degree the success of Federal budget operations.

Managerial concepts which place emphasis upon the wise application of men, money, and materials to accomplish objectives are only beginning to receive understanding in Federal operations. A broad concept of the budget process as a prime means for planning and controlling the use of such resources to meet public objectives effectively, economically, and efficiently is not found widely among managerial or technical personnel engaged in budgeting. In many areas the budget is conceived as an incidental adjunct of accounting which must be tolerated as a necessary nuisance. In some places there prevails the age-old outmoded belief that a budget is an accounting worksheet totaling estimates of what you think you can get for the next fiscal year. In other instances, the job of budget officers is regarded as existing simply to assure that the organization gets the "best deal" possible on funds.

³ U. S. Congress, Congressional Record, March 26, 1957, p. 3911.

To remedy these and other conceptual difficulties found among Federal personnel there must first be instilled an understanding on the parts of both managers and technical budget staffs of the broad and pervasive nature of Federal budgeting. It is important that there be an understanding of relationships of each part of the budget to the others, to the budget as a whole, and to the proper role of the Federal Government in the economy and society.

There must be developed also a sense of public trust which goes beyond the prolongation or expansion of particular interests and agencies. Much as a banker or guardian administering a trust fund must concern himself with the wise and prudent application of funds in behalf of the beneficiary, all employees should be made to realize that the resources with which their jobs are conducted are those of the body politic. They are held in trust by them and must be used with prudence and intelligence to accomplish their job with utmost economy and efficiency.

Need for broad budget training program.—Since soundness in judgment is susceptible of development through various techniques, the quality of the Federal budget process can be substantially enhanced by efforts properly directed. The orderly and planned development of improved judgment-making is something which is notably lacking, or at best carried on in a disintegrated and ineffective manner. It is true that there are several training programs of a limited or unpretentious character which deal with the problem and process of budgeting. But for the most part these are mechanistic in character, and their emphasis is primarily upon forms and procedures. Stress is upon the development of memory rather than upon the use of analytical judgment.

Several years ago the Bureau of the Budget prepared a series of staff papers in the form of budget formulation and execution manuals. The materials in these documents suggest the broad and penetrating approach which is required for a proper understanding of the role of budgeting in the Federal Government and in the economy. Although dealing in many respects with detailed methods of computing budget requirements, these materials stress as well the interrelationships between various management concepts and functions. To a lesser extent, they deal with the economic and social impact of the budget.

There are undoubtedly revisions in these materials which could be made because of the increased knowledge on the subject of Federal budgeting during the past 10 to 15 years. However, it is suggested that these materials be amplified, slightly reorganized, and used as a basis for the development of a standard set of training courses within the Government. This program should be directed by the Bureau of the Budget and be required of all key managers who participate actively in determining budgetary requirements or administering significant segments of the budget. This course should also be directed to all technical budget personnel and become a prerequisite to the appointment of employees and officials to budgetary positions. The impact of such training on the budgetary system in the executive branch could be tremendous. For although there are recognized exceptions, there are indications that the great bulk of Federal budgetary personnel has not been given any significant training in the broader aspects of the budgetary process.

Qualifications of budget personnel.—Appointments to budget positions are often based upon work conducted in accounting-type activities or certain administrative responsibilities. Although these skills are helpful to the development of a good budget officer or a good manager with major responsibilities for budget actions, they are in themselves insufficient to prepare the type of budget technician or budget-conscious manager which the Federal Government requires.

Some studies have been made as to the characteristics and qualifications which should be possessed by budget technicians. In many instances these have stressed a knowledge of accounting. Although it is essential that everyone engaged in performing Federal budget functions be acquainted with the principles and practice of accounting, the great value of accounting as a tool of management and as a support for budgetary actions of itself will not produce a good budget officer. Added to this very essential accounting qualification must be vision, objectivity, imagination, foresight, and the ability to plan and to comprehend relationships between budget programs, management actions, and the whole budget. Similarly, there must be the ability to give an understanding adaptation of economic and governmental principles to budget decisions.

It is not enough that these qualifications be possessed by budget personnel alone. They must likewise be present in the managers at each administrative level. It is these groups which make and are responsible for budget considerations.

BUDGET STRUCTURE AND FORMAT

Any consideration of improvements in the budget process must consider budget structure and the format used in the budget document. Although rapid and significant strides have been made in the structure of the budget and in the format of the budget document in recent years, much still remains to be done. It still has too many vestiges of the budget technician's approach, emphasizing procedures and mechanics rather than judgments. Thus it is weighted down with difficult and even meaningless terminology and facts and figures which require the expertness of a technician to understand.

Simplify terminology.—Efforts must be made to simplify budget control by first directing efforts at the gobbledygook used. For example, the actions of the Bureau of the Budget in developing a budget for presentation to Congress each year, and the Congress in considering it, are primarily concerned with the amount of new obligational or spending authority which is being requested by the agencies and the impact which the resultant expenditures will have upon the economy and governmental programs. In doing this, there are at least five ways of providing new obligational or spending authority, for example, appropriations, reappropriations, permanent appropriations, contract authorizations (new and permanent), and authorizations to expend from public-debt receipts (new and permanent). Although the reasoning behind the use of different types of new obligational authority is recognized, such use seems highly unnecessary and only tends to confuse further a problem which is already exceedingly complex.

Since the principal question involved is how much new spending authority Government agencies shall be given for either the next year

or an indefinite period of time for particular purposes, it would seem much more feasible to eliminate all types of new obligational authority except appropriations and expand the term "appropriation" to include all new obligational or spending authority proposed by the executive branch or the Congress of the United States.

It is recognized that there are subtle implications in such a change-over which would involve changes perhaps in congressional rules or procedures, and in certain executive and legislative concepts. Nevertheless, in acting on budgetary matters, the one question of how much of the people's resources the Government will be allowed to obligate and expend anew is what concerns most Americans. For it is the establishment of a limit for legal obligations which determines the amount of expenditures or checks issued from the Treasury.

Revise and simplify organization of budget.—A second and important direction in which simplification can be made is in the arrangement or organization of the budget. The present budget document, with its primary emphasis upon organization unit is a somewhat hybrid document, being neither completely a performance or program budget nor a line-item budget. Although it manifests primarily the former characteristics, the latter certainly are not lacking.

The most logical move to bring about improvements in the organization or arrangement of the budget would be to commence with the program or performance structure manifest in the Budget in Brief. This little document has become an extremely important part of the entire Federal budget process and is being given wider and wider use by public officials, civic organizations, and the man in the street simply because it gives a much clearer picture of what the Government is proposing to do with public moneys and the relative values it places upon the functions of Government. It is simply and attractively presented in a meaningful arrangement of material.

Therefore, it would seem advisable that the budget document submitted by the President to Congress be refashioned and reorganized along the lines of the Budget in Brief. Fundamentally, this would require use of a primary classification which presents Government programs by function, that is, major national security, international affairs, and finance, etc. Under each of these primary classifications, the appropriation structure and supplementary material could then be presented by organization unit. This would have the advantage of identifying those responsible for conducting the various functions of Government. Among its other advantages, it may also simplify funding and accounting actions between agencies involved in performing parts of the same basic function. Similarly, it would serve to point up unnecessary duplications of activities and possible improvements in organization and management which would produce economy or efficiency benefits to the taxpayer.

The value of having a summary of funding and accounting information by agencies is also recognized. Such information could be made readily available by appropriate summaries on an agency basis.

Eliminate term, "new obligational authority," and redefine "expenditures."—In view of the difficulties which have been manifest in recent years in understanding the difference between "obligations" and "expenditures," it is suggested that consideration be given to renaming all types of new obligation and spending authority "expenditures" and to redefine the word, "expenditures," in Federal financial termi-

nology to incorporate all such actions. Furthermore, it would seem advantageous to tighten such "expenditure" authority by precise definition in law of what constitutes a legal obligation (or expenditure if renamed) by the Federal Government, such as was sought by section 1311 of Public Law 663, 83d Congress.

The term, "expenditure," as it is now used in the Federal Government, namely, checks issued, should be renamed "disbursements," since this most appropriately recognizes the character of what is presently called expenditures in the Federal fiscal process. Under current definitions they constitute simply the issuing of checks to liquidate valid legal obligations which have been incurred pursuant to spending authority granted by Congress and are virtually automatic actions.

The term, "expenditure," as it is proposed here would seem to be much more in line with what the public expects the Congress and executive branch to control—the true "expenditure" of fiscal resources at the point at which they are available for utilization, namely, the point where legal obligations to pay are incurred.

Consolidate and simplify appropriation structure.—A third means by which the budget structure and format could be improved would be by consolidating several of the appropriations which are now split to reflect the function which they perform. Certainly the appropriation structure of the Veterans' Administration and the Defense Department are two which illustrate this point.

Reduce size of budget document.—Consideration should also be given to reducing the amount of material presented in the "big budget" which the President submits to Congress. It is recognized that such action would tend to eliminate detail which may be considered by the technicians to be necessary. However, the majority of Congressmen who are concerned with the budget and others who use it are not technicians. It should be geared to their needs, and permit them to make intelligent value judgments on budget proposals.

Several Congressmen have spoken out about the lack of detail in present budget presentations, detail which they feel necessary to make proper evaluations. This "lack of detail" has been used to attack the use of a program or performance-type budget.

Actually, there is no true inconsistency between a good program or performance budget and the provision of adequate budget detail to permit proper evaluation by the legislative branch which controls the public purse. It is believed that with a reorganization of the budget structure as suggested above to permit a presentation along functional lines, the big budget itself will be much more meaningful. Additional detail could well be presented in supporting documents, separately published appendixes to each of the major functional sections of the budget.

Publish detail by function in separate appendixes.—If the budget is truly built from pieces which comprise it, the detail which would comprise such appendixes would probably already be available. With relatively insignificant additional expense, it could be provided to Congress and to various segments of the public which are especially interested in each function. If properly designed, they may well eliminate the ream on ream of supporting paper which agencies develop for their appearances before the Bureau of the Budget and Congress. It could be a source of data showing, through object classi-

fications as subordinate parts of activities or functions, the resources or ingredients which go into performing particular end purposes.

Special analyses of overhead costs.—Finally, in order that there might be a better opportunity to appraise general overhead or service-type costs in the executive branch, it is suggested that special analyses be provided of the amount of funds voted to the several auxiliary and staff services for the Government as a whole. For example, indication should be given of how much funds are being asked for personnel work, financial management activities, purchasing administration, etc.

ORGANIZATION AND PROCEDURE

Changes in organization, methods, procedures, format and the like will not necessarily yield a good Federal budget. Yet, it is a fact that since budgeting is to a large extent a problem of human dynamics, these can have a profound effect upon the course of human activity which goes into the Federal budget process. It certainly is of major importance that they be soundly devised and administered. Specific systemic changes are discussed below in terms of those applying to the executive branch and those used by Congress.

The executive branch

Most procedural improvement in executive branch.—Most budget improvements since the Budget and Accounting Act of 1921 have been manifest in the executive branch of the Government. Its concern with improvement and progress have by far overshadowed the actions of Congress on this subject.

Nor has all improvement in the executive branch been the result of outside stimulus. True, the two Hoover Commissions provided somewhat independent attitudes on the budget activities of the executive branch and gave stimulus to or pointed up needed improvements. Nevertheless, within Government itself, particularly since the 1930's, there have been numerous movements to tighten up or improve the many aspects of Executive budget control. It is needless to enumerate these for they are known by most who concern themselves with this subject. Suffice it to say that the Bureau of the Budget and the Office of the Defense Comptroller have been two primary forces in bringing about such improvements. The Bureau of the Budget has concentrated on government as a whole and has been instrumental in working with the Comptroller of the Defense Department in making improvements in that department which contains the largest segment of the budget.

It is important to note that the major procedures employed in the executive branch are for the most part based on sound concepts. It is entirely possible, however, that with the changes recommended above; that is, those regarding the role of public employees and officials and the budget document itself, a slightly different approach to budget control might be taken.

Emphasis should be on stewardship of public resources.—Whereas the present emphasis in budgeting is placed primarily upon getting sufficient funds to run the Government agency program at its existing or expanded level, it is possible that by a change in budget procedures used the emphasis could be placed upon stewardship in the use of public resources.

This is a subject which has been the concern of many over the years. Several have conjectured as to the best method of instilling in Federal managerial personnel and budget staffs an incentive which would stress their trusteeship of public resources and encourage them, through appropriate remuneration, to conduct activities with utmost economy and efficiency. Too often the current practice develops into a cat-and-mouse game, in which the administrator seeks to utilize all funds made available to him lest he be penalized for his efficiency in using less than was given.

Similarly, in presenting requests, it is not unusual to find the request somewhat inflated because of a recognition that "there will probably be some cutting anyway." To overcome this is, of course, a tremendously complex problem in human relations, but it is not insurmountable.

Perhaps consideration should be given to development of several related budgets which provide a more comprehensive control over the use of resources. This would seem to require at least a series of budgets on an accrual basis controlling inventories, personnel, resources, purchasing, contracts, etc., and would concentrate on showing the principal resources to be applied by an agency and their source in accomplishing a governmental function or activity. When approved, they would set the limit for that agency. Such limitations would be in dollar terms, and thus would provide a comprehensive control over the men, money, and materials which are used to achieve the Government's goal.

Although it is an oversimplification to describe it as such, an approach may be worked out somewhat as follows: Assume that agency X is involved in regulating narcotics traffic. A certain amount of resources, both of a personnel and materiel nature, are required to accomplish this. (Materiel as used here includes supplies, facilities, structures, etc.) It would prepare budgets for principal categories of resources to be used, and indicate the sources of materiel to be employed. For example, it would show whether the materiel to be used was to be gotten from new purchases or be drawn from inventory, and the budget could in effect establish inventory levels. Similarly, manpower and dollar levels could be established to govern personnel costs. Such an approach as is suggested follows to a considerable degree, with appropriate adaptations, the approach used in developing business budgets, and combining them into a master budget.

Changes under present system.—In the absence of a change in the conceptual approach to budgeting in the executive branch, there are certain improvements in the present system which can be made. Some of these are: (a) Building the budget from zero; (b) tighter use of apportionment and allotment controls to effect economies or improve efficiency; (c) stating personal-service schedules in costs per man-years; (d) improving the concept of reappropriations; (e) eliminating the project-order system; (f) establishing a single account for no-year funds; and (g) granting the President the power to veto riders on appropriation bills.

Build budgets from zero.—It would seem wise for executive agencies to build their annual budgets from zero rather than start with existing programs or program levels regardless of whether such programs may be required by law. Estimates of budget requirements would be built

accordingly rather than developed to care for simply expanding or contracting needs. Justifications could follow the same pattern and be designed to attest to the validity of the program at the level at which it is proposed it be conducted.

Certainly, such an approach would be more advantageous to the taxpayer. The annual reevaluation of each basic program and its component parts in light of current conditions would serve to eliminate activities where appropriate. Through such efforts, the knowledge which would be gained by the administrators dealing at first hand with these programs could be transmitted to the legislative body and possible changes effected if legislation were necessary.

The theory of using existing levels as a base in computing requirements is fundamentally a fallacious one. It will not promote sound budget control.

Apportionment and allotment controls.—Improvement in budget execution can be realized from a stronger use of budgetary-control devices such as apportionments and allotments. Though many decry the forceful use of the apportionment power by the Chief Executive and the withholding of funds from agencies for certain purposes, this power and its forceful use is essential to the executive budget system.

The Chief Executive, as has been noted above, is inherently responsible under our system of government for the efficient and economical administration of the budget program approved by Congress. This requires daily attention. Since it is assumed by Congress, under normal circumstances, that the budget is fundamentally a set of estimates, and agencies may require supplementary funds in the form of supplemental or deficiency appropriations, likewise it must recognize that the original estimates of funds and the appropriations made may be excessive to the actual needs of Federal agencies. Recognizing this fact, the Chief Executive must be able to withhold funds from agencies in order to deter the unwise use of Federal fiscal resources.

Under current concepts, the Bureau of the Budget considers its role somewhat circumscribed by limitations in the Budgeting and Accounting Procedures Act of 1950. Such limitations should be eliminated if the intent of the act was to so tie the hands of the Chief Executive. On the other hand, if the limitation which it is felt exists by the Bureau of the Budget is the result of a narrow interpretation of legal provisions, consideration of revision should be given.

State personnel requirements in man-years.—Some improvement in the reporting of personal services in the budget (01) schedules can be made. Present practice is to state personnel requirements in positions and total annual salary rates, and then reduce them by a factor termed "lapses" to average number (man-years) and actual salary costs, in a one-line entry.

Regardless of the expression in the budget as to the number of positions and total salary rates, the effective manpower and true salary costs of a program can be expressed only in man-years of employment and the actual dollar costs related to such employment.

Concept of reappropriations.—Certain reappropriations which are now often excluded from tabulations of new obligational authority should be included. All actions involving the reappropriation of lapsed funds were so carried until recent years when the Bureau of the Budget changed its method to exclude certain reappropriations

for continuing programs as the granting of new obligational authority. Since these funds would normally lapse and result in savings to the taxpayers, their reappropriation is, in effect, the granting of new authority which otherwise would not exist. The present practice distorts considerably the true totals of appropriation acts.

Eliminate project-order system.—The project-order system of the armed services should be eliminated or substantially modified. The former is preferred, for, with a properly designed appropriation system, the need for the project-order device is eliminated. It is a device which is subject to flagrant abuse, as has been demonstrated in several investigations by the General Accounting Office. Project orders, which are orders of one Government agency to another and are recorded as legal obligations, permit the preservation of spending authority by an agency even though they do not constitute an obligation in the legal sense. Consequently, the records of funds actually spent are distorted, and the judgments of reviewing authorities may be in error correspondingly.

Establish single account for multiple or no-year funds.—Adoption and implementation of recommendation No. 17 of the Second Hoover Commission report on budget and accounting would be helpful in enhancing administration. It "requires that each department and agency be authorized to maintain a single account under each appropriation title or fund for controlling the amount available for liquidation of valid obligations." This would simplify accounting and permit simplification of the budget format on the long-term program of each agency.

Presidential power to veto riders on appropriation bills.—Suggestions have been advanced from time to time recommending the granting of the item veto power to the President. Although such authority works satisfactorily in several States, its application at the Federal level is questionable. The political implications of such a device suggest that it not be adopted. However, consideration should be given to granting the President authority to veto riders on appropriation acts.

The Congress

Need for comprehensive study of congressional budget system.—Since action by Congress constitutes the focal point upon which all budgeting in the Federal Government is centered, it sets, to a large extent, the tone for the rest of the Government. To the extent that the congressional system is deficient, its weaknesses are passed on and expressed in varying ways throughout governmental operations.

This is a most disturbing situation, since Congress itself is probably most in need of improving its role in the Federal budget process. Although significant advances have been made in the executive branch, the legislative branch has been remiss in not making a comprehensive review of its own handling of the budget and devising substantial improvements. Only once since the Budgeting and Accounting Act was passed has there been an attempt to comprehensively review congressional fiscal organization and management. This was in the La Follette-Monroney committee on the organization of Congress which came forth with several proposals which were somewhat unrealistic politically and were unsuccessful.

The system of separates.—The primary difficulty with congressional handling of the budget lies in its system of separates. Both in its organization and in the procedures employed in reviewing the budget program submitted by the President, it works in a loose and disintegrated fashion. The budget, though submitted to Congress as an integrated whole, is immediately upon introduction broken down into 12 to 15 appropriation bills and considered separately by a series of subcommittees.

It is understood that committee action on subcommittee recommendations is somewhat perfunctory in most cases. Disagreements within the committees are more likely to be fought out in the Committee of the Whole or on the floor than in Appropriations Committee deliberations.

Even though the budget is presented as a whole, and overall figures for revenues and expenditures are summarized in it, these are generally lost sight of in the detailed examination of the budget. There is need for coordination between decisions made on expenditures and anticipated revenues. The impact of such decisions on the economy is well recognized, and thus it demands orderly, constructive, and responsible action by Congress.

In a similar fashion, committee organization fosters consideration of various budget aspects separately. In addition to the House and Senate Appropriations Committees, there are at least the following committees who take actions on particular significance to the budget: Senate Finance and Government Operations Committees, House Ways and Means and Government Operations Committees, the Joint Committee on Internal Revenue Taxation, the Joint Economic Committee, and the Joint Committee on the Reduction of Nonessential Expenditures.

An obvious goal in overcoming some of these difficulties is to effect budget decisions in the light of a predetermined budget policy. The whole budget picture should provide the perspective for decisions on each part. Several suggestions have been advanced for achieving this goal.

The Legislative Reorganization Act of 1946 provided for a Joint Budget Committee and the establishment of budget ceilings. The organization and procedure provided was beset by political impracticalities and has not proved workable, despite the meritorious objective itself. Its failure, however, should not be the sign for disillusionment or the abandonment of hopes for a solution to this problem. Two suggestions have been offered which may be helpful in overcoming this deficiency.

Some years ago it was recommended that there be an omnibus appropriation measure and it was tried by Congress. The test it underwent was inconclusive. It neither proved its worth nor its inadequacy.

Some logical objections have been raised to it. It is claimed that—

The only procedural difference between the omnibus and separate bill approach is, that under the former the committee holds the separate bills until all are ready for reporting. The net effect is to report some 12 bills simultaneously in the form of chapters in a single measure.⁴

⁴ Robert A. Wallace, *Protecting the Public Purse*, reprint of summary of doctoral dissertation in the Congressional Record, September 19, 1957, p. A-7741.

There is considerable validity to this view and the omnibus bill may have the disadvantage of delaying the appropriation process. There is, of course, little difficulty involved in holding up the passage of appropriations for a period of time, providing passage is accomplished sufficiently before the beginning of the fiscal year to permit orderly financial administration.

Two appropriation bills.—It is suggested that perhaps the use of two omnibus bills—one encompassing national security activities, and the other encompassing all other functions of government—may offer a solution. Such a move would facilitate a look at the budget as a whole, or at least considerably more so than under the present system.⁵

Joint Budget Policy Conference.—Another feature coupled with this might make it even more practicable. In 1955 the Committee for Economic Development suggested that—

The relations between expenditures and revenues, and the effects of the size of the budget on incentives and growth, be considered by a Joint Budget Policy Conference.⁶

It proposed that this conference be composed of congressional leaders, and majority and minority members of the Appropriations, Revenue, and Joint Economic Committees. It would meet shortly after the budget was submitted to discuss major revenue and expenditure problems. It was felt that even though this conference might not arrive at any conclusions, their discussions would provide adequate guidance to Appropriations Subcommittees and to the chairmen of revenue committees.

Legislation affecting the budget.—The Appropriations Committees should be geared directly into the consideration of legislation affecting the budget. Too often actions are taken by legislative committees alone which have a distinct effect upon the budget. Commitments for the establishment of formulas, quotes, etc., in aid programs are often made in basic legislation, which may alter considerably budget balances in the future. Normally, these are not processed through Appropriations Committees. To remedy this, Congress should be provided with comments of the Appropriations Committees on such legislation and a determination of full costs.

Permanent and indefinite appropriations.—The use of permanent and indefinite appropriations should be studied carefully with an eye to eliminating them. Although there might be a recognized obligation on the part of the Federal Government to pay such fixed charges as are handled by these appropriations—for example, interest on the public debt—there seems to be no substantial reason why these could not be acted upon annually. Such fixed charges can be estimated with a reasonable degree of accuracy. Even though no discretionary action could be taken by Congress, it would be required to look at the budget more comprehensively.

Adequate staffs.—The question of adequate staffs for Appropriations Committees is something which requires constant reevaluation. With the budget growing in size and complexity, there is need for

⁵ Marcellus Shield, former clerk of the House Appropriations Committee, proposed this in 1947. See George Galloway, *Reform of the Federal Budget*, Washington, D. C., 1950, p. 92.

⁶ Committee for Economic Development, *Control of Federal Government Expenditures*, New York, N. Y., 1955.

considerable professional analysis of budget requests. The size of the staff should be carefully evaluated and supplemented if necessary. This decision would be to a large extent dependent upon the character of decisions that Congress exercises.

Long-term and capital development programs.—One of the features of the budget which causes some confusion is proposals for long-term fixed charge and capital development programs. These are intermingled with current operational requests of agencies and make it difficult for reviewing agencies to comprehend. It is suggested that the possibility of using separate subcommittees on the Appropriations Committees to conduct studies of long-term fixed charge and capital development programs be explored. This would institutionalize the concern of Congress with these programs and tend to focus attention upon them annually.

Improved presentation of information.—It has been stated many times that one of the major difficulties in effecting congressional control over the budget lies in the lack of or insufficient information available to Congress. This does not necessarily stem from the lack of voluminous materials prepared by Federal agencies in support of the budget, nor of the budget document itself. Testimony and views are amply recorded in thousands of pages of congressional hearings. In addition, much information is prepared in separate special analyses, justifications, etc., which are used as supplementary material in making budget decisions.

The difficulty appears to lie more in the direction of the quality and the organization and presentation of the information than in volume. Certainly, the current amount of information provided should be sufficient. In fact, if adequate general yardsticks were established by congressional action to measure budgetary requests and make decisions, it is likely that much of the existing data could be eliminated.

There is implied in this a belief that neither the members of the Appropriations Committees nor their staffs have sufficient time to analyze and digest the submitted testimony. At best, only the high points can be skimmed from these discussions. Thus, it would seem that improved organization and presentation of supporting data would aid staffs immeasurably. Much of this is, of course, entwined in the budget and appropriation structures, and part of the remedy must be looked for in that direction.

Realine appropriations subcommittees.—Consideration should be given to the realinement of appropriations subcommittees along functional lines to correspond with the recommended reorganization of the budget itself. Although special subcommittees may be required to study unique problems or aspects of the budget, organization along functional lines could simplify and facilitate handling and enhance understanding.

Consolidate number and simplify language in appropriations.—Although considerable improvement has been made in the appropriation structure in the past few years, there still remains much which can be done. There still appear to be too many appropriation items, and too much detail in the language of appropriations. A reduction in the number, simplification of the language, and elimination of detailed data in appropriations should be an objective in any plan to strengthen control over appropriations.

Expand jurisdiction of Appropriations Committees to all budget matters.—It also seems imperative that all actions granting the authority to obligate and spend Federal fiscal resources be subject to the jurisdiction of the Appropriations Committees. It has been recommended above that all such authority be identified as "appropriations." This implies that the present practice of permitting legislative committees to pass upon authorizations to expend from public debt receipts without action of the Appropriations Committees be discontinued. To get effective budget control, all authority to obligate and expend public funds should be subjected to the check of Appropriations Committee analysis. This has the advantage of injecting a degree of objectivity which is not present in the existing system.

Budget conferences for Congress.—Congressmen in general who are not members of the Appropriations Committees require better organized and simpler information on the budget than they now receive. However, this in itself is not enough. They in turn must be given an appreciation of the nature and operations of the Federal budget process, an understanding of the decisions they are being asked to make, and some general yardsticks which will help in their evaluations. Some formalized means of providing an orientation program on the importance of the annual budget review by Congress and the budget process should be undertaken. A series of conferences or seminars shortly after the elections or the beginning of a session could well improve understanding and thus the quality of the decisions Congressmen make on the budget.

Closer relationship of GAO to budget process.—One of the principal means by which Congress could improve its actions on budgetary matters would be by a more direct tie-in of the General Accounting Office to the appropriation process and greater utilization of it. With the improvement in organization and the reorientation which this Office has experienced in recent years, it holds enormous potential for improvement in the congressional phase of the budget. Continued emphasis by the GAO on the conduct of comprehensive management audits can do much to point up improvements in governmental organization, methods, and procedures which will result in budgetary savings. It also can identify the use of fallacious economic principles, or the improper application of funds. Similarly, there can be an identification of overlapping or duplicating functions.

It has been recommended by one author that similar objectives can be accomplished by the effective implementation of section 206 of the Legislative Reorganization Act of 1946.⁷

Basically, this section, providing for analysis of Federal activities by the Comptroller General, would determine the degree of efficiency and economy used in expending public funds. This would be submitted to the appropriate committees, including the appropriations and Government operations committees.

The direction taken by the GAO in its management audits suggests that it intends to accomplish the role proposed in this section of the Reorganization Act. The data which will come from such efforts will undoubtedly facilitate congressional budgetary decisions.

⁷ Robert A. Wallace, *Protecting the Public Purse*, reprint of summary of doctoral dissertation in the Congressional Record, September 19, 1957, pp. A-7740-A-7742.

It is not enough, however, that analyses be made by the GAO and reports submitted to Congress. A closer gearing of the work of the GAO to the Appropriations Committees would be most desirable. This might be effected by providing for representatives of the GAO familiar with agency operations to be present at Appropriation Committee hearings and discussions of the budget of each agency. It might also be aided by submission of summaries of GAO views to each Member of Congress regarding the agency's requests in light of past performance as revealed by its audits.

Strengthen "1311" certification procedure.—Section 1311 of Public Law 663 of the 83d Congress permits a certification procedure which requires agencies to make an unqualified certification of valid legal obligations on their books at the end of each fiscal year. This should be strengthened and penalties inflicted for the failure of agencies to comply. The whole 1311 procedure has a healthy effect on increased honesty in governmental accounting. There would seem to be little reason why any certification of Federal accounts which involve public moneys should not meet the standards which apply in commercial practice.

In addition, the General Accounting Office should provide regular spot audits of the accounts on which 1311 reports were based. Cases of erroneous certification should be prosecuted just as is any other improper handling of Federal money.

Use budget to improve management.—It must be recognized that many, if not a majority, of budgetary decisions are in some way concerned with problems of organization, management, procedures and intergovernmental relations. For example, the decision as to the amount of funds to be given for defense activities can hardly be divorced from the problem of organization, methods and procedures used in the Defense Establishment. To the extent that they are wasteful or uneconomical, effective budgeting is impaired. Budget control by Congress should be used as a means for effecting desired remedies.

The function of examining efficiency and economy in governmental operations is vested in the Government Operations Committees and the Joint Committee on the Reduction of Nonessential Federal Expenditures. The work of these committees is inherently connected with the job of the appropriations committees in considering annual budget requests. Consideration should be given to effecting closer coordination between the work of these committees and the appropriations committees, or possible consolidation of them.

The appropriation control point.—There has been much discussion recently regarding the best point in the Federal fiscal process at which Congress could control the resources to be used in accomplishing governmental objectives. It has been suggested that the present system of establishing an obligation and expenditure level for each program through appropriations is inadequate.

One of the most widely discussed plans is that which would place appropriations on an accrued expenditure basis. This proposal, advanced by the Second Hoover Commission, primarily seeks to control more closely the carryover balances which are available to the Defense Department in carrying on certain long lead-time programs. Briefly, it would require Congress to establish controls over the amount of goods and services which could be delivered and the amount of

certain disbursements which could be made, e. g., progress payments and advance payments.

Though it is said that this plan would strengthen congressional control, it is believed that it would actually result in weakening it by placing the formal point of appropriation control at a later stage in the fiscal process than at present. To overcome this deficiency, it would supplement appropriations on an accrued expenditure basis by using the contract authorization system which in effect simply establishes control at the point it is currently. However, it is believed that this in turn would tend to confuse understanding of the full liability of the Federal Government as a result of budget actions.

Two other major objections may be raised. The use of this method would also aggravate the "system of separates" which has characterized present congressional budget actions, and would bring into full play a method, i. e., contract authorizations, which has been a notorious loophole, weakening control of Federal expenditures.

It must be recognized that there are at least six major points in the Federal fiscal process at which control might be imposed in exerting overall control by Congress or top management in the executive branch.

Obviously, the first point of control arises during consideration of an authorization bill which proposes a program requiring the future expenditure of money. If unwise or in violation of our accepted principles of economics and government, it may be stopped at that point. Once an authorization act has been passed, however, there are five other principal points at which the use of fiscal resources can be controlled.

The second point of control, chronologically, is the point at which the dollar level of the program to be carried on under the authorization bill is approved. This is accomplished through our present appropriation process in which the full scope of a program is recognized and the obligation and expenditure funds is authorized for it.

The third point of control exists when legal obligations are authorized by the Chief Executive and administering agencies. This constitutes a principal control in the management of Federal activities by the executive branch.

The fourth point of control arises when goods and services are delivered. These, known as accrued expenditures are characterized by the delivery of goods and services regardless of whether invoices have been received or expenditures made for them.

The fifth point of control occurs when goods or services are applied to accomplishing a job. This consumption of goods and services is commonly referred to in Federal fiscal terminology as an applied cost.

The final point of control is the expenditure point, or the issuance of checks to liquidate legal obligations incurred in the procurement and use of goods and services. This is essentially a ministerial-type function.

Obviously, the point of control which is most effective is that which occurs nearest the beginning of the process. The resulting points of control generally speaking, are governed by it.⁸

⁸ There are, of course, other points of control which represent shades between each of those noted, or combinations of them, e. g., commitments and accrued expenditures as defined by certain bills in the 35th Cong.

The above deficiencies and remedies are suggested as possible avenues by which improvements could be made. It is not suggested, however, that these be accepted on their face alone. It is the writer's belief that any major changes in the congressional system for handling the budget should be premised upon an intelligent, systematic and objective bipartisan study by Congress of the problems of Federal budgeting and all possible remedies. Such a study should be undertaken by competent budget technicians from the educational world, the executive branch, and the staffs of congressional committees. It should be undertaken as soon as possible for it stands as a prerequisite to substantial improvement in the system of Federal budgeting at all stages.

IMPROVING BUDGET PROCEDURES IN CONGRESS

Roswell Magill, president, Tax Foundation, Inc., partner, Cravath, Swaine & Moore

The question whether Congress lacks control over spending has been subject to much misunderstanding and even controversy. Events in the past session of Congress help us to understand the problem.

When the President presented his record peacetime budget last January, there was an unprecedented outcry by the people. They were protesting the further delay in the long-promised tax reduction. As the taxpayer protest continued, both the President and Congress tried to accede to demands to cut the budget by sharply reducing appropriations. Congress alone lopped about \$5 billion off total appropriations originally requested.

This was a major accomplishment by Members of Congress seriously concerned about meeting the demands of their constituents. But what has been the effect? First, despite the huge appropriations cuts, Congress was unable to reduce taxes in the session recently concluded. Second, now, in October, it appears that the budget total of \$72 billion, which originally brought about the taxpayer protest, will, in fact, be spent in fiscal 1958 after all. In short, substantial tax reduction next year, virtually promised by all concerned, is in serious jeopardy.

Individual Members of Congress must feel frustrated after their stalwart attempts to cut spending. Moreover, this year provides a pretty good indication that Congress, with the best of intentions, has not found the solution to the control problem.

How is this possible? Does not Congress have control of the purse under the Constitution itself? Right there, it seems to me, is the starting place for any inquiry into the problem. Uncontestably, Congress has the constitutional power to control spending. But even the power and the will to cut spending stumble, as we have seen just this year, over faulty processes, including, particularly, the piecemeal character of congressional action on the budget.

The objectives of our budget procedures are (1) to provide adequate review and control of authorizations for future spending and (2) to obtain the most efficient and productive results from current expenditures after authorization.

The budget processes involve (1) the formulation of the budget, (2) its review and authorization, (3) its execution, and (4) the audit of results. It is orthodox to say that responsibilities 1 and 3 are executive, and that 2 and 4 are legislative. But, in practice, there is much joint responsibility throughout the discharge of all four functions.

My discussion is directed mainly to the first objective of good budget process; namely, controlling the authorization of expenditures. In my judgment, the congressional processes to discharge this responsibility well and carefully are inadequate.

This is not a new complaint. As long ago as October 1951, it was my privilege to appear before Senator Byrd's Joint Committee on Reduction of Nonessential Expenditures and to report on an analysis of the Federal budget by the Committee on Federal Tax Policy. Since it has pertinence in the present discussion, may I quote our main comment:

To our surprise and amazement, we found that, out of the President's budget of \$71.6 billion, only about \$24 billion is clearly and definitely under annual congressional review and control.

Coincidentally, the budget for fiscal 1958 is very close to that 1951 figure, and we at Tax Foundation, Inc., estimate that, of the present budget, only \$30 billion "is clearly and definitely under annual congressional review and control."

The fortuitously similar figures do not reveal that Congress itself in recent years has devoted more and more attention to the problem of controlling expenditures—this committee's investigation itself is a measure of that concern—and literally hundreds of bills have been introduced to help deal with the problem.

Before discussing several of the attempts to improve congressional spending control, I would like to explain—somewhat technically, I fear—just what we at Tax Foundation mean when we say that congressional processes are now inadequate to control the authorization of expenditures.

LIMITATIONS OF THE APPROPRIATIONS PROCESS AS A MEANS OF CONTROL

The appropriation process is intended to be the major instrument of Congress' control of the "purse strings" of Government. It is, in fact, an important safeguard of economy to find congressional committees whose direct concern is with expenditures rather than with the substance of programs. Nevertheless, a substantial part of Federal expenditures is not effectively reviewed and controlled annually through the appropriation process. Among the reasons for this limited annual control of expenditures through the appropriation process are the following:

1. Appropriations and other authorizations passed by Congress for a given year, in part, govern expenditures for later fiscal years. Similarly, the expenditures for a given fiscal year are, in part, made from appropriations of a prior year. Thus, the appropriation process differs in timing and extent from the spending process. In the budget for the fiscal year 1958, it is estimated that \$24 billion, or about one-third of total budget expenditures, would be made from balances of prior authorizations.

2. In addition, there are annual indefinite appropriations, which, as the name suggests, authorize indefinite amounts of obligation and expenditures. These appropriations, however, are relatively small.

3. More important are the permanent appropriations, both definite and indefinite. They authorize substantial amounts of expenditures which are governed by contractual arrangements or definite legislative commitments outside control of the appropriations committees. The largest item in this category of expenditures is interest on the debt, currently over \$7 billion. The only way in which Congress makes a

direct decision about the Federal debt is through the overall debt limit it imposes; Congress does not necessarily act on the debt limit annually. The provision of appropriations to a sinking fund, as required under various acts of Congress, has become a mere bookkeeping routine.

4. Two other forms of authorizations which may serve to separate spending from the review process by the Appropriations Committees are contract authorizations, which confer authority to incur obligations in advance of appropriations, and authorizations to expend from public-debt receipts, which permit obligations and expenditures to be made from borrowed funds. For example, under the Corporation Control Act of 1945, Government-owned corporations were made subject to the annual appropriations-review process, but authorizations to expend from debt receipts can be made outside of appropriation acts.

5. The form in which many programs are authorized in basic legislation restricts the possibility of control. In programs such as aids to State and local governments, aids to veterans, and agricultural aids, the amounts spent each year depend upon formulas set out in basic legislation and upon economic conditions. There is little the Appropriations Committees can do, for example, to limit the number of veterans applying for and receiving the benefits specified in law. Control of expenditures here must be through appraisal and review of basic law, annually perhaps.

6. It is also a weakness of present procedures that once a program has been authorized in basic legislation there is a tendency for the appropriations committees to regard that authorization as a moral obligation to provide the funds required. As Senator Byrd once remarked:

* * * when appropriation bills are before us, it is argued that a moral obligation is involved; but, when the basic legislation authorizing the program is before us, it is argued only authorization is involved, and appropriations are not mandatory. Actually, once a program is authorized, the pressure on Congress and the Appropriations Committees for money in increasing amounts is tremendous * * *. (Hearings on annual control of the Federal budget, before the Joint Committee on Reduction of Nonessential Federal Expenditures, September 14, 1951.)

7. While it is not exactly a weakness of budgetary procedures, it is worth adding that budget terminology is complicated and confusing. The very word "appropriation" is misleading, since there actually are no "funds" to be appropriated—Congress provides taxes, to meet expenditures as they are made; tax revenue is not collected, put into a fund, and then later appropriated. An appropriation is more exactly defined as an authorization of expenditures. But the word "authorization" as currently used, has a double meaning—it refers to the authorization of appropriations in basic legislation and to the appropriations themselves. It would certainly be desirable if existing terminology could be simplified.

LIMITATIONS ARISING OUT OF PIECEMEAL BUDGET ACTION

In addition to the procedural limitations of the appropriations process, there are limitations on the policy-forming functions of Congress that arise out of the piecemeal character of its actions on the budget.

It is a fundamental economic fact that human wants and needs will, in the aggregate, exceed the resources prudently available to satisfy them. Therefore, there should be in the budget process a place where the sum of all proposed needs and wants are related to the revenues and where their effect on available resources can be weighed. Most of the work of Congress is necessarily done by committees and their subcommittees. The work of these committees, as a rule, can receive only cursory review by the House or Senate as a whole. The work of subcommittees often cannot be reviewed in great detail by the full committee concerned.

The legislative committees of Congress dealing with particular programs and activities naturally tend to develop biases in favor of the matters with which they are concerned. This is also true to some extent of the subcommittees of the appropriations committees—they become the guardians as well as the critics of their particular appropriation accounts. In a statement before the House Rules Committee, on March 12, 1957, Representative Pillion (New York) said:

For example, the Interior Committee of which I am a member, has a total membership of 31. The number of Members of Congress from the 17 reclamation States is 98. They would be entitled to 22.5 percent of the committee membership of 7 members.

Instead of having 7 members, the reclamation States have 21 members, or 67.7 percent of the membership.

The piecemeal character of congressional action also results in inadequate attention being given to broad fiscal policy considerations. The legislative committees examine the substantive matters within their jurisdiction. The appropriations committees examine the needs for funds, program by program, and account by account. The Ways and Means Committee and the Senate Finance Committee examine independently the needs for revenues to meet current and estimated expenditures.

In the appropriation process there is no means by which Congress can weigh one expenditure against another, one program against another, and changes in expenditures against changes in taxes. There is no means by which Congress can assign priorities to various expenditures and use these priorities in determining the choice among competing expenditures and the scale on which various programs are to be carried out.

A very weak link in present procedure is the separation of action on expenditures from action on revenues. New programs can be authorized without any obligation to provide tax revenues to meet the expenditures involved. In this respect the Federal budget differs from other governmental and private budgets. In the past the President has even presented his detailed tax proposals in a separate message to Congress. It was only in 1954 that the practice was introduced of showing revenues for the coming year, including the estimated revenue effects of proposed tax changes.

Improvement of the budget process involves executive as well as congressional responsibility. One example will illustrate. The executive responsibility for formulating the budget should cover proposals to modify, reduce or eliminate existing programs of expenditures, as well as to propose new ones. The executive should not assume that existing programs are all sacrosanct.

EFFORTS TO IMPROVE THE BUDGET PROCESS

Since World War II there have been numerous proposals for reform and many actual improvements. Congressional control of expenditures through the appropriation process has been improved, for example, by the Corporation Control Act of 1945, which brought Government corporations within the annual appropriations review process (although there is further room to improve this review).

Other important steps toward better congressional control have been the inclusion in the budget document of detail of trust fund receipts and expenditures, and the inclusion of detail of gross expenditures and revenues of business-type operations, which appear in budget expenditures on a net basis.

The introduction of performance budgeting as a result of the first Hoover Commission was another step forward. Instead of presenting a multitude of detail on objects of expenditure—personal services, rents, travel expenses, supplies and material, etc.—appropriation requests are now required to be supported in addition by detail on expenditures by program and activity.

Efforts to insure greater congressional attention to broad fiscal policy and action on total expenditures have been numerous. There have been repeated attempts to impose overall limits on expenditures for 1 fiscal year (Senator Byrd's proposals), to insure that expenditures shall not exceed revenues (the various "balanced-budget" resolutions), to control expenditures through changes in the debt limit (Senator Saltonstall's proposal), and others of various kinds.

One of the most ambitious of attempted reforms was the Legislative Reorganization Act of 1946. This act created a Joint Committee on the Legislative Budget, which was to set a ceiling annually on appropriations. In 1947 the joint committee could not agree on the ceiling. In 1948 an agreement was reached on the ceiling but not enforced, and final appropriations exceeded the ceiling. The experience with this act seemed to show that Congress, in particular the Appropriations Committees, is not willing to accept a specific overall limit on appropriations and expenditures. Later bills, such as the Ray and Coudert proposals designed to provide such overall limits, also failed of passage.

Another approach to the problem was the Omnibus Appropriation Act of 1950. As its name implied, this bill would have consolidated all general appropriations into one bill for action by the House and Senate and the President. When tried out in 1950, there were complaints about the delay imposed on action by the House and Senate. The bill did not pass the Senate until August 4 and was signed by the President on September 6, 2 months after the beginning of the fiscal year. The next year the procedure was abandoned, although many people insist to this day that the procedure did not have a fair trial for a long enough period.

In 1951 the Committee on Federal Tax Policy recommended a "clean-slate" approach to appropriations. The proposal was that Congress should suspend all spending authorizations, except for the military and interest on the debt, after which the Bureau of the Budget should be directed to submit an alternate expenditures budget which would not exceed estimated revenues for the year. This was admittedly an emergency measure. But no long-run reform for recapturing annual congressional control of expenditures through the appropriations process has yet been developed. As I said in 1951 when testifying before the Joint Committee on Reduction of Nonessential Federal Expenditures—

* * * all the enthusiasm in the world to cut expenditures—and Congress has evidenced much of this lately—avails little when it is discovered that Congress has annual control over only a little more than a third of expenditures.

It is no doubt much easier to identify the deficiencies in our budget process than to prescribe detailed remedies. I have no panacea. But I do suggest it is high time to try something—to take what seem to be the best of the recent proposals and give them a fair trial. Certainly the control situation couldn't be much worse than it is now. Moreover, actual experience with a proposal that doesn't quite fill the bill might itself uncover a better solution.

If I were to couch my conclusions in the form of recommendations, they would be as follows:

1. Take one or more of the important, thoughtful proposals to remedy the lack of control, perhaps Senator Byrd's or Senator Saltonstall's, and give it a year's trial. The eventual solution might then become clearer.

2. Continue this year's pruning of swollen appropriations requests. Even though there is no great immediate effect on expenditures, the appropriations process is fundamental and continued reductions in appropriations will have considerable cumulative effect on later budgets.

3. For a long-range solution, institute a comprehensive congressional study of the problem to find the best long-term solution to the present lack of control.

I believe Congress must and will act soon. Certainly, the spectacle this year of billions reduced from appropriations with no consequent cuts in expenditures or taxes should prompt immediate action. It is eminently clear that the path to substantial tax reduction must first pass the milestone of congressional spending control.

The American people are not likely to accept explanations about lack of control in lieu of spending, debt, and tax cuts. They want lower taxes. Since in this country the people usually get what they want, it is incumbent on Congress to find a solution.

GOVERNMENT BUDGETS AND THEIR RELATION TO NATIONAL ACCOUNTS

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THE CHANGING ROLE OF THE GOVERNMENT IN THE ECONOMY

In the last 25 years, outlays by Federal, State, and local governments have risen over 10 times, from about \$10 billion to over \$100 billion. The rise in gross national product has not been as precipitous; on a comparable basis it has risen sevenfold, from about \$60 billion to about \$420 billion. There are, of course, many reasons for this changed relationship. A brief examination of some of them will give some insight into just how the role of government has changed, and the consequences of this change in terms of the need for budgetary information.

In 1929, total government outlays amounted to about \$10 billion, at a time when gross national product was \$105 billion. The expenditures of the Federal Government accounted for only \$2.5 billion of this, and thus constituted only about 25 percent of total government expenditures. Over the next decade there was relatively little change in State and local expenditures, despite the depression, but the Federal Government more than tripled its expenditures. Much of this increase in Federal expenditure was due to measures instituted as sedatives or cures for the depression. Thus the WPA, AAA, and even social security were introduced to provide relief and to help the economy back on its feet. By the late 1930's, however, there had been no appreciable dip in Federal expenditures; the new responsibilities that the Government had taken on primarily to combat the depression were continued even after substantial recovery had taken place.

World War II brought with it, of course, extremely large expenditures for national defense. Federal expenditures rose to over \$95 billion. At the same time, in spite of rising costs, State and local expenditures were held down even below the levels of the late 1930's; they did not even exceed the 1929 level by much more than 10 percent. By 1944, expenditures of the Federal Government constituted over 90 percent of all government expenditures. After World War II, there was a sharp rise in State and local expenditures as these governments attempted to make up for the expenditures which they had postponed during the war. Simultaneously, the Federal Government sharply curtailed its expenditures for national defense, and its total expenditures were cut by over 50 percent. Nevertheless, in 1947, when Federal Government expenditures reached their lowest point, they were still double those of State and local governments. This is in contrast with the year 1929, when Federal expenditures were one-third of State and local, and with the immediate prewar period, when they were about equal to State and local expenditures. Again, thus, the

increased responsibilities which the Federal Government had assumed during the war were continued into the postwar period. Since 1947, problems of national defense have again swelled Federal expenditures, and they have once more increased relative to State and local expenditures. There seems to be no indication that the Federal Government will shed these responsibilities, or play a less important role in the economy, in the future.

A discussion of the Government's role in terms of the expenditure of money, furthermore, does not convey the entire extent of the growth in the Government's influence in the economy. In the past 25 years, the Government has assumed more and more responsibility for the economic health of the Nation. The problems of maintaining full employment and avoiding continued inflation are now accepted by the Federal Government as primary responsibilities. The tenor of recent congressional committee hearings indicates that the Government is concerned about the degree of supervisory control it must maintain over big business and big labor. This, coupled with commitments regarding social security, education, highways, urban redevelopment, etc., suggest that in a decade's time the role of the Federal Government may be even greater.

Many of us have considerable qualms about this trend. We see before us a specter of big government. Yet the individual decisions that lead to this trend are the result of the considered judgment of intelligent men in both the executive and legislative branches of the Government. The logic of the Federal Government's responsibilities in certain of these areas is compelling. Few would question the need of the Federal Government to provide adequate defense and to maintain a healthy economy and avoid inflation. The majority of the voters are for such things as social security, new highways, and better health protection.

It is unfortunately true that in some quarters the reaction to this dilemma has been to deny the facts, and so avoid the necessity of facing reality. This is an ostrichlike approach based on the hope that if the problem is ignored it may go away. But a little reflection should make it obvious that unless there is a sound basis for believing that the Government's role will become less important in the future, it is necessary to do everything possible to make sure that the important decisions the Federal Government must make are made with the aid of all the relevant information. The denial of tools for policymaking will not reduce the amount of policymaking; but it will mean that the policies adopted may be harmful. Economic policies must be based upon a realistic understanding of the different facets of the economy and the Government's relation to them.

NATIONAL ECONOMIC ACCOUNTING AND ECONOMIC POLICY

This changing role of government in the economy has had a profound effect both upon economic analysis and upon the framework of data about our economy. And conversely, the development of a comprehensive national economic accounting framework has had considerable impact upon the procedures for determining Federal spending programs. The evolution has been such that today the Government is looked upon as a sector of the economy interacting with the private producing and consuming sectors and having as its basic accounts

the budgetary data arising from tax receipts and the expenditures of the various agencies of the Government. In this process, it is probably true to say that theoretical economics has not led the way, but rather circumstances and events themselves have led to the development of the required analytical tools. This is not to say that the tools have always been available when they were needed—hindsight shows us that our present degree of sophistication in the use of tools would have been very helpful had it been available in previous periods. But, even though the economist has not been able to show the way, in the sense of providing a well-developed analytical framework ready-made, it is, I think, fair to say that the economist has been an important partner in this development, and has made significant contributions to it. A brief examination of the evolution of national income accounting over the past 25 years will show the development of its relationship to the Government accounts and its use as a tool in analyzing Government expenditure.

National economic accounting had its roots in the national income work carried out by academic economists and research foundations both in the United States and in Europe early in this century. These early contributions were mainly concerned with establishing the absolute level of the Nation's income and the changes in this level from year to year. The national income was defined as the sum of the incomes of the people. Although measurement of national income is primarily a phenomenon of the last 30 years, the concepts were derived from the classical economics of Bentham, Mill, and Pigou.

The Federal Government did not become interested in national income until the great depression. In 1932 the Senate passed a resolution which resulted in the publication, in 1934, of a report on national income, and from that time onward there was an increasing interest in this subject. The depression posed many problems which necessitated the formulation of specific economic policies. The Government became interested in the changing level of income from year to year, and in the relation of its own expenditures and tax receipts to the national economy. But the early annual estimates were very sketchy indeed, and concentrated entirely on national income, omitting national product.

The natural evolution of national income accounting in the late 1930's was greatly stimulated by the mobilization needs of World War II. The defense effort was of a magnitude that required a much more complete understanding of the operation of the economy and the repercussions that various government taxing, spending, and borrowing policies might be expected to have. All the armament production plans had to be considered together, to make sure that the resources of the economy were sufficient to carry them all out. The total quantity of resources obviously had a limit, and total production had to be designed to fit within this limit. To schedule more production would not only be unrealistic, it would cause serious bottlenecks in some areas and useless oversupply in others. To schedule less production than the available resources would permit, on the other hand, would be to operate at a level lower than full capacity. Accordingly, data on such things as the distribution of manpower among industries and national income originating in the various industries became of extreme importance. For any realistic appraisal of the problem,

furthermore, current consumption had to be taken into account. Not all production could be devoted to war purposes; the civilian population had to be supported. An examination of the minimum level of goods and services needed for consumption was therefore necessary, and national income accounting was again called upon to show the interrelationships among the end uses of production.

The task of deciding how the production plans were to be implemented, as well as the determination of the potential level of production, also required major economic policy decisions. The war expenditure had to be financed, and the method of financing to be used was one of the more important questions that had to be faced. It was obvious that taxation should be increased. But how much could it be increased and how much additional tax revenue could be expected from the fact that the economy was working at a higher level of activity? And for the part of war expenditures that could not be financed out of taxation, how and from whom should the requisite funds be borrowed? What different repercussions on the economy would result from borrowing from banks as opposed to individuals, and what effect would such borrowing have upon the incomes of individuals and upon prices? In similar manner, how far could the price incentive be used to move resources such as labor from unessential to essential industries? Income payments obviously would be affected by any such use of the price incentive, and it was necessary to know the extent of the inflationary influence to be expected and whether means were available to offset it successfully. Finally, to what extent and by what means should civilian consumption be restricted to necessities? Relying on the price mechanism to provide the restriction again might result in a disastrous inflation, so that it was necessary to decide in what areas rationing and price control might be necessary.

It is obvious that all these problems are highly interrelated, and that they can be solved satisfactorily only if they are considered within one framework of data. Under wartime pressures national income accounting was developed to provide such a framework. With this framework it became possible to relate the total available resources to the planned production for war and for civilian consumption, and to examine the income payments and prices that would necessarily result from the adoption of any specific system of taxes, borrowing, incentive payments, price control, and rationing. By the end of the war national income accounting had thus emerged as an essential tool in the formulation of economic policy. Since the war, the national income and product accounts have been further developed as a tool for determining Federal expenditure policy, and by now the data in the accounts have become familiar to the reading public in newspapers and news magazines.

The account for the Government sector is an essential component of the national income framework as it has developed. In addition to the Government, three other sectors of the economy are distinguished: households in their role as consumers, businesses in their role as producers, and foreign countries insofar as they trade with the United States. In addition, an account is drawn up to show saving and investment. In this national income accounting system, Federal, State, and local governments are consolidated into a single

sector, but detailed classifications within the account provide significant breakdowns of different kinds of transactions at the Federal, State, and local levels.

Since the war, other forms of economic accounting have been developing to meet specific needs. Thus for example a study of post-war patterns of employment was undertaken with the aid of input-output data. A few years ago the flow-of-funds work of the Federal Reserve Board was initiated to provide data on the sources and uses of funds by various sectors of the economy, as an aid in examining credit and financial policies. Even more recently pioneering work on national wealth and national balance sheets has been undertaken by private research organizations.

During the past year, the Bureau of the Budget set up a committee to review, appraise, and make recommendations with respect to the national economic accounts of the United States. On October 29-30, 1957, hearings were held by the Subcommittee on Economic Statistics on the National Accounts Review Committee's report and recommendations.

In its review of national economic accounting, the National Accounts Review Committee emphasized the very central role which the Government accounts play in all schemes of national economic accounting. There is a great need for reform of the Government budget to permit its integration with the national accounts. One of the major recommendations which the Committee made was that the different forms of national economic accounts should be integrated into a single national economic accounting system that would include the flow-of-funds, input-output, balance of payments, balance sheet, and national wealth data, as well as the current income and product accounts. This would simplify the accounts that are needed for the Government sector; one presentation of the Government accounts would meet both the requirements of economic accounting and the needs of budgetary presentation. At the present time, many different Government accounts are compiled for various purposes. Besides the regular Government budget, Government accounts are compiled for national income accounting, flow-of-funds accounting, and input-output tables. All of these differ in some respects, and can be made comparable only through rather elaborate reconciliations.

The National Accounts Review Committee sought to remedy this situation by developing a single system of economic accounts containing an integrated set of Government accounts which would serve the needs of national income accounting, input-output tables, flow-of-funds accounting, and national balance sheets. The integration makes elaborate reconciliation between the various forms of the accounts unnecessary, and permits the user to move easily from one aspect of the Government account to another. The National Accounts Review Committee did not take the additional step of integrating the Government accounts as given in the national income accounts with those given in budget hearings and those shown in the Daily Treasury Statement. It is obvious, however, that a closer integration between the national economic accounts and the Government budget would be a great help to both the legislative and the executive branch in evaluating past performance and making reasoned judgments about future appropriations. One of the barriers that has stood in the way of such an in-

tegration is the different systems of classification used in the different accounts. The Committee has gone a long way in overcoming this difficulty by recommending the inclusion of a functional classification in the economic accounts, i. e., a classification showing the purpose of the expenditure, such as education, highways, etc. It is also true that an economic classification of expenditures—in terms of wage payments, purchases of goods, transfer payments, subsidies, etc.—would be useful in an appropriations budget, in helping to make reasoned evaluations and in analyzing the impact to the expected.

NATIONAL ECONOMIC ACCOUNTS AND BUDGETARY REFORM

The present form of the Government budget is itself an evolution, shaped to meet certain needs. The primary requirement which it is organized to fulfill is that of accountability. While it is obvious that accountability must be a function of the accounts, it is also obvious that developing accounts solely for this purpose is being penny wise and pound foolish. Actual fraud and dishonesty represent only a fraction of what could be wasted through unwise action. Additional expenditure in developing Government accounts that would be more useful both for evaluating past expenditures and for budgeting future expenditures would be many times repaid through more intelligent and economical decisions. One frequently hears from the legislative branch the complaint that they cannot deal adequately with budget requests. This is in large part a fault of the accounting procedures employed—a defect in linking the individual parts of the program with the overall. There is at the same time a need to deal with a large amount of detail and a need to place the Government expenditure program in the broader perspective of the economy as a whole. Some improvement in this area can be expected through developing better national economic accounting systems which tie in with existing Government accounting procedures. However, the basic problem does not lie in a superficial adaptation to inadequate accounting procedures, but in a reform of the basic accounting itself, so that more meaningful results can be achieved. It will take a great deal of work to develop accounting systems and controls that will serve the needs of the individual agency and at the same time feed into the more comprehensive economic accounts required for the examination of national policy, but such budgetary reform is very badly needed.

The nature of the needed reform can best be shown by a consideration of its major objectives. It must accomplish four things, in addition to providing for accountability with at least as much efficiency as at present: (1) it must distinguish among different kinds of Government economic activity; (2) it must provide a classification system that will show both the purpose of a transaction and its economic nature; (3) it must develop the accounts for individual accounting units in such a manner that they can be combined and consolidated at various levels to provide meaningful summary accounts that will fit into the national economic accounting system; and (4) it must provide a more informative treatment of transactions which are of a capital rather than a current nature.

Definition of accounting units in Government economic activity

The Government engages in many kinds of economic activity. It may be directly engaged in the sale of goods and services to the public at prices intended to cover costs of operation. It may run ancillary operations similar to those found in business, but exclusively for its own internal use. It may take on the nature of a financial enterprise, buying and selling securities on the open market. Finally, it may of course be engaging in a purely governmental activity, hiring employees and performing legislative, executive, or judicial functions. Some of the present forms of Government accounts do implicitly recognize some of these differences. For example, receipts from sales of goods are treated differently for certain Government units than for others. But present definitions of Government economic activities are not very clear-cut, and need careful reconsideration.

Government enterprises, for instance, are separated from general Government in all of the accounts, but questions can be raised both about the manner in which the sales and transactions of these groups are handled and about the activities that are treated as Government enterprises. If these Government-run units are to be considered enterprises, they should operate as enterprises, in that their accounts should include payments for services they now render free of charge to other Government agencies. In the case of the Post Office, for example, some progress has been made by requiring at least partial payment by the executive agencies for mailing privileges. Such reform should be extended to other branches of the Government, and appropriations to those branches made accordingly larger to finance payment. On the other hand, the accounts of Government enterprises should also cover more fully the economic costs they incur. The Post Office, for instance, should take account on a current basis of the cost of the buildings it occupies, in terms of either depreciation or rent, and also of a reasonable accounting allowance for local property taxes. Only in such a manner is it possible to evaluate the cost of the operation in terms of what it might be under other conditions. This argument is, of course, made much of with respect to the TVA.

Similar accounting procedures, furthermore, might well be extended to the ancillary agencies such as the Government Printing Office, and even the General Services Administration. These agencies have as their customers primarily other Government agencies, but their charges should be such as to cover the total cost of the resources used in a fair and equitable manner. For instance, the present treatment of Government buildings might be mentioned. Government agencies that occupies buildings paid for by past appropriations are at the present time receiving the benefit of these past appropriations without any evidence of this in the size of current appropriations. A new agency, on the other hand, will be forced to supply its own office space and other facilities, so that it will be paying for its space out of current appropriations. One of the things that impresses a visitor to Washington is the relative spaciousness of those agencies which have existed for some time and have their own buildings, versus those agencies that rent their space commercially. It can be argued that this is not coincidence, but is due to the form of the accounting system. An accounting reform that would require all agencies to include in their budgets a fair market rental for the space they occupy might

well lead to a more rational distribution of resources. Such a reform, for instance, could be achieved by consolidating all Government buildings under the control of a single ancillary agency, which would rent the properties to the agencies wishing to occupy them. Thus all Government agencies would be forced to make an explicit decision on whether the cost of additional space was worth the price that must be paid to obtain it. There are many similar problems in other areas. In meeting them, what is needed is closer attention to the principles of direct costing.

Economic and functional classifications of Government transactions

Defining the basic accounting units for Government economic activity and outlining the scope of the accounts within these units is of major importance, but it still leaves unsettled the problem of the internal classification of transactions within this framework. The purpose of such classification is to yield pertinent data for evaluating efficiency in performance of specific programs and the economic effects which these programs have on the rest of the economy. Two different kinds of classification are involved. Expenditures must be classified (a) by programs and projects within programs according to the purposes of the operation—agriculture, education, and so forth—and (b) by the economic nature of the expenditure—wages, interest, commodities, transfer payments, and so forth.

With respect to classification by program and project, many dilemmas arise. Appropriations are made in terms of fairly broad programs, and the basic accounting should be in terms of these programs. At the same time, it can be argued that a classification system should be developed in which the same function carried out in a number of different places within the Government is brought together under a single heading. Thus, for example, school building may be aided by a number of different agencies at different levels of Government. It is, therefore, suggested that, in addition to the program or project, there should be a classification by function that cuts across programs. A true classification by purpose, however, raises many problems. Members of the legislative branch have different purposes in mind when they vote for a specific program, and in this sense it may be that any refined approach to purpose is too subjective to serve as a basis for accounting, and that we may have to rely upon the legislative framework, accepting as a consequence the lack of comparability among agencies.

The classification of government transactions by economic nature is necessary to show the economic activity of the Government in relation to the working of the economy as a whole. One way in which this could be achieved simultaneously with a program classification would be to develop a rather elaborate cross-classification showing both the economic nature of transactions and the program of which they are a part. At the most general level such a cross-classification would probably be very useful, and the basic accounts in government units should perhaps be kept on this basis. But there is a great danger that such a system of cross-classification will get out of hand, presenting masses of detail which are essentially of no interest.

The integration and consolidation of the accounts

It is clear that this is the heart of the problem of government budgeting, since it is immediately obvious in view of the conflicting

demands that any single account or tabulation is insufficient for the evaluation of government economic activity. An accounting framework must be developed in which it is possible to move simply and easily from the detailed accounts of individual agencies to summary levels showing the relation of the Government as a whole to the rest of the economy. Neither the detailed accounts or the summary accounts by themselves are sufficient. The detailed data yield large volumes of paper in which all perspective is lost and which cannot be digested. Summary accounts hide much important and useful information in their totals. The combination which is now available—a variety of detailed and summary tables which do not mesh—creates further frustrations through the need for complex reconciliations and the existence of apparent paradoxes. What is required is a gradual consolidation and combination of data at several levels, culminating in a single summary account for all government transactions that will mesh with the summary accounts for the other sectors of the economy.

Capital versus current expenditure

One of the most frequent criticisms of the present government accounts has been that, unlike business enterprises, the Federal Government budget does not recognize the existence of capital. It is frequently pointed out that government accounts in many other countries make a distinction between current transactions and capital transactions, and that in the interest of sound accounting practice the United States should consider the merits of adopting a capital budget.

In its review of national economic accounting, the National Accounts Review Committee gave considerable attention to this problem. It became evident that there are two fairly strong arguments in favor of capital budgets. First, it cannot be denied that many of the expenditures which the Government makes are of a lumpy nature. The construction of a new building or the purchase of machinery and equipment is essentially similar to the purchase of buildings or equipment by business enterprises, in that the expenditures are intermittent rather than continuing, and should not all be attributed to the accounting period in which they are made. Second, the Government does own assets, and if, as has been recommended, national balance sheets are drawn up, these government assets should be shown. In strict accounting logic, if these assets had been considered as purchased on current account, they would have been expensed, and could not appear on the balance sheet.

Further discussion by the committee, however, brought out some equally strong arguments on the other side, which cast serious doubt on the meaningfulness of capital budgets as an analytical tool. With respect to the first argument concerning the lumpiness of expenditures for durable goods, it was pointed out that this criterion should not be restricted to items made of metal, wood, and concrete. There are similar lumpy expenditures of an invisible nature which also give off services in the future. An example is the recent cost of polio injections. It can be expected that this expenditure will have future benefits, and that smaller expenditures will be required at future dates.

Similarly, other expenditures in such areas as education, health, and national defense, could logically be included in the capital category,

in terms of both their lumpiness and their future effects. If it is argued that education will be required every year, the same argument can also be extended to government buildings, since for the Government as a whole it is reasonable to assume that the wearing out will occur every year. There is no reason to expect, furthermore, that the growth required in government buildings would be much different from the growth required for education. The committee concluded therefore that the introduction for general government of a capital budget restricted to durable goods would not be a useful device in developing criteria for government spending. In fact, if such a capital budget were taken seriously, it was generally agreed that it would be harmful. For these reasons, the committee retained the concept of a single account for government outlays, showing distinctions among kinds of expenditure as a part of the classification system.

The committee was impressed, however, by the argument relating to the need for a government balance sheet, and, breaking with traditional accounting procedure, decided to retain an accounting or inventory of assets, despite the fact that the expenditures for acquiring these assets were treated as current outlays.

A thoroughgoing budgetary reform of the nature suggested in the preceding sections would, however, help to solve this dilemma. If the concepts of government enterprises and ancillary agencies were introduced on a consistent basis, purchases of buildings and capital equipment could be treated as investment expenditures by these government enterprises and ancillary agencies. For these groups, capital accounts would be entirely proper, having the same meaning that they do for private enterprises—expenditures that are expected to yield future incomes, and so to be self-liquidating. Payments or transfers from general government to these groups would be current transactions in the general government accounts. Furthermore, assets of a non-income-producing nature owned by the general government, especially such things as parks and roads, would not be considered capital goods in the normal sense of the term, nor would they be considered marketable assets. All marketable assets and self-liquidating capital goods would be segregated into the ancillary agency and government enterprise accounts, where they could be treated as capital. From a budgetary procedure point of view, therefore, it would not be necessary to make a distinction between capital and current expenditures in the general government accounts.

THE FEDERAL GOVERNMENT SPENDING PROCESS

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This study is concerned with the impact on the economy of the different stages of the Federal Government spending process. Because of the length of time involved in carrying out many government procurement programs, it is important to know whether the economic impact occurs at the point where expenditures are made or also, or instead, at some other place in the process.

The concern with the process of government spending arises in connection with the fluctuations in the level of governmental outlays. For many purposes of public policy and fiscal administration it is essential to have accurate instruments to record present movements and to understand their relationships to future trends. An inappropriate indicator of government spending may show an upturn when, in reality, the basic force of government spending is operating in the reverse fashion. An insensitive indicator may show little movement when in fact a great fluctuation is taking place. A lagging indicator may only show movement with considerable delay.

A DESCRIPTION OF THE GOVERNMENT SPENDING PROCESS

An important first step in evaluating the economic impact of government spending is to understand the operation of the Federal Government spending process. The following section is devoted to explaining the major phases of the process.

Basic authorizing legislation

The first step in the process is the enactment of basic legislation authorizing a given agency, program, or activity. Some such statute must be on the books before an appropriation can be enacted to provide funds for the agency or program involved.² Basic authorizing legislation of this nature ordinarily does not contain financial authorization enabling an agency to obligate government funds or to make expenditures.

There are a number of exceptions. Some authorizing statutes, such as the Federal-Aid Highway Act, do simultaneously grant Federal agencies obligational authority. The annual appropriation request in that case is merely to liquidate the obligations previously incurred. Many government corporations are authorized by basic legislation to spend the receipts from their operations without securing annual appropriations from the Congress.

¹The writer wishes to express his appreciation to Profs. Paul J. Strayer and Lester V. Chandler of Princeton University for their advice and guidance on the study on which this paper is based.

²This is the result of congressional procedure rather than statutory requirement. Cf., U. S. House of Representatives, Constitution, Jefferson's Manual, and Rules of the House of Representatives, Washington, Government Printing Office, 1949, rule 21, clause 2.

It is important to consider the increment of legislation which is proposed each fiscal year—the extension of expiring legislation, the enactment of new legislation, and modification or repeal of existing statutes—for this is the birth stage of new governmental spending programs.

Enactment of new funds

In January of each year, the President transmits to the Congress the budget for the coming fiscal year, the 12-month period beginning the following July 1. Within the next 6 months, and sometimes over a longer period, the Congress reviews and modifies the President's recommendations and enacts the appropriation bills for the coming year. The total of financial authorizations made available to the Federal agencies is composed of a number of types of enactments.

The most prevalent type is the ordinary appropriation, which empowers Federal agencies (1) to place orders, enter into contracts, or otherwise commit or "obligate" the Government to make expenditures in the future, and (2) to make the expenditures required by such obligations.

Another type of financial grant is the contract authorization. This empowers the agencies only to incur obligations. In these cases, the agencies have to make a later request for an appropriation to pay for or "liquidate" the obligation.

Authorizations to spend from "debt" receipts are usually used to finance government enterprises, where proceeds from operations may repay the initial advances from the Treasury. The availability of obligational and expenditure authority is the same as that of ordinary appropriations. However, such authorizations need not go through the appropriations committees and are not usually included in congressional tallies of appropriations enacted.

Most financial authorizations are enacted for a 1- or 2-year period and expire if not obligated during that time. Because of lags in Federal procurement, requests are sometimes made to extend such authorizations beyond the original period of enactment. The effect of reauthorizations is generally the same as if new authorizations were voted in their place.

The total of appropriations (other than those to "liquidate") and other financial authorizations made available to the agencies for a given year is called new obligational authority. The common characteristic of all such authorizations is that they empower the agencies to obligate the Government to make expenditures in the future.

The granting of obligational authority is a major control point over Federal spending. Given the grant of new authority, the usual functioning of Government will result in a subsequent flow of expenditures.

Apportionment of funds

After the Congress has voted funds, the control over expenditures shifts back to the executive branch. Each quarter, the Bureau of the Budget apportions to the agencies the funds appropriated to them. The apportionment power arises from the desire to prevent the agencies from spending their appropriations early in the year and returning for deficiency appropriations.

The apportionment power has been used to keep the amount of government spending for a particular item below the limit granted by the Congress. The general Appropriation Act of 1951 affirmed this authority "whenever savings are made possible by or through changes in requirements, greater efficiency of operations, or other developments subsequent to the date on which such appropriation was made available."³

Following the making of apportionments, which is a centrally administered control, allotments are made by agency heads to administrative units within the agencies.

Incurring obligations

Within the limits of the apportionment of funds made available to them, the Federal agencies place orders and take other actions which obligate their apportioned funds. To the extent that the goods and services needed by the Government are ordered from and produced in the private sector, this is the first stage of the process in which government procurement activity directly involves private industry. It is also the last clearly discretionary step in the process which will ultimately involve governmental disbursement of funds.

Obligations may be incurred for a wide variety of objects, in addition to the purchase of goods and services from the private sector. Purchases of goods and services from the public sector itself, transfer and interest payments, subsidies, grants to State and local governments, and purely financial transactions are also included.

Producing government-ordered goods

Pursuant to the contracts and orders placed, the suppliers of government goods and services produce or otherwise obtain the items previously obligated for. To the extent that production is carried on in the private sector, this stage of the Federal spending process is not usually reflected in the Federal financial accounts. The fact that disbursements to factors by government contractors do not appear in the Government accounts at this time but in the private accounts will be of considerable significance in the subsequent analysis.

In the case of production carried on by a government agency, the actual disbursements to factors in the course of production are reflected as expenditures in the Federal accounts. In the case of expenditures which are not for currently produced goods and services, such as transfer payments, interest payments, and the acquisition of land, the lag between obligations and expenditures is usually non-existent or at a minimum.

Making payments

In accordance with customary business practice, the Federal Government generally pays for the items it orders after they have been delivered, inspected, and approved. A number of agencies are authorized to make advance and progress payments. These are usually confined to large orders in the fulfillment of which the supplier requires considerable additions to his normal working capital.

Advance payments are made prior to the performance under a contract and are expected to be liquidated from payments due the contractor from performance. This device is rarely used at the present

³ 64 Stat. 595.

time, although advance payments were an important source of business credit at the beginning of World War II. Progress payments are usually made for a percentage of the work performed or cost incurred under a government contract and are still generally employed, especially in military procurement.

The lags in the process

As a result of the number of steps involved in the Federal spending process and due to the length of time often required by suppliers to produce the goods ordered by the Government, there is, in aggregate, a substantial lag between the time expenditures are authorized and the time they are made.

The lags in the early stages of the process are primarily administrative. It takes time for the agencies to prepare and obtain approval of their apportionment requests, for specifications to be drawn up for individual orders, and for contracts to be awarded.

A later and more important lag is technological, the lag between the letting of contracts and the beginning of quantity production. This is the contractor's period of "make ready" which may range from a few weeks to more than a year. In the case of a new type of heavy equipment, hundreds of additional engineers may be hired and trained by the contractor, thousands of detailed drawings made, production lines laid out, material requirements computed, schedules prepared, and subcontracts negotiated.

There are certain legal limits to the lags in the Federal spending process. Most forms of new obligational authority are available for obligation for either 1 or 2 years and are available for expenditures for no more than 2 years beyond that. Within these limits, the lag between the Government's embarking on a program and its execution is largely determined by private decision making. Military procurement of "hard goods," however, is generally financed from no-year appropriations, which are available until spent.

Reducing government spending

The actions which can be taken to curtail government expenditures would operate in somewhat the same fashion as the actions involved in making expenditures. A reduction in government spending can be initiated at various stages in the spending process. The effects of the actions taken at each stage can be cumulative in their effects on expenditures during any given period.

For example, the Congress may decide to eliminate or reduce the scope of a program by changing its basic authorization or by eliminating or reducing the amount of funds authorized for it. These actions can be implemented, either through eliminations or reductions in the amount of new obligational authority being considered or in the rescission of existing obligational authority.

The President may decide that a given agency should not spend all of the funds it has been authorized and reduce its quarterly apportionments. The agencies can reduce the amount they spend by slowing down the rate at which they obligate funds, by obtaining a slowdown in the production of items they have ordered, or by canceling contracts they have already entered into.

There are obstacles to the reductions in expenditures which can be made through rescinding contracts, such as payment of damages and the loss of investment already made on a project.

TIMING OF THE ECONOMIC IMPACT: A SIMPLE CASE

An indication of the possible effect on the economy of each of the major stages of the Government spending process will be given in this section. A number of simplifying assumptions are made, so that the effects on the economy arising directly from an increase in government spending can be examined.

An increase in government spending is assumed which consists entirely of expenditures for goods currently produced in the private sector of the economy. It is assumed that these expenditures are financed by borrowing idle funds.

It is also assumed that there are sufficient mobility and idle resources in the economy to produce the goods ordered by the Government without new, fixed, business investment or price or wage increases and without displacing any private demand. Also postulated is the availability of adequate financing for the Government contractors. It is further assumed that this increase in spending will generate no indirect psychological effects on consumer or business expectations nor any changes in other Government programs.

Appropriation of funds

It is assumed that the President transmits to the Congress a supplemental appropriation request which it enacts. Under the assumed conditions, there would be no immediate effect on the economy. Neither would any change be registered in the measures of Government spending.

Placement of contracts

The Government agency to which the appropriation is made places contracts with business firms in the private sector of the economy. The following are some of the events that would occur following the receipt of a Government order by a typical manufacturer.

The contractor finds that he cannot fill the order out of existing inventory or even from existing production lines. He determines that this additional volume of production can be obtained through more intensive utilization of existing capacity, but that it will require substantial increases in inventories and in his labor force. This, in turn, will necessitate increased working capital, which will have to be obtained outside of the firm.

On the basis of the company's past performance and the Government's order, the contractor obtains a working-capital loan from his bank. He begins to place orders for materials, to hire additional workers, and to subcontract parts of the order to other firms. These suppliers or subcontractors will be going through a similar process at this time, in some cases involving another tier of suppliers or subcontractors.

The first effect on the volume of economic activity will now be taking place. As deliveries begin to be made on raw materials and wages are earned by the newly hired workers who are tooling up, the contractor will be drawing upon his loan authorization and making small amounts of payments to the various factors of production. An increase will be registered in the outstanding loans of commercial banks and in the money supply. Also, some increase will occur in gross private domestic investment, the component of gross national

product which contains the inventory accumulation resulting from the small amounts of goods in process.

The economic activity represented by contract placement is not reflected in any of the measures of Government spending. These contracts are included, but not identified separately, in the monthly reports by the Department of Commerce on new orders received by business firms.

That the placement of Government orders ("obligations incurred" by the Federal agencies) is the phase of the Government spending process which energizes private production on Government account has been noted by a number of observers:

The initial stimulus to production is provided by Government contracts for procurement.⁴

* * * it is the placing of a contract, or its anticipation which leads industry to plan its acquisition of materials and labor and to schedule its production. * * *⁵

It is in the stimulus to productive activity rather than in the minor amounts of "make ready" production that the contract placement stage exercises an important effect on the level of economic activity.

Production of goods

As quantity production gets underway on the Government order, payments are made by the Government contractor for wages to the employees engaged in the work, materials delivered, and the interest due on the working-capital loan. He also will be accruing profits on the order. The costs incurred by the contractor during the entire production period—the value added—should total the amount of the order.

The outlays of government contractors are not reflected in government purchases of goods and services, nor in any other government expenditure series at the time they are made. They will show up in gross national product, in the change in inventory segment.

Simultaneously, the costs incurred will also show up as compensation of employees, corporate profits, interest and rental income, and, depending on the legal status of the contractor and subcontractors, earnings of unincorporated enterprises. Increases in consumer expenditures and fixed business investment may also occur as a result of the income payments.

Payment for goods

After the completion of production, the goods would be delivered to the Government and paid for. This is the period during which the Government purchase shows up as a budget expenditure and a cash payment to the public.

Following the payment by the Government, the contractor would repay the working-capital loan. These actions would tend to reduce the amount of private credit, reduce the Government's cash balances, and increase the cash position of the contractor.

The delivery of the goods shows up in the national income accounts as a decline in business inventories and, hence, in gross private domestic investment. It also is recorded as a government purchase of goods

⁴ Melvin Anshen and Frances D. Wormuth, *Private Enterprise and Public Policy*, New York: Macmillan, 1954, p. 530.

⁵ John Perry Miller, *Pricing of Military Procurements*, New Haven, Yale University Press, 1949, pp. 24-25.

and services. These two movements tend to cancel out, with the result that there is no net effect on the level of economic activity at the time the Government expenditure is made; the contribution to purchasing power has been made earlier during the contract placement and production stages.

TIMING OF THE ECONOMIC IMPACT—SOME COMPLICATIONS

Some of the possible effects on the economy of the operation of the various stages of the Government spending process will be examined here under more complicated circumstances than in the previous section.

Anticipatory effects

In the simplified situation in the previous section, it was assumed that the new government spending program would be neutral in its effects on consumer and business expectations. However, the Government's embarkment on a new program can have an "announcement" effect on consumer and business expectations. Such was the case in the early stages of the Korean mobilization program, when memories of World War II price rises and shortages set off a wave of private ordering in advance of any government purchasing.

On the other hand, the reaction to the new program may be negative. Businessmen may fear or oppose it as undue government interference and competition.⁶

The announcement effect of government spending is too diffuse and elusive to be measurable. We simply do not know what the actions of businessmen and consumers would have been in the absence of the anticipatory effect of government activity. We can only obtain some indication of the magnitude of the catalyst through a measure such as new obligational authority. However, the public reaction in a given situation will depend on recent experience, available purchasing power, and other variables.

Availability of resources

If the necessary labor, materials, or equipment are not available, the mere placing of a Government contract will not be sufficient to initiate productive activity. This was the situation during much of the World War II period when, once relatively full employment had been attained, additional orders merely resulted in increased backlogs. Through its economic control system, the Government was able to shift productive facilities from peacetime to wartime use. However, such action would have little effect on total economic activity.

Under other situations, such as at the outset of the Korean mobilization, the shortage was of particular resources. Here, much fixed investment preceded production on Government orders for end items. Both groups of expenditures show up initially in gross private domestic investment. However, the capital expenditures, when made by private firms, would be included as additions to plant and equipment and nonresidential construction and would remain in the stock

⁶ Cf. an indication of reaction in the 1930's " * * * who could tell where the experimenters would turn next?" Douglas A. Hayes, *Business Confidence and Business Activity: A Case Study of the Recession of 1937*, Ann Arbor, University of Michigan Press, 1951, p. 120.

of business assets. The production on Government orders, on the other hand, would, on completion, be recorded as Government purchases and become part of the stock of Government assets.

Where the contractor can fill the Government order out of existing inventory production would not take place until the firm decides to replace the depleted inventory. The Government payments in this case would precede the impact on GNP.

Financing the Government expenditure

In the simple situation, it was assumed that the Government expenditures would be financed by borrowing idle funds. It would be more usual for the Government to finance a large increase in expenditures through raising the level of taxation or borrowing investment funds. Either of the actions would tend to reduce private demands for output and, hence, to offset the expansive effect of the Government expenditure.

Reducing Government spending

In general, the economic impact of a reduction in government spending is analogous to that of an increase. The very act of embarking upon a contraction of government spending can have an "announcement" effect.

Under circumstances of a large pent-up private demand, as in the reconversion period following World War II, the curtailing of government demand may evoke waves of private buying. In other circumstances, such as the cessation of the Korean mobilization program, the heralded decline in government purchasing may mean a decline in total demand.

Summary

The impact of the various stages of the government spending process may vary with surrounding circumstances. Although all of these complications may modify the economic impact, the basic relationship generally holds: the primary impact of government procurement on the level of economic activity occurs in advance of the actual government expenditure.

OTHER TYPES OF GOVERNMENT SPENDING PROGRAMS

The preceding two sections have been devoted to Government purchases of goods and services from the private sector. Other types of Government expenditures will now be examined.

Transfer and interest payments

Transfer and interest payments by the Government do not constitute a demand for output but are income to the recipients. Normally, these payments only affect the level of output with a lag and indirectly, as they are respent by the recipients for goods and services.

Anticipatory effects could take place, such as newly unemployed workers maintaining a certain level of spending in anticipation of the future receipt of unemployment compensation.

Also, accruals of interest can have some economic effect in advance of the actual payment. Some bondholders report interest on an accrual basis for tax purposes. Moreover, the knowledge that their

net worth position is growing stronger may also influence the spending decisions of some investors.⁷

Subsidy payments

Subsidy payments also constitute income to the receivers and are not a demand for output. To the extent that they have favorable repercussions on the expectations of producers, these payments may evoke a positive effect in advance of the Government expenditure.

Grants-in-aid

Federal grants-in-aid to State and local governments normally affect economic activity as they are utilized by the non-Federal government units. However, circumstances can arise under which the very act of the Federal Government in embarking on a new or expanded grant-in-aid program, or even its anticipation, can evoke an important stimulus to private or State and local activities in advance of any Federal payment or even pledge of funds.

The expansion in 1956 of the program of Federal grants for highway construction furnishes a recent example. In advance of congressional authorization, potential suppliers, such as cement producers and manufacturers of road-building equipment, began to plan for expansion of capacity and markets. The States stepped up advance planning of potential highway projects and many had qualifying projects ready to go as soon as the legislation was enacted.⁸

Lending programs

Federal lending programs provide a number of variations in the timing of the economic impact of Government spending. The main effect of the loan normally would arise from the purchases made by the recipient of the loan. For example, housing loans can be used to finance new private residential construction; production loans to business firms and farmers for inventory accumulation and, ultimately, for sales to consumers, governments, or other private businesses; and loans abroad for net foreign investment.

In some circumstances, the expansive effect on the economy would precede the Government disbursement. This would be true if private firms order goods and services, hire additional employees, and begin production on the basis of the Government's commitment to make the loan at a later date.

In many instances, private production (and, hence, the initial impact on economic activity) would take place after the Government loan. This would be true of loans to farmers for implements, feed, and other items needed before production could get underway.

Purchases of existing assets

Government purchases of land and other existing assets merely add to the liquidity of the recipients. Only to the extent that the proceeds are used to finance or purchase current output will there be any impact on economic activity.

Neither this category of government expenditures, nor the preceding category of loans, appear as government purchases of output or as income to the recipients.

⁷ Carl S. Shoup, Postwar Federal Interest Charge, American Economic Review, supplement, pt. 2, June 1944, p. 54.

⁸ Engineering News-Record, June 7, 1956, p. 26; July 5, 1956, p. 23.

Government production

A substantial portion of government purchases of goods and services is made directly from the public sector itself and involves no production in the private sector. Conventionally, this gross product of the public sector is taken as the compensation of General Government employees.⁹

Government "obligations" are recorded as the personal services are rendered. With a lag of usually 1 to 2 weeks, the employees receive payments for their services as they are rendered. Hence, the lag between obligations and expenditures is at a minimum. From the viewpoint of economic activity, the payments to factors (government employees) are recorded as government purchases of goods and services when the services are rendered and when payments are made. There is no time lag involved for "intersector" transfers as is the case for goods and services which the Government buys from private business firms.

NEW MEASURES OF GOVERNMENT SPENDING

A number of measures of the Federal Government spending process are currently available and used. These individual measures have arisen for a variety of reasons and are used for different purposes. Additional series may be required and can be prepared.

Existing expenditure measures

The three most widely known measures of government spending are (1) budget expenditures, based on the Federal administrative budget; (2) Federal Government payments to the public, prepared on a cash-consolidated basis; and (3) Federal purchases of goods and services, computed as a part of the national income and product accounts. Each of these series varies in coverage, basis of measurement, and types of payments included.

Budget expenditures include the outlays of wholly owned Federal departments and agencies, but exclude payments from government trust funds. Expenditures are recorded at the time checks are issued by governmental disbursing officers, except for interest on the public debt which is generally reported as it accrues.

Payments to the public include the outlays of Federal agencies as well as trust funds, eliminating transfers of funds within the Government. This series reports the amounts of checks paid by the Government.

Federal purchases are recorded as goods and services ordered by the Government are delivered. Unlike the other two series, only items involving the acquisition of current output are included.¹⁰

Despite the differences in the scope and type of transactions covered, all of the three series are closely related; they are all variations of a basic budget expenditure series and generally measure the flow of the Government spending process at its completion, when production is completed and delivery or payment is made.

Contrasted to this general uniformity of measurement, Federal spending is a process, a flow of activity; "expenditures" or "payments";

⁹ 1954 National Income Supplement, Survey of Current Business, p. 53.

¹⁰ For detailed description of the three series, see Budget of the United States Government for the Fiscal Year Ending June 30, 1958, Washington, GPO, 1957, pp. A2, A3; 1131-1133; 1954 National Income Supplement, Survey of Current Business, pp. 146-147.

or "purchases" represent just one point in an often lengthy series of actions. Under some circumstances, attention should be focused on the earlier phases of the process in order to gauge or understand adequately the economic impact of a Government spending program.

Measures of other stages

Except for the expenditure series, which are generally prepared monthly or quarterly, only limited information is available on the various stages of the Government spending process.

The budget document reports, on an annual basis, the amount of new obligational authority voted by the Congress. The absence of quarterly or monthly totals may not be very important due to the annuality of the appropriation cycle.

No series is currently published on the total obligations incurred by the Federal Government. However, the following section contains an attempt to construct such a series.

Neither is there available any information on the amount of private production on Government account. What is needed is a breakdown, not now available, showing how much of business inventories relates to private orders and how much to Government orders.¹¹

Derivation of a series on obligations

Information on the obligations incurred by individual Government agencies are available as a result of the requirements of budgetary control. Such data may be utilized in preparing series for the Federal Government as a whole.

The annual budget document lists obligations for each appropriation account, but does not contain any summarization. These data can be aggregated and, with some necessary adjustments for changes in the concept of the budget total, can be used to provide an annual series on obligations incurred by Federal agencies.

A rudimentary series can be prepared showing Federal Government obligations incurred, by quarters. The series presented in table 1 is intended for illustrative purposes only. It was derived as follows:

1. The annual totals were based on the obligation figures reported in budget documents.
2. The figures for "military" obligations were taken from reports of the Department of Defense and cover the military functions of the Department and foreign military assistance.
3. The obligation figures for "interest" are the amounts reported by the Treasury Department as interest payments. This procedure was possible because there is no lag between obligations and expenditures for this item.
4. The annual obligations for all other programs were divided evenly into four quarters. Although there are definite seasonal patterns in government ordering, the period covered in Table 1 is dominated by sharp fluctuations in military programs and comparatively little distortion is introduced by this procedure.¹²

¹¹ A recommendation that such data be prepared was made by the Subcommittee on Economic Statistics. Cf. U. S. Congress, Joint Committee on the Economic Report, 1955 Report of the Subcommittee on Economic Statistics, 84th Cong., 1st sess., Washington, GPO, 1955, pp. 5-6.

¹² For data concerning the seasonal patterns of Federal procurement, see Clem C. Linnenberg and Dana M. Burbour, Government Purchasing—An Economic Commentary, Temporary National Economic Committee, Monograph No. 19, Washington, GPO, 1940, p. 24; U. S. Treasury Department, Financial Statements Relating to the United States Government, Obligations, Expenditures, and Balances Under Appropriations and Contract Authorizations, Washington, 1942-49 (processed).

TABLE 1.—*Obligations incurred by the Federal Government*

[In billions of dollars]

Fiscal year	Military	Interest	Other	Total
1951				
1st quarter.....	8.6	1.1	6.9	16.6
2d quarter.....	8.7	1.3	7.0	17.0
3d quarter.....	16.1	1.2	7.0	24.3
4th quarter.....	16.2	2.0	7.0	25.2
Total.....	49.6	5.6	27.9	83.1
1952				
1st quarter.....	13.0	1.1	9.2	23.3
2d quarter.....	13.0	1.7	9.2	23.9
3d quarter.....	15.3	1.1	9.2	25.6
4th quarter.....	20.6	2.0	9.2	31.8
Total.....	61.9	5.9	36.8	104.6
1953				
1st quarter.....	16.8	1.1	8.2	26.1
2d quarter.....	10.4	1.9	8.2	20.5
3d quarter.....	10.8	1.1	8.1	20.0
4th quarter.....	8.5	2.4	8.1	19.0
Total.....	46.5	6.5	32.6	85.6
1954				
1st quarter.....	6.5	1.0	7.4	14.9
2d quarter.....	6.0	1.8	7.4	15.2
3d quarter.....	6.9	1.2	7.3	15.4
4th quarter.....	10.5	2.4	7.3	20.2
Total.....	29.9	6.4	29.4	65.7

Source: Budget Documents for 1953-56; U. S. Department of Defense, Monthly Report on Status of Funds by Budget Category, June 30, 1954, p. 33; Treasury Bulletin, August issues, 1951-54, p. 3.

The quarterly movements in the obligation series clearly show the rapid buildup of the Korean mobilization program. They also afford an insight into the substantial increases in economic activity which accompanied the new defense program. The expenditure series, in contrast, registered a rather slight rise in the fiscal year 1951. In fact, substantial budget and cash surpluses resulted for the period.

It should be noted that more exact obligation series can be provided by the Government on a quarterly basis, provided that the need is shown and the agencies involved in the preparation are directed to do so. This can be done because the individual agencies report their obligations each month or quarter to the Bureau of the Budget.¹³ However, no summarization of these reports is made at the present time.

SOME USES OF THE ANALYSIS

The applications of this study for purposes of economic analysis and governmental administration are twofold: (1) A proper understanding of the operation of the Federal spending process is important in analyzing economic developments and government activity during periods of fluctuation in government purchasing; and (2) the measures of the early stages of the spending process are lead series which often quickly register changes in governmental demand and indicate future trends in actual governmental disbursements.

¹³ Budget, Treasury Regulation No. 1: Washington 1952.

Analysis of economic conditions

An understanding of the Government spending process is of especial value in the analysis of economic conditions during periods when government purchasing provides the dominant influence in the economy. This is particularly true because the early stages of the process often show up in the private sector rather than in the public sector, and it is important to understand where the underlying demand originates.

Under such circumstances, reports on new obligational authority granted by the Congress and obligations incurred by Federal agencies are in the nature of "lead" series or "exceptional" statistics which indicate future economic developments.

Formulation of economic policy

Attention to the timing of the Government spending process can be useful in the formulation of public policy. For example, if a \$5 billion decline in gross national product (at annual rates) had been experienced in period 1 and a \$10 billion decline is anticipated in period 2, it may be of little avail (aside from exceptional effects) to embark upon a large construction program for which contracts could not be let until period 3 and production gotten underway until period 4. In such case, recourse to actions which involve shorter lead time may be more appropriate. A stepup could be attempted instead in the rate of production of equipment already on order.

The timing of the economic impact of government expenditures had an important bearing on fiscal policy during the early stages of the Korean mobilization period. The inflationary pressures were unaccompanied by any immediate Federal deficit. Under a policy of a balanced budget, there was no need for added taxation. However, the administration was partially successful in coupling the need for increased revenue with recently enacted appropriations and the high levels of procurement:

Under present conditions, expenditures for defense exert an inflationary pressure on the economy substantially in advance of the actual disbursement of funds. Demands for materials, for labor, and for capital outlays occur very soon after the Government contracts are let * * *.¹⁴

Governmental administration

The measurements of the early stages of the Federal spending process lend themselves to a number of administrative uses. Forecasts of government expenditures can be prepared by using data on new obligational authority and available balances together with assumptions as to obligation and production rates.¹⁵

In a more general way, changes in the level of new authorizations and/or new commitments can be used to gage the future course of expenditures in a somewhat similar manner that series on new orders are used by business analysts to estimate future sales trends.

It is the belief of the writer that aggregating the individual agency reports on obligations incurred could also be a helpful tool in assessing

¹⁴ Testimony of Treasury Secretary John Snyder before the House Ways and Means Committee, quoted in Annual Report on State of the Finances for the Fiscal Year Ended June 30, 1951, Washington, GPO, 1952, p. 406.

¹⁵ For a recent example of this approach, see U. S. Department of the Navy, Statistical Approach to Forecasting Expenditures, NAVEXOS, p. 1571 (undated).

the progress being made on government programs from the point of view of governmental administration and budgetary control.

An understanding of the government spending process can also be useful in effectively controlling government spending, with the particular view of reducing. Much of the discussion has centered on expenditures per se. However, if adequate controls are to be exercised, attention must also be given to the early stages where expenditures are authorized and committed, rather than only to the payments for goods and services already ordered and produced.

CONCLUSIONS AND RECOMMENDATIONS

It is a fundamental finding of this study that the variations in the timing and economic impact of the various stages of the governmental spending process necessitate taking measurements of the spending stream at earlier points than merely the completion stage represented by deliveries or payments.

When the Government is about to embark upon a new program, often the most useful indicator of the scope of this new activity will be the amount appropriated for it by the Congress. A more direct indication of the current economic impact may be the aggregate of orders placed and contracts let. Where the increase in government activity consists of transfer payments to the public, a series on expenditures would be of particular value.

The use of any of these measures need not be mutually exclusive and their contribution may be additive. What is needed is not a single standard measure of Federal spending but a tool kit of series, each of which is adapted to special analytical purposes.

The specific recommendations that arise from this study are that series on new obligational authority granted by the Congress and obligations incurred by government agencies be computed regularly by the Federal Government and that they should be published in the standard compendia of economic statistics. They should be supplemented from time to time by reports on unobligated balances and on unpaid commitments outstanding.

Such series would be useful and complementary additions to the sections on government finance in such publications as the Economic Indicators, the Treasury Bulletin, the Federal Reserve Bulletin, and the Survey of Current Business.

A better understanding of the workings of the Federal spending process will assist in the use of these tools for purposes of economic analysis and policy formulation. In an even broader way, it is important to understand the operation of the Government spending mechanism as one of the important processes of the economy.

VIII. FEDERAL EXPENDITURES FOR NATIONAL
SECURITY

FEDERAL EXPENDITURES FOR NATIONAL SECURITY

MILITARY EXPENDITURES, ECONOMIC GROWTH, AND STABILITY

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It is difficult to fit military expenditures into the "growth and stability" pattern currently being studied by the Joint Economic Committee. Although military outlays are not necessarily inconsistent with the objective of stability and growth, they may be and at times have been. During war and periods of tension such as the present, the national security objective is paramount. Expenditure levels and patterns are not likely to be greatly influenced, or influenced at all, by considerations of growth or stability. Other instruments of policy are usually required to assume a measure of stability.

The impact of military expenditures on growth and stability depends on many things besides the level, rate of change, duration, and pattern of such expenditures. The source of funds is obviously important. Heavy reliance on deficit financing during World War II, in contrast to the tax financing of the Korean war, produced different results from the stabilization point of view. Differences in tax structures to finance any given level of expenditures are likely to alter the impact of military outlays. Consumer and business expectations may differ from one period to another. The levels of employment and plant utilization clearly affect the impact on prices, production, and growth. And, obviously, so do governmental policies which affect the responses of the system. These and other variables play a part in determining the effects of military expenditures on the growth and stability of an economy.

Moreover, a distinction between short-run and long-run consequences of military outlays, particularly on the matter of economic growth, throws light on the problem. It is important, also, to go behind the military expenditures to the indirect consequences that may flow from them. Under some circumstances these consequences may be highly stimulative to employment, output, and income. The "stirring up" impact of World War II on the depressed American economy helps to account for the growth of the last decade. Many technical developments and new products developed for military purposes have a high transfer value to the civilian economy. Again this reflects itself in growth potential. These indirect consequences help reduce the real cost of the military to the economy as a whole over time.

One of the striking fiscal facts of the present and recent past is the size of military expenditures. Large-scale military outlays seem destined to remain in the Federal budget for an indefinite period. This

constitutes a sharp break with past experience, and bears obviously on the question of future economic stability and growth. A short review of military expenditures up to World War II brings out the changed role of military expenditures in the American economy.

HISTORICAL REVIEW

Throughout the 19th century total Federal expenditures moved upward, from about \$10 million annually to some \$400 million annually at the close of the century. During the 1920's they averaged about \$3 billion, and in the late 1930's some \$9 billion. The wars of 1812 and 1861-65 boosted Federal expenditures greatly; postwar outlays for both war-connected outlays¹ and civil purposes remained permanently above prewar levels. Compared with prewar expenditure levels postwar outlays following the War of 1812 approximated 150 percent; following the Civil War the percentage was 230. Following World War I the postwar expenditures were about 260 percent of prewar.

Wars not only increase total expenditures but they seem to exert a permanent outlay-increasing effect on the postwar periods. This effect shows up more strongly in civil than in war-connected expenditures. Up to World War II, the war-connected component showed a persistent decline (except in war years) as a percentage of total Federal outlays. To be sure, war-connected outlays have exceeded civil expenditures in all years except a few during the 1850's and again during the 1930's. But the war-connected share trended downward; it was a smaller percentage of total outlays during the 1930's than at any other time in United States history.

The great growth in Federal expenditures, both military and civil, throughout United States history was accompanied by a rapid rise in population. Less than \$2 per capita per year² in the first decade of the 19th century, they rose to \$10 in the 1890's, and to \$25 in the 1920's. Depression spending policies brought a further threefold increase by the end of the 1930's. War-connected expenditures per capita per year accounted for only one-third of the per capita Federal expenditures just before World War II, in contrast to four-fifths in the first decade of the 19th century.

Wartime per capita expenditure changes are of course substantial. The percentage increase over prewar per capita outlays shows a high degree of uniformity. During the Civil War, World War I, and World War II, the percentage increases are 733, 776, and 630. The high level of depression spending by the Federal Government during the second half of the 1930's moderated the percentage increase in per capita outlays in World War II.

COSTS PER SERVICEMAN

The long-term changes in military expenditures per serviceman are of particular importance for the problem at hand. Estimates prepared by M. Slade Kendrick (in 1926 prices) place the cost per

¹ Costs of the military services, veterans, and interest on the public debt. See M. Slade Kendrick, *A Century and a Half of Federal Expenditures*, Occasional Paper No. 48, National Bureau of Economic Research, New York, 1955.

² In 1926 prices, as shown in Kendrick, *op. cit.*

serviceman per year at somewhat less than \$1,000 during the 1820's. Fifty years later they had increased on the average only 50 percent. Military technology had changed, but not in a revolutionary manner. In the years preceding World War I the annual average approximated \$2,400; the increase came largely from changes in naval ship construction. In nearly a century before World War I the average annual outlay per serviceman had risen somewhat less than 300 percent.

United States participation in World War I was of such short duration that cost figures are somewhat unreal. They averaged \$3,300 per serviceman in 1918 and \$6,000 2 years later. Between 1922 and 1938 they ranged from \$2,300 to \$4,000 per year, averaging about half again as high as pre-World War I. World War II costs averaged nearly \$9,000 per serviceman for the years 1941-45. In contrast the 1861-65 costs averaged somewhat under \$1,000 per year. Between World War II and the Korean war costs per man came to \$5,000 annually, about twice the cost per man of 20 years earlier. Korea cost more per man per year than did World War II.

The enormous and rapid changes in military technology explain a large measure of the increased cost per serviceman per year during the present century. Compared with the last 2 or 3 decades, the 19th century was technologically quiescent in the military sphere. Not only have costs per man increased but the present era keeps a larger percentage of men of military age under arms. The high levels of military outlays and their dominating position in the Federal budget reflects these facts.

MILITARY EXPENDITURES AND NATIONAL OUTPUT

Until recently military expenditures as a percentage of gross national output have always been of relatively small importance. The Kuznets estimates beginning with 1869 range from 1.3 percent for that year down to 0.4 percent for most of the 1880's and 1890's.

From 1900 until World War I the average is 0.8 percent. This went up to 16 percent in 1918 but by 1923 the percentage was back to 0.8, the prewar average. From 1931 to 1939 military outlays averaged 1.3 percent of the depressed gross national product of those years.

World War II changed matters abruptly. By 1943 some 40 percent of gross national product went into the military. The extensive demobilization after that war brought military outlays down to 5 percent in 1948-49. With Korea the percentage rose to 14; since then military outlays have averaged 9 to 10 percent of gross national product.

The recent period is thus unique. The complexity and scale of military operations during 1941-45 caused an unprecedented commitment of output to war purposes. Since then rapid changes in military technology, the maintenance of large armed forces, and the extensive deployment of these forces contribute to the present large commitment of resources to military purposes.

The attached table shows for 5-year intervals the volume of Federal outlays and the war-connected outlays since the beginning of the present century. From 1936-40 to 1941-45, total expenditures rose \$56 billion per year, of which \$50 billion is military. While civil expenditures in the aggregate have risen from pre-World War II

to the present, there has been little or no real per capita growth in such expenditures over this period of time.

Thus, the budget problem is mainly caused by World War II, Korea, and the world tensions summed up as the cold war. To the extent that growth and stability are affected by Federal expenditures, it is the military component of such expenditures that dominates the picture.

MILITARY EXPENDITURES, GROWTH, AND STABILITY

It was pointed out above that one of the unique features of the present era in American history is the tremendous amounts spent since 1940 on the military. In terms of the military absorption of gross national product, the present peacetime rate or percentage is 8 to 10 times that of the 1930's, about 12 times that of the 1920's, and more than 20 times that of the 1880's, and 1890's.

The resources thus committed to the support of the military are not available for other purposes, i. e., to achieve increased productive capacity and a growth in consumption levels. A comparison of recent rates of gross national product absorption by the military with the rates of earlier periods raises some searching and disturbing questions about the prospects of long-term growth in productive capacity and consumption levels. These questions frequently bring forth gloomy answers.

Federal expenditures

[Millions]

Years	Average annual Federal expenditures	Average annual war-connected expenditures	Percent war-connected
1901-5.....	\$536	\$388	72
1906-10.....	639	456	71
1911-15.....	720	520	73
1916-20.....	8,065	4,657	58
1921-25.....	3,579	2,186	61
1926-30.....	3,183	1,707	54
1931-35.....	5,215	1,792	34
1936-40.....	8,192	2,661	32
1941-45.....	64,038	52,415	82
1946-50.....	42,335	30,900	71
1951-55.....	63,216	47,100	74

Source: Statistical Abstract of the United States, 1956, p. 355.

While the comparison of rates of absorption seems to justify deep concern, several points need consideration as possible offsetting influences.

1. Resources diverted to military support may not be entirely diverted from civilian alternatives. For any given increment of output absorbed by the military, the civilian alternatives sacrificed in the time period might range from zero to the full amount. Some or all of the resources diverted to the military might have remained unemployed but for the expansion of military expenditures. If there is sacrifice in the time period, and if the loss is in investment, additional sacrifices will accrue beyond the time period.

2. The value of the output absorbed by any given increase in military expenditures does not necessarily measure the value of output diverted from the civilian sector. As noted above, some of the diverted

resources might have remained unemployed. But the point holds even where resources diverted to the military are diverted from the civilian sector. For example, when resources shift from low-valued products—e. g., agriculture—to high-valued products—e. g., radar equipment for the military—increment of gross national product absorbed by the military exceeds in value the output denied to the civilian sector. Structural shifts in output are a characteristic of the development of the economy over time; they have special significance for the particular problem at hand.

3. Comparison of rates of absorption of gross national product by the military over long periods of time may be deceptive. Seventy years ago the military absorbed 0.5 percent of gross national product; today the rate is 20 times greater. However, the stimulative effects per dollar spent have probably changed. It was noted above that military technology changed slowly during most of the 19th century when compared with the last several decades. While it produced something of transfer value to the civilian sector in the metallurgical field, the contribution to collateral civilian industry appears small compared to recent contributions. Research and development for the military during the last two decades have created new industries, new products, transformed older industries, and introduced innumerable changes in methods. The twentyfold increase in the rate of absorption of gross national product by the military now, compared with the 1880's, does not mean a twentyfold increase in the military burden to the economy.

The indirect consequences of net value to the civilian economy are not limited to such fields as atomic energy, the electronics industry, synthetics, food processing, and the like. Asian flu vaccine is a product of Army research which might spare the loss of a substantial amount of gross national product.

The first two points may be brought out by reference to the increases in military outlays and gross national product caused by the Korean war. Here the short-run implications of an increase in military outlays are discussed.

THE MILITARY PROGRAM, 1950-53

The Korean war broke out in mid-1950 at a time when the economy was recovering from the relatively mild recession of 1949. The fighting stopped in mid-1953. Military expenditures rose sharply from 1950 to 1953, and with them production, employment, and income. The tabulation below shows production changes, by military and civilian uses, in 1952 prices, at annual rates for the first 6 months of 1950 and 1953.

[In billions]

	Gross national product		
	Total	For national security	For civilian use
1st half 1950.....	\$302	\$19	\$283
1st half 1953.....	367	52	315
1950-53 change.....	+65	+33	+32

At the first-half 1953 rate, the military absorbed some 14 percent of gross national product compared with 6 percent in 1950. The increment to total output over this period was quite evenly shared by the military and civilian sectors.

Along with the rise in output went an increase in employment, from 59 million to 62 million, and hours worked per week in nonagricultural employment increased from under 40 to 41. Combining the increase in people at work and the increase in the workweek suggests an 8- to 10-percent rise in total time worked. For this added time worked the economy obtained a 21-percent growth in gross national product. The civilian sector by itself increased 11 percent.

Gross national product per person employed rose from \$5,100 in 1950 to \$5,900 in 1953, or 16 percent. The disparity in changes in output and in hours worked may be explained, in part, by the shifts in employment, from lower value products to higher value products. Farm employment declined from 1950 to 1953, while industrial employment rose some 2 million, virtually all in the durable-goods industries. Of the latter, spectacular increases occurred in the aircraft, ordnance, and other war-related industries characterized by high-valued end products.

Over this period, personal income increased; approximately half this increment was taken in higher Federal taxes, which increased \$32 billion. After all additional taxes, the public at large had \$30 billion more income in early 1953 than in early 1950.

Taxing, spending, and savings patterns in this period are of interest. The immediate increase in Federal taxation brought in more cash receipts than cash expenditures for the 3-year period. The aggregate cash surplus was in excess of \$2 billion. This is the first sizable war the United States financed fully from taxation.

With the outbreak of war, consumers and business engaged heavily in forward buying before military procurement began making its added demands on the economy. The civilian spurt in forward buying came to an end early in 1951. The consumption ratio dropped as consumer fears of shortages abated. Meanwhile, the forward buying produced a quick 10-percent increase in price indexes. By the second quarter of 1951, the inflationary pressure eased; in fact, many price lines declined. Personal savings increased, and consumer expenditures gradually expanded with production as the war progressed. Civilian and military buying coordinated themselves well during this period, bringing about a high degree of stability for a war period.

By the end of the war, in 1953, consumer savings were at a post-World War II high. Per capita consumption was at its highest level. In real terms, residential housing had declined, but all other construction and business investment in durable equipment increased. Credit restraints curbed consumer durable-goods purchases to some extent, and allocations restrained the growth of business investment somewhat.

THE QUESTION OF REAL COST

The facts outlined above show the main features of the military impact on the national economy during Korea. That impact was clearly stimulative. A big military effort was supported and, at the same time, the civilian economy advanced to new high ground in all important respects.

In terms of the earlier discussion, to what extent did this increased military program involve a diversion from the civilian economy, and, therefore, a real cost or burden?

Although no conclusive answer is possible, the facts do not point to a major diversion from the civilian economy in the buildup of the military program. The civilian gross national product expanded. But the real question is: Would the civilian sector have had more than the \$32 billion increase it in fact had in 1953 over 1950 in the absence of the Korean conflict? That is, would 1953's gross national product have exceeded \$334 billion without the stimulus of rearmament?

Some indication might be had from the percentage changes in production over the period 1946-56. The average annual rate of increase in civilian gross national product over this 10-year period is 3.5 percent. In only 1949 and 1954—both moderate recession years—did civilian gross national product decline. From the period immediately before the outbreak in Korea, through the end of that war, civilian gross national product increased an average of 3.5 percent. In 1951 it was above, and in 1952 below the trend: in 1953 it was back on the 3.5-percent trend line. Again, from 1953 to the high levels of 1956, civilian gross national product increased at an average annual rate of 3.5 percent—down in 1954, but up in 1955 and 1956.

The figures suggest that the expansion in the military program beginning in 1950 was superimposed on the growth curve (in real terms) of 3.5 percent per annum. So far as the civilian sector is concerned, the plus and minus figures during the 3 years of the Korean war just about cancel out, give or take a few billion dollars of output.

It can always be argued, of course, that civilian gross national product could have increased at a rate in excess of 3.5 percent over the years of the Korean war. But there is no compelling reason to believe that gross national product would have exceeded by much the 1953 total (give or take a few billion). There was no great backlog of consumer demand or of private investment (or both) in 1950 to support any unusual spurt in output. The mild recession of 1949 indicated that World War II backlogs were largely worked off, and the increase in voluntary savings after 1950 suggests that consumers were buying all they wanted. By any reasonable standard, a \$334 billion gross national product and 62 million employment would have represented a very prosperous state of affairs in 1953.

The main point is that the actual 1953 level of gross national product was high when related to the trend from 1946 to 1956. The bulge can be largely explained by the special shift in production and employment due to war orders. Much of this bulge (\$33 billion in 1953 over 1950), and perhaps most of it, does not seem to have entailed a shift from the civilian sector of the economy. From the facts available, it seems that the added gross national product absorbed by the increased defense program from 1950 to 1953 was an increment to output that might not have been produced in the absence of the military buildup.

It is true, of course, that consumers would probably have spent even more than they did in 1952 and 1953 had taxes not increased. But the data seem to suggest that the increment to consumer income taken by the increase in taxation is that portion of income that consumers would not have had in the absence of the military buildup. In

a financial sense, the program was self-financing; the increased income taxed away was created in the production of gross national product that would not have been produced but for the program.

A general statement of the problem may be made as follows: Should the stimulus provided by an expanded military program lead to an increase in the total output sufficient (a) to satisfy the normal expectations of the public and (b) to provide for expanded military requirements, then the program in real terms is self-financed, in the sense described above. In monetary terms, should the program create an excess of money income over normal expectations, and added taxes take only this excess, then no income anticipated is lost and no real cost incurred. The 1950-53 experience seems to have approximated this condition.

The Korean war has been used as an illustration. A fuller use of resources was probably achieved during this period in consequence of military procurement. And production shifted toward higher value end products. Thus, the increment to gross national product absorbed by the military entailed no corresponding loss to the civilian economy; on the contrary, there appeared to be, at most, a relatively small diversion from the civilian economy.

This argument is limited to a particular short-run period. Under other circumstances, such as those prevailing from 1955 to the present, a comparable expansion of military expenditures would probably have caused a considerable diversion from the civilian economy.

SOME LONG-RUN CONSIDERATIONS

Over a long period of time, the problem is more complex. A prolonged commitment of resources at the present rate to military purposes cannot avoid the problem of diversion. If military outlays bring about a somewhat fuller and more stable level of output than would otherwise occur, this would be a partial offset. And the stimulus of research and development having transfer value would constitute another offset. More needs to be known about these possible effects of a sustained and dynamic military program.

On the long-run problem, some interesting estimates have been prepared by Dr. John W. Kendrick, as part of a forthcoming publication of the National Bureau of Economic Research. Dr. Kendrick broke down gross national product totals (measured in 1929 dollars) into (1) that portion required for the maintenance of population and capital stock, and (2) the margin over maintenance. The margin over maintenance, in turn, is allocated to (1) national security, (2) provision for the growth in population (both consumer goods and capital), and (3) the margin for economic growth, both consumption and capital.

The accompanying table shows the percentage distribution of gross national product, by time periods, for each of these uses.

For present purposes, columns 3 and 5 are most important—and disturbing. The margin over maintenance of population is, in the absence of major war and major depression, relatively inflexible. Excluding World War II and the great depression, it has ranged within 16.6 and 14.6 percent of gross national product. As the national-security component of this margin increases, the growth component is squeezed, with the major squeeze applied to capital growth.

Percentage of gross national product for—

	1 Real gross national product	2 Maintenance of population (including consumer and capital goods)	3 Maintenance of national security	4 Provision for growth of population (consumer and capital)	5 Margin for economic progress	
					Consumption	Capital
1889-98.....	100	83.1	0.5	6.7	1.2	8.5
1899-1908.....	100	83.5	.8	6.9	1.6	7.2
1909-18.....	100	85.1	3.3	6.0	1.3	4.3
1919-28.....	100	85.4	1.7	5.2	2.0	5.7
1929-36.....	100	97.7	.9	3.5	.1	-2.2
1937-47.....	100	76.9	17.5	3.1	2.2	.3
1948-53.....	100	83.4	9.2	4.5	.9	2.0

The estimates bring out the possible impact of war and depression on long-term growth. But there is a difference: War helps to finance its own extravagances, but prolonged depression never does. Even though sudden spurts in military expenditures may involve some, and perhaps a large, element of self-financing (in both real and monetary terms), sizable and prolonged military expenditures probably do so to a lesser extent, and conceivably might not at all. In the long run the growth outcome may depend upon the extent to which military research and development adds back to gross national product a stimulus that offsets in part the real cost of the military. Over a long enough period there might be a complete offset.

In any event, the impact of military expenditures on both growth and stability involves far more than consideration of the expenditures themselves. Revenue sources are vital. Faced with the long-run prospects of large-scale military outlays, revenue sources based on nongrowth considerations—emergency war needs, social-reform policies, and simple ease of collection—need constant reexamination. Economic growth may be regarded as an economic, political, and military necessity. To the extent that a large-scale military establishment also continues as a necessity, growth needs may require that it be increasingly a charge against consumption.

ECONOMIC EFFECTS OF POSTWAR NATIONAL SECURITY EXPENDITURES

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Any meaningful discussion of the economic significance of national security expenditures must be based on the magnitude of those expenditures. Although it is a matter of common knowledge that Federal expenditures for national-security purposes have been much larger since World War II than they were before the war, the full extent of their increase as compared with prewar years is not so widely appreciated. Nor is it generally realized that if the entire postwar period is considered, it appears that national security expenditures are continuing to increase, rather than declining or remaining stable.

Although the increase in expenditures for military purposes during the Korean hostilities was so very much smaller than the increase which occurred during World War II, the decline which occurred at the end of the Korean hostilities was smaller still. Thus, as the table below indicates average annual Federal expenditures for national security during the first 3 full years after the end of hostilities in Korea were very much higher than the corresponding figure for the 3 full years immediately preceding the outbreak of hostilities, or for the first 3 full years after the end of World War II.

National security expenditures compared with gross national product and total purchases of goods and services by the Federal Government, 1939 and 1946-56

Period	Gross national product (billions of dollars)	Total Federal purchases of goods and services ¹ (billions of dollars)	National security expenditures ²		
			Amount (billions of dollars)	Percent of gross national product	Percent of total Federal purchases of goods and services
1939.....	91.1	5.2	1.3	1.4	25.0
1946.....	209.2	20.9	21.2	10.1	101.4
1947.....	232.2	15.8	13.3	5.7	84.2
1948.....	257.3	21.0	16.0	6.2	76.2
1949.....	257.3	25.4	19.3	7.5	76.0
1950.....	285.1	22.1	18.5	6.5	83.7
1951.....	328.2	41.0	37.3	11.4	91.0
1952.....	345.4	54.3	48.8	14.1	89.9
1953.....	363.2	59.5	51.5	14.2	86.6
1954.....	361.2	48.9	43.1	11.0	88.1
1955.....	391.7	46.8	41.3	10.5	88.2
1956.....	414.7	47.2	42.4	10.2	89.8
1946 to 1956 average.....	313.2	36.6	32.1	10.2	87.7
1946 to 1948 average.....	232.9	19.2	16.8	7.2	87.5
1947 to 1949 average.....	248.9	20.7	16.2	6.5	78.3
1954 to 1956 average.....	389.2	47.6	42.3	10.9	88.9

¹ Gross expenditures by the Federal Government for the purchase of goods and services less total sales by the Federal Government. Total sales by the Federal Government in billions of dollars amounted to 2.7 in 1946, 1.3 in 1947, 0.5 in 1948, 0.4 in 1949, 0.3 in 1950, and 0.4 for each of the years 1951-56.

² Includes expenditures for military services, international security, and foreign relations (except foreign loans), development and control of atomic energy, promotion of the merchant marine, promotion of defense production and economic stabilization, and civil defense. These expenditures are not comparable with the "major national security" category in the budget of the United States Government for the fiscal year ending June 30, 1958.

Source: U. S. Department of Commerce.

In 1956 Federal expenditures for national security totaled \$42.4 billion, accounting for 89.8 percent of total Federal purchases of goods and services and 10.2 percent of our gross national product. By way of comparison we may observe that in 1939, the year in which World War II began, Federal expenditures for national security were only \$1.3 billion, accounting for only 25 percent of total Federal purchases of goods and services and only 1.4 percent of our gross national product. Even in 1949, the last full year before the outbreak of hostilities in Korea, Federal expenditures for national security were much lower than they were last year, amounting to \$19.3 billion, a figure which represented 76 percent of total Federal expenditures and 7.5 percent of our gross national product for that year. Present indications are that total Federal expenditures for national security during 1957 may reach a new peacetime high.

Although some part of the apparent increase in national security expenditures is the result of changes in our price level, most of the increase cannot be attributed to rising prices, nor indeed to any economic factors. It is fairly obvious that most of that increase is attributable to changes in our international relations and to changes in modern methods of warfare, rather than to any changes in our economy or our economic policies. But it is equally obvious that such large expenditures for national security purposes must themselves have some effect on our economy and on economic policy. Many questions concerning the economic effects of national security expenditures suggest themselves, and we will attempt here to deal with only a few of them.

The most persistent, and in one sense the most basic, query is, "Can we afford such huge expenditures for national security, and if so, for how long can we continue to make them?" The answer to the first part of this query is decidedly "Yes." We have not paid for the increase in national security expenditures by a reduction in our civilian standard of living. Quite the contrary. Our population enjoys a higher material standard of living now than it did in the years preceding World War II or even in the years immediately following World War II. And, barring a general economic recession, it seems likely that our standard of living will rise still further in the years ahead, even if there is no reduction in our national security expenditures.

Although it does not bear directly on the question of whether we, as a nation, can afford our huge national security expenditures, it will doubtless be reassuring to some persons to learn that the increase in our national security expenditures since the end of World War II has not been financed by an increase in our Federal debt. On the contrary, there was a slight reduction in the Federal debt between 1946 and 1956, and it is anticipated that there will be a further reduction this year. In other words, our national security expenditures have been financed by Federal taxes, rather than by Federal borrowing.

The answer to this first question, in turn, gives rise to a second. "Would our standard of living have been even higher in the postwar period if we had not had such large national security expenditures?" To this question, it is impossible to make an unqualified reply. Our answer must depend on whether we believe our economic resources would have been just as fully employed during this period as they actually were, even if national security expenditures had been reduced to a much lower level.

However, if we are willing to assume that we would have had full or nearly full employment of our economic resources during the postwar period, even though our national security expenditures were reduced to, let us say, their prewar level, then we can say with some certainty that our standard of living during this period would have been higher than it actually has been. For if some of the economic resources which have been used to produce goods and services for national security had instead been used to produce consumer goods or to produce capital goods, which in turn would be used to produce consumer goods, obviously the total supply of goods available to civilian consumers would have been larger than it actually was.

Since our answer to the previous question involves a qualification concerning the overall level of economic activity, it seems reasonable to turn our attention next to the effect which national security expenditures have had on the level of economic activity during the postwar period. Here again, it is impossible to dispose of the matter with a brief and simple statement, unless we are willing to content ourselves with the observation that the effect has varied at different times.

For the period as a whole, the effect has undoubtedly been stimulating. But what about the years 1946, 1947, 1950, and 1954, when Federal expenditures for national security purposes declined? Surely, it cannot be argued that they provided a stimulating effect on our economy in those years. On the contrary, the reduction in national security expenditures when hostilities ended in Korea (from an annual level of \$53.3 billion during the second quarter of 1953 to an annual level of \$43.2 billion during the second quarter of 1954) contributed to the dip in overall economic activity which we experienced in the latter part of 1953 and the early months of 1954. In other words, the direction of change in the magnitude of national security expenditures, provide the change be large enough, is more significant in this connection than the actual magnitude of those expenditures.

In order to understand the effect of national security expenditures on the general level of economic activity, however, we must consider more than the figures on national security expenditures alone. We must know something about the timing of those expenditures, the general level of economic activity in the civilian sector of the economy, the underlying strength or weakness of civilian demand for goods and services, the manner in which national security expenditures are financed, and the particular types of goods and services which the Federal Government is purchasing for national security purposes.

There have been times during the postwar period when, because of the strength of civilian demand for goods and services and the timing of increases in national security expenditures, those expenditures have exerted a strain, rather than a beneficent stimulating effect on our economy, and have probably contributed more to the upward movement of prices than to an increase in production.

There have been other times, such as the recent past, when shifts in procurement policies from one type of weapon or facility to another have had significant effects on our economy irrespective of any change in the magnitude of expenditures. The economic significance of shifts of this type is particularly marked when shifts are made suddenly, rather than gradually; when those shifts involve a change in

the geographical pattern of production for national security purposes; and when they give rise to a completely different pattern of demand for basic raw materials, and for the factors of production. Of course, the economic significance of shifts of this type is necessarily greater when the expenditures involved themselves are greater.

It has been recognized by many economists in recent years that an increase in Federal expenditures can have a stimulating effect on the economy, even if it is financed by taxes, rather than by borrowing.¹ Nevertheless, it is true that the stimulating effect of the increase will be more moderate when it is accompanied by a balanced budget than when it involves an increase in the public debt.

Another important question relating to the effect of national security expenditures concerns their influence on economic growth. "It is salutary or otherwise?" This question, like the one on our standard of living, cannot be answered unless we are willing to make some assumptions regarding the level of economic activity which would have prevailed during the postwar period if national security expenditures had declined to, say, their prewar level. For economic growth is closely related to the general level of economic activity, slowing down when the level of economic activity is low, and increasing when the level of economic activity is high.

However, if we are willing to assume that we would have had full or nearly full employment of our economic resources during the postwar period even without our large national security expenditures, then we can argue with much conviction that our large national security expenditures have served to impede our economic growth. Military goods and services, necessary though they may be, are from an economic point of view nonproductive, even wasteful. Resources devoted to the production of military goods and services do not add to our current standard of living, nor do they increase our capacity to produce more goods and services in the future.

If we had enjoyed the same level of economic activity and had not made such large expenditures for national security purposes, at least part of the economic resources which were devoted to the production of military goods and services or to the creation of facilities for the production of military goods and services, would instead have been devoted to the production of capital goods, or to other uses which in turn would enhance our capacity to produce economic goods and services for civilian consumption. Under these circumstances the rate of economic growth in this country during the postwar period would have been larger than it actually has been.

It follows from what has gone before that although we must recognize that national security expenditures will have a significant influence on economic developments in the future, as they have at present, and have had in the immediate past, we cannot determine exactly what that influence will be. We may, of course, say that all other things being equal or neutral, an increase in national security expenditures will tend to have a stimulating or inflationary effect on our economy; a decrease in national security expenditures will tend to have a depressing or deflationary effect; while a stable level of na-

¹ For a discussion of this point and a list of references to other writings on the same subject, see William J. Baumol and Maurice H. Peston, *More on the Multiplier Effects of a Balanced Budget*, *The American Economic Review*, vol. XLV, No. 1, March 1955, pp. 140-148.

tional security expenditures will enhance the possibility of economic stability. All other things are seldom equal or neutral, however, so that generalities of this nature unless they are supplemented by much more precise analysis of the various situations which may arise are of limited value to those concerned with the practical problem of formulating economic policy.

Such detailed analysis would be inappropriate in this discussion. Two points which may be made in this connection, however, are worthy of observation. The first is that national security expenditures by virtue of the fact that they are now so large and that they vary in response to forces which are independent of economic conditions and policies, necessarily exercise a limiting influence on the power of the Federal Government to use expenditure policy for the purpose of promoting full employment or achieving economic stability. In view of this fact, it is important that economists both in and out of the Government service explore the possibility of developing other means of implementing the policies set forth in the Employment Act of 1946.

The second point worthy of observation is that if a sudden large decrease in national security expenditures were to occur as a result of successful disarmament negotiations coupled with a general lessening of international tensions, it would probably lead to a substantial reduction in the overall level of economic activity, and might very well have more far-reaching effects than a reduction of similar magnitude in the level of private investment expenditures.

It is true that predictions similar to this proved to be completely false after World War II. But let us not forget that at that time, as a result of wartime price control coupled with an acute shortage of many types of consumer goods—especially consumer durable goods—and generally rising incomes, there was a huge backlog of consumer demand to fill the gap caused by the reduction in military expenditures. At present no such backlog of consumer demand exists, nor is it likely that such a backlog will develop in the near future, unless once again we become involved in hostilities on a large scale.

This does not mean that we should attempt to avoid any large decrease in national security expenditures or that we should fear its occurrence. On the contrary, for economic as well as noneconomic reasons it would be highly desirable. But it does mean that we should be prepared to adopt measures suitable to cope with the situation when it does occur, if it becomes evident that supporting measures are necessary. Worthy of consideration in this connection is the desirability of developing standby programs providing for increased expenditures on such things as public roads, schools, hospitals, and so forth. Expenditures of this type are similar to national security expenditures in that they do not themselves increase the sum total of either consumer goods, or capital goods which in turn are used to increase the sum total of consumer goods.

But expenditures of this type, unlike national security expenditures, may be deliberately varied by our economic policymakers in response to variations in other segments of our economy. Moreover, assuming a lessening of international tension, it is clear that expenditures of this type will yield far more desirable results than national security expenditures, in the long run as well as the short run, and from a non-economic, as well as an economic, point of view.

THE IMPACTS OF NATIONAL SECURITY EXPENDITURE UPON THE STABILITY AND GROWTH OF THE AMERICAN ECONOMY

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This paper evaluates the influence of national security expenditure from the twin standpoints of stability and growth. By "stability" we refer primarily to the absence of major short-run movements in output and employment, and, to a less extent, prices. By "growth" we mean both the realized and potential long-run rates of increase in real gross national product.

Framework of the analysis

Gross national product serves as a focal point of analysis because it measures the realized aggregate of both government and private sector demands upon resources for production. So viewed, security spending is a major component of aggregate demand, accounting for about 10 percent of gross product currently and as much as 42 percent in 1944.¹ When the rate of security spending persists at a given absolute level, it induces a corresponding rate of output and employment from the defense sector, while through its income-generating effects it also contributes indirect support to investment and consumption as a whole. When security demand changes markedly, it exerts direct effects upon production and employment in the defense sector. Barring independent offsetting movements in investment and consumption, changes in security spending will also induce wider parallel movements in these private components of aggregate demand.

Largely under the stimulus of increased security spending, Government demand as a whole (including State and local) has risen to claim now almost 20 percent of gross national product at full employment. This fact has much significance both for stability and growth.

Government demand in general and security demand in particular are largely independent either of the level, or of changes in the level, of private consumption and investment. They are, so to speak, insulated from forces producing fluctuations in the private sector because most Government spending is determined by different considerations. Thus the level of security spending is governed by the climate of international politics and the state of the military art, and it changes

¹All data for gross national product and its components, including national security expenditure, have been taken from U. S. Department of Commerce, National Income, 1954 edition (Washington: Government Printing Office, 1954); Survey of Current Business, various issues; Joint Economic Committee and Office of Statistical Standards, Bureau of the Budget, Historical and Descriptive Supplement to Economic Indicators (Washington: Government Printing Office, 1955 and 1957); and Council of Economic Advisers, Economic Indicators, various issues.

Annual equivalents of quarterly values for gross national product and its components are seasonally adjusted unless otherwise indicated.

with these forces. This is not to say that security demand is always stable; only that there is no obvious mechanism that compels it to move in disastrous parallel with swings in investment and consumption. As with most of total Government demand, there is a good chance that it will prove relatively stable in the midst of movements originating in the private sector, particular in the shorter term.

This relative stability of security spending tends to dampen swings in gross product and employment, in particular to check contractions emanating from the private sector by providing a continuing steady flow of income-generating expenditure. In more technical language, it reduces the variance of gross product because security spending is not closely correlated with investment and consumption and because it frequently shows more stability than these other major variables influencing gross product. Again, however, it must be cautioned that security demand itself can shift sharply for sustained periods. It may do so either at the "right" or the "wrong" time, depending upon the strength of forces operating upon expenditure in the private sector.

It will be noted from our review of 1939-57 that when security expenditure has significantly changed, gross product and its other major determinants have not consistently or promptly responded either in the same direction or degree. This is hardly surprising. On some occasions the reason may well be that firms have anticipated changes in security purchases well before they became recorded fact, given that much knowledge about shifts in procurement programs is necessarily disseminated in advance. Perhaps a more basic reason is that investment and consumption also reflect the independent strength or weakness of the private sector. They may move with security expenditure, as in late 1945 and mid-1953, or they may move against it, as in mid-1946 and early 1950. Accordingly, it is particularly difficult to isolate the actual impacts of security spending from a context in which the independent strength or weakness of investment and consumption is often so obscure. This is only another way of saying that the aggregate demand for gross national product is determined by a composite of interacting variables whose behavior is not yet fully known. It follows that it is necessary to guard against simple cause-and-effect reasoning. While at times swings in security spending have proved decisive, they are not the sole factor producing changes in investment and consumption.

It should also be pointed out that security spending is not the only component of total government demand. At times since 1939 it has dominated shifts in government demand, while at others its movements have been offset or complemented by swings in the other categories of government purchases. In 1944 security purchases accounted for 91.8 percent of all government demand, as against 43.7 percent in 1948 and 52.9 percent in 1956.

Because security spending is commingled with other government demands and with demands from the private sector, it is particularly difficult to determine how much product it has absorbed by displacing these other forms of demand. If there is serious unemployment and idle productive capacity, as prevailed between 1939 and mid-1942, security spending probably involves no significant diversion of resources from other productive uses. Indeed, it may well contribute

to higher levels of investment and consumption at such times. In fact we cannot even be finally certain that resources would have been fully employed at all times during the long boom from mid-1942 through mid-1957 if security spending had fallen well below the rates actually established. In some years it may have increased investment and consumption demand, rather than displaced it, and at the same time it may have displaced potential increases in the other types of government demand.

Furthermore, as we show later, security expenditures undoubtedly have contributed valuable side benefits to private enterprise, increasing private product by fostering efficiency, investment, and growth through promoting the development of new products and technologies. On this count as well it would be a serious mistake to consider security expenditure a complete economic loss, granted that it is costly and does divert productive resources from other potential uses.

With this approach in mind, we shall consider next the influence of security spending upon the economy since 1939. This section begins with a few facts regarding the trend of such spending to date. There follows a review of six intervening and mostly short-term movements in gross product, where their ranges, lengths, and turning points are compared with the behavior of security spending.

IMPACTS OF NATIONAL SECURITY EXPENDITURE UPON STABILITY, 1939-57

The trend of security expenditure

Between 1939 and 1956, security expenditure rose from \$1.3 billion to \$42.4 billion annually, or almost 32 to 1. If the intervening extreme years of the period are ignored, this implies a compound rate of growth of about 20 percent per year. Since the rate of security spending has varied sharply with shifts in international tensions, and to a lesser degree with developments in weapons technology, this 20 percent rate of increase cannot safely be projected into the future.

The trend in the cost of national security is indicated by table 1. Between 1939 and 1944, the share of national production claimed by security spending rose from a negligible 1.4 percent to almost 42 percent. By 1956 it had fallen to a modest 10.2 percent, about equal to the 1946 share and exceeding only the low levels of 1947-50. The drop in the defense share from 1944 to 1956, which was interrupted by the Korean war, reflects increased real national output and reduced levels of security spending. On a per capita basis, national security in 1939 cost each American \$9.92; by 1944 it had soared to a peak of \$640.19, dropping back to \$252.12 in 1956.

TABLE 1.—*The changing cost of national security expenditure, 1939–56*

[Current dollars]

Year ¹	National security expenditure				Per capita disposable personal income
	Total (billions) ²	Percent of gross national product	Percent of all Government purchases ³	Per capita cost of national security	
1939.....	\$1.3	1.4	9.7	\$9.92	\$538
1944.....	88.6	41.9	91.8	640.19	1,060
1953.....	51.5	14.2	61.0	322.61	1,568
1956.....	42.4	10.2	52.8	252.12	1,708

¹ The data per national security expenditures begin with 1939. The years 1944 and 1953 were peaks for such expenditure in the intervening period.

² Includes outlays for military service, international security and foreign relations, atomic energy, merchant marine, defense production and economic stabilization, and civil defense. Figures represent Federal purchases for national security as included in gross national product accounts.

³ Federal, State, and local combined.

Source: U. S. Department of Commerce.

Considering the period as a whole, the big increases in security spending came during 1941–44 and 1951–53, when the Nation was at war. Each surge involved considerable price and wage inflation, for which the increased money supply invoked mainly by deficit financing of war expenditure was a major cause. Some qualification must be made for 1950–51, however, when speculative borrowing for inventory expansion, financed by easy credit, touched off a price-wage inflation well before defense spending got fully underway.

Although the absolute cost of national security remains very high today and is rising, the burden of these costs is much less than it was at the wartime peaks of 1944 and 1953. During 1954 and 1955 it fell about 20 percent below 1953, but it turned upward again in 1956, rising to an equivalent annual rate of \$46.3 billion in the second quarter of 1957. For a population of 170.4 million, this represents a per capita cost of \$271.71. If we make the heroic assumption that all security expenditure could be completely abolished with no change in gross national product and with no offsetting increases in the other components of government demand, we could say roughly that per capita disposable personal income (after taxes) in 1957 could then be increased from \$1,757 per annum to \$2,028, or by 15.4 percent. In a crude way this measure indicates the average amount of income each citizen must forgo as the price of national security in 1957. However, calculations of this type assume no decline of national product if security expenditure were wholly abolished.

How does the cost of national security compare with other countries? According to the comparative national income accounts prepared by the OEEC for 1954, the shares of gross national product assigned to defense expenditure were 8.5 percent for the United Kingdom, 7.3 percent for France, and 11.4 percent for the United States. Although the data are not strictly comparable, defense expenditure in the Soviet Union in 1948 (the latest available year) were 8.2 percent of gross national product.² Although the relative share is considerably larger for the United States, it must also be remembered that

² Data for United Kingdom and France from Organization for European Economic Cooperation, OEEC Statistical Bulletin, General Statistics, No. 2 (Paris, April 1956); for the Soviet Union from Abram Bergson and Hans Heymann, Jr., Soviet National Income and Product, 1940–48 (New York: Columbia University Press, 1954), table 6, p. 25.

per capita income levels here are double or more what they are in these other nations.

Wartime expansion, 1939-45

There can hardly be any doubt that the enormous increase of security expenditure that began in the last quarter of 1940 finally ended the long depression of the thirties, propelling the economy into boom times by mid-1942 and compelling continued high-pressure expansion until almost the end of the war. Once these expenditures started to take hold, they induced large increases in private investment, drawing up consumption demand through the accompanying rise of personal incomes. Here is the clearest case on record to show security spending in particular, and government spending in general, in the decisive role of a stimulator to economic expansion. For later movements in the postwar years, however, the evidence is considerably more mixed regarding the causal importance of these expenditures.

The wartime experience is important in two other respects. Relatively effective price and wage controls, coupled to a rapid increase in money supply primarily occasioned by deficit financing, compelled a large accumulation of idle cash held by business firms and the public. Restrictions upon production of investment and consumers' goods, which also promoted the growth of cash balances, built up an impressive backlog of postponed demands. Undoubtedly, the wartime legacies of increased cash holdings and deferred demand together provided powerful support for total demand in the reconversion period that followed the end of the war.

Reconversion, 1945-47

Beginning with the third quarter of 1945, security spending began a steep 2-year drop from a peak annual rate of \$90.8 billion in early 1945 to \$11.7 billion in later 1947, a decline of 87.1 percent. Total government purchases also fell sharply until mid-1947, although their contraction was checked somewhat by offsetting gains in nonsecurity spending. By the final quarter of 1947 total government purchases were running at a \$30 billion annual rate, two-thirds below their peak in 1945.

Despite official predictions of heavy postwar unemployment with the inevitable collapse of security spending, unemployment rose only slightly, reaching a maximum for the reconversion years of 2.7 million persons in February 1946, or 4.9 percent of the civilian labor force. Thereafter unemployment dropped sharply.

The twin inheritance of large cash balances and unsatisfied investment and consumer demands, aided further by continuing easy credit, carried the economy through reconversion with a minimum of difficulty from the side of demand, although the transition was accompanied by considerable inflation. Private gross investment expanded over fourfold between 1945 and 1947, while even inventories gave no real trouble after a brief and modest liquidation in the closing months of 1945. Despite a small drop in disposable personal income in the last half of 1945, consumption expenditure rose rapidly in 1946 and 1947. This increase was strongly augmented by a rapid drop in the abnormally high personal savings rate of wartime. With this unusually strong support from business and consumer demand, gross national product fell only slightly in 1946, rising sharply again in

1947. This recovery, which began in the spring of 1946, has particular interest because it set in against a continuing rapid decline in security spending.

The first postwar recession, 1949-50

Measured by volume and rate of unemployment, this recession began in January 1949, and ended after the first quarter of 1950. However, industrial production had stopped rising in the last half of 1948, fell through the first three quarters of 1949, then started upward again in the first quarter of 1950. Gross domestic investment reached its peak in the third quarter of 1948, declined through the next 5 quarters, and then turned up strongly in the first quarter of 1950, surpassing its previous peak with the second quarter of 1950. Helped along by consumption and government demand, gross national product continued to increase in the last half of 1948, thereafter dropping moderately through all quarters of 1949. By the first quarter of 1950 it had overtaken its previous peak attained in the final quarter of 1948.

Security spending ended its lengthy postwar contraction when it reached its low in the third quarter of 1947 with an annual rate of \$11.7 billion. Thereafter it rose throughout the next 7 quarters, reaching a peak annual rate of \$20.5 billion in the second quarter of 1949, well after the recession had started. During the last 2 quarters of 1949 and the first 1 in 1950, security spending fell off 17.1 percent from its 1949 peak, turning up again thereafter. Total government demand reached its postwar low at \$27.7 billion in the second quarter of 1947, after which it rose strongly to a \$44.4 billion peak annual rate in the second quarter of 1949. Thereafter it held steady in the rest of 1949, dropping slightly during the first half of 1950.

This recession was brief and also shallow. It lasted for 15 months and the decline in gross product from the preceding peak to its lower turning point was only 3.2 percent. By contrast, the start of the downturn in security expenditure lagged 2 quarters behind the peak for gross product in 1948, while it dropped 17.1 percent from its second quarter high in 1949 to its low point in the first quarter of 1950. More important, both security spending and total government demand continued to increase strongly during the first half of 1949, while the downturn in gross product was already in progress. After leveling off in the last half, both categories of government purchases dropped sharply during the first half of 1950, although the lower turning point in gross product had been reached 6 months earlier and was followed by a sharp upturn in the first 2 quarters of 1950. Thus it is difficult to establish any direct causal connection between movements either in security spending or total government demand and the upper and lower turning points of the recession itself.

This conclusion is reinforced by scatter diagram tests. Plotting of absolute quarterly values (for annual rates) for gross product against total government demand in 1948-50 shows no close relationship, either on a current basis or with government demand lagged one quarter. No improvement in fit was obtained by plotting inventory accumulation against net changes in security spending, either with current values or with a one-quarter lag for security spending.

Two further points should be made about this recession. First, the continuing high absolute levels of security spending and total government demand, despite certain intervening movements, may well

have contributed some support to aggregate demand, providing a floor for the recession. However, the onset and pace of the following recovery suggests that demands in the private sector had considerable independent force. Second, consumption showed remarkable strength throughout the recession. Helped by contracyclical stabilizers such as the personal-income tax and unemployment compensation, disposable personal income declined only slightly. Even more, consumers drastically cut personal savings, from a peak annual rate of \$12.6 billion in the third quarter of 1948 to a level of only \$3.2 billion at the end of 1949. Thus consumption in calendar 1949 actually rose \$3 billion over the preceding year, despite the recession in employment and production.

We conclude that security spending probably had more influence in checking the depth of recession than in determining either its turning points or its length.

The Korean War, 1950-53

Significantly, economic expansion had gotten well underway approximately 6 months before the outbreak of the Korean War without additional stimulus from either increased security spending or total Government purchases. During the last half of 1950, gross product continued to rise rapidly, helped along by a sharp increase in prices. An easy money policy was in force and credit advances to businessmen and consumers expanded rapidly, drawing up prices and wages in their train. Large jumps occurred in private investment, centering in inventories and producers' durable equipment. In the final quarter, net expansion of inventories soared to a \$14.7 billion seasonally adjusted annual rate, stimulated by rising prices and expected increases in procurement contracts. Rapid inventory accumulation continued over the first three quarters of 1951. Price inflation reached its peak in March.

For the first three quarters of 1950, national security expenditure showed surprisingly little change, while total Government purchases actually fell slightly. With the fourth quarter, security spending jumped \$4.3 billion, or 24.2 percent. Thus began an almost unbroken rise through the second quarter of 1953, carrying this spending from its 1950 low of \$17 billion to a postwar peak of \$53.3 billion, an increase of more than three-fold. The buildup of defense spending proceeded most rapidly between the fourth quarter of 1950 and that for 1951, after which the rate of increase fell off markedly. Total Government demand moved in similar fashion.

Undoubtedly this lengthy series of increasing injections of security expenditure worked strongly to push the economy upwards at boom levels for nearly 3 years. It did so directly by increasingly powerful impacts upon aggregate demand and indirectly by promoting expansion of the money supply through deficit financing. Yet it must be remembered that the lower turning point of the first postwar recession occurred in the fourth quarter of 1949, with recovery continuing strongly for 9 months before significant increases in security spending had set in and 6 months before war had actually broken out. Evidently independent forces were already effectively at work in the private sector of the economy, although rising military budgets soon accelerated the rate of advance.

Two other facts should be noted about the Korean war boom. First, direct controls were neither as extensive nor as effective as in World War II. Thus there was much less carryover of suppressed inflation and postponed demand when hostilities ended. Second, military claims on gross national product never approached the deep 42 percent cut achieved in 1944. At their second quarter peak of 1953, they absorbed slightly less than 15 percent of total output. This, too, meant much less diversion of private civilian demand, hence much less postponed claims for the period following.

The second postwar recession, 1953-54

The Korean armistice was executed July 27, 1953, whereupon expenditures on national security began a lengthy contraction lasting over 18 months. From their peak annual rate of \$53.3 billion in the second quarter of 1953, they fell steadily to \$40.1 billion in the last quarter of 1954, a drop of almost 25 percent. Total Government demand declined over the same period, though at a much slower rate, dropping from an annual rate of \$85.5 billion in the second quarter of 1953 to \$74.2 billion at the end of 1954, or by 13.2 percent. The \$13.2 billion decline in security spending during this period was partially offset by a substantial increase in purchases by State and local governments.

In timing, the onset of this recession in the third quarter of 1953 corresponds closely with the downturns in security spending and total Government demand, while, as scatter tests indicate, there was also a clear association between the downward course of both types of Government purchases and that for the economy as a whole, lasting through the last half of 1953. Gross national product dropped \$9.9 billion between the second and fourth quarters, or by 2.7 percent. Thereafter it remained level for the first three quarters of 1954. Investment in business inventories contracted sharply in the third quarter of 1953, turning strongly negative in the fourth. Inventory liquidation continued until the fourth quarter of 1954, although substantial renewed accumulation did not occur until the beginning of 1955. The relationship between the behavior of inventories and of security spending was direct and rather close. Some connection is also evident between gross domestic business investment and security spending during the last half of 1953, but not thereafter.

The connection between security spending and overall economic activity is much less clear for 1954. The former continued to contract at a rate of about \$2.3 billion each quarter, while gross product held level for the first three quarters, turning up very strongly in the last and even more sharply at the beginning of 1955. Clearly, the recession was over with the end of 1954.

Thus this recession shows a marked asymmetry in behavior. Its downward and initial phase of decline corresponds well with the drop in security spending and in total Government demand, and it is reasonable to attribute an important causal role to the contraction of security spending here. By contrast, the subsequent upturn and sustained recovery exhibit no direct connection with security spending or Government demand. This suggests that, as in 1949-50, recovery was invoked by the strength of forces initiating in the private sector of the economy. The evidence for this is quite conclusive. Gross private domestic investment experienced sharp increases in the second

and fourth quarters of 1954 and again in the first quarter of 1955, largely under the influence of the construction boom which set in with the second quarter of 1954 and the cessation of inventory liquidation at the end of the year. Consumption also offered powerful support to aggregate demand. Throughout the recession, it fell absolutely only once—in the last quarter of 1953, when the drop was negligible. Consumption rose throughout 1954 on an average of \$2.7 billion per quarter (annual rates). The favorable behavior of consumption reflected three influences: The support afforded to disposable personal income by the contracyclical stabilizers; an increased propensity to consume rather than to save income; and easy credit for consumption loans.

What, then, can be said about the impacts of security expenditure upon the recession as a whole? First, the timing and rate of its decline were the main reason for the initial 6 months' drop in total economic activity. This suggests that sudden sharp changes in government purchases can invoke broader effects in the same direction. Second, while the drop in security spending was severe, it reached bottom at \$40 billion, propping up total government demand at a minimum of about \$75 billion, or 21 percent of gross product in 1954. We may view the fluctuations in both classes of government spending as falling within a band whose outer limits in these times have consistently represented a large component of total demand. The relative stability of government demand and its relatively high proportion of aggregate demand means that the government sector has put a firm floor under the whole economy. On this interpretation government demand very probably checked the depth of the contraction, in this way shortening the length of the recession while also keeping it relatively shallow. Put differently, the underlying strength of government demand probably contributed to the resiliency and vitality of forces operating upon aggregate demand from the private sector of the economy. However, sudden sharp changes within the Government sector can invoke corresponding movements in the whole economy, notwithstanding government's overall contribution to stability.

The investment boom, 1955-57

The upsurge in production in the closing quarter of 1954 continued even more strongly throughout 1955. During this time security spending ran steadily at about a \$41 billion annual rate. Total government demand jumped \$2 billion in the first quarter, staying at \$76 billion for the next 2 quarters, then rising moderately in the last. Despite the strong tide of expansion, which lifted gross national product from \$367.1 billion (annual rate) in the last quarter of 1954 to \$401.9 billion in the last quarter of 1955 (up 9.5 percent), relatively little stimulus came from the Government sector other than the continuing broad basis of support afforded by the stability of security spending and total government purchases.

What actually occurred was an impressive boom in private investment, aided by a strong collateral rise in consumption. Between the closing quarters of 1954 and 1955, gross private domestic investment soared from an annual rate of \$51.5 billion to one of \$65.1 billion, or by 26.4 percent. This growth rested upon large increases in producers' plant and equipment, business inventories, and new construction.

During 1956, the expansion continued. Gross product rose an additional \$24.1 billion between the final quarters of 1955 and 1956, or at the somewhat slower rate of 6 percent. Moreover, part of this increase reflected rising prices, which started upward after mid-1955. Gross private domestic investment stopped rising for the first three quarters of 1956, jumping upward again in the last. Producers' plant and equipment continued to record large gains, while inventory accumulation moved irregularly and new construction stayed level. Security spending held constant for the first half, but started upward in the last, reflecting, in good part, rising prices for hardware and materials. Total government demand rose slowly but steadily throughout the year. During the first half of 1957, both components of government demand moved upward strongly once more. By contrast gross investment dropped, reflecting declines in construction and inventory accumulation, although plant and equipment held steady.

The turn upward and subsequent marked increase in production and employment that began with the final quarter of 1954 appear to have little direct connection with the behavior of security spending and total government demand until the end of 1955. However, it must be noted again that the stability of the Government sector at this time probably contributed indirectly to the buoyancy of demands originating in the private sector. From mid-1956 to mid-1957, the resumed rise in security purchases doubtless helped to prolong the boom at a time when gross private investment had stopped increasing. Total government purchases had the same broad effect, in somewhat larger degree.

IMPACTS OF NATIONAL SECURITY EXPENDITURE UPON ECONOMIC GROWTH, 1939-57

The impacts of security spending upon long-term expansion in the economy pose two main problems. First, what is the connection between such spending and the realized rate of growth since 1939? This question requires evaluation of the issue whether security spending has primarily supported and supplemented or has mainly displaced private demand. Second, have security expenditures for research and development had any significant influence upon technology, investment, and economic efficiency within the sphere of private enterprise? This problem deals mainly with the contribution of government-sponsored research and development programs to the reservoir of economically usable inventions, hence to the productivity and potential growth of the economy.

Security expenditure and realized growth, 1939-57

Suppose there had been no increase in security spending after 1939: would private investment have recovered sufficiently to have carried expansion forward either at the rate actually realized or perhaps at an even faster rate? Or suppose that security spending had remained at the \$11 billion annual rate to which it had declined by late 1947 instead of quadrupling thereafter: would subsequent growth have achieved or exceeded the rate actually realized?

These questions go to the issue of whether security spending merely displaced an equivalent or perhaps even greater amount of private

spending, particularly investment, or instead mainly supplemented such spending and thereby stimulated higher levels of production and demand than otherwise would have occurred. Admittedly, no final and conclusive answer can be devised, for it is impossible to determine how investment, consumption, and other categories of government demand would have behaved if security spending had not reached the levels it actually did. Nonetheless, some speculation is in order.

If we appeal to the past, we can say that the history of the American economy does contain periods of rapid and sustained expansion without benefit of substantial expenditure on national security. However, we would then have to recognize also that depressions have followed these past expansions, reflecting the instability of private investment. Even more, we have to confront the deep and protracted depression of the thirties, which, prior to the advent of the war-induced boom, seemed to have no visible end.

The development of a point of view regarding the role of security spending in overall growth after 1939 depends directly upon how one regards the strength of the inducement to private investment, since the hypothetical reduction of the actual levels of security spending implies a large potential increase in absolute savings. Either private investment would have absorbed fully these additional savings or the economy would have faced either continued depression or eventual deflationary collapse. Followers of what Fellner calls the Keynes-Hansen pessimism and the Schumpeterian pessimism point to alleged weaknesses in the inducement to invest, which suggests that security spending actually supported a higher rate of growth.³ On the Keynes-Hansen reasoning, capital tends to accumulate more rapidly than population and natural resources, which lowers the rate of return on new investment and weakens the inducement to invest. By contrast, the Schumpeter argument points to the rise of the modern ideology of security and of greater income equality, suggesting that it gradually takes the profits out of innovation while also making innovations themselves more difficult to introduce.

Neither of these views is unassailable, either in reasoning or in supporting evidence. However, this is not the place to consider them in detail. It need only be said that the ultimate question they imply is still moot and probably will remain so.

Even if one does not adopt either of these pessimistic views, there is a persuasive argument for the contention that during 1939-57 security spending promoted a higher realized rate of growth than otherwise would have occurred. First, it can hardly be denied that the lengthy series of increasing injections of military demand beginning in late 1940 ended the protracted depression of investment and production prevailing throughout the thirties. While the banking and international monetary system undoubtedly compelled extreme liquidation with its attendant general mood of deep pessimism in that decade, the rapid rise of security spending was the decisive force invoking revival and prosperity within the context of given monetary institutions. Accordingly, it follows that security spending hastened and intensified recovery, making a higher growth rate possible at least in the forties.

³ William Fellner, *Full Use or Underutilization: Appraisal of Long-Run Factors Other Than Defense*, *American Economic Review*, Papers and Proceedings, XLIV: 2 (May 1954), pp. 424, 428-431. For an evaluation of the stagnation hypothesis, see also George H. Hildebrand, *Defense Expenditures and the Problem of Deflation*, *ibid.*, pp. 419-420.

Second, the normal experience of the American economy in the more remote past has included the boom-depression sequence. Yet no depression intervened during the long boom after 1942, while the three downturns that did occur (1945-46, 1949-50, and 1953-54) proved remarkably mild both in depth and duration. It is reasonable to conclude that the continuing high absolute levels of government demand, of which security spending has been at all times an important and often dominant part, has at certain times offset weaknesses in the private sector and at others has contributed to the buoyancy of private demands. If so, then the realized rate of growth since 1942 has been higher than what would have been attained with much lower levels of security spending and of total government demand.

Finally, the research and development programs supported by security spending had led to a large group of fundamental inventions, as we show in the next section. This new body of technology has permitted economies in existing types of production, while at the same time opening up a whole range of new products and even new industries. This has meant increased private investment and consumption, leading in turn to more rapid expansion in the private sphere itself. Here again, therefore, the rate of overall growth has been promoted by security spending.

The contribution of security expenditure to research and technology

Writing in 1952, S. Colum Gilfillan, a lifelong student of technological change, declared:

The most striking change that has come over invention, a change that is universally overlooked * * * is that invention has latterly come to be chiefly pursued by the Federal Government and sometimes other noncommercial organizations, so that patenting is now a rare motivation, having force perhaps for 15 percent of all invention. * * * Invention has followed the path of science, except that fundamental civil inventions, the most valuable of all, are still nobody's baby.⁴

Testifying in 1955 before the Subcommittee on Economic Stabilization of the Joint Committee on the Economic Report, Dr. A. V. Astin, Director of the National Bureau of Standards, stated that "the great majority" of the current developments in scientific research and its practical applications could be credited to war and defense expenditures.⁵ Looking at the rise of war-borne technologies, Dr. Vannevar Bush has observed that—

What is new is an accelerated pace in the application of new techniques in industry. And this is part of a very important general movement, namely the planned application of scientific results in an economic manner for the increase of man's physical well-being.⁶

Clearly, the needs of modern warfare have brought about a close union of government, research, and business enterprise—a union centered upon the planned application of science to the creation of

⁴ S. Colum Gilfillan, *The Prediction of Technological Change*, Review of Economics and Statistics, XXXIV: 4 (November 1952), p. 374.

⁵ *Automation and Technological Change*, hearings before the Subcommittee on Economic Stabilization of the Joint Committee on the Economic Report, 84th Cong., 1st sess., p. 584.

⁶ *Ibid.*, pp. 613-615.

practical new technologies, promoted in large part by government funds, and laden with major implications for the American economy.⁷

Atomic energy is the best known of the new technologies, and, of course, is now the classic illustration of this new alliance. Here popular interest has centered upon atomic power, although the allied production of radioactive substances is finding important new uses in food preservation, agronomy, medicine, and industrial chemistry.⁸ Two other war-inspired technologies, automation and electronics, had their inception in problems of fire control, missile guidance, and production of precision parts.⁹ In all these instances the knowledge provided by theoretical science has been translated into practical technologies largely by the support of military funds. Similar impetus has been given the rapidly developing technology of synthetic chemistry, with its new plastics, fibers, ceramic materials, and metal alloys.

Dollar measurement of the contribution of security spending to research and development is particularly treacherous, mainly because it is impossible to draw a precise distinction between expenditure on research and development as such and on testing, procurement, and modification of military end products. Moreover, it is necessary arbitrarily to exclude or include common overhead costs borne by the Department of Defense, and these are substantial. To illustrate, the National Science Foundation, using a restrictive definition, estimated that the Department would spend \$1.6 billion on research and development in fiscal 1956-57, but found that with the inclusion of certain allied costs the figure would rise to almost \$5.2 billion.¹⁰

Proceeding from the conservative estimates developed by the Foundation, it will be found that research and development expenditure by the Department of Defense was only \$26.4 million in fiscal 1940. With the inclusion of outlays by the Manhattan Engineer District (Atomic Energy Commission from 1947) beginning in fiscal 1943, total research and development spending in the national security category soared to \$1,372 million by 1945, or 86 percent of all Federal expenditure for research and development purposes. A sharp drop occurred through fiscal 1947, followed by rapid expansion again during the Korean war. For fiscal 1957 total outlay was projected at \$2,145 million. In recent years, major increases have centered in missile development and atomic research. Together, the Department of Defense and the AEC now account for about 85 percent of all Federal research and development expenditure.¹¹ Research outlays by private industry are now running at about \$3 billion. If the indirect expenditures of the Department of Defense are included, total govern-

⁷ For a thoughtful analysis of the long-run possibilities in these developments, see *The Scientific-Industrial Revolution*, a study published in 1957 by the investment house of Model, Rowland & Stone, 120 Broadway, New York, N. Y.

⁸ Dr. W. F. Libby, member of the Atomic Energy Commission, recently reported to a UNESCO conference in Paris that radioisotopes were currently saving American industry about \$406 million a year and might reach \$1 billion a year by 1963. W. F. Libby, *The Economic Aspects of Radioisotope Utilization*, release dated September 17, 1957.

⁹ According to Dr. Astin, ENIAC, the first all-electric digital computer, was connected with the formulation of bombing and firing tables in World War II. Automation drew powerful impetus from the Army's Rockford ordnance plant, which was conceived in 1941 for production of complicated metal parts in a fully automated process. Automation hearings, op. cit., pp. 569, 587.

¹⁰ National Science Foundation, *Federal Funds for Science, V: The Federal Research and Development Budget, fiscal years 1955, 1956, and 1957* (Washington: Government Printing Office, 1956), p. 19.

¹¹ *Ibid.*, pp. 46-47.

ment and private outlays in 1957 may well reach \$9 billion, with government accounting for about two-thirds.¹²

There is no precise way to measure what the dollar impacts of national security spending on research and development have been and will be for the economy, granted that they have already become important and promise even more for the future. That they are fostering continued growth is undeniable. From the side of investment in the private sector, four main effects can be discerned. First, the emergence of the new technologies is invoking investment in new industries. Electronics is the foremost example here. Second, these technologies are enabling existing industries to develop a new range of equipment, instruments, and materials, replacing, improving or extending old types of production. Computing machines, control devices, and synthetic chemicals well illustrate this case, where private investment is induced to create new or modify old plant and equipment. Third, the tools and materials forthcoming from the new technologies are making possible economies of production in other industries, calling forth new investment to finance cost-saving innovations and increased output. Automatic equipment and controls for the factory and on the railroads, and computers and recordkeeping equipment in the office, all exhibit this effect. Finally, looking some distance ahead we can expect considerable indirect investment induced, for example, by changes in the location of industry made possible by the new technologies.

To date, the impacts upon investment have probably been relatively small, save, perhaps, for the current investment boom. A similar verdict is indicated for consumption, where expansion of existing demands becomes possible with lower costs and improved quality, and an array of new demands emerges with the appearance of new products.

It would be a mistake to credit the whole of these advances to military support for research and development, or to conclude that security spending is the only means to continue their promotion. The primary role of theoretical science and the collateral contributions of private research must also be recognized. What can be said, however, is that security spending has made, and is continuing to make, a large contribution to a technological development of great pending importance to the private-enterprise sector and to the economy as a whole. Military expenditure is not all dead loss, by any means. While it can be argued that some of these advances might well have emerged from private sources without benefit of any government support, it seems equally clear that the risks and large costs of initial experimentation and development in some of these fields did make government aid essential to their successful exploitation. Atomic energy and radioactive products are a strong case in point. Furthermore, it seems equally obvious that the urgencies of modern warfare, whether hot or cold, when backed by ample funds, have proved decisive in invoking the close union between systematic research and its practical application, setting off the revolutionary chain of technical advances recorded since the early forties. In consequence, the potential rate of growth in the economy may well be even higher in the next two decades.

¹² Executive Offices of the President, *Economic Report of the President*, transmitted to the Congress, January 27, 1957 (Washington: Government Printing Office, 1957), pp. 59, 60.

SECURITY EXPENDITURE, STABILITY, AND GROWTH IN THE FUTURE

Security expenditure as a tool for fiscal policy

Assuming, with the Employment Act of 1946, that fiscal policy is to serve as an instrument for maintaining short-run stability and long-run growth of employment and production, how does security spending fit these purposes?

It must be conceded at the outset that security spending is a discretionary type of demand of relatively large size, dependent upon appropriations from Congress and recommendations and decisions by the executive branch. It does not significantly change automatically when national income increases or decreases. By contrast, contracyclical stabilizers, such as the personal income tax and unemployment compensation, do automatically tend to increase or decrease disposable personal income in a way that dampens swings in national income. Instead, security spending today is determined by decisions taken by government authorities a year or more in the past. At times, such spending may hold steady when the economy is either expanding or contracting, while at other times it may change, either contracyclically or perversely, with business swings. When security spending moves contracyclically, it helps to dampen business movements; when it moves perversely, it intensifies them. Thus it can be either a stabilizer or destabilizer for the economic system. Moreover, the stabilizing or unstabilizing role of security spending is now largely determined by forces independent of the level of business activity, which narrows the scope for discretionary action.

Two forces, basically, control decisions about security spending. The principal one is the state of international tensions, while the development of weapons technology comes second. Neither factor has a close or direct connection with the level of employment and production. About the only influence business activity has upon security spending is to impose a rather indefinite ceiling with full employment and inflation in peacetime. Even here, the independent rationale for a given policy of national security imposes certain rigidities in security purchases, rigidities that recently have forced up security outlays, feeding the inflation.

This fact has important implications for fiscal policy as a tool for promoting economic stability and growth. First, shifts in security spending are likely to be erratic relative to business fluctuations. They may well prove unstabilizing at times, feeding booms or contractions rather than helping to offset them. Second, if security expenditure were to be used to reduce swings in business activity, it would pose a serious prediction problem because of its discretionary nature. The future course of the business swing must be foreseen in time, decisions to spend and appropriations must then be shaped accordingly and in time, and the desired impacts to follow must arrive in time to help offset the developing course of economic change. Here, successful results are threatened by the possibility of erroneous prediction, which would make the change in security spending unstabilizing, by the lengthy lag between the initial decision and its later effects, and by the inherent rigidity of most security requirements. Actually, most of these handicaps confront any discretionary policy of public spending, such as public works, but the inherent rigidity of defense

expenditure presents an added handicap not present in a public-works program.

These considerations provide a strong case for allowing security spending to be governed mainly by the requirements of America's world strategy, rather than attempting to use it also as a device for deliberately promoting stability and growth. For the latter purposes, security spending must compete with other, more flexible, discretionary tools, such as public-works spending, changes in taxes, and monetary policy. The scale of public works can be more readily adjusted to business conditions, while the works themselves are more likely to provide genuine public benefits than would military expenditures not independently justified by strategic requirements. For slumps, tax reductions clearly add to public benefits, because they permit the public itself to buy more goods and services of its own choosing. Accordingly, an efficiently administered security program would be guided by its primary and exclusive purpose; national defense in an uncertain and rapidly changing world.

Impacts of a major cut in security expenditure

If the requirements of national security were to drop greatly with an outbreak of major disarmament and international peace, what problems would be posed for economic stability and growth?

For the short run, a serious deflationary situation would confront the entire economy, with particularly severe impacts upon communities heavily committed to the production of armament. If, as seems reasonable, we assume a multiplier of 2.5, then even a \$10 billion cut in security spending would imply a decline of \$25 billion in gross national product, barring offsetting increases in private investment, consumption, or other components of Government demand. Since national product must increase about \$15 billion a year at constant prices to maintain full employment with a growing labor force, a defense cut of this scale would require extensive Government actions to support aggregate demand. Unlike 1945, there would be no large-scale carry-over of postponed investment and consumption demand to fill the gap occasioned by the drop in security spending. Undoubtedly, the problem would require prompt tax reductions to avoid excessive budget surpluses and to stimulate private spending, along with the stimulus of easy money and, probably, programs for increased Government spending.

Even if the initial transition to a much lower level of security spending were successfully made, there is little doubt that the problems of stabilization and continued growth would become more difficult thereafter. The reason is that the economy would then be more vulnerable to fluctuations in private investment than at any time since the twenties. Since private investment has proved very volatile historically, the risk of recurrence of major business cycles necessarily increases with the loss of a considerable part of the supporting strength now afforded by Government demand. If, to some extent, the savings from reduced defense outlays could partly be used to provide additional Government works and services now necessarily deferred with the continuing high costs of national security, then the stability problem would become less acute for this, perhaps, fanciful future world. Since the savings on defense would not likely be absorbed

fully in this way, fiscal-monetary management would have to be particularly sagacious as well as fortunate if it is to maintain stability.

Clearly, too, the outlook for continued growth in such circumstances would depend more heavily upon the long-run strength of the inducement to private investment. From the Keynes-Hansen or Schumpeter points of view, the prospects are not encouraging, barring a substantial permanent rise in Government spending. Even short of these types of pessimism, there is always the risk that the flow of labor-saving capital improvements of recent years may not continue forever. Against this possibility is the high promise of the new technologies, which justifies some optimism about the prospects for a sustained high level of private investment and growth for some years to come. Any final view must necessarily be speculative, although it is certain that the tasks of fiscal and monetary management with a greatly reduced level of security spending would be harder, rather than easier, than they are now.

CONCLUSIONS

This lengthy review of experience since 1939 suggests several inferences about the impacts of national-security expenditure upon the economy, in the past and in the future. These are summarized under the headings of stability and growth.

Stability

1. When major contractions in security spending can be foreseen, as at the end of wars, they are likely to induce a downward turning point in total production, as occurred in the third quarters of 1945 and 1953. The impact is transmitted mainly through inventories and, to a lesser extent, through new construction.

2. The timing of turning points into recovery bears no close connection with upturns in security spending, although anticipations of such upturns can occur, as in mid-1950. Slow but steady expansion occurred for seven quarters beginning in 1939 before a marked advance of security spending was recorded. Recovery set in strongly in the second quarter of 1946 while security spending was still sharply contracting. Recovery started again in the first quarter of 1950, while security spending failed to advance until the fourth.

3. A sharp and sustained contraction in security spending, when foreseen, will induce a collateral fall in general activity, with the length of this collateral drop dependent upon the independent strength or weakness of demands in the private sector. In 1946 these demands were unusually strong, and the general downturn lasted only 9 months, beginning with the third quarter of 1945. In 1953-54 the parallel movements lasted for only 6 months; after 1953 gross product leveled off for three quarters and then rose strongly, while security spending continued to contract throughout 1954.

4. A sharp and sustained increase in security spending can induce general expansion, although the latter can also occur independently. The stimulating effect of increased security spending is shown for 1940-44; from the last quarter of 1950 through the second quarter of 1953; and, to a lesser extent, during the last half of 1956 and first one of 1957. By contrast, general recovery proceeded for 9 months in 1950 without direct support from increasing security spending;

the same was true for 18 months beginning with the fourth quarter of 1954.

5. The rise of total government demand, strongly helped by increased security spending, to a probably enduring level of 20 percent of gross national product has contributed considerably to the stability of aggregate demand. The reason is that government demand is sheltered from contractions emanating from the private sector. This does much to explain the brevity and shallowness of the three postwar contractions and the absence of a major depression since 1941. Government demand also contributed to the buoyancy of private demands in the postwar years.

6. By promoting full employment and exhibiting rigidity in its claims upon total physical product, security spending has contributed to inflationary movements of wages and prices at certain times. This is true of 1941-45, 1950-53, and to some extent of the current inflation of 1955-57. However, all of the inflationary movements since 1939, including that during 1945-48, have also involved a rapid increase of money supply and some associated increase in money velocity.

7. Security spending is determined primarily by international tensions and the state of the military art. Thus it is both inflexible relative to general economic movements and at the same time susceptible to sudden changes that might well prove unstabilizing for the economy. As a discretionary tool for promoting stability, it has much less to commend it than public-works programs, tax changes, and monetary policy. If, by reason of major disarmament, security spending could be greatly reduced in a short period, it could provoke a severe deflation problem. Barring an offsetting increase in other types of government demand over the longer run, a major cut in security spending would make the tasks of fiscal and monetary management considerably more difficult than they are even now, granted that the savings would be welcome from other points of view.

Growth

1. Judgments about the effects of security spending upon the long-run rate of growth in the economy since 1939 depend, basically, upon a choice of speculative views regarding the strength or weakness of the inducement to private investment. The issue of progress versus stagnation is unresolved and probably will remain so. While no definitive answer to this issue can be supplied, there is a persuasive argument that security spending did raise the realized rate of growth since 1939. First, the rapid increase of military demand from late 1940 very probably hastened the end of the great depression. Second, the sustaining force of security spending and government demand probably did much to keep the postwar contractions brief and shallow, while it is noteworthy that no major depression has appeared since 1941. Finally, military spending for research and development undoubtedly fostered the growth of new technologies and products, aiding private investment and consumption and promising much more for the future.

2. There has been a close connection between military expenditures for research and development and the emergence of automation, electronics, synthetics, atomic energy, and radioactive substances. These discoveries have created new industries and have brought about

new products and methods in old ones, provoking an unprecedented current interest in systematic research. On this count alone, security spending has not been a complete economic loss. However, there are alternatives to security spending as a means for the Government to promote research, and the contributions of theoretical science and of private industry to these developments should not be overlooked. Nonetheless, the defense program and the urgencies of modern warfare have played a decisive role in promoting the revolution of production technology since 1940. The effect may well be an increase in the potential rate of growth of the economy in the future, and at the same time an increase in the rate actually achieved.

FEDERAL SPENDING FOR NATIONAL SECURITY

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I propose first to list and then to discuss briefly seven factors which can be expected to influence current and future trends in Federal spending for national-security purposes. The list is illustrative rather than exhaustive, but it is sufficiently complete to show that the level of expenditures is determined by a wide variety of causal factors. To trace their future consequences with all of the resulting interactions requires intensive and, in some respects, a novel type of analysis. I shall have a few things to say about studies which I believe are deserving of attention by this committee.

Major elements examined are:

1. External political, military, or economic pressures which can lead to either reduction in or expansion of the size of our military forces and affect the quality of their armament.

2. The possibility that East and West may adopt a system of mutual inspection leading toward weapons control. Such a system, if adopted, might initially cost more than the weapons it would at first displace.

3. Possible decisions to use international forces in place of national ones to deal with aggression and to maintain order among the countries of the world.

4. Changing technology which may result in more effective weapons or vehicles of war. These may be introduced in this country, a friendly country, or a potential enemy. Such innovations are more likely to be expensive than cheap.

5. Domestic demands for economy in government or, more appropriately, internal United States demands for lower levels of Federal expenditures.

6. Inflation or deflation in the price level in the United States or more specifically in prices paid for goods and services consumed in the national defense.

7. Impact of budget and procurement decisions made prior to June 1957, as they will affect actions that can be taken in fiscal years 1959 and 1960.

On the basis of an extensive analysis of these factors a generalized forecast will be undertaken and suggestions offered for subject areas meriting more intensive study. Before turning to a discussion of these points a brief summary of national-security expenditures in recent years may be of interest.

RECENT DOLLAR TRENDS

Although the past is not always a reliable indication of what we shall do in the future, it can provide a measure of the way in which we have responded to advances in technology and our changing role

in world affairs. National-defense expenditures and gross national product for the years 1947-56 were:

[In billions of dollars]

Calendar year	National defense expenditures ¹	Gross national product ¹	National defense expenditures as percent of gross national product	Calendar year	National defense expenditures ¹	Gross national product ¹	National defense expenditures as percent of gross national product
1947 -----	12.3	232.2	5.3	1952 -----	46.4	345.4	13.4
1948 -----	11.6	257.3	4.5	1953 -----	49.3	363.2	13.6
1949 -----	13.6	257.3	5.3	1954 -----	41.2	361.2	11.4
1950 -----	14.3	285.1	5.0	1955 -----	39.1	391.7	10.0
1951 -----	33.9	328.2	10.5	1956 -----	40.4	414.7	9.7

¹ Source: Survey of Current Business, July 1957, pp. 8-9.

Expenditures during 1954-56 were about three times the pre-Korea level but substantially below the heaviest annual outlays induced by that crisis.

For fiscal year 1958, the combined actions of the Office of the Secretary of Defense and the Bureau of the Budget will try to hold expenditures to a level considerably below that implied by the original force structure projections. The effect of these efforts will be to stretch out existing procurement objectives, to slow up the rate of development of new weapons systems, to reduce force size, and to lower the manning, equipping and activity rates of combat units. It will reduce our flexibility in dealing with external political, military or economic pressure and ability to respond to changes in the technology of military equipment. However, it will bring expenditures to something like the budget estimates previously made for fiscal year 1957 and fiscal year 1958. In this connection, it should be noted that both the January 1956 and 1957 estimates of expenditures turned out to be substantial understatements; but even so drastic actions as those taken in May-July 1957, may not be sufficient to cut expenditures back to the level of the original estimates. Attention must be given to liabilities the Government has under existing contracts which frequently mean that a cutback in quantity or spreading of deliveries does not automatically result in savings in payments commensurate to the cutback.

EXTERNAL POLITICAL PRESSURES

There are continuing discussions between East and West on reduction in force and curtailment in the rate of improvement in future equipments. Against this are rumblings of Taiwan, continuing turmoil in the Middle East, northwest Africa and southeast Asia. There also is pressure from Japan, West Germany, Yugoslavia and many other countries for stronger national military forces based in part on economic aid from the United States. Probably most important is the breaking of Churchill's "truce of terror" by nuclear developments among the previous have-not countries. For the moment this seems to be producing a major change in both our foreign policy and ideas about military power.

These pressures are likely to continue. There is and will continue to be widespread debate in this country both on the kind of actions we should take and on the size and composition of military forces

which the United States should have as a result of following one or another policy. Without in any way dealing with the question of what we should do, it is this writer's belief that over the next 5 years—barring a new crisis—this debate will result in decisions which will tend to lower national security expenditures. The result will not be based so much on facts brought out by objective analyses of these issues as it will be on the pressures within the United States for lower taxes and for reduction in the Federal debt. Since as a practical matter substantial reductions can be obtained only by cutting national security expenditures, and because there will be widespread uncertainty as to what we should do about our own armament and the arming of our allies, it will be in these areas the reductions will be made.

Such a cutback by the United States can only result in a net reduction in the total military capability of the free world. Although there is every reason to assume that the Government will interpret external political pressures so as to justify our reducing national security expenditures, intensive and objective study of the problem also should be made. We should examine all possible lines of action and try to avoid taking steps which might result in our ultimate international embarrassment.

MUTUAL INSPECTION

The possibility of agreement on plans for mutual inspection by air is attractive for a variety of reasons. I will not try to summarize or analyze the basic proposals but will limit myself to the probable impact on national security expenditures.

The objective is a reduced probability of war, lesser likelihood of surprise attack and surprise developments in lethality of weapons. From this flows the possibility of smaller forces in being, lower expenditures for new equipment, smaller outlays for development of future weapons and equipment, in short, lower national security expenditures.

That may be the final result. In the immediate future, let us say through 1960-62, the impact on defense expenditures would be determined by the extent to which the inspection function is added to other security activities or made a substitute for them. It seems reasonable to assume that we will not sharply curtail or drop selected military and nuclear activities until we have some assurance that the inspection program will produce the desired results. That does not mean that some earlier proposals for expansions will not be eliminated or curtailed, but it seems unlikely that in the next few years such an agreement of itself will produce a net lower total expenditure.

If these assumptions are accepted, it means that the inspection responsibility will call for additional expenditures not now in the budget. Vehicles will have to be built or modified to perform this function, larger quantities of certain equipments will be needed, and additional men will be required in numerous specialties for which additional training will be needed. To perform inspection from the air may require a substantially expanded flying hour program over the level now projected. Although some substitutions will be possible, this new responsibility will, at least initially, call for an increase in national security expenditures.

POSSIBLE SUBSTITUTION OF INTERNATIONAL FOR NATIONAL FORCES

International forces have been used on several occasions in recent years, notably in Korea and in Suez. In addition, the United States has entered into about 70 alliances providing for joint or bilateral military action. Our policy since 1945 has been to seek joint action at the multination level to maintain world order and preserve the status quo. It seems likely that, with uncertainties about the policy we should follow now that the nuclear technology barrier has been broken, and as a part of our effort to reduce national security expenditures, we will take actions which reduce the size of our forces and the up-to-dateness in their armament. The reasoning which justifies these steps will include emphasis on the possibility of preventing aggression and maintaining order through joint international action.

Every effort should be made to safely pursue paths leading toward joint international action not only because they will permit lower Federal expenditures for national security, but more importantly because world peace may be attained through such actions. Nonetheless, idealism in itself is little protection against men and armor. For that reason, it is important that as we move toward arms reduction we should continue to make the most intensive study of the risks involved in the steps required to implement such a policy.

Unless and until the international police force has sufficient strength and freedom of action to preserve peace and order, it is essential that we have adequate insurance in the form of forces in being against possible failure of the machinery on which we are planning to place our reliance. Since this will be a very delicate situation, it will require the most objective analysis of all of the possibilities in order to protect ourselves against unforeseen and potentially catastrophic risks.

TECHNOLOGICAL CHANGES IN MEANS OF WAR

Improvements in the weapons, vehicles, and related equipments used in warfare have been so rapid in the past decade that it becomes very difficult to project future growth. Nonetheless, developments now in process indicate further changes just ahead. Some of these will tend to reduce costs, but most of them will mean substantially higher unit prices for future procurement. Probably equally important in an expenditure analysis is the likely sharp increase in outlays required for research and development.

I will not attempt to cover even a major fraction of the possibilities, but, instead, will rely upon an illustration. Improvements in the means of propulsion now indicate the possibility of very much faster airborne equipment—both manned and unmanned. Introduction of these improvements will require basic changes in the materials used in the vehicles. Although there are numerous possibilities, the most likely ones seem to be a change from aluminum and magnesium to alloyed steels.

Such a shift will mean not only an increase in cost per pound of the material required but, more importantly, a twofold to fourfold increase in the material fabricating expenditures and the investment in fabricating equipment. That will mean substantially greater outlays per unit of output. To profit from these possibilities, substantial research and development is required, both in metallurgy and in fabri-

cation processes and equipment. The net effect is likely to be that we will have to choose between modernizing and maintaining the level of expenditures now being set for national security purposes.

Although we can make a unilateral decision to do as much as possible within a prescribed budget, activity outside the United States may force us to review that decision. Western Europe is rapidly expanding its technology. Changes are taking place in Japan, India, Australia, South America, et cetera. In the last few years we have come to recognize how badly we had underestimated the scientific and technical capabilities of the U. S. S. R.

The Government can hope to lead the world in invention and innovation in the means of war and to do this within a fixed and relatively lower budget. However, if results in both friendly and potential enemy countries demonstrate this hope to be a false one, I assume that we will review and, if need be, change the previously established policy.

Once again, careful evaluation is required to determine the precautions required to avoid possible future embarrassment. The research and development lead time is even longer than that for manufacturing. If the technological change is the product of a potential enemy, money may not be able to buy us the time required to catch up. We must, therefore, set a level of research and development which promises to keep us at least abreast of the rest of the world, and maintain both a manufacturing capacity and military capability which will permit us to introduce important interventions or innovations quickly.

UNITED STATES DEMANDS FOR LOWER FEDERAL EXPENDITURES

For many years a sizable and influential part of our citizenry has been very much concerned about the large portion of our national product which goes into government spending. Some of their criticism has been aimed at the level of spending; in part, it is concerned with the kinds of taxes levied and their impact on individual and corporate incomes and on estates; and, to some extent, it has arisen from apprehension concerning the inflationary result of continuing government spending at high levels.

Steady growth in gross national product and the lessening impact of government expenditures on disposable income has not reduced this dissatisfaction, and outspoken criticism continues. The Congress is exposed to continuous and almost irresistible pressures to curtail Federal spending, and there is no need to elaborate on that part of the issue.

I feel, however, that some cautionary notes are in order. We must be sure that our actions are based on more than just a demand for lower expenditures. To be sure, we must keep our Government finances in order, for a disorderly national economy is, of itself, a primary threat to our security. But the other factors involved must be fully considered before we can say that the required expenditures are too high.

Once again, painstaking analysis is required, first, to determine a practicable level of military activities, and, second, to establish spending levels which are acceptable to the Nation and, therefore, can be expected to remain stable for a number of years. At this point it should be noted that nothing is more expensive and wasteful than

changes in military plans. It means closing bases at one time and a few years later reopening them or building new ones. It means building factories, buying equipment, and training workers only to use them in an inefficient way. Probably most wasteful and harmful is its effect upon the morale of defense personnel, both military and civilian.

If stability in resources available for national security can be established, that in itself would go a long way toward increasing the security that can be obtained for a given level of spending. However, stability does not assure adequacy, and it is essential that the expenditure amount be set with careful attention to both military requirements as well as acceptable levels of the economic burden.

INFLATION OR DEFLATION

Inflation has had a powerful effect on national-security expenditures since 1950 through its impact on prices paid for goods and services. The previous portions of this paper have not taken that factor into account. When an opinion has been expressed that outlays would remain steady, increase, or decline, it was based on spending measured in 1957 dollars.

To get a quantitative concept of the impact of inflation in the past decade, it may be appropriate at this point to restate national-defense expenditures since 1947 in terms of 1956 dollars:

Calendar year	Price index (1956=100) ¹	National-defense expenditures		Calendar year	Price index (1956=100) ¹	National-defense expenditures	
		Actual	In 1956 dollars			Actual	In 1956 dollars
		<i>Billions</i>	<i>Billions</i>			<i>Billions</i>	<i>Billions</i>
1947.....	77.0	\$12.3	\$16.0	1952.....	91.6	\$46.4	\$50.7
1948.....	77.5	11.6	15.0	1953.....	89.5	49.3	55.1
1949.....	80.5	13.6	16.9	1954.....	91.8	41.2	44.9
1950.....	83.1	14.3	17.2	1955.....	95.2	39.1	41.1
1951.....	92.3	33.9	37.7	1956.....	100.0	40.4	40.4

¹ The price index used is that for Federal Government purchases of goods and services. Survey of Current Business, July 1957, pp. 24-25.

The recomputation of 1947-54 defense expenditures, using 1956 prices, shows that we would have had to spend an additional \$3 billion to \$4 billion in most years, and almost \$6 billion more in 1953. Even so recent a year as 1955 would have required an additional \$2 billion. These required additions would be even higher were we to consider these items in 1957 dollars.

In most current economic reporting, it is taken for granted that prices will be higher in the rest of 1957 and 1958. The recent \$6 per ton steel price increase of itself is viewed as a major factor. The continuing rise in the cost of living will result in higher wages through the escalator clause in most labor contracts.

Partly balancing the foregoing are continuing low farm prices and the recent significant cuts in the prices of copper, lead, zinc, lumber, and a few other primary commodities. If economic activity expands, prices for most primary metals will recover, and the steel price rise will be incorporated into higher prices for many finished products. If, however, the recent decline in production—3 percent since the De-

ember 1956 peak—should be accelerated, there will develop a price tug of war. Even at higher wage rates, shorter hours will reduce industrial-worker purchasing power. Unless housing, automobile, household appliance, and industrial equipment sales pick up, there is a strong possibility of shorter workweeks for a substantial number of factory workers.

The Department of Defense spring directive eliminated most defense-plant overtime, and its recent actions both will reduce the number of workers and the length of the workweek for many employees. As noted earlier, lower defense-factory payrolls do not automatically translate into lower prices and smaller national-security expenditures. However, a decline in these payrolls will affect the demand for goods and services and, hence, tend to have an impact on the general price level.

It is this writer's judgment that we have passed the peak of the postwar boom. In a paper completed in April 1957 I said:

For business in general, the 1956-57 problem of containing the boom will for 1957-58 become one of sustaining the boom. Although there will be a small upward movement in 1957-58, it will be in the form of price change rather than in expansion of real production. If two of the major components, housing and automobiles, do not improve, there is a threat of a real change in direction of the postwar trend.

That opinion assumed no reduction in defense expenditures. Steps to reduce military outlays since April lead the writer to believe more strongly that the trend has changed and the direction of national economic activity will be downward.

Prices, particularly prices of military goods, will continue upward for about 10 months. Unless there are major reversals not now in sight, economic activity will move downward and general prices will reverse trend by mid-1958. If this judgment should prove correct, national security expenditures will not be subject to further inflationary pressures after the first half of fiscal year 1959.

IMPACT OF PRE-JULY 1957 ACTIONS

The budgeting and buying cycle for national security expenditures is a long one with the result that actions taken prior to July 1957 will continue to have a major effect for some years. This will influence current and future expenditures in quite different ways.

Since the fiscal year 1958 cycle began in late 1955, and since legislative and administrative commitments from earlier fiscal years funds will continue to have an expenditure impact through 1959, the combined effect will tend to make for a \$40 billion spending level for the next few years. In contrast, recent cutting of force and equipment objectives plus spreading of deliveries will make for lower expenditures in the following years. Probably most important, since the reductions have been applied to research and development as well as current deliveries and force structure, it will not be easy to turn the trend upward again, when and if current thinking is reversed. A moment's reflection on what happened at the time of the Korean crisis will illuminate that point.

Fiscal years 1948-50 were a period of reducing and holding down national security expenditures. When the events of June 1950 called for a reversal of this trend, although goals were raised immediately, only moderate expansion in armament was achieved in the next year. It really took more than 2 years to approach the expansion objectives.

As we go into the present economy period, we should keep that recent bit of history in mind. Serious study should be given to the lead-time problem and steps should be taken to insure that the time required to build up forces and improve their armament is consistent with our appraisal of our need for security.

It is clear that previous years' actions and the resulting expenditure commitments will not permit sharp cuts in military spending in the next year or two. Administrative lags of this kind mean that the current reductions will make for sharply lower outlays in 1960 and the years immediately following. In all of this we must keep clearly in mind the implications of the resulting smaller military capability if we should be forced to deal with a major international crisis in the years when the cuts will become effective.

CONCLUSION

Consideration of the major factors likely to influence current and future trends in national security expenditures indicates that the major effect of current demands for lower outlays will be to hold security outlays at or below the 1957 level through 1959. A major effect of this leveling will be to reduce the expansion and inflation pressures in the national economy. By mid-1958 this should minimize inflation as a factor making for higher national security expenditures.

The demand for lower Federal expenditures will influence the preparation of at least the fiscal year 1959 and 1960 budgets. Reductions will be made and a major justification will be found in possible arms reduction and reliance on international action as a substitute for national action in conflicts between countries.

If these forecasts seem reasonable, then there is a greater need than ever before for objective analysis of the impact of defense expenditure cuts on our ability to attain our announced political goals in the world. Only a short time ago a similar economy drive was followed by the Korean crisis. Aside from its military and international political results, the economic effect of that combination of events—economy reversed by crisis—was inflation at a faster rate than that which occurred during World War II.

Now that we seem bent on repeating this process, it might be wise to give consideration to taking out a little insurance. Since an actuarial basis is not now available, we will have to work out both the kind of policy and amount of national security expenditures that will best provide this protection. I hope my repeated references to studies that should be made are not translated as a suggestion that a long time should or need be consumed in evaluating what we are doing and in determining what we should do.

Probably the most important point I am trying to make is the urgent need for review and that the study be made quickly so that if we are on the wrong road we can change direction before it is too late. A major part of this argument is the basic proposal that we broaden our

terms of reference to include at least the seven elements enumerated at the beginning of my remarks. Also, that we not treat them separately or in twos or threes. All of the factors must be considered or we may formulate not just an incomplete but an inaccurate judgment. These forces have strong interactions and we must be sure that we sum up an accounting of all of them.

THE DEFENSE BUDGET

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I began to draft this statement in July 1957 on the day when drastic cutbacks in aircraft production were announced by the Department of Defense. Subsequently it transpired that missile development had also been slowed down—when the Government knew of successful Russian ICBM tests. These cuts followed cuts in the ground forces of 100,000 men and further cuts are in prospect. At a time when disarmament discussions were bogging down in London, disarmament was going on apace in Washington—only a few months after the world had received a demonstration of Russian ruthlessness in Hungary.

The inference seems clear that something is wrong with defense budgeting. Either expenditures were much too high before, or they have now been subject to unwarranted reduction in the interests of domestic politics.

It is a sad irony of our national life that the defense budget, on which our national existence depends, receives less consistent treatment than any other part of the Federal budget.

The current periods are not unique. In the late forties we ignored the growth of Russian strength and disarmed unilaterally. That prepared the way for Korea. The Korean war brought us briefly to our senses. We not only armed to fight that war but to sustain a long period of cold war. The cold war is not over, but our efforts are faltering. We may be preparing the way for another Korea. But next time it may be a nuclear Korea that will make the last one look tame. (It has already turned out to be a Syria, as a first installment.)

These events illustrate the feast and famine cycle in defense budgeting. A sense of emergency, obligingly provided by our adversaries, awakens us to our dangers and we rearm. But with no diminution of the danger, we grow used to it and disarm in order to reduce taxes—supported by solemn statements that 8 percent of the national product is more than we can afford to spend on national survival.

Unlike other programs—agriculture for instance—national defense does not have the benefit of organized and continual political support from within the country. The private manufacturers of arms, who were villains of the thirties, are woefully weak in their political influence compared with veterans, conservationists, and farmers.

Defense budgeting not only produces cycles of military strength and weakness, but the desire for economy has produced a concentration on strategic weapons. Under the illusion that nuclear defense is cheap defense—it provides a bigger bang for a buck—we have steadily disarmed conventionally and have relied on the threat of massive retaliation. We have thereby reduced our ability to wage limited war. But as Russia approaches us in nuclear power, the fear of retaliation

paralyzes our willingness to use the massive weapon except when we face an ultimate threat. For foreign policy to have adequate military support, the limited capabilities that have been lost in the name of economy must be revived.

Now the latest economy move appears to be to substitute missiles for manned aircraft (even though missile development is being slowed down). At a time when the Government is negotiating for an inspection scheme that will provide warning against surprise attack, the Department of Defense is making decisions that will render those negotiations meaningless. There is no warning against surprise attack in the ballistic missile age. The first step in disarmament should be to secure agreement not to produce ballistic missiles. Instead we are moving in the opposite direction in the interests of economy.

WEAKNESS OF THE BUDGETARY PROCESS

I shall not continue this jeremiad. I have said enough to show that, judging by results, something is wrong with our method of budgeting for defense. The root of the trouble is that political democracies have not yet learned to make the sustained defense efforts that are now needed. While this may be in part an inevitable price we must pay for democracy, these are various features of the budgetary process that contribute to the lack of support for an adequate defense effort.

In the first place, the defense budget is not a document that is readily understood. Even the most assiduous student of it would find it impossible to tell how far the budget provides for a force that will deter a strategic attack on the United States, how far it permits us to carry out our commitments as the leading member of NATO or SEATO or to support other aspects of foreign policy throughout the world. Yet the size of the budget vitally affects these matters. A cut or an increase of say 10 percent can make a great difference to the Nation's military effectiveness. Yet neither the Congress, the President, nor I suspect the Secretary of Defense and the Service Secretaries has the information needed to relate the financial figures in the budget to any meaningful concept of military effectiveness. We have had recent examples where in one breath the Secretary of Defense asserts that not one dollar can be cut from the budget and in the next orders drastic cuts in military procurement. I suspect that he has no solid factual support for either position.

The present procedures grow out of the requirements of an earlier and simpler period of military history. If the Army consists mainly of armed soldiers, the budget can be considered in terms of the number of soldiers and supplies, arms and ammunition per soldier. That still remains the central idea in present budgetary procedure, however inappropriate it may be in the day of the hydrogen bomb and the ballistic missile.

I have the belief, not shared by everyone, that better budgetary decisions would result if the Congress, the President, and at least the educated public understood their military implications than if they simply have the word of the military expert that a given budget is "necessary." The military expert is believed, perhaps overbelieved in times of crisis, but without a crisis he becomes an ordinary mortal. The result is that budgetary decisions frequently rely heavily on mere

intuition. It is a tribute to experienced Members of Congress and many unheralded permanent officials in the Congress and the executive that budgetary decisions are as good as they are.

The second weakness of the budgetary system lies on the cost side—on the assessment of the impact of the budget on the national economy. While the size of the budget that the country is willing to accept depends largely on political attitudes toward taxation, those attitudes can be influenced by authoritative opinion. Just as military opinion can influence political attitudes concerning the size of the military forces that should be maintained, so economic opinion can influence political attitudes with respect to the force levels the country can afford.

Unfortunately, however, the economic opinion that appears to have most influence is that of the amateur rather than that of the professional. I must regretfully report that bankers and businessmen usually carry more weight in public discussion of economic matters than do economists. This is partly the fault of the economist who has not paid enough attention to the problems of communication. He is dealing with a subject of immediate interest to everyone, and to exert authority he must submit not only his conclusions but his arguments to a popular jury. Failing that, the homespun parables of the banker will win the day. Furthermore our national ideology accords to the businessman a reputation for competence in areas far beyond the fields of his experience, which, even in the largest corporations, can be very limited. As a nation we do not share Adam Smith's view that "merchants and manufacturers neither are nor ever can be the rulers of mankind." Finally, the bankers and industrialists are on the right side of the argument from the point of view of the taxpayer. They always underestimate the economic capacity of the country to defend itself and urge relief from the "staggering burden of taxation"—when the economist is pointing to the fact that national income after taxes is rising rapidly and surely the country can afford to defend itself.

A third weakness of the budgetary system is that it is supposed to eliminate waste and inefficiency and obviously has not done so. Budget cutters point with reason to the fact that if interservice rivalries were eliminated and if each service conducted its affairs with reasonable standards of managerial efficiency, the same amount of defense could be obtained for less money. But if the budget is cut on these grounds, there is no guaranty that the desired results will follow. Rather, it seems more likely that many of the inefficiencies will remain and the cuts will mean a reduction in military effectiveness. This type of argument was used to support budget cuts in the late forties and is being used today. Even though it is demonstrably true that budget cutting is not the way to efficiency, the persistence of inefficiency will obviously weaken the political case for any budget that is submitted by the services to the President or to Congress.

The fourth weakness of the system also stems from its archaic character. The budget has always been prepared, considered, and enacted on an annual basis; but with the defense budget in particular decisions must be made today whose effects will be felt for years in the future. A new weapon takes years to develop and years to produce. A development decision today contemplates expenditures in the years to come. And expenditures on long-lead items today result from de-

cisions made in the past—perhaps by earlier Presidents and almost certainly by earlier Congresses. Consequently, the frequent complaints that the budget is uncontrollable, and the attempts to restore annuality to a budget which is inherently unannual. The annual state of the budget is a time-honored subject for political congratulation or condemnation, but preoccupation with it can seriously deflect attention from effective and efficient programing for defense.

POSSIBILITIES OF IMPROVEMENT

While defense budgeting is necessarily complex and difficult, substantial improvements can be made in the process as it exists at present.

The first requirement, in my opinion, is a program budget that will show in a meaningful way what military forces are to be supported by the budget. While the best form for a program budget is a matter of extended discussion, it is easy to see how great improvements over the present system could easily be achieved.

The advent of megaton weapons has focused attention on what has come to be called the strategic and the tactical aspects of defense. Strategic forces are those required to deter or to win all-out war. Tactical forces are those needed to deter or win limited war. I suggest that the distinction between strategic and tactical could usefully be employed in presenting the budget. In fact if the distinction is essential in devising national strategy, there is a strong presumption that it should be used in considering the budget. Under the heading "Strategic" would be included the Strategic Air Command whether located at home or abroad, the Continental Air Defense Command (which includes the air defense units of the Army, the Navy, and Air Force) and civilian defense. Tactical, on the other hand, would include virtually the whole of the Army, the Marine Corps, and tactical air and air transport.

In view of the difficulties of separating its functions, the Navy (except the Marine Corps) would probably have to be included in a category of its own, serving both tactical and strategic purposes.

Research and development is an item that should also be shown separately. Research, especially, cannot and should not be classified with respect to its tactical and strategic implications.

The remainder of the defense budget would cover the administrative overhead of the Department of Defense. A budget constructed on these lines would center attention on critical issues. It would not only permit a more intelligent examination of the total size of the budget than is possible now, but would raise the vital question of distribution between strategic and tactical forces. Within the category of strategic, the budget would facilitate consideration of the relative emphasis to be given to defense and offense. A consolidated budget for research and development on the other hand would raise the question whether enough or too much attention was being given to the long-run future in relation to current defense needs. Such a budget need not affect the appropriations structure or the organization of the Department of Defense. Appropriations would continue to be made to the individual services for administrative purposes. Still less would such a budget imply a step toward unification of the services. It would merely recognize in the financial field what has

already been recognized in the field of military operations, that the various services contribute to common ends. I cannot argue that the inclusion of the Navy as a separate category is logical. But since the same units can perform both strategic and tactical operations, an artificial division into the two categories would probably be a source of needless and even vehement argument.

Critics of this kind of proposal fear that departures from tradition would weaken political support for defense; that the Congress is more likely to look with favor on the Army if it does not examine too closely what it does, than if it is impressed with the Army's tactical mission. In addition to a general faith in decisions made on the basis of knowledge rather than ignorance, the record suggests to me that any change in the direction of clarity would result in improvement.

The second improvement that I have to suggest is that professional economic analysis be brought to bear in a systematic way on the question of what the country can afford.

The establishment of the President's Council of Economic Advisers and the Joint Committee on the Economic Report have been important steps in the right direction, but they are not enough. While the Joint Committee has performed invaluable services in educating the Congress as a whole and the public on economic matters, I doubt whether it has had a direct impact on budgetary decisions. In the executive branch the Council has not exercised as much influence as the Treasury or the Budget Bureau. In fact, in recent years the Council has centered its attention on short-run business fluctuations rather than on the more basic issues involved in the economic impact of the budget. In both the Congress and the executive branch this situation can be remedied. The Congress, I believe, should consider the establishment of a Joint Committee on Fiscal Policy. Such a committee would be relatively small in numbers and would consist of leading members of the four financial committees and of the Joint Committee on the Economic Report. Its function would be to review the President's budget from a broad point of view and to lay down guidelines for policy, with respect to appropriations, expenditures, taxation, and borrowing based on its assessment of program requirements on the one hand and the economic capacity of the country on the other. Such a committee would not attempt to foreclose discussion in the regular committees by the imposition of ceilings (as was attempted in connection with the legislative budget) but it would provide for a unified consideration of budgetary policy that has been lacking in the Congress since the Appropriations Committee was separated from the Ways and Means Committee in the late 19th century.

On the Executive side, I believe that the President should receive organized rather than sporadic fiscal advice. He should not rely on the economic advice of the Cabinet member he sees most frequently or finds most congenial. Further the President in submitting the budget should submit an economic analysis of it. In fact, his Economic Report should consist largely of an analysis of the budget and its effects on both short-run stability and longer run growth.

To achieve these ends coordination within the Executive Office is needed; and I think some formality would be an advantage. The fact that the National Security Council is a formal body has resulted in a closer coordination of diplomatic and defense policy than would have

occurred had the President merely relied on coordination through the White House staff. Similarly a Fiscal and Monetary Council that included the Treasury, the Budget Bureau, the Council of Economic Advisers, the Federal Reserve Board and the Federal Loan Administration could be responsible for advising the President on an administration fiscal policy. While Cabinet members, in their public pronouncements, would not and probably should not always conform to the administration's official policy, they could be required, by inquisitive congressional committees or newspaper reporters to explain their disagreements with it.

The third area where improvement is needed is in the promotion of efficiency. As I have said above, the record of experience does not indicate that congressional or Budget Bureau investigating of budget proposals has produced efficiency, particularly of the major kind that could be achieved by reduction of needless interservice competition. (I say "needless" advisedly: some competition among the services—in weapon development, for instance—is probably desirable.) The solution does not lie in the Appropriations Committee hiring large staffs of accountants or other inquisitors. Congressional investigation of that kind frequently produces the wrong results. The safest way to escape the investigation is to remain in traditional grooves. Efficiency in conditions of rapid technological change requires bold experimentation, in the course of which mistakes will inevitably be made. Experimenters should be encouraged rather than intimidated.

I continue to believe that efficiency must be achieved through improved management in the Department of Defense. In some areas, such as property accounting, personnel management and procurement, business principles are likely to be helpful. But at the levels of policy formation, defense differs radically from business; and the application of business principles can lead not to efficiency but to catastrophe. Business criteria cannot be applied to the conduct of military operations, where expenditure of materiel becomes a secondary consideration. I do not suggest that Congress and the Budget Bureau should give up interest in efficiency. Rather they should devote their efforts to review after the actual fact rather than, as at present, before the hypothetical fact. In that way they could disencumber the budgetary process from a great deal of pettifogging detail and could direct their attention, more efficiently than they now do, to the significant questions of management.

The fourth possibility of improvement relates to long-lead items. At the present time this subject is beclouded by the recommendations of the Hoover Commission. That Commission has recommended that congressional control be established by reverting to the contract-authorization procedure which was given up some years ago by the Appropriations Committee.

The alternatives are, on the one hand, to continue with the present procedure whereby an initial appropriation is intended to be used over a number of years to cover the entire cost of a procurement item or a construction project. Under the proposed system, a contract authorization is recommended by the Appropriations Committee to cover the entire cost. Annual appropriations are then made to meet payments as they become due.

The major advantage of the proposed method is that if a project lapses or if the procurement originally contemplated is given up, there

are no disembodied appropriations searching for a resting place. Under the present system appropriations, unless rescinded, can be used for purposes that were not contemplated at the time they were made. The major disadvantage of the proposed method is that it may create uncertainty in the minds of contractors as to whether their projects will be financed. If they feel they run greater risks of termination of their contracts, the terms on which the Government can contract will deteriorate.

The controversy over these two methods has deflected attention from the important issue—the need to project the budget into the future and to review long-lead procurement as it proceeds. Unless the Congress does these things, no appropriation device will achieve meaningful congressional control. If they are done, either method should work equally well.

My positive suggestion therefore is that the present controversy be abandoned and that attention be directed to the problems of projection and continuing review.

These modest suggestions are intended to increase the rationality of decisions concerning the defense budget. Contrary to some political “realists” I believe that the quality of political decisions can be improved by rational thought. Defense decisions are far from rational—as is illustrated by our present policy of unilateral disarmament. As a nation we chronically fail to realize that modest investments in deterring wars can avoid vast expenditures of human life and natural resources in fighting them. Improved budgeting alone will not correct the situation. But it will help.

IX. FEDERAL EXPENDITURES FOR FOREIGN AID

FEDERAL EXPENDITURES FOR FOREIGN AID

THE RELATIONSHIP OF THE FEDERAL GOVERNMENT'S FOREIGN AID PROGRAMS AND EXPENDITURES TO THE PROCESSES OF ECONOMIC GROWTH IN THE PRIVATE SECTORS OF THE ECONOMY; THE USEFULNESS OR LIMITATIONS OF SUCH PROGRAMS FOR PURPOSES OF STABILIZATION; AND THE STANDARDS EMPLOYED BY THE DEPARTMENT OF STATE IN DETERMINING THE KIND AND SIZE OF SUCH PROGRAMS REQUESTED

DEPARTMENT OF STATE

Statement submitted by John S. Hoghland II, Acting Assistant Secretary for Congressional Relations

With reference to the first point, while the Department of State does not claim special competence in the evaluation of domestic economic developments, it recognizes that there may be varying types of relationship, e. g., long term and short term as described below, between foreign aid programs and expenditures and the state of the domestic economy and it appreciates the importance to our foreign policy itself of maintaining a healthy and growing domestic economy. In connection with this topic, your attention has probably already been drawn to the study prepared by the National Planning Association for the Senate Special Committee To Study the Foreign Aid Program, which was printed under the title "The Foreign Aid Programs and the United States Economy."

The general conclusions of this study seem to be well supported by the evidence. In brief, its analysis indicates that foreign-aid programs (military and economic combined) are currently absorbing slightly in excess of 1 percent of the gross national product and that since 1948 they have absorbed an average of 1.7 percent of the gross national product. The study concludes that, in the light of these relative magnitudes, "it is difficult to claim that domestic employment, prices, or consumption as a whole could have been seriously affected, for better or worse, by foreign aid expenditures." The study does point out, however, that foreign-aid programs have been of somewhat greater significance to certain industries and certain sectors of the economy.

It should be noted in this connection that the study covers the effects of both military and economic foreign-aid programs, but that it excludes from consideration programs under the Agricultural Trade Development and Assistance Act, which it treats as "not foreign aid

but * * * in the nature of a sale of United States farm surpluses for foreign currencies."

Finally, the study makes no attempt to measure the indirect effects of foreign-aid programs, but points out that the economic growth and stability abroad which they have helped produce "has created an increasing demand for goods and services produced in the United States, which these countries were better able to purchase with their foreign exchange earnings"; and that in the absence of foreign-aid programs "it is likely * * * that larger domestic defense expenditures would have been necessary."

The Department, while not necessarily endorsing all statements or conclusions appearing in this study, believes that it gives a careful and well-balanced assessment of the domestic impact of the foreign-aid programs. The study might well have given more attention to some of the longer term effects of the aid program on the United States economy. By assisting countries to maintain their independence as a part of the free world, they remain a part of the trading system of the free world with mutual benefits resulting from the profitable exchange of resources. By assisting countries in their economic development or reconstruction, the level of world trade can be expected to increase with obvious benefits to all countries. This has already been dramatically demonstrated in the case of reconstruction aid to Europe, as well as by the historical record of increasing international trade as countries become more developed.

The summary of the study referred to follows:

THE FOREIGN AID PROGRAMS AND THE UNITED STATES ECONOMY

SECTION I. SUMMARY

During the period 1948-55, the United States provided approximately \$43 billion of economic and military aid to numerous countries throughout the world. In recent years, approximately one-half of foreign aid has been for military assistance, one-third for defense support assistance, 7 percent for development assistance, 5 percent for technical cooperation, and the remaining 4 to 5 percent for various other uses, including the President's contingency fund. The purpose of this report is to indicate the impact of these aid programs on the economy of the United States.

Before summarizing these effects, it should be emphasized that the beneficial and adverse impact of the foreign aid programs on the United States economy should be viewed in the light of their effectiveness in helping to attain the objectives of the United States foreign economic policy. The objectives of the foreign aid programs have been the restoration and reconstruction of war ravaged areas, helping underdeveloped areas to help themselves, and strengthening the defenses of the free world. It is not the purpose of this report to appraise the extent to which these objectives have been achieved. No Government program is without cost. However, in evaluating the cost of the foreign aid programs, their major objectives should be kept in mind.

The major conclusion of this report is that the costs of the foreign aid programs seen in the perspective of the economy as a whole have been relatively small. Since 1948, the average share of our gross national product which has gone for foreign aid has been 1.7 percent. In 1956, this share has dropped to around 1.1 percent. During this latter year, the United States per capita cost of foreign aid programs, after deducting repayments from foreign countries, has been \$23.07. Foreign aid, in 1956, accounted for about 6.4 percent of total United States Government expenditures. The average for the period 1948-55 has been 9.4 percent of total United States Government expenditures.

Foreign aid has taken about 1.5 percent of this country's total industrial, agricultural, and mining production during the last 9 years. In the absence of foreign aid, production in these sectors of the economy would not necessarily have diminished by this amount. Tax reductions in the amount needed to support the foreign aid programs, or other Government programs which might have been increased, especially in defense, could well have offset any drop in the demand for United States commodities resulting from abandonment of foreign aid. It is fair to say, however, that during a period of inflation, such as mid-1950 to mid-1951, the increase in foreign aid programs tended to aggravate, though very slightly, the inflationary situation. In contrast, during periods of recession, such as 1948 and 1954, the maintenance of foreign aid purchases tended to act as a stabilizing force. Once again, however, the importance of foreign aid as a factor of stability should not be exaggerated.

In the early years of the foreign aid program, agricultural commodities were quite important in that more than 5 percent of total United States production of certain types of farm goods were shipped as foreign aid. Such commodities included bread grains, coarse grains, rice, cotton, and tobacco. In recent years of the foreign aid program, agricultural commodities tended to diminish in relative importance and manufactured items came to the fore. Some of these manufactured items were also of importance during the earlier years of the program. The foreign aid items which account for a relatively important share of their industry's total production are tractors; conveying, mining, and construction equipment; machine tools; and engines and turbines. Since 1952, the foreign aid shipments of aircraft, engines, and parts have been of great importance, quite probably as a result of increasing military aid shipments. There are, however, many more items shown in the body of the report, with respect to which 2 to 5 percent of total United States production was shipped as foreign aid.

Assuming a gross national production level by 1965 of \$565 billion (in 1955 prices), the United States could double the present size of the foreign-aid program by then with little additional impact on the United States economy. The commodities most likely to be affected by such an increased level of foreign aid would be primarily agricultural.

Since on the average about 1.5 percent of United States production has been involved in foreign aid, it is difficult to claim that domestic employment, prices, or consumption as a whole could have been seriously affected, for better or worse, by foreign-aid expenditures. The impact on employment varies from one region to another, depending upon the commodity, as shown in the body of this report, and the effects differ during periods of inflation and recession. On the whole, however, the inflationary or stabilizing effects have been very slight.

The data found in the appended tables indicate that the foreign-aid programs have not been used generally to aid distressed industries. Indeed, in some instances foreign-aid expenditures for certain commodities have decreased during periods of recession or of distress for those industries.

For agricultural products, the inclusion of these items served the dual purpose of providing foreign aid and helping to support domestic industries.

In the case of the United States shipping industry, preference legislation—calling for the shipping of a minimum of 50 percent of foreign aid commodities in United States ships—has been of some help. The basic ills of this industry remain, however, and tramp ships are being lost at a rapid rate to foreign registry. Only fuller utilization of existing subsidy legislation would be capable of maintaining an adequate United States merchant marine.

In addition to the direct effects of foreign aid, there are also indirect effects which enter into an analysis of the costs and benefits of these programs to the United States. Those industries which produce items for foreign aid utilize the products and services of other industries in order to make their finished goods. Moving the aid from this country to its destination in turn utilizes the services and products of still other industries. It is estimated that approximately 600,000 workers have been employed each year in the United States directly and indirectly as a result of foreign-aid expenditures.

Foreign aid, both in terms of goods and services, has helped to increase the flow of necessary commodities and raw materials to the United States. Some of these items are critical to our stockpile and defense needs. Others tend to raise standards of living and cut costs of consumer goods. At the same time, foreign aid has in some cases aided in the reconstruction or modernization of industries abroad which compete with similar industries in the United States. However, foreign aid has also brought about the development of industries and of stabilized economies abroad. Thereby, it has created an increasing demand for goods and services produced in the United States, which these countries were better able to purchase with their own foreign-exchange earnings. (Such indirect effects on the United States economy and on United States foreign trade of the aid program have not been analyzed in this report.)

With reference to your second point, the Department believes that foreign-aid programs should be designed primarily to achieve the foreign-policy objectives of the United States, and must respond primarily to our foreign-policy and security needs. This is particularly true since, as pointed out above, the short-range impact of foreign aid on the domestic economy as a whole is probably of marginal significance. Therefore, while such program might have some effects for better or worse on certain sectors of the domestic economy, a serious and consistent attempt to use the foreign-aid programs to provide offsetting or stimulating effects on the domestic economy would not, if in conflict with foreign-policy objectives, appear justified; to do so would reduce our effectiveness in dealing with foreign-policy problems and might very likely compound these problems. The size of foreign-aid programs must, of course, in view of the importance of the free world as well as to ourselves of a strong United States economy, be related to the capacity of our economy to finance them; the Department believes, however, that within the historical range of magnitude of past and present programs they have been (as the National Planning Association study indicates) well within this limit.

In regard to such effect as foreign-aid expenditures may have in connection with stabilization of the United States economy, expenditures for the foreign aid would be similar to any other expenditures for the same commodities when procurement is done in this country. In cases where procurement is outside the United States, however, the impact on the United States economy would be somewhat later and could not be identified with any particular commodity. In these cases, the dollar receipts of other countries arising from the procurement would be merged with dollars earned from trade or by other means and thus lose any separate identity.

With reference to your third point, the Department reaches its judgment with respect to the kind and size of such programs requested in full consultation with other concerned departments; it is determined by a careful weighing of foreign policy and national security needs. Many factors pertaining to both domestic and foreign considerations go into this judgment. Further, what is done in any one country, although based on a careful analysis of the relative needs from the pertinent military, economic, and political points of view, must be affected by competing requirements, similarly determined, of other countries.

With respect to military aid, among other factors entering into the judgment are, of course, the geographic location of recipient countries, their political, economic, and strategic importance, their relationships with the United States, and their requirements for maintaining an adequate defense. The economic component of military aid (otherwise known as defense support) is determined by the amount considered necessary to support the military effort.

Financial assistance under the aid program for the economic development of other countries will henceforth be made available under the development loan fund authorized by the Mutual Security Act of 1957. Loans will be made for specific projects or programs in less-developed countries where financing cannot be obtained elsewhere on reasonable terms and where the projects are technically sound and will contribute to economic growth. The amount of \$500 million requested by the executive branch for the first year's capital for the fund

was determined on the basis of experience under previous programs and was intended to provide for a modest increase in United States assistance for economic development to reflect the greater relative emphasis desired for this type of aid.

The actual process of formulating foreign aid programs and budget requests to finance them is a very complex one difficult to describe in terms of any simple criteria other than the relationship of foreign policy and national security needs to the availability of our real and budgetary resources to meet them. The subject was touched on by Secretary Dulles, Deputy Secretary of Defense Robertson, and Mr. Hollister in their testimony on April 8 and 10, 1957, before the Senate Special Committee to Study the Foreign Aid Program, and by Mr. Hollister in his testimony before the subcommittee of the House Appropriations Committee on April 3, 1957. The following extracts from some of this testimony may be useful in this regard:

TESTIMONY OF SECRETARY DULLES BEFORE SENATE SPECIAL
COMMITTEE TO STUDY THE FOREIGN AID PROGRAM, APRIL 8,
1957

(Replying to a question from Senator Mansfield on policy
guidance on military aid)

Secretary DULLES. The basic policy problems come up for discussion in the National Security Council. The questions of what our policy shall be in relation to this country or that, how large a Military Establishment would be appropriate, how it would be fitted into our overall common defense, are discussed usually at the National Security Council. They are reviewed first and prepared for the National Security Council by the Planning Board of the National Security Council where the different agencies are all represented, and in those considerations the Secretary of State takes a very leading and active part.

Now when the basic decisions are reached as to the kind and size and so forth of Military Establishment which we would support, and roughly the figure at which it would be supported, then a good deal of the detail work is passed on to Defense and ICA.

TESTIMONY OF DEPUTY SECRETARY OF DEFENSE ROBERTSON
BEFORE SENATE SPECIAL COMMITTEE TO STUDY THE FOR-
EIGN AID PROGRAM, APRIL 8, 1957

(On the subject of long-range planning)

Mr. ROBERTSON. This relates to long-range planning * * *.

What is our present practice with respect to long-range planning? In fact, of course, we necessarily engage in a substantial amount of planning which looks a number of years to the future. The process of planning is twofold. It involves, first, the determination of aid requirements in terms of long-term United States security interests and, second, programming to fill these requirements.

In support of any decision as to whether to give aid to a country and as to the general nature of a country program, there occurs within the National Security Council mechanism the most careful study and planning in terms of our national security situations. With NSC guidance, the Joint Chiefs of Staff develop, for each country to receive military aid, a force goal—that is, the level of forces which that country should attain in order for it to perform effectively its mission in the free-world defense system. These force goals are carefully worked out on the basis of the country's strategic location and its optimum military potential, and they are revised from time to time to reflect the latest developments. Full consultation with the country concerned is undertaken on a continuing basis to insure common understanding and unity of purpose. These processes which I have described are basic to the development of our aid requirements. They are, in my judgment, characterized by careful and imaginative long-range planning within the limits of the realities of fund availability, the rapid pace of weapons systems development, and the evolution of concepts of warfare.

Our planning and programming to fill these requirements must also take into consideration needs and availabilities several years hence. For example, we are now in the process of preparing our fiscal year 1959 program. This program will result in deliveries in 1960 and 1961 and will be the basis for military capabilities in the first half of the 1960's. In part, this sort of long-term thinking is necessitated by the long production lead time on many of the items of equipment we provide. We must also phase our deliveries with strategic requirements dictated by a changing world situation and with the ability of the recipients to receive, use, and take care of the equipment. I believe that it is in this area particularly—planning for the fulfillment of well-conceived future requirements—that some improvement can be made.

To some extent this improvement can be, and is being, generated within the executive branch under existing legislative authority. Our planning and programming procedures have undergone revision in the last year. We think these changes represent substantial improvement, but experience with the fiscal year 1958 and 1959 programs will indicate whether we are finally right. Revised planning procedures initiated in fiscal year 1957 provide for the maintenance in Washington of relatively long-range plans within which annual programs are detailed and fully justified. Provision has been made for the continuous review and revision of these plans in light of changing military, political, and economic conditions. Requirements are so arranged that highest priority needs can be isolated in any desired magnitude and made applicable to any given area. While our procedures for administering military aid have in many cases been time-consuming, we are now developing steps to greatly simplify some of the administrative processing. Our MAAG's at the country level, and unified commands at the regional level, are experienced in

evaluating requirements and effectiveness. Despite differences between the evaluation process in NATO (called the annual review) and the procedure employed in the Pacific and Caribbean Command areas, I believe we are now gaining accuracy in evaluating the effectiveness of our programs. However, we are aware that we must make even greater efforts in this direction.

TESTIMONY OF MR. HOLLISTER BEFORE SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS, HOUSE OF REPRESENTATIVES,
APRIL 2, 1957

(Replying to a question from Mr. Gary regarding the sum total approved by ICA, State and Defense, and requested of the Bureau of the Budget prior to establishment of the \$4.4 billion figure)

Mr. HOLLISTER. Let me give a little explanation of how we arrive at these figures.

We send out, as you know, our guidelines for the programs; this was in the record yesterday, so I will just summarize it quickly today, which, in turn, are followed by the missions.

The figures come in. They are looked over by the people in the various desks and areas in my shop. State Department, of course, does the same thing. A long series of meetings are held between State and us, in which Treasury, Budget, and Agriculture participate.

We have all the people who might be concerned. I thought Agriculture might come in because of the Public Law 480 activities and little by little those are refined out, so that each country, each area, reaches some tentative conclusions, which are then reviewed by me and reviewed in State, and then we sit down and try to reach some kind of an agreement.

All the way through that activity there are Budget representatives sitting with us. Our people sit and discuss these various things with Budget, so Budget sees the formation of the whole picture.

When the whole matter is concluded, a letter goes to the Bureau of the Budget indicating what we have finally concluded should be the program for the coming year.

TESTIMONY OF MR. HOLLISTER BEFORE SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS, HOUSE OF REPRESENTATIVES,
JUNE 19, 1957

(From Mr. Hollister's general statement)

DEVELOPMENT LOAN FUND

Mr. HOLLISTER. * * *

Now, I would like to take up the question of why the particular amounts which we have requested are required.

We are now providing development assistance of over \$400 million annually, including that part of defense support

which goes to development purposes. Most of the studies of development assistance, which have now been conducted for the Congress for the executive branch and by competent private groups, have concluded that substantially more United States development financing could be used effectively.

These conclusions are supported by information presently available. After reviewing known development plans and proposals for projects, my staff has estimated tentatively that worthwhile applications for fund financing might amount, in obligational requirements for the fiscal year 1958, to about \$1 billion, and for each of the following 2 fiscal years between \$1.1 billion and \$1.3 billion. These possible project proposals cover a wide variety of fields—basic transportation, power facilities, agriculture, private industry, and health and education. I am submitting with this statement a separate memorandum on the question of the fund's magnitude, which discusses briefly possibilities in each of these fields.

As part of its study of these possibilities, my staff has had informal talks with the staff of an existing public lending agency. We have concluded that there are a number of projects and programs which are economically sound and technically feasible, but which existing public lending agencies have not felt able to finance alone because of the foreign-exchange problem, and which the fund might be able to finance in conjunction with these agencies.

A further fact, which may help to explain why the anticipated applications for fund financing exceed the present level of development assistance, is that we expect the fund to engage in several new activities.

I have particularly in mind here activities directly designed to encourage growth of private enterprise. For example: loans to private entities, purchase of their income debentures for possible eventual resale to private investors, and financing of private-public or quasi-public development banks in less-developed countries which would help finance private businesses.

The requirement for fund financing is thus not unlimited, but it is somewhat greater than could be met from present levels of development assistance. What will happen if we do not meet this requirement—if we provide the fund with less resources than could be used effectively?

THE FOREIGN AID EXPENDITURES OF THE UNITED STATES

Robert E. Asher, the Brookings Institution¹

In determining the level and distribution of foreign aid appropriations, political, strategic, and humanitarian considerations have been more important than purely economic criteria. In fact, it would be naive to think that economic considerations could be governing in this kind of situation. How can one estimate accurately the value to the United States of preserving the independence of country A in the face of Communist aggression? How measure in dollars and cents the importance of helping to satisfy in some measure the revolution of rising expectations that has two-thirds of the world writhing in its grip?

A fresh analysis of the full case for and against foreign aid might be a valuable service, but such analysis is not the function of this article. In this review of foreign aid as an item of Federal expenditure, I propose first to recall certain outstanding features of the aid programs as they have developed over the years. I intend them to examine in turn the impact of foreign aid programs on the American economy, on world trade, and on the economies of recipient countries. In discussing foreign aid and the economies of recipient countries, I do not intend to evaluate aid programs in particular areas, but rather to analyze a few recent developments of economic interest—specifically, the difference to the recipient nation between military aid and economic aid, the problems of relying increasingly on loans as the technique for providing economic aid, and the special problems connected with the extension of loans repayable in local currencies.

EVOLUTION OF AID PROGRAMS

The term "foreign aid" has been used loosely to encompass a variety of military, economic, technical, and humanitarian activities. The mixture has changed as the international environment, or the American appraisal thereof, has changed. The aid programs have been justified at different times and by different groups on different grounds. They have included at least three totally different undertakings: rehabilitating and reconstructing the economies of war-devastated allies, strengthening and subsidizing the military defenses of the free world, and promoting economic growth and political democracy in underdeveloped areas.

Repairing the ravages of war was the purpose of the United Nations Relief and Rehabilitation Administration and of the Marshall plan. By and large, this purpose was successfully achieved during

¹The views expressed in this paper are those of the author. They do not necessarily reflect the views of other members of the Brookings staff or of the administrative officers of the institution.

the course of the European recovery program initiated in 1948. Before the end of its allotted 4-year period, however, an extensive program of military aid had been undertaken. Military aid is an investment in the mutual security of the United States and the recipient nation. Its duration depends primarily on the duration—and the nature—of the Soviet threat. Aid for the promotion of economic growth along democratic lines in areas that have long been stagnant requires American participation in an extremely complex undertaking. On this delicate task, only a beginning has been made.

At first the job of facilitating economic development was thought of primarily as one for the International Bank, which would make loans for specific development projects, repayable in the currencies borrowed. When it became apparent that the underdeveloped countries were in need not only of power, transportation, and basic facilities but also of information and know-how, the technical assistance program was initiated.² Technical assistance was at first thought of primarily as the provision of scientific know-how, of information concerning hybrid corn, DDT, rinderpest vaccine, simple hand tools, and similar matters. Only gradually did the world begin to realize the extent to which development was hampered also by deep-seated social and institutional barriers. More technical assistance was then devoted to the creation of climates and institutions believed favorable to growth and progress—community development programs, land reform programs, rural credit institutions, and aids to small business.

In addition to technical assistance and so-called hard loans for approved projects, loans repayable in local currencies have been authorized. The authority to make loans on easier terms than those of the International Bank and the Export-Import Bank is being extended and given added importance through the development loan fund provided for in the Mutual Security Act of 1957.

Over the years, much has been learned about both the process of economic growth and the manner in which foreign aid can contribute to such growth. Much still remains unknown, however, and time must elapse before any particular theories will be fully validated by events.

At their peak in 1953, expenditures for foreign assistance (net grants and credits utilized) reached \$6.3 billion. Foreign assistance then fell off to an average of \$4.4 billion for the years 1954–56, inclusive. During this period, military assistance comprised a larger proportion of total assistance, and economic and technical aid a smaller proportion, than during other postwar years. The disposition of agricultural surpluses was pushed with vigor and nonmilitary assistance to friendly countries consisted to a growing degree of surplus commodities and, toward the end of the period, of grants and loans of local currencies received as a result of sales of surplus commodities. Local currencies were accumulated by the United States at a much more rapid rate than they were reloaned or otherwise used, with the result that the United States claims on and holdings of foreign currencies arising from agricultural commodity sales reached the equivalent of \$1.3 billion by March 31, 1957.³

² There were, of course, some small-scale precedents in the field of technical assistance and political as well as economic reasons for giving new emphasis to this form of aid in 1949.

³ U. S. Department of Commerce, Office of Business Economics, *Foreign Grants and Credits by the United States Government*, March 1957 Quarter, p. 4.

During recent years also the Soviet Union stepped up its efforts to penetrate the underdeveloped countries by strategically timed offers of military assistance, trade agreements, gifts, loans, and technical and cultural exchanges.

FOREIGN ASSISTANCE AND THE AMERICAN ECONOMY

In absolute terms, \$58 billion is obviously a substantial sum. It is the approximate amount of foreign assistance provided by the United States during the 11½ years that ended December 31, 1956. Of that total, \$26.3 billion—an average of \$5.3 billion per year—was used during the period July 1, 1945, to June 30, 1950, and \$31.3 billion—an average of \$4.8 billion per year—was granted or loaned in the post-Korean years.⁴ The post-Korean total is about equal to the national income of Pakistan, a nation of more than 80 million people, and exceeds the national incomes of Venezuela or of Denmark, for the period in question. In the perspective of our enviable American economy, however, it has not been a very significant item. It is considerably below the amount received by a single American corporation, the Standard Oil Company of New Jersey, during the corresponding 6½ years, from its sales of crude oil, products, and services.

Foreign aid may be defined in various ways. If a foreign country assumes the risks involved in providing the United States with the site for a major airbase and in a separate transaction obtains an aid grant, has the United States made a gift or has it compensated the foreign nation for risks assumed? If the United States Government makes a dollar loan which is to be repaid in full, should the principal amount of the loan be regarded as foreign aid? The figure \$58 billion given above treats the airbase transaction as a grant and includes loans until they are repaid. It would be considerably smaller if it excluded outstanding loans and considerably larger if the calculation were based on gross grants and credits instead of net grants and credits.

Theoretically "aid may be defined as a transfer of resources, either in goods and services or in money, without a commensurate retransfer either simultaneously or in the future. In the case of loans, the aid component may be considered to be the difference between the actual interest rate charged by the Government and the one which would have to be charged if the loans had to be made through commercial channels.⁵ (But if the loans could not have been obtained through commercial channels, is it not appropriate to consider the principal amount also as aid? What would have been the interest rate on a commercial loan to Italy or to China in 1946?)

"It is the purpose of aid to raise the recipient country's resources so that the total of its consumer, business, and government expenditures can be higher than its total production without such aid."⁶ To this end, the United States in 1946 dedicated 2.6 percent of its annual production of goods and services. In the flourishing economy of the postwar period, the gross national product of the United States has mounted rapidly, with the result that foreign aid dropped in 1956

⁴ See table II. The figures exclude the United States Government investment of \$3.4 billion in the International Bank for Reconstruction and Development, the International Monetary Fund, and the International Finance Corporation.

⁵ Walther Lederer, *Foreign Aid and the United States Balance of Payments*, Social Science, vol. 29, No. 4, October 1954, pp. 231-232.

⁶ *Ibid.*

to only 1 percent of total output. In relation to the expenditures of the Federal Government, expenditures for foreign assistance declined from nearly 17 percent of the total to less than 6.5 percent.⁷

The impact of the foreign aid programs on the domestic economy has been analyzed in a recent report prepared for the Senate Special Committee To Study the Foreign Aid Program. This report, other highlights of which are noted below, points out that

Since on the average about 1.5 percent of United States production has been involved in foreign aid, it is difficult to claim that domestic employment, prices, or consumption as a whole could have been seriously affected, for better or worse, by foreign aid expenditures. The impact on employment varies from one region to another, depending upon the commodity * * * and the effects differ during periods of inflation and recession. On the whole, however, the inflationary or stabilizing effects have been very slight.⁸

Nevertheless, foreign aid programs are not without costs. During a period of inflationary pressures, they contribute to such pressures. At any time, their discontinuance and a corresponding increase in other economic, social, or security programs of the Government could speed the attainment of other desirable objectives. A tax reduction in the amount of the foreign aid program would be widely welcomed.⁹

The report estimates that about 600,000 workers have been employed each year, directly and indirectly, as a result of foreign aid expenditures. Goods and services vitally important to friendly nations have been provided. These in turn have helped to increase the reverse flow of necessary commodities and raw materials to the United States. Our programs may in some cases have aided industries abroad which compete with similar industries in the United States. At the same time, however, they have helped to expand the level of economic activity abroad, thereby increasing overall demand for the goods and services of this country.¹⁰

Government grants and loans are usually tied to specific goods and services. Many man-hours are devoted to firming up these ties and insuring that funds will be expended only for the agreed commodities and services. It is natural to assume that, if the aid funds are used to buy wheat, the result will be to increase our exports of wheat and the recipient country's imports of an essential foodstuff. Because aid funds are rarely the only funds available to a nation, the assumption oversimplifies the relationships.

Foreign aid, for example, has played an important role in financing American agricultural exports but probably a less important one than that indicated by the statistics on commodities obtained with aid funds. Government procurement is a complicated, costly, and time-consuming process. Every aid administrator learns quickly that send-

⁷ National Planning Association, *The Foreign Aid Programs and the United States Economy*, a study prepared pursuant to S. Res. 285, 84th Cong., and S. Res. 35, 85th Cong., p. 53.

⁸ *Ibid.*, p. 2.

⁹ *Ibid.*, p. 12.

¹⁰ *Ibid.*, pp. 3, 7. Regarding assistance received by industries competing with similar ones in this country, the report notes that this does not necessarily mean that the foreign producer has obtained a competitive advantage over American producers as a result of American aid. Even when American assistance takes the form of a grant to the foreign government, the foreign businessman pays his government, in the currency of his country, for the equipment he receives (p. 15).

ing a shipload of wheat abroad is easier than spending an equivalent sum for a list of manufactured products having complex specifications. The convenience of everyone except the recipient government appears to be served by using aid funds to procure agricultural commodities in bulk wherever feasible, and requiring the recipient nation to finance other essential imports from its free dollars. At the same time, this minimizes the volume of aid funds utilized for purposes that might be construed as competitive with domestic industry.

When aid funds have the indirect effect of helping other countries to build up their gold and dollar reserves, the effect on the United States economy is not the same as when foreign reserves are being depleted. During the early postwar years, European countries were drawing down their reserves. The aid extended during this period of declining reserves "resulted in an increase in United States exports, although not necessarily of the goods originally financed by the aid and, perhaps, not even to the countries to which the aid was given. Because the recipient country did not have to pay for aid-financed imports, it may have used dollars from its reserves or from current sales for purchases from third countries, which in turn could use these dollars to increase their imports from the United States."¹¹

During the period 1950 to 1953, foreign nations taken together considered it more important to replenish their depleted reserves than to step up the level of imports from the United States by the full amount of aid received from this country, although they also relaxed their restrictions on dollar imports. In the absence of aid, United States exports might have dropped significantly but the presence of aid appears to have resulted in large part in an increase in foreign reserves, although not necessarily in the countries to which the aid was given.

At the present time, foreign countries are again liquidating reserves, and aid may again be regarded as expanding American exports. The effect, however, is less expansive than in 1946-49, not only because there is less aid, but also because our total exports are greater. Aid-financed exports even if they had remained constant, would represent a smaller proportion of total exports.

The greater expansion of American exports than of imports is due to various factors. Rich in resources, immensely diversified, and exceedingly productive, the United States has less need for imports than most countries and superior capacities for meeting export demands. Though its record leaves a good deal to be desired, it has also been more successful than the majority of its trading partners in holding down inflationary pressures. Part of the currently widening gap between exports and imports, however, is due to the fact that the foreign economic policy of the United States—in trade, aid, and investment—is oriented toward, and more successful in, promoting exports than in enlarging imports.

The exports procured with foreign aid funds during 1948-55 have accounted for as much as 46 percent and as little as 25 percent of total United States merchandise exports. During 1948-50, the average ratio of foreign aid shipments to total commodity exports was 41 percent, while for the period 1951 to 1955 the ratio was 30 percent.¹²

¹¹ Walther Lederer, *loc. cit.*, p. 234.

¹² NPA, *loc. cit.*, p. 13.

Under the European recovery program, large quantities of United States agricultural commodities were purchased with aid funds. During 1948-51, inclusive, more than \$1.8 billion of aid funds were used directly to purchase bread grains and flour from the United States; approximately \$500 million to purchase coarse grains; nearly \$1.5 billion to purchase cotton; and nearly \$450 million to purchase tobacco and tobacco products. In the 3 years 1948-50, more than half of the total exports of bread grains, coarse grains, cotton, and tobacco were foreign-aid shipments.¹³

During the early postwar years, when the world food crisis was at its height, the United States made intensive efforts to increase its production as well as its exports of essential foodstuffs. The United States replaced Manchuria as the major exporter of soybeans and became an important exporter of rice. Prices to wheat farmers rose substantially and output expanded. In other exporting nations, in which government policies made it more difficult for farmers to obtain the immediate benefits of rising demand, comparable increases in wheat output failed to occur. When prices remained high, however, others also expanded their production and surpluses began to accumulate. For several years after 1950 there was no agricultural commodity group in which aid-financed exports exceeded 50 percent of total United States exports.

The purpose of government financing of agricultural exports during the early postwar years was to meet the urgent food requirements of foreign countries. In recent years the major purpose has been to relieve the domestic economy of some burdensome surpluses. As a result of the expansion of surplus disposal programs since 1954, the United States Government has again assumed a major role in financing agricultural exports. Farm exports under government grant credit, and sales programs reached approximately \$1.4 billion in 1956, half again as much as in 1955. Agricultural shipments, moreover, comprised 50 percent of the gross deliveries and cash payments under the nonmilitary programs of the Government, as compared with one-third in 1955.¹⁴ Agricultural surpluses nonetheless continue to present major problems for the domestic economy, which have not been, and cannot be, solved satisfactorily by foreign assistance measures.

Surpluses are no longer mounting rapidly, but some of the heaviest have not been greatly reduced. Despite the fact that wheat is the most widely used commodity in the disposal programs, the wheat surplus remains enormous. The supply of feed grains is sufficient to meet all prospective requirements for domestic use and for exports, and still to leave a large carryover. On the other hand, surpluses of rice, cotton, and dairy products are being reduced.¹⁵

In 1948, there were eight groups of manufactured commodities in which aid-financed exports were greater than those privately financed. By 1955, when foreign aid consisted primarily of military assistance, there were three product groups in which aid shipments accounted for 50 percent or more of total exports: construction, mining, and

¹³ *Ibid.*, p. 41.

¹⁴ U. S. Department of Commerce, Office of Business Economics, *Foreign Grants and Credits by the United States Government*, December 1956 Quarter, p. 5.

¹⁵ National Planning Association, *Agricultural Surplus Disposal and Foreign Aid*, a study prepared pursuant to S. Res. 285, 84th Cong., and S. Res. 35, 85th Cong., pp. 5-6.

conveying equipment; aircraft engines and parts; and ships and other transportation equipment.¹⁶

Although foreign aid expenditures have been significant for certain categories of commodities, the overall effects of the foreign-aid programs on the American economy have, as indicated earlier in this article, been minor and currently involve only about 1 percent of our gross national product. The report on the Foreign Aid Programs and the United States Economy prepared for the Senate Special Committee To Study the Foreign Aid Program concludes not only that the total burden of the aid programs on the American economy has been slight, but also that—

Assuming a gross national production level by 1965 of \$565 billion (in 1955 prices), the United States could double the present size of the foreign aid program by then with little additional impact on the United States economy.¹⁷

FOREIGN ASSISTANCE AND WORLD TRADE

Although foreign assistance is comparatively unimportant to the American economy, it has important effects not only on the level of economic activity in recipient countries and on their imports and exports, but also on the overall volume and direction of international trade. In the first place, it has continued to be a significant factor in the world supply of dollars. Secondly, it affects world trade in particular commodities, most notably agricultural commodities that are also exported in quantity by other friendly nations. In the third place, some of the legal and administrative regulations governing the operation of the aid program insure that it will maximize American exports of goods and services without correspondingly increasing the capacity of other nations to earn the dollars with which to pay for those exports. In this respect, aid policies reinforce trade and loan policies of the United States Government that likewise tend to preserve or to widen the gap between American exports and imports.

Spending by the United States Government has been an essential lubricant of world trade. In addition to the human misery that it has relieved, government spending has helped reduce trade barriers that would otherwise have been raised in efforts to protect the foreign exchange reserves of vulnerable countries. Over the past 9 years, about 25 percent of the dollars available to foreign countries has become so as a result of United States Government spending. Government grant and loan programs (if it is proper to include grants of military supplies and services in the total) are consequently second only to our merchandise imports as a source of dollars for a dollar-hungry world. In this sense, aid programs are more important to the stability of international trade than to the stability of the American economy. The "large fraction of the dollar supply accounted for by Government payments makes the total dollar supply at least as sensitive to political decisions as to minor cyclical fluctuations."¹⁸

¹⁶ National Planning Association, *The Foreign Aid Programs and the United States Economy*, p. 14.

¹⁷ *Ibid.*, p. 2.

¹⁸ J. J. Polak, *The Repercussions of Economic Fluctuation in the United States on Other Parts of the World*, International Monetary Fund Staff Papers, vol. V, No. 2, August 1956, p. 283.

The decision to embark on a broad program for the disposition of surplus agricultural commodities has increased the United States share in world trade in these commodities. During the past 3 years, the United States share in world wheat exports has risen rapidly. The United States was the biggest contributor to the increase in world exports of rice during 1956. It has raised its share of the world trade in corn, and has recently regained the position it held in the early postwar years as the supplier of nearly half of the international cotton trade.¹⁹ Total agricultural exports from the United States for the fiscal year ending June 30, 1957, reached a record high, estimated at \$4.7 billion, compared with \$3.5 billion in the fiscal year 1956, and less than \$3.2 billion in the fiscal year 1955.²⁰

The Agricultural Trade Development and Assistance Act of 1954 (Public Law 83-480), an important source of foreign assistance, has been a major factor in increasing agricultural exports. Shipments abroad under this law accounted for 13 percent of our total farm exports in the fiscal year 1955, 28 percent in 1956, and 32 percent in 1957. In the most recent fiscal year, they accounted for 57 percent of wheat exports, 43 percent of corn, 81 percent of rice, 30 percent of cotton, and 47 percent of cottonseed and soybean oil.²¹

In this process there may have been some displacement of normal exports of other nations. Their fears that American export programs would drive down international price levels or reduce drastically the actual volume of their exports have not been justified by events to date. What has happened for the most part is that the United States has prevented some price increases that might otherwise have occurred and has obtained a larger share of the growing international market than might otherwise have come to it.

Mutual security appropriations have provided additional assistance for American agricultural exports. Contrary to popular impression, the aid programs of the United States do not generally take the form of dollar checks to recipient governments, which they bank and draw against. Instead, our Government procures commodities produced in this country or, in certain cases, from other producer nations able to supply on a competitive basis. The cost of the commodities is then charged to the aid allotment of the recipient government. The effect is roughly equivalent to that of supplying the foreign treasury with dollars.

Nevertheless, the effect is not identical, and the existing procedure gives the United States Government a greater voice in determining how American producers and exporters will be affected by foreign aid. If foreign governments were in all cases supplied directly with dollars, they might prepare their specifications differently and obtain more of their essential requirements from nations other than the United States, thereby reducing their need for American aid and possibly (but not necessarily) the overall level of American exports. They might also concentrate more heavily on building up domestic production of items exported by the United States, a practice discouraged by aid administrators.

¹⁹ Contracting Parties to the General Agreement on Tariffs and Trade, *International Trade, 1956*, pp. 51-57.

²⁰ Sixth Semiannual Report on Activities Under Public Law 480, 83d Cong., As Amended (85th Cong., 1st sess.), H. Doc. No. 212, p. 4.

²¹ *Ibid.*, p. 4. (The figures include barter transactions under title III of the act.)

The restraints on East-West trade, introduced and maintained for security reasons, have at times likewise appeared to foreign countries to reduce their capacity to earn foreign exchange in international trade and to increase their dependence on the American market for essential imports. Legislative requirements concerning the use of American vessels for the transportation of aid shipments have a similar effect. Like the international competitive bidding procedure, the offshore procurement procedure, under which significant sums from our mutual security appropriations were committed for purchases from European producers in 1952 and 1953, has operated as an offset to aid policies that can be interpreted as promoting American exports.

The United States also provides dollars to the rest of the world by buying its merchandise and its services, by furnishing private capital for investment in foreign lands, and by private donations. Our imports of goods and services have been increasing but so have our exports. In fact, the latter—exclusive of grant-aid shipments of military supplies—have been rising more rapidly than the former and, in 1956, the surplus on goods and services was greater than in any year since 1949. By the last quarter of 1956, transactions with the United States were again resulting in a depletion of the gold and dollar assets of other nations.²²

In these circumstances, it is ironic that our basic trade policy as well as our aid policy is directed toward promoting exports. The Trade Agreements Act adopted by the Congress has only one stated purpose: the expansion of foreign markets for products of the United States. The "concession" we demand in trade negotiations is the opportunity to sell additional American commodities to others; the reciprocal "concession" that we resist is the opportunity for American producers and consumers to buy additional commodities from cheaper sources of supply. Even in a period of inflation, a negotiation that permitted more goods to enter the American market than were expected to be shipped out of it would be regarded as a failure. The Trade Agreements Act has, of course, contributed substantially to the general expansion of international trade, even if it has not contributed to a reduction of our export surplus.²³

Properly speaking, trade—which involves a two-way exchange of resources, cannot replace aid, if aid is defined as a transfer of resources to a foreign country without a commensurate retransfer from the foreign country to the United States. Nevertheless, the slogan

²² See table I.

²³ Commodity trade—World and United States:

	1950	1956	1957 (2d quarter at annual rate)
World exports (in billion dollars, f. o. b.).....	\$56.64	\$93.35	\$101.00
United States exports (in billion dollars, f. o. b.).....	\$10.28	\$19.08	\$21.86
World imports (in billion dollars, c. i. f.).....	\$59.36	\$97.92	\$109.00
United States imports (in billion dollars, c. i. f.).....	\$9.60	\$13.75	\$13.94
United States as percent of world exports.....	18.1	20.4	21.6
United States as percent of world imports.....	16.2	14.0	12.8

Source: International Monetary Fund, International Financial Statistics, vol. X, No. 10 (October 1957), pp. 28-29.

"trade not aid" can be made more meaningful than it has yet been allowed to become. A creditor nation such as the United States, interested in securing a better allocation of resources within the free world, could well afford to take unilateral action to liberalize imports and thus help foreign nations earn a larger proportion of their dollar requirements from commodity sales in the American market. Adjustment assistance could be made available to American workers, communities, enterprises, and industries substantially injured by particular reductions in import barriers. The last few years, however, have seen a mushrooming of protectionist demands and a number of concessions to them. Continued prosperity in the United States will enable our friends and allies to earn more dollars, but may not help them to balance their accounts by earning, through trade, a larger share of their dollar spendings.²⁴

In theory, the Export-Import Bank exists to finance imports as well as exports. In practice, the loans of the bank are export credits. Import financing has played a very minor role in the history of the bank, primarily because of the availability of private credit for this purpose.²⁵ Indirectly, the loans of the Export-Import Bank facilitate capital formation in other lands, but the direct contribution of this institution to the world supply of dollars since 1953 has been negative. Credits utilized amounted to \$716 million during the years 1954-56, inclusive, while principal repayments came to \$920 million and interest collected to nearly \$260 million.

The United States could maintain an export surplus on goods and services without causing balance-of-payments crises for the rest of the world, taken as a whole, if American exports of private capital reached a high enough level. Private foreign investment since the end of the Second World War has accounted for only a very small proportion, usually less than 10 percent, of the annual world supply of dollars. It is an extremely volatile item.²⁶ Fortunately, it increased sharply and encouragingly in 1956. The result was a slight narrowing of the gap between (1) dollars supplied to foreign nations through private investment plus payments for imported goods and services and (2) dollars required by foreign countries to pay for American exports of goods and services, exclusive of military aid shipments. The private investment total for 1956, however, contained several nonrecurrent items and was, as usual, heavily concentrated in a few areas which, for the most part, were already areas of financial strength.

Private investment, like foreign trade and unlike foreign aid, cannot be directed in accordance with the requirements of American foreign policy. So long as foreign policy considerations make it imperative for us to provide resources for the development of nations unable (or, in some cases, unwilling) to compete in the market place

²⁴ "To make matters worse, the fringe skirmishes in the constant war of commercial policy are all going in favor of the protectionists. There is no longer much doubt that oil imports will be cut back, one way or the other; the current 'voluntary' restrictions are so close to Government-imposed quotas, company by company, and area by area, as to be almost indistinguishable. And it has been oil that has provided the greater part of what year-to-year increases American imports have been able to show. The new tariff-quota on foreign woolsens, Japan's 'voluntary' agreement to curb its exports of textiles and of a few other items, the impending, and almost certainly successful, appeal for tariff relief for lead and zinc—all are making their contributions to keeping the total of American imports from showing much energy." *The Economist*, Sept. 14, 1957, p. 844.

²⁵ See Olin S. Pugh, *The Export-Import Bank of Washington*, University of South Carolina, Bureau of Business and Economic Research, *Essays in Economics* No. 5, June 1957.

²⁶ See table I.

for private capital, even a doubling of the current relatively high outflow of private investment funds would not necessarily eliminate the need for foreign aid.

FOREIGN ASSISTANCE AND THE ECONOMIES OF RECIPIENT COUNTRIES

In foreign aid, as in other aspects of foreign policy, urgent short-term considerations often interfere with the realization of long-range objectives, and means and ends become confused.

Among the more frequently cited short-run objectives of assistance programs have been: repairing the ravages of war; preventing families and precipitous declines in levels of living; disposing of agricultural surpluses; shoring up the independence of one-time members of the Soviet bloc; making allies out of neutrals; strengthening the military and economic defenses of our allies; and obtaining bases abroad for the United States. Longer term objectives have included: containing communism; promoting economic growth and democratic institutions in underdeveloped areas of the free world; extending the free enterprise system or paving the way for its extension; developing sources of raw materials, markets for American products, and opportunities for mutually beneficial capital investments; serving broad humanitarian purposes through helping needy members of the international community to overcome poverty, hunger, and disease and enter an era of self-sustaining growth with maximum freedom for their individual citizens.

These and other objectives, explicit and implicit, deserve examination, individually, in relation to each other, and in relation to overall foreign policy. The maintenance of a stronger Military Establishment may prevent economic growth in areas in which the latter is more important than the former. Military aid may be used to maintain a totalitarian government in power instead of to prevent one from assuming power. Economic development is not a universal antidote for communism; Communist movements may become stronger during certain stages of economic development. Newly independent nations may exercise their sovereignty in ways that are harmful to the United States.

A more fundamental dilemma arises out of the fact that foreign aid programs have been justified at home on the ground that they promote the American national interest, defined in fairly immediate and concrete terms. The very grounds on which they are justified at home tend to make them suspect abroad. For why should others be grateful for the incidental benefits of steps that are taken primarily in our own self-interest? Until we agree on a rationale in which our national interest does not appear to conflict unnecessarily with the national interests of others, our programs are bound to encounter resistance abroad.

An analysis of the situation during the last few years would probably show that the necessary rationale is gradually emerging, especially if military aid is handled in a defense rather than an aid context and foreign aid is limited primarily to economic development assistance. Harlan Cleveland, an experienced practitioner and perceptive writer in this field, has recently summarized it this way:

It is in the United States national interest that the new societies of Asia and Africa succeed in meeting the challenge

ahead of them, * * * without coming under the domination of any outside power and without adopting a repressive system of internal regimentation. To promote this interest requires the maintenance of a military shield, and we will have to be reconciled to bearing a disproportionate share of the cost * * * of erecting and maintaining the shield—just as the British did, partly in behalf of our own newly developing Nation, during the 18th and 19th centuries. To promote this national interest of ours will also undoubtedly require the effective use of our great economic strength through trade, aid, and investment. But these are tools, not aims; the aim is a successful India, a successful Indonesia, a successful Egypt * * *—successful in the sense that the constituted authorities are governing effectively and by consent, and are anxious to live with other free nations in freedom and co-operation.²⁷

Others—among them the International Development Advisory Board, the Mansfield Subcommittee on Technical Assistance, and Drs. Hoselitz, Millikan, Rostow, and Staley in their writings—are saying about the same thing.

If the development of a successful India, Indonesia, and so forth, proves acceptable to the American people as a rationale for foreign aid, several questions that have been highly controversial in the past should become less so in the future. These include the question of aid for neutrals, the use of multilateral channels for economic development assistance, and American attitudes toward industrialization in areas heretofore overwhelmingly agricultural. On the other hand, the question of how much aid, how to allocate it geographically and functionally, and many other questions will not be answered merely because ultimate objectives have been clarified. The broad terms in which the long-range goals must be stated will still leave ample room for debate about intermediate action.

In recent years the predominant form of aid has been military. Since 1952, about 60 percent of our total foreign aid expenditure has been for military supplies and equipment provided by the Department of Defense. The bulk of the aid provided by the International Cooperation Administration has also been dedicated to the support of military establishments in nations with which the United States has defense pacts. Emergency relief, economic development assistance, and technical assistance have accounted for only a small share of total assistance rendered since 1952.

Whatever the form in which foreign aid is extended by the United States, it usually has at least one important educational effect in the recipient nation. It forces the country to look more searchingly at its requirements and resources than would otherwise be the case. Plans and cost estimates have to be made, specifications for equipment developed, market prospects analyzed, inflationary or deflationary effects forecast, innumerable forms completed in quintuplicate, and a subsequent stream of inquiries answered. Always time consuming, frequently demanding the services of personnel needed in an underdeveloped country for other equally vital tasks, and sometimes unrec-

²⁷ Harlan Cleveland, *The Theory and Practice of Foreign Aid*, a paper prepared for the special-studies project of the Rockefeller Brothers Fund, November 1, 1956, pp. 31-32.

essarily humiliating, the process nevertheless forces nations to examine every project proposal with meticulous care. Some of this essential discipline carries over into other activities and helps underdeveloped countries train the necessary corps of public administrators and assign economic priorities in more realistic fashion.

From the point of view of the economy of the recipient nation, it makes a great deal of difference whether foreign assistance takes the form of military aid or of economic aid. Under military aid, the foreign country receives a grant—an addition to its resources without an obligation to make repayment—but the grant is employed for economically unproductive purposes. The United States gives the nation planes, tanks, guns, and military hardware that it would not otherwise be able to obtain or would not choose to obtain in preference to existing claims on its budgetary resources. The recipient of military aid is assisted in building up a larger defense force in a better state of readiness. To the extent that this deters aggression and Communist subversion, the security of the United States is enhanced.

American military aid may permit the recipient nation to concentrate more of its own resources on economic development. The aid may incidentally serve to train new leadership in the recipient country, to teach new skills and new patterns of behavior, to interest an important segment of the population in modern ways of doing things, and to increase popular demand for higher standards of living. The purpose of the aid, however, is not to help other nations improve local standards of living, or bridge a gap in their balance of payments, or enlarge their capacity to service foreign loans. The future of military aid as an item of Federal expenditure does not depend, therefore, upon economic considerations as much as upon an assessment of the nature of the Soviet threat and of the points at which armed resistance to foreign aggression or to subversion from within is most important.

Military aid cannot be expected to end merely because the agreed buildup of foreign forces has been achieved. Military equipment becomes obsolete more rapidly than other capital equipment and tends to require replacement with ever more costly equipment. If, during the period of buildup, the United States and the foreign country are sharing the increased expense on a 50-50 basis, it may well be that, after the buildup, the cost of maintaining the larger force unaided would be a greater burden on the foreign country than the cost to that country of its present share of the buildup.

It can be argued that an equivalent American investment in developing the economies of friendly underdeveloped countries would contribute more to the security of the free world than the investment in the buildup of their armed forces is contributing. Some countries, as noted above, are perhaps being saddled with military establishments more costly than those they can be expected to maintain out of their own resources at any time in the foreseeable future. Others, it is feared, may employ their newfangled equipment against their neighbors instead of against the common enemy. This possibility provokes demands from the neighbors for comparable assistance in order to maintain a military balance in the region. Other regions may then feel discriminated against and step up their demands for military assistance, to the detriment of their economic development,

and without significantly increasing the security of the free world as a whole.

For each of these hazards, there are analogous hazards in the field of economic assistance. The risks might nevertheless be better distributed if American foreign aid were not concentrated so heavily on military assistance. In light of the enormous need for help in overcoming poverty, hunger, and disease, a prosperous nation that devotes only a small proportion of its foreign assistance to economic and social programs would appear well advised to reexamine its priorities with a view to upgrading development assistance.

The amount of foreign aid being expended for economic development—i. e., to help build up the capital stock (including the human skills) in underdeveloped countries rather than to equip military forces or meet urgent consumption requirements, is very small. Firm figures are not available, chiefly because of the difficulty of isolating the portion of defense support devoted to activities that clearly strengthen the civilian economies of nations receiving such support. Development assistance in 1956 probably did not exceed \$400 million. The military-aid figures shown in tables I, II, and III, following the text of this article, refer only to military equipment and services supplied to foreign governments through the Department of Defense. Much of the assistance furnished by the International Cooperation Administration is also required for the support of national defense establishments. The major recipients of ICA assistance during the fiscal years 1955 to 1957 are shown in table IV, with assistance to the countries in question classified according to the ICA categories of direct forces support, defense support, development assistance, and technical cooperation. Of the \$4 billion obligated by ICA on behalf of non-European nations during the 3 years, 60 percent went to 5 countries with which the United States has military pacts: Korea, Vietnam, Taiwan, Turkey, and Pakistan. There were relatively few additional countries on behalf of which obligations in excess of \$50 million for all so-called nonmilitary assistance were incurred during the 3-year period.²³

Development assistance could be extended either on a grant or a loan basis. Loans must be repaid, however, and, from an economic point of view, a grant that does not have to be repaid ought to be more valuable to the recipient than a loan that has to be amortized.

* * * Obviously if foreign assistance must be repaid, the debtor country will have a correspondingly smaller amount of resources available for further capital formation. It would seem to follow from this that the main factor in the decision as to whether a country should get a loan or a grant depends upon the magnitude of its need for capital. The adequacy of its resources in relation to the rate of capital for-

²³The direct forces support program, constituting grants and supplies directly and exclusively for the military forces of friendly countries, was transferred to the Department of Defense at the beginning of the 1956 fiscal year. "Defense support" is aid given by the ICA which is not for the direct and exclusive use of the military establishments of allied nations, but is intended to help such nations maintain a level of defense expenditures that would not otherwise be maintained, or to help them undertake defense activities that would not otherwise be undertaken. Defense support includes some aid for economic development purposes, for example, in the fields of transportation, power, and port improvement. "Development assistance," in ICA terminology (as in table IV accompanying this article), normally means assistance in improving the capital stock of nations with which the United States does not have bilateral security pacts. "Technical cooperation" is the program originally known as "technical assistance."

mation that is regarded as desirable seems to be a far more basic test of whether it can repay foreign assistance, and whether it should be asked to repay it, than is its balance of payments position. In particular, its immediate balance of payments position is irrelevant to the question of loans versus grants, since the difference between loans and grants becomes important only over a period of future time. Even a projection of the long-term balance of payment outlook, if based on current trade patterns and resources, is not very relevant to whether a country should be asked to repay. The basic questions are rather how important it is to have the country use for further capital formation the additional resources that would be at its disposal if repayment is not required, and how likely it is that these resources will actually be used for that purpose. In some cases, resources that would be needed to repay loans would be a substantial portion of an underdeveloped country's net capital formation, and the need to repay might significantly slow up the development process.²⁹

At the end of 1956, the United States Government already had the equivalent of more than \$11.7 billion outstanding in credits, exclusive of those extended as a result of the First World War. Since 1954, repayments of principal, largely by European governments, on post-war American loans have each year exceeded new credit utilizations. In addition, substantial interest payments have been made. If collections are made as scheduled, the United States Government will receive in 1957 (in addition to the return of silver lend leased to India and certain other nations) \$458 million in principal repayments and \$269 million in interest, a total of nearly three-quarters of a billion dollars. During the 6-year period ending in 1962, the Government is scheduled to collect more than \$4 billion of principal and interest on the credits outstanding at the close of 1956. Annual principal repayments will range from \$458 million in 1957 to \$374 million in 1962, and interest from \$269 million to \$217 million.³⁰

In the immediate future, development assistance from the United States will be available only in the form of loans. Pressure in this direction had been building up for some time before the establishment of the development loan fund in the Mutual Security Act of 1957, and other recent acts had required that not less than some fixed percentage of nonmilitary aid be extended in the form of loans. The decision to put development assistance entirely on a loan basis was not reached through studies of the debt-servicing capacities of underdeveloped countries or of the rates of development that would best serve the interests of the free world. It was based rather on strong feelings that grants-in-aid should not be allowed to become a normal feature of international economic relations.

Loans may be made repayable either in the currency of the lender or that of the borrower. Loans that are repayable in dollars require the borrower to increase its exports to the United States or otherwise earn

²⁹ Walter S. Salant, *Some Basic Considerations of Public Finance in the Economic Development of Underdeveloped Countries*, a paper presented to the annual meeting of the International Institute of Public Finance, London, September 1951, pp. 11-12 (mimeo). Mr. Salant calls attention in a footnote to the Report to the President on Foreign Economic Policies (the Gray report), 1950, p. 67, where a similar point of view is expressed.

³⁰ U. S. Department of Commerce, Office of Business Economics, *Foreign Grants and Credits by the United States Government, December 1956 Quarter*, p. 9.

the dollars needed to pay off the loan. If this results in too slow a rate of capital formation, the extension of aid on a grant basis may prove to have been preferable. The mutual strains involved in the relationship of donor and recipient could be reduced by several devices, including greater use of multilateral machinery.

In the effort to find a middle ground between outright grants and loans repayable in dollars, the United States developed one of the outstanding innovations of the postwar world of inconvertible currencies, the loan repayable in the currency of the borrower—in rupees, rials, pesos, or other monetary units.

In such cases, the commodities received from the United States by the borrower, whether in the form of agricultural surpluses or industrial goods, constitute an addition to its real resources. The use to which these additional resources are put can be planned jointly with the United States. Corollary exports by the borrower (for example, those resulting from the triangular trade arrangements sometimes made) subtract from its real resources. Payment of local currency into a United States account within the country provides the United States with a cash asset. While the United States account is building up, no real resources are being lost to the borrower, but some of its currency is being sterilized and this may help to combat inflation in the area.

It follows also that there will be no addition to the real resources of the country when the local currency accumulation in the United States account is released to the country as a loan. The occasion nevertheless offers the United States a fresh opportunity to share in planning the most productive uses for the currency being released. If exercised with discretion and skill, American participation in the domestic affairs of countries in different stages of economic development can be an important influence for the common good. It would appear to be sound policy, therefore, for the United States to continue making loans repayable in local currencies and relending the proceeds until such time as the borrower is able to repay in dollars. This is possible under the development loan fund of the latest Mutual Security Act, but not in connection with development loans made under the agricultural surplus disposal legislation. If the authority to relend were broadened, consideration might usefully be given to making the original loans for shorter terms than at present, accumulating local currencies more rapidly, and advancing the date at which joint programming with the borrowing country would again be necessary.

The American motivation for embarking on a large-scale program of loans repayable in local currencies was the desire to dispose of mounting agricultural surpluses. By 1953, the disposal problem had become acute, and the Congress inserted in the Mutual Security Act a provision requiring that, during the fiscal year 1954, not less than \$100 million of the funds appropriated for foreign aid be used to buy surplus agricultural products which could be sold abroad for foreign currencies.³¹ Similar provisions specifying that larger sums be so used have been included in subsequent acts.³² Whereas the counterpart funds generated by grant aid belong, with minor exceptions, to

³¹ Mutual Security Act of 1951, as amended, sec. 550.

³² Mutual Security Act of 1954, as amended, sec. 402.

the foreign government, the local currencies received in payment for surplus commodities belong to the United States, for use pursuant to agreements with the borrowing countries. By March 31, 1957, total foreign currency proceeds received since July 1, 1953, under sections 550 and 402 of the different Mutual Security Acts and available to the International Cooperation Administration amounted to the equivalent of \$1 billion.³³

Paralleling and in many respects dwarfing the surplus-disposal provisions of the mutual security acts have been the provisions of the previously mentioned Agricultural Trade Development and Assistance Act of 1954 (Public Law 83-480). These provisions authorize sales of surplus commodities for foreign currencies, grants for emergency relief purposes, donations to nonprofit voluntary agencies, and barter deals. Although the basic purpose of Public Law 480 is to facilitate the movement of surplus agricultural commodities, it has become a major source of foreign assistance. Under title I of the law, agreements for the sale of agricultural commodities for foreign currencies had by June 30, 1957, been made with 34 countries for commodities worth \$3 billion at Commodity Credit Corporation cost, or \$2.1 billion at export-market value. The larger figure represents the cost of the commodities to the CCC, including investment, processing, handling, and other costs. The export-market value reflects the price at which the commodities are sold by United States exporters under the program.³⁴

The act specifies a number of purposes for which the foreign-currency receipts may be used. By far, the most important of these is "loans to promote multilateral trade and economic development" (sec. 104 (g)). The ICA may make such loans without an equivalent payment to the CCC in appropriated dollars. By June 30, 1957, sales agreements involving the loan of \$1.2 billion in foreign-currency proceeds had been signed.

Although more than half of the local currency accumulated under title I of Public Law 480 is being lent back for "multilateral trade and economic development," about one-quarter of the total is being used for the payment of United States expenses abroad, a catchall category that includes some local expenses of American embassies, the local travel expenses of congressional committees, and a number of other expenditures authorized by the act. Another one-eighth, the equivalent of \$244 million, is being devoted to military procurement abroad. Under ordinary circumstances, the United States would—

pay for the upkeep of a diplomatic mission or pay troops stationed abroad in dollars. These dollars are paid into the economy of the receiving country, and may be used to purchase any article moving in world trade (or to bolster reserves). The chances are that some of the dollars would be spent for United States goods. When, instead, we pay foreign expenses in local currencies, we lessen our chances of making sales through normal export channels, because no dollar exchange is created. * * * Critics of the title I programs make much of this point, stressing it as a detriment to

³³ International Cooperation Administration, Counterpart Funds and ICA Foreign Currency Accounts, Data as of March 31, 1957, pp. 13-17.

³⁴ Sixth Semiannual Report on Activities Under Public Law 480, 83d Cong., as Amended (85th Cong., 1st sess., H. Doc. 212), p. 2.

normal trade and to United States firms with an interest in foreign markets. * * * The stated purpose of the programs would be better met if more local currencies were assigned for economic development.³⁵

Surplus commodities also provide an important source of grant aid. Deliveries for emergency relief and other assistance abroad under title II of Public Law 480, as of June 30, 1957, totaled \$260 million at CCC cost. Cumulative shipments for foreign relief through nonprofit voluntary agencies and intergovernmental organizations (primarily the United Nations Children's Fund) under title III totaled \$600 million. Whereas the emphasis in title II is on emergency relief in times of flood, famine, and other disasters, the purpose of the donations to voluntary agencies is to permit free distribution to needy individuals. The processing, packaging, and related costs—and, more recently, part of the ocean freight as well—are paid by the United States Government.

Whether in surplus agricultural commodities or in other forms, nonmilitary grant aid is now limited largely to the prevention of starvation, the relief of personal poverty, and the avoidance of political crises. The assistance usually goes directly into consumption, where it serves a critical, short-term need. The long-term requirement of the underdeveloped countries is to increase the level of investment and thus improve the capital stock that will permanently raise standards of living. To achieve the increase, simultaneous action on many fronts is needed:

* * * Too little capital is by no means the only problem facing the leaders of the less developed areas. But it is the one problem that the United States can most readily do something about. * * * The literature on this subject is well supplied with estimates of the appropriate size for a larger program. * * * Any of the figures * * * mentioned would be a great deal better than the actual total today, and none of them would make a noticeable dent on what is available for domestic consumption in the United States or for investment in our own growth.³⁶

PRESENT STATUS OF FOREIGN AID

Until only a few months ago, foreign aid seemed to have established itself as a major feature of American foreign policy. Despite the emergency character of the operation and the absence of authorization legislation for the most important types of assistance, the level of foreign grants and credits had been running between \$4.2 billion and \$6.3 billion per year for more than a decade. In late 1956 and early 1957, the program had been subjected to the most widespread and searching analysis since the inception of the Marshall plan.

Although congressional opposition to a mere continuation of the pre-1957 program had been growing, the initial reception for the new and more imaginative proposals put forward by the administration in the spring of 1957—largely as a result of congressional prodding—was cordial. There seemed to be broad agreement on the desirability

³⁵ National Planning Association, *Agricultural Surplus Disposal and Foreign Aid*, p. 24.

³⁶ Harlan Cleveland, *Theory and Practice of Foreign Aid*, pp. 63–64.

of putting the aid program on a longer term basis, separating military and economic aid, establishing a new loan fund for development assistance, and endowing the fund with sufficient resources to permit the underdeveloped countries of the free world to plan ahead with greater assurance than heretofore. Fulfillment of their aspirations for more rapid economic and social progress admittedly carried certain risks, but the risks involved in American failure to help them realize their legitimate aspirations seemed even greater.

The process of attaining a self-sustaining rate of growth had been compared by W. W. Rostow to the takeoff of an airplane; unless the plane attained a certain momentum, it would never leave the ground. To reach the takeoff speed, most underdeveloped countries needed outside aid and, unless the amounts were sufficient, there would be no takeoff. A number of the recently published investigations and reports, consequently, recommended increases in the current levels of economic and technical assistance.

The task in south Asia was considered especially urgent. India, with the largest population in the free world and one of the poorest, has been trying desperately to meet the comparatively modest goals of its second 5-year plan without resorting to totalitarian means. To the north and east, Communist China has been proceeding by the more ruthless tactics of totalitarianism and at fearful cost in human liberty and dignity, to invest perhaps twice as large a proportion of its gross national product as India. Unless India overcomes its present serious difficulties, the outlook for democracy, according to many experienced observers, will be considerably bleaker.

The Congress, by sharply reducing the amount of new money appropriated for the mutual security program in 1958, has left a clearer field for the Soviet Union and made plain its own reluctance to accept sizable military and economic aid programs as normal, peacetime methods of achieving our foreign-policy objectives. The future of foreign aid, consequently, cannot be forecast with any confidence. A few conclusions can be drawn from the record to date, however.

Foreign aid has not been a great burden on the American economy. The case for assuming the burden has rested on general foreign-policy considerations, political, military, and humanitarian, as well as economic. To concede that it was necessary and desirable for the United States to undertake such programs is not to say that the programs have been brilliantly administered, that the divisions between different forms of aid have been wise, or that the conflicting objectives of the various aid laws can all be realized.

The bulk of the aid furnished by the United States has been spent to equip and support the military forces of friendly nations. In the absence of such expenditures, the domestic defense expenditures of the United States would, almost certainly, have been higher. The decision having been taken to build up the defense establishments of the nations most vulnerable to external aggression, it would seem sensible to insure that the newly erected establishments are maintained until the danger of armed attack subsides. The cost of maintaining such establishments makes it unlikely that the nations in question will be able to bear them unaided. Whether the defense expenditures of the free world can safely be reduced should depend upon a reassessment of the nature and character of the Soviet threat, not upon the weight of the current economic burden.

In theory, the sums invested by the United States in nonmilitary aid could be used to a much greater extent than heretofore to expand American imports. Stockpiles could be established or expanded and other devices employed to provide dollar earnings for countries that the United States wanted to help. In practice, the aid programs of the United States have been oriented in the direction of expanding American exports, and, in this respect, have been in tune with a worldwide desire to solve economic problems by protecting domestic markets while seeking to expand foreign markets.

Much of the economic aid has been devoted to maintaining consumption instead of increasing investment. Relatively little has been allocated to the most important long-range economic and political problem facing the free world as a whole: permanently improving standards of living where the economy has for long been at a bare subsistence level and where, because of the relentless pressure of population, considerable investment is required merely to maintain present standards. Whether in such areas the foreign contribution can be limited to loans is problematical.

When the United States lends to a country that could not have borrowed through commercial channels, and the country erects a powerplant and later repays the loan with interest, both will have gained as a result of the transaction. If the loan is really a loan, however, repayment must be made in real resources. If the total resources available to the borrowing country are likely for some time to come to be inadequate for purposes of capital formation, it may be better to extend grant aid. The lending of local currencies accumulated in payment for previously received agricultural or industrial commodities provides fresh opportunities for joint programing, but such loans neither add to the already available real resources of the borrower nor help it to obtain additional capital equipment from abroad. In cases in which grant aid is deemed necessary, strings that require cooperative planning can be attached without arousing undue resentment.

The most efficient use of our foreign aid resources is that which best achieves the objectives of our foreign policy. To me at least, it seems unlikely that the United States will be able to live in real peace, either with itself or with the rest of the world, until the energies of both are harnessed more firmly to the constructive and challenging task of raising levels of living in areas no longer resigned to grinding poverty and subordinate status.

TABLE I.—United States surplus of exports and means of financing calendar years 1948-57

[In billions of dollars]

Line No.	Item	Calendar year									
		1948	1949	1950	1951	1952	1953	1954	1955	1956	1957 (1st qtr.)
(1)	Exports of goods and services, total.....	17.1	16.0	14.4	20.3	20.7	21.3	21.1	22.0	26.1	7.2
(2)	Merchandise exports.....	13.2	12.1	10.1	14.1	13.3	12.3	12.8	14.3	17.3	5.1
(3)	Services.....	3.6	3.7	3.8	4.7	4.7	4.8	5.1	5.6	6.2	1.5
(4)	Military transfers under aid programs (net).....	.3	.2	.5	1.5	2.6	4.3	3.2	2.1	2.6	.6
(5)	Imports of goods and services, total.....	10.3	9.7	12.0	15.1	15.7	16.6	16.1	17.9	19.8	5.0
(6)	Merchandise imports.....	7.6	6.9	9.1	11.2	10.8	11.0	10.4	11.5	12.8	3.3
(7)	Services.....	1.9	2.2	2.4	2.6	2.9	3.1	3.1	3.6	4.1	.9
(8)	Military expenditures ¹.....	.8	.6	.6	1.3	2.0	2.5	2.6	2.8	2.9	.8
(9)	Surplus on goods and services, total.....	6.8	6.3	2.3	5.2	5.0	4.7	5.0	4.1	6.3	2.2
(10)	Surplus on goods and services, exclusive of military transfers.....	6.5	6.2	1.8	3.7	2.4	.4	1.9	2.0	3.7	1.6
(11)	Surplus on merchandise exports.....	5.6	5.2	1.0	2.9	2.5	1.3	2.4	2.8	4.5	1.8
MEANS OF FINANCING SURPLUS ON GOODS AND SERVICES											
(Surplus=line 9=lines 12+16+17+18+19)											
(12)	U. S. Government grants and loans, net total.....	5.2	5.9	4.2	4.7	5.0	6.3	4.7	4.3	4.9	1.2
(13)	Grants of military supplies and services ².....	.3	.2	.5	1.5	2.6	4.3	3.2	2.1	2.6	.6
(14)	Other grants.....	3.9	5.0	3.5	3.0	2.0	1.8	1.6	1.9	1.7	.4
(15)	Long- and short-term loans (net).....	1.0	.7	.2	.2	.4	.2	-.1	.3	.6	.2
(16)	Long- and short-term private capital (net).....	.9	.5	1.3	1.1	1.2	.4	1.6	1.2	3.0	.8
(17)	Private remittances and U. S. Government pensions.....	.6	.6	.5	.5	.6	.6	.6	.6	.6	.2
(18)	Foreign liquidation of gold and dollar assets (minus sign indicates gold and dollar gains by foreign countries).....	1.2	.1	-3.7	-.5	-1.2	-2.3	-1.8	-1.5	-1.5	.3
(19)	Errors and omissions.....	-1.2	-.8	(*)	-.5	-.5	-.3	-.2	-.5	-.7	-.4

¹ Includes personal expenditures of American troops in foreign countries.² The differences between the U. S. Government grant and loan figures shown here and those given in tables II and III are due to differences in accounting procedures and definitions. For example, foreign currencies acquired through the sale of surplus agricultural commodities but still unspent enter into the balance-of-payments accounts as short-term assistance to foreign countries. Such amounts are not incorporated into the foreign grant and (long-term) credit data summarized in tables II and III, however, until the foreign currencies are expended as grants or credits.³ Less than \$50,000,000.

NOTE.—Because of rounding to nearest \$100,000,000, figures may not add up correctly. When figures in each column are fully extended—

Line (1) = (2) + (3) + (4)

Line (5) = (6) + (7) + (8)

Line (9) = (1) - (5) = (12) + (16) + (17) + (18) + (19)

Line (10) = (9) - (4)

Line (11) = (2) - (6)

Line (12) = (13) + (14) + (15)

Line (13) = line (4).

Sources: U. S. Department of Commerce, Office of Business Economics, Balance of Payments, 1919-53, table 1 (for figures pertaining to 1948-52), Survey of Current Business, June 1956, table 3 (for 1953-55), Survey of Current Business, June 1957, table 2 (for 1956-57).

TABLE II.—U. S. Government: Foreign grants and credits, July 1, 1945, to Dec. 31, 1956

[In billions of dollars]

Line No.	Item	5 years: July 1, 1945–June 30, 1950	6½ years: July 1, 1950–Dec. 31, 1956								Total 11½ years
			July 1, 1950–Dec. 31, 1950	1951	1952	1953	1954	1955	1956	Total	
(1)	Net foreign grants and credits, total ¹	26.35	1.99	4.63	5.04	6.35	4.74	4.22	4.34	31.31	57.66
	Grants:										
(2)	Net.....	18.32	1.94	4.51	4.64	6.12	4.86	4.31	4.37	30.75	49.07
(3)	Gross (new).....	19.26	2.01	4.65	4.79	6.28	4.93	4.38	4.45	31.50	50.76
(4)	Military supplies and services ²	1.51	.42	1.49	2.73	4.34	3.21	2.42	2.69	17.30	18.81
(5)	Other ³	17.75	1.59	3.16	2.06	1.94	1.72	1.96	1.76	14.20	31.95
(6)	Less: Reverse grants and returns ⁴.....	.94	.07	.14	.15	.17	.07	.07	.08	.75	1.69
(7)	Military supplies and services.....	.07	(⁵)	.02	.07	.06	.01	.01	.01	.18	.25
(8)	Other.....	.87	.06	.12	.08	.10	.06	.06	.07	.57	1.44
	Credits utilized:										
(9)	Net.....	8.03	.05	.12	.40	.23	-.11	-.09	-.03	.56	8.59
(10)	Gross (new).....	9.33	.20	.43	.83	.71	.39	.41	.48	3.45	12.78
(11)	Export-Import Bank program.....	2.65	.08	.20	.48	.65	.28	.21	.23	2.13	4.78
(12)	Mutual security program ⁶.....	.99	.08	.21	.33	.05	.09	.19	.23	1.19	2.18
(13)	Other.....	5.69	.04	.02	.01	.01	.02	.01	.02	.13	5.82
(14)	Less: Principal collections.....	1.30	.16	.31	.43	.48	.50	.50	.51	2.89	4.19
(15)	Export-Import Bank program.....	.63	.09	.13	.27	.31	.35	.31	.27	1.72	2.36
(16)	Mutual security program ⁶.....					.01	.01	.01	.02	.06	.06
(17)	Other.....	.67	.07	.18	.16	.16	.14	.18	.22	1.10	1.77

¹ The differences between U. S. Government grant and credit figures shown here and those shown in table I are due to differences in accounting procedures and definitions. For example, foreign currencies acquired through the sale of surplus agricultural commodities but still unspent enter into the balance-of-payments accounts (table I) as short-term assistance to foreign countries. Such amounts are not incorporated into the foreign grant and (long-term) credit data included above, however, until the foreign currencies are expended as grants or loans.

² Defense Department is operating agency providing most of military aid reported on this line.

³ Provided primarily by International Cooperation Administration (ICA) and its predecessors: Foreign Operations Administration (FOA), Mutual Security Administration (MSA), and Economic Cooperation Administration (ECA). Includes grants for defense support, technical assistance, emergency relief, and contributions to international organizations for Palestine refugees and Korean reconstruction.

⁴ Includes counterpart funds provided by U. S. Government.

⁵ Less than \$5,000,000.

⁶ Includes loan activities of ICA, FOA, MSA, and ECA.

NOTE.—Because of rounding to nearest \$10,000,000, figures may not add up correctly. When each figure is fully extended—

Line (1) = (2) + (9)

Line (2) = (3) - (6)

Line (3) = (4) + (5)

Line (6) = (7) + (8)

Line (9) = (10) - (14)

Line (10) = (11) + (12) + (13)

Line (14) = (15) + (16) + (17)

Source: Report of the National Advisory Council on International Monetary and Financial Problems, 85th Cong., 1st sess., H. Doc. 200, table C-4. Data are based upon those published by the Department of Commerce, Office of Business Economics, in the quarterly report Foreign Grants and Credits by the United States Government.

TABLE III.—U. S. Government: Net foreign grants and credits, by area, 1951-56

[In billions of dollars]

Line No.	Item	Calendar year						Total			Line No.
		1951	1952	1953	1954	1955	1956	1951-53	1954-56	1951-56	
(1)	All areas (net grants and credits utilized). ¹	4.63	5.04	6.35	4.74	4.22	4.34	16.02	13.30	29.32	(1)
(2)	Grants (net total).....	4.51	4.64	6.12	4.86	4.31	4.37	15.27	13.53	28.81	(2)
(3)	Military supplies and services.	1.48	2.66	4.28	3.20	2.41	2.67	8.42	8.28	16.71	(3)
(4)	Other ²	3.04	1.98	1.84	1.66	1.90	1.69	6.85	5.25	12.10	(4)
(5)	Credits (net).....	.12	.40	.23	-.11	-.09	-.03	.75	-.23	.51	(5)
(6)	Europe (total) ³	3.37	3.75	4.41	3.12	2.41	2.21	11.53	7.74	19.27	(6)
(7)	Grants.....	3.49	3.63	4.58	3.36	2.59	2.41	11.70	8.35	20.06	(7)
(8)	Military supplies and services.	1.08	2.18	3.44	2.35	1.78	1.94	6.71	6.07	12.78	(8)
(9)	Other.....	2.41	1.45	1.13	1.01	.81	.47	4.99	2.29	7.28	(9)
(10)	Credits.....	-.12	.11	-.17	-.23	-.18	-.20	-.17	-.62	-.79	(10)
(11)	Asia (total) ³.....	.99	1.00	1.40	1.37	1.54	1.81	3.40	4.72	8.12	(11)
(12)	Grants.....	.85	.83	1.39	1.32	1.47	1.63	3.06	4.42	7.48	(12)
(13)	Military supplies and services.	.29	.38	.77	.79	.58	.65	1.45	2.02	3.46	(13)
(14)	Other.....	.56	.44	.61	.53	.89	.98	1.62	2.40	4.02	(14)
(15)	Credits.....	.15	.17	.02	.05	.06	.18	.34	.29	.63	(15)
(16)	Latin America (total).....	.16	.13	.40	.13	.10	.11	.70	.34	1.03	(16)
(17)	Grants.....	.08	.08	.06	.09	.10	.14	.22	.32	.55	(17)
(18)	Military supplies and services.	.06	.06	.03	.05	.03	.06	.16	.13	.29	(18)
(19)	Other.....	.01	.02	.03	.04	.07	.08	.47	.19	.25	(19)
(20)	Credits.....	.08	.05	.34	.04	(⁴)	-.03	.47	.02	.49	(20)
(21)	Africa (total nonmilitary) ⁵.....	.01	.06	.04	.05	.09	.07	.11	.20	.31	(21)
(22)	Grants (other than military).....	(⁴)	.01	.01	.01	.05	.05	.02	.11	.13	(22)
(23)	Credits.....	(⁴)	.05	.03	.04	.03	.02	.09	.09	.18	(23)
(24)	Other ⁵.....	.10	.10	.08	.08	.09	.14	.29	.30	.59	(24)
(25)	Grants.....	.09	.09	.08	.08	.09	.14	.27	.32	.59	(25)
(26)	Military supplies and services.	.04	.04	.03	.02	.02	.02	.11	.07	.17	(26)
(27)	Other.....	.05	.06	.05	.06	.07	.11	.16	.25	.41	(27)
(28)	Credits.....	.01	.01	(⁴)	(⁴)	-.01	(⁴)	.03	-.02	.01	(28)

¹ The differences between U. S. Government grant and credit figures shown here and those shown in table I are due to differences in accounting procedures and definitions. For example, foreign currencies acquired through the sale of surplus agricultural commodities but still unspent enter into the balance-of-payments accounts (table I) as short-term assistance to foreign countries. Such amounts are not incorporated into the foreign grant and (long-term) credit data included above, however, until the foreign currencies are expended as grants or loans.

² Includes grants for defense support.

³ European totals include assistance to certain European dependents in Asia and Africa. Amounts for Asia and Africa are correspondingly understated.

⁴ Equals less than \$5,001,000.

⁵ Includes Canada, Australia, New Zealand, and certain international organizations.

Source: Report of the National Advisory Council on International Monetary and Financial Problems, 85th Cong., 1st sess., H. Doc. No. 200, tables C-1, C-2, and C-3. Data are based upon those published by the Department of Commerce, Office of Business Economics, in the quarterly report Foreign Grants and Credits by the U. S. Government. Because of rounding to nearest \$10,000,000, figures may not add up correctly. When each figure is fully extended:

Line (1) = (2) + (5) + (6) + (11) + (16) + (21) + (24).
 Line (2) = (3) + (4) + (7) + (12) + (17) + (22) + (25).
 Line (3) = (8) + (13) + (18) + (26).
 Line (4) = (9) + (14) + (19) + (22) + (27).
 Line (5) = (10) + (15) + (20) + (23) + (28).

TABLE IV.—ICA aid to selected areas for fiscal years 1955-57, by type of assistance¹[Obligations, in millions of dollars]²

Region and country	Fiscal year			
	1955	1956	1957	1955-57
Total, excluding Europe	\$1,422	\$1,251	\$1,361	\$4,035
Direct forces support ³	81	4-3	---	78
Defense support ³	986	992	1,045	3,022
Development assistance	236	148	201	586
Technical cooperation	115	113	115	342
Other	3	3	---	6
Far East (total)	912	739	811	2,462
Direct forces support	56	4-3	---	53
Defense support	833	706	770	2,309
Development assistance	1	4	5	9
Technical cooperation	20	31	36	88
Other	2	1	---	3
Cambodia (total)	38	45	34	117
Defense support	38	43	32	114
Technical cooperation	---	2	2	4
Laos	41	48	44	134
Defense support	41	47	43	131
Technical cooperation	---	1	1	2
Vietnam	324	202	260	785
Direct forces support	20	---	---	20
Defense support	304	199	255	757
Technical cooperation	---	3	4	8
Indochina (undistributed)	60	4-22	---	38
Defense support	60	-22	---	38
China (Taiwan)	132	70	84	285
Direct forces support	29	4-1	---	28
Defense support	99	68	80	247
Technical cooperation	3	3	4	10
Korea	237	324	306	867
Defense support	235	317	300	853
Technical cooperation	(5)	5	5	11
Other	2	1	---	3
Philippines	25	28	34	90
Defense support	21	22	29	73
Technical cooperation	7	6	5	18
South Asia (total)	152	190	192	535
Defense support	57	97	93	246
Development assistance	72	69	82	223
Technical cooperation	23	24	18	64
Other	1	1	---	2
India	86	59	69	214
Development assistance	72	47	63	182
Technical cooperation	13	13	6	32
Pakistan	63	106	99	267
Defense support	57	97	93	246
Technical cooperation	5	8	6	19
Other	1	1	---	2

See footnotes at end of table.

TABLE IV.—*ICA aid to selected areas for fiscal years 1955-57, by type of assistance*¹—Continued[Obligations, in millions of dollars]²

Region and country	Fiscal year			
	1955	1956	1957	1955-57
Near East (total).....	299	239	218	756
Direct forces support.....	25			25
Defense support.....	96	189	127	412
Development assistance.....	144	27	69	240
Technical cooperation.....	34	23	22	79
Greece.....	34	27	26	86
Defense support.....	33	26	25	84
Technical cooperation.....	1	(³)	1	2
Iran.....	73	65	51	189
Defense support.....		58	45	102
Development assistance.....	54			53
Technical cooperation.....	19	8	6	34
Israel.....	41	24	27	92
Development assistance.....	40	22	25	87
Technical cooperation.....	1	1	2	5
Turkey.....	90	107	59	256
Direct forces support.....	25			25
Defense support.....	64	105	56	225
Technical cooperation.....	2	2	3	7
Latin America (total).....	45	71	79	194
Defense support.....			49	49
Development assistance.....	16	44		60
Technical cooperation.....	28	27	29	84
Other.....	1	(³)		1
Bolivia.....	13	25	23	61
Defense support.....			20	20
Development assistance.....	10	23		32
Technical cooperation.....	3	2	3	8
Other.....	(⁴)	(⁵)		1
Africa (total).....	13	13	62	88
Defense support.....			7	7
Development assistance.....	3	5	46	54
Technical cooperation.....	10	8	9	27

¹ Countries selected are those outside ICA European region, on behalf of which obligations in excess of \$50 million were accumulated during the period June 30, 1955 to June 30, 1957. ICA includes Greece and Turkey in Near East region. European figures, which are not yet available, would add Spain, Yugoslavia, and possibly Germany (Berlin and East German relief) to the list.

² Figures are preliminary. Obligations precede expenditures and provide a useful measure of current trends. Because of rounding to the nearest million, columns and lines may not add correctly.

³ Both direct forces support and defense support are designed to make possible the creation or maintenance of a certain level of military forces. Direct forces support does so by providing, or paying for, goods or services that physically reach or benefit the forces involved. Defense support contributes to this objective more indirectly through providing resources which either enable the recipient country to maintain a level of defense expenditures or undertake defense activities that would not otherwise be possible. The program of direct forces support (e. g., clothing, rations, petroleum, medical supplies, etc. used directly and exclusively by the military forces) was transferred to the Department of Defense at the beginning of the 1956 fiscal year. Defense support includes some assistance (e. g., in transportation, electric power, or port improvement) which might also be classified as aid for economic development. It has its specific military impact as a country's economy is rendered capable of sustaining the desired enlargement of its defense burden.

⁴ Negative figure means deobligations exceeded obligations of new funds or reobligations of old funds.

⁵ Less than \$500,000.

Source: International Cooperation Administration, Office of Statistics and Reports.

AMERICA'S FOREIGN AID PROGRAM

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INTRODUCTION

An evaluation of foreign aid can usefully begin with an emphasis upon three significant political and economic developments in the postwar world. First, the security of the United States has been threatened seriously since World War II by the rise of a powerful group of Communist nations that are hostile to capitalistic countries such as our own. Moreover, it is increasingly apparent that the resultant political struggle between the western capitalistic countries and this Communist bloc may continue for many years.

At the same time the United States was trying to turn back the challenge of international communism, it was confronted with another fundamental change in international relations. This is the attainment of political independence by a number of nations that formerly were aligned closely to certain western countries. A major way in which these nations exercise their newly gained independence is by attempting to raise their living standards. In this effort, they are also joined by other relatively poor countries that previously had attained a large measure of political autonomy. The conviction that their long-endured poverty can be eliminated deeply influences the actions of the political leaders of these regions. However, in their attempts to carry out the objective of accelerated economic growth, many of these nations are not as yet firmly committed to the methods either of democratic capitalism or of totalitarian socialism. Consequently, the programs and policies followed by these countries are necessarily of vital interest to both the West and the Communist group.

A third point to keep in mind while analyzing the American foreign aid program is that international financial difficulties have plagued many of the western capitalistic countries since the end of the war. Although much progress has been made toward solving this problem, the rebuilding of a stable, relatively free pattern of international trade with these nations is still not completed.

Within the framework of these postwar developments, two major sets of questions must be answered in considering the foreign aid policy of the United States. They are: (1) Is the current volume and regional distribution of foreign aid by this country adequate; and (2) Is the economic and financial form of this aid satisfactory.

THE VOLUME AND REGIONAL DISTRIBUTION OF FOREIGN AID

The adequacy of the magnitude of America's foreign aid program is a question that must be decided in terms of the relative importance of our various competing national policy objectives and the limited

volume of resource available to achieve these goals. In particular, it must always be remembered that satisfactory international political and economic relations are only one of many objectives of national policy. Furthermore, expenditures by the Federal Government are only one method of attempting to achieve this specific goal.

Within recent years, the threat of Communist aggression caused this country to allocate most of its foreign aid for the purpose of providing direct military assistance to our close allies. To meet the immediate danger of war there can be little question about the wisdom of this decision. Such foreign assistance clearly can indirectly strengthen our military capabilities more than would be the case if these funds were employed directly for increasing the potential of our own military services. We must, however, make certain that these funds are received by nations who would make effective fighting partners in case of a general conflagration.

The appropriate volume of direct military aid would seem to depend upon the maintenance of a balance of military power between the free and Communist worlds. Shifts in foreign policy—apparent or real—on the part of the Communist nations should not be allowed to cloud their basic hostility to the West. The only adequate guide for defense expenditures in the West is an appraisal of the military strength of the potential adversary. An appraisal of this type is a difficult task, but the risks involved are so great that we must be sure not to underestimate the military power of the Communist bloc.

Although a policy of military strength may prevent a general conflict and also retard Communist expansion by means of small-scale wars, it does not adequately meet the problem of thwarting the spread of communism by peaceful methods. One means of partially dealing with this matter is by attempting to increase the economic power of those nations in which there are democratic leanings but in which communism is still a real threat. The more fully these countries can satisfy the economic desires of their people through democratic methods, the more secure will be the international position of the United States. However, to view the problem of raising the level of economic well-being throughout the free world solely in terms of the struggle between the West and the Communist bloc is to adopt a much too narrow view of our foreign policy problems. In many countries communism is not an immediate danger, yet there are beginnings of a profound revolution in traditional social, political, and economic ways of life. To minimize the significance of this upheaval for the United States would be to take a dangerously shortsighted view of our interests. Our interests clearly are to help these nations achieve their political, economic, and social goals within the framework of a stable, democratic, and capitalistic system. For with this type of government the chances of gaining the type of world peace we seek are greatest.

In addition to shifts that are occurring in the poorer parts of the free world, our foreign policy must also take into account the problems faced by some of the older capitalistic nations. In these nations our interests are less social or political and more economic. We are especially concerned with their economic ills that appear in the form of periodic balance of payments difficulties. Such difficulties tend to lead to the imposition of additional quantitative restric-

tions on trade by these countries and sometimes to curtailment of the volume of resources devoted to military preparedness in order to cope better with their international economic problems. Since these policies are not in the interests of the United States, the question of possible economic aid to these countries is also relevant.

But is economic aid a sufficiently effective means of implementing our foreign policy of combating communism and of promoting a world in which we can prosper in peace? The experience of economic aid under the Marshall plan must certainly be judged as encouraging. By 1950 most of industrial Europe regained its prewar level of production and the great dollar shortage of the immediate postwar years was significantly reduced. Financial crises have occurred since then but the fear that an economically weak Europe would be an easy prey to communism has long since passed. As a result, economic aid to industrial Europe was greatly reduced. There still remains, however, the need to develop a stronger international organization to help these nations—as well as the rest of the world—to meet short-run balance of payments strains.

Although the Marshall plan was highly successful, one must be cautious about generalizing from this experience in discussing methods of furthering our interests in the poorer parts of the free world. The problem in postwar Europe was to rebuild a war-disrupted industrial structure. These countries already possessed the economic and social requisites for successful economic growth. Moreover, their governments were of the type with which the United States could maintain harmonious relations. The main task for us was to help restore their economic strength as quickly as possible in order to turn back the threat of Communist aggression and to renew mutually profitable economic relations.

The situation in the undeveloped areas is quite different. In these regions it is not mainly a matter of restoring economic strength within a framework of established social, political, and economic institutions but of creating an environment in which sustained and faster development can occur. To accomplish this goal significant changes in the social, economic, and political milieu of these nations are required. Many of these countries have long been caught in a vicious circle of poverty. Being poor they do not possess the means to save nor the purchasing power to encourage a large volume of investment in manufacturing. In addition, the efficiency of the people as productive agents is low, and their natural resources are poorly utilized. To break out of the circle of poverty necessitates more than the provision of capital funds; it also requires a modification in their cultural patterns that will be conducive to growth.

When the problem of accelerating development in the poor countries is viewed in this manner, arguments for economic aid claiming that the recipient nations will become friendlier toward the United States or that they will turn away from communism as their living standards rise appear rather superficial. Establishing a creditor-debtor relationship or a donor-donee one certainly does not breed friendship in any deep sense. Nor is democratic capitalism necessarily correlated with a rising standard of living. Indeed one must be careful about assuming that economic aid will make a significant contribution toward permanently raising living standards in the poor regions. A case for

general foreign aid based upon the development of sources of raw material supplies and of markets for our manufactures also should not be pushed too strongly. It is not at all obvious that these objectives are best satisfied by a large-scale Government-sponsored aid program.

Does it follow that the benefits to the United States of an economic aid program to the poor countries are so problematical that such aid is not justified? I think not. It should be recognized, first, that fundamental economic, social, and political changes are already occurring in these regions. Whether we step in and assist these nations develop is not going to affect the underlying forces making for change. We may be able to influence the forms of expression of these forces but not their basic nature. In short, the United States is confronted with changing political, economic, and social forces in these countries to which we must adapt.

Although most poor countries in the non-Communist world are not undertaking development programs within the framework of minimal direct government sponsorship that existed in such nations as Great Britain and the United States during the 19th century, they are following policies closer to capitalism than to the type of detailed planning practiced by a completely socialistic state. Their poverty and backwardness may necessitate more state activity than under American capitalism, but these characteristics at the same time tend to discourage the use of all-embracing planning techniques. For the very lack of administrative and entrepreneurial skill makes the communistic technique of deliberate industrialization highly risky.

Thus, the United States faces the problem of adapting to deep-seated revolutionary forces that in most of the poor nations at the present time are being channeled into forms of political and economic activity that are reasonably acceptable in terms of our foreign policy interests. Our chances of living in a peaceful and prosperous world would seem to be greater if the development programs of these regions are successful than if they are not. If they succeed the chances of strengthening democracy and free enterprise in the poor countries would seem to be increased. Failure in their development efforts will strengthen the positions of those advocating complete planning and the kind of undemocratic political methods usually associated with this policy. However, even with successful development programs in the poor countries, it should be stressed that what we should seek is a strengthening of political independence, democratic forces, and capitalistic traditions in these countries rather than the creation of carbon copies of American political or economic institutions and of governments that are prepared to follow blindly our political leadership.

Coupled with the challenge of adapting to the new forces in the poor countries as well as the tendency of these nations presently to follow political and economic methods that satisfy our foreign policy objectives is the belief by most investigators of the development problem in poor areas that well-conceived economic measures on the part of the rich countries can significantly help the underdeveloped nations. Many of these countries do not seem to be too far away from a threshold of sustained growth. Efforts by the poor regions alone, however, may not be sufficient to break out of the vicious circle or at least may delay the breakthrough for a long time. A certain amount of help from the rich nations may provide the push needed to reach a self-

generating growth position. It is emphasized, however, that merely making large sums available under very loose controls or adopting other measures to encourage foreign investment is by no means sufficient to guarantee success. This is a very different case from that of postwar Europe where the problem of utilizing available funds productively was not so serious. There is a much greater possibility in the poor countries that economic aid may not be used in the most productive manner. The reason for this rests on the very characteristics that make these countries poor. As a result, if economic aid is to be successful in raising standards of living, it must be channeled through organizations which carefully appraise the development plans and potentials of these countries. The program should be designed to further the establishment of conditions of self-sustained growth rather than to raise living standards by relief benefits. This implies the application of rather rigid economic criteria in determining the amount of aid a particular country might profitably utilize.

If it is concluded that economic aid to the poor countries is a worthwhile policy for the United States to pursue, then what should be the volume of this aid? One way to approach this question is to ask what are the needs of the poor countries in order to raise per capita income a certain percentage. A United Nations study in 1949 concludes that an annual capital import of well over \$10 billion is required to raise per capita income 2 percent per year in the poor countries as a whole. Since the current flow of foreign investment funds into the poor countries is probably about \$2 billion, the volume of additional aid necessary to accomplish this objective would be very substantial. A more recent study by Professors Millikan and Rostow, however, presents a much lower figure. These authors estimate the additional volume of capital assistance that the poor countries can absorb productively to be between \$2.5 billion and \$3.5 billion annually for the next 5 years. They maintain that this volume of assistance together with existing sources of investment funds should produce "rates of growth of per capita income of at least 1 or 2 percent per year."¹

Although estimates of this sort necessarily are very rough, the Millikan-Rostow figure seems more reliable than the United Nations' figure. It is computed in a less mechanistic manner and takes into account the important concept of capital-absorptive capacity. It cannot be stressed too strongly that the problem of development is much more than one of capital accumulation. Labor skills must be improved, entrepreneurship developed, natural resources more fully utilized, market imperfections reduced, attitudes changed, etc. Without these development requirements the productivity of capital decreases very rapidly. However, even given strenuous efforts to meet these needs, the time involved in fulfilling them implies that the ability of the poor countries to absorb capital productively within the next 5 years is strictly limited.

Another method of gaining a better perspective on the volume of capital assistance to poor countries that might be appropriate on the part of the rich nations is to consider past experience in this area.

¹ Max F. Millikan and W. W. Rostow, *A Proposal, Key to an Effective Foreign Policy*, Harper & Bros., New York, 1957, p. 100.

The conclusion from this approach is that there has been a sharp decline, especially since World War I, in the relative significance of international investment. During the 50 years prior to World War I Britain was easily the most important international investor. By 1913 about 40 percent of total long-term foreign investments were British investments. France and Germany were the second and third largest foreign investors, respectively. Britain's overseas investments averaged 4 percent of her national income during the entire period 1870-1913 and equaled 7 percent of her national income in the years between 1905 and 1913. One-quarter of British capital was exported to regions that today are considered to be underdeveloped.

Private long-term foreign investment by the United States in the record year of 1956 was \$3.4 billion, or about 1 percent of national income. A 4-percent level for this country in 1956 would have raised this figure to \$13.7 billion. If this volume of private investment were undertaken by the United States today and one-quarter of it was made in the poor countries, most of the additional capital needs estimated by Millikan and Rostow for the poor regions could be met from private American sources alone.

After World War I, the international investment position of the rich nations changed drastically. During the war Britain liquidated nearly one-quarter of her overseas investments, and throughout the 1920's her annual net capital exports averaged only about a third of the amount just before the war. France and Germany suffered even greater relative foreign investment losses than the United Kingdom. The United States, on the other hand, emerged from the war as a creditor nation and became the chief source of international loans during the 1920's. American private exports of long-term capital averaged over 1 percent of national income during this period. About 30 percent of portfolio investments and 50 percent of direct investments by this country between 1920 and 1931 were directed toward the underdeveloped areas. Most of this investment was undertaken in Latin America.

In the 1930's long-term foreign investment again dropped sharply. Political instability, the effects of the world-wide depression, and governmental controls caused this period to become one of negligible long-term private foreign investment. The United States in particular ceased to continue its lending role of the 1920's. Total American foreign investments actually fell from \$17 billion in 1930 to \$11 billion in 1939. After World War II private foreign investment by this country increased again but the average volume in constant prices between 1946 and 1952 was only one-half of the 1919-29 average. The flow of private funds since 1953, however, is somewhat more encouraging. But British capital exports in real terms from 1953 to 1956 averaged only 7.5 percent of her capital exports in 1913.

As noted, private long-term investment by the United States in 1956 was \$3.4 billion. Canada and Western Europe absorbed about 60 percent of this sum, while Latin America received 25 percent of the investment funds. The remaining 15 percent was divided between the poor nations of Africa and Asia, and such countries as Australia, New Zealand, and Japan. Direct private investment in 1956 was \$2.8 billion. About 44 percent of this type of investment was made in the underdeveloped countries (mainly in Latin America).

In addition to private investment the United States, of course, has provided substantial governmental assistance to other countries since the end of the war. Between July 1, 1955, and June 30, 1956, for example, Government expenditures for foreign assistance were \$5 billion. The underdeveloped countries (mainly 7 defense support countries) received \$1.5 billion of this aid. If foreign assistance by the Government is added to private long-term foreign investment in 1956, the ratio of these two items to national income is 2½ percent.

A consideration of the current needs of the poor countries and of the past experience of private foreign investment by the rich countries in these areas leads to the conclusion that, if anything like the pre-World War I international investment pattern could be restored, the capital problems of the poor countries would be solved. Fortunately, the United States at least does seem to be approaching again her role in the 1920's of a major source of capital funds. But this will still leave many of the capital needs of the poor nations unfulfilled. Therefore, in view of the opportunities for strengthening our national security, for reducing our long-run defense expenditures, and for opening-up both new raw material sources and markets for manufactured products that are linked with an increased flow of capital funds to the underdeveloped parts of the world, it would seem to be clearly in our national interests to attempt to increase the stream of our capital exports.

FORMS OF CAPITAL ASSISTANCE

If a larger volume of capital assistance to poor countries is an important policy goal for this country, what financial and economic forms should this assistance take?

One of the most important issues in this connection is the extent to which aid should take the form of private versus public investment. There are several important advantages of private investment. Since it is made within the framework of business profit calculations, private investment funds are likely to be employed productively. Furthermore, to the extent that this type of investment consists of direct rather than portfolio investment, it is likely to be accompanied by an inflow of managerial and entrepreneurial talent. This can be an effective method of helping to train the labor force in poor countries. Direct private investment also has the advantage of freeing a country from fixed charges that must be annually transferred abroad. Finally, a larger part of the earnings from direct investment as compared with portfolio investment are likely to be reinvested within the recipient country.

Because of these important benefits from private investment, vigorous efforts should be taken to increase the flow of this type of funds. Most writers contend that this flow can be expanded through such measures as investment treaties, tax incentives, investment guaranties, and the provision of better information concerning investment opportunities abroad. But the majority of investigators in this field do not believe that the kind of additional capital needs estimated by Millikan and Rostow for the poor countries can be satisfied mainly by private investment, particularly within the next few years. The risks and impediments involved in private foreign investment can be minimized only over a fairly long period of time.

There are also some drawbacks to an exclusive reliance on private investment. By far the largest part of British and American foreign investment has been devoted to the development of food and raw material exports and tertiary industries closely associated with the marketing of these exports. In short, there understandably has been an export bias to private foreign investment. The great international flow of capital in the 19th and early 20th centuries also was directed to regions of recent settlement such as the United States, Argentina, and Australia and was accompanied by a large movement of trained labor. The relatively skilled type of labor that emigrated to these sparsely populated regions and the nature of the commodities produced for export were important factors in causing the large-scale investment in industries closely related to exports to create a mechanism of sustained growth. In most of the poor countries the flow of capital and labor was either insignificant or the type of labor emigrating to these nations and the nature of the export industry were such that foreign investment did little to produce a cumulative growth process.

In many of the poor countries the current prospects for the creation of the type of balanced economy necessary for sustained development by means of investment in industries closely associated with exports are not very favorable. First, productive opportunities for a significant expansion in the type of export industries that attract foreign capital do not exist in a number of these countries. Moreover, in those nations in which opportunities are present the high proportion of the investment in extractive industries does not directly contribute to an increase in the levels of skill and industrial training of very many people nor does it induce much complementary investment in tertiary industries. The taxation of profits from this investment, however, can serve as an important source of revenue. Although private investment by foreigners in export industries should be encouraged for this reason, it does not follow that the existence of this tax revenue will lead to balanced self-sustained growth in any automatic manner. Total resources available from taxes and royalties paid by foreigners are not now nor likely to be in the near future sufficiently large to meet the capital requirements necessary for this goal. Furthermore, as the experience of certain countries in the Middle East indicates, the availability of capital funds does not ensure rapid development. A well-conceived program is needed, administrative and managerial skills in government and business must be improved, levels of general education and vocational training of the labor force must be raised, natural resources must be more fully exploited, reforms in the system of land tenure are often needed, etc. In short, accelerated development requires the removal of the characteristics of backwardness and underdevelopment as well as of capital deficiency.

Public foreign assistance must be relied upon to aid in the development of those sectors in which private foreign investment is not likely to be undertaken and in which government revenues as well as the non-financial resources of the poor areas are insufficient to initiate a cumulative growth process. The size of the type of aid that would seem desirable in terms of our development goal is difficult to estimate. On the one hand the internal needs of the rich countries are so pressing that massive assistance to poor areas that turns out to be mostly a form of relief because of its unproductive uses must be ruled out. On the

other hand, if the aid is too small, it may not be sufficient to start a cumulative upward growth movement and therefore also may be but a form of subsidy. In terms of the estimated needs of the poor areas and the outlook for alternative sources of assistance it would appear that an additional appropriation by the United States Government of perhaps \$1.5 billion annually for a 5-year period would be a prudent step. But a much more careful survey of the opportunities to absorb capital assistance productively in the poor regions is necessary before any firm opinion can be given on this matter.

An important part of such a program should consist of greater technical assistance to the poor countries. Sums such as the \$116 million appropriated for this purpose by the United States in 1954 and the \$70 million budgeted by the United Nations in the same year are entirely too modest in view of the opportunities in this area. Technical assistance essentially is a form of investment in the people of these countries. It must be remembered that nations such as the United States, Canada, and Australia developed under the impetus of a simultaneous flow of capital and labor. The people who emigrated from Europe brought with them the know-how and production experience that had been slowly acquired in the European nations. We cannot expect any similar migration to the poor countries of today. The problem therefore is to provide an alternative method of transferring technical knowledge to these areas. For with this knowledge the poor countries not only will be able to utilize more productively the investment funds provided by the rich countries but will be able to use their existing resources better. A United Nations study estimates, for example, that if poor countries devoted 1 percent of their national income to agricultural services, they would be able to reap a 50 percent increase in output within 20 years or less without any substantial increase in capital or widespread reorganization of the agricultural system.

Technical assistance should take the form of grants rather than loans. Although its effects on raising the incomes and foreign exchange earning capacity of the poor countries are likely to prove considerable, these repercussions will be indirect and occur only gradually. To insist upon the repayment of these sums plus interest charges may place the poor countries in a very difficult balance-of-payments position and generally discourage the use of technical aid. Efforts also are needed to integrate the several technical assistance programs by means of some central international organization.

In addition to our direct military assistance, the principle of grants is also appropriate for the economic aid that we believe is necessary in order to help those countries receiving direct military assistance to utilize this military aid effectively. Since the purpose of economic aid of this sort is not directly related to the goal of establishing a self-sustaining growth process, it should not be judged on the grounds of economic productivity.

The remaining part of our foreign-aid program, including most of the additional aid recommended here, should be in the form of loans. Although it may well be even in our national interests to give to the poor countries the entire amount of the additional aid suggested here, the loan principle is necessary to help insure the most productive uses of these funds and to encourage the creation of a framework of self-

sustained development. Interest rates, however, should be low and should vary among countries depending upon their level of development. Provision for long-run, flexible repayment terms are also necessary.

In summary, there seem to be convincing reasons for the United States to increase its volume of foreign assistance to the poor countries. Basically, they follow from the attachment of a high priority to the long-range goal of destroying Communist imperialism and of creating a peaceful and prosperous world. In economic matters, as in all forms of human endeavor, a situation must be judged in terms of alternatives. There is no question but that an expanded aid program will place additional burdens on the American people. But these burdens are inconsequential compared to the kind they might have to carry if communism continues to spread throughout the world and if the poor countries fail to achieve a reasonable measure of success in pursuing their peaceful national aspirations. Increased economic assistance is no automatic guaranty that the goal of a peaceful and prosperous world will be established, but the potential dangers of the future in relation to the possibilities for reaching this objective partly by means of economic aid appear to indicate that this aid is well worth the risks involved.

SOME NOTES ON FOREIGN ECONOMIC AID

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PRELIMINARY

These thoughts and suggestions refer to the administration of direct Government expenditures for foreign economic aid, mainly but not exclusively in the underdeveloped areas of Africa, Asia, and Latin America. They refer both to grants and to loans; indeed, one suggestion will be the transfer of much of our expenditure to the former from the latter category. They exclude such items as military aid, disaster relief, commodity purchases for stockpiling, and Government guaranties for American private capital abroad. They also assume the line between such categories as military and economic aid, or between disaster relief and reconstruction development, to be more unequivocal than is likely in practice.

The figure concerned is as yet a relatively small one, compared to the total Federal budget. It is currently less, rather than more, than \$2 billion annually, and the question may arise why special attention should be devoted to it here. To this sort of argument, if it in fact arises, there are at least two answers:

1. Expenditures for foreign economic aid generate an uniquely large political multiplier. By the term "political multiplier," which may be original, I mean that each dollar of foreign economic aid generates demand for X dollars (X varying over time, but always substantially greater than unity) of domestic expenditures of all kinds, chiefly economic aid for low-income areas within the continental United States. In particular, it has been found extraordinarily difficult to reduce these latter expenditures, say, in a period of inflation where much fiscal theory would recommend reduction, while maintaining economic assistance to foreigners. So that, while talking directly about \$2 billion of foreign economic aid expenditures, we are talking indirectly about perhaps \$5 billion or \$8 billion of total expenditures. (Please do not ask me to justify these figures, which represent pure armchair speculation.)

2. The element of altruism and human sympathy in our foreign economic aid should not be overlooked, but it remains true that it has been sold politically, mainly as an American weapon in the cold war. And as the cold war of rival military expenditures shifts in emphasis to the competitive coexistence of rival economic ideological salesmanship, we must expect the size of these expenditures to increase for an indefinite period.

Considered in bloodless frigidity, with all elements of altruism and human sympathy drained away, the problem of administration of our foreign economic aid program can be put in economic terms as obtaining maximum cold war or competitive coexistence advantage at a given cost, or as the so-called dual problem of obtaining at minimum

cost a given cold war or competitive coexistence advantage. And here, to run ahead of the main body of this paper, my feeling is that our performance (in Asia at least) leaves much to be desired, in that the U. S. S. R. and mainland China obtain much more competitive coexistence advantage per dollar of foreign-aid expenditures than we.

FOREIGN ECONOMIC AID—AMERICA VERSUS RUSSIA

This section is a political digression. It deals with the initial advantage and disadvantages with which we (and other western nations, especially the United Kingdom and the Commonwealth countries) face in the administration of foreign economic aid as compared with the U. S. S. R. and its allies, especially mainland China. If it should appear, as I believe it does appear on balance, that America starts out under an initial handicap, efficacy equal to the Russian or Chinese will require expenditures greater than theirs.

We have, as I see it, two main advantages vis-a-vis the Russians, in the foreign-aid aspect of the coexistence competition. The most fundamental of these is our greater wealth. We have more to spend for the purpose, and can afford easier terms. Less important, and less unequivocally an advantage, are our democratic institutions. Our expenditures for foreign aid can be presented as from the American people as a whole, not merely from a few leaders spending the people's money without the people's consent. It is questionable, however, whether full use has yet been made of either of these advantages.

We operate, on the other hand, under a number of competitive disadvantages, correlated in most cases with these same advantages. Our greater wealth and income can be exaggerated to imply that, whatever we give, we can afford more, and, however easy our terms, we can afford easier ones. Indeed, if one accepts the underconsumptionist and stagnationist critique of capitalism which is common in intellectual circles, it is easy to argue that our foreign-aid expenditures do not hurt us in any way and are actually beneficial, if not necessary, for us. (The theory implies, as is well known, that our only alternatives to such spending are depression, unemployment, or armaments.)

Furthermore, the less savory aspects of the history of western contacts with the underdeveloped world constitute a handicap difficult to overcome. If, as the Indians and Indonesians claim to believe, the industrial revolution of the Western World was financed by the loot of Bengal and the Spice Islands, any reasonable amount of American aid expenditures in these areas constitutes nothing more than a token payment in vicarious atonement for the sins of earlier generations of British and Dutch. (It should also be remembered that, during the approximate century of British free-trade policy, Americans who "would not play false, and yet would wrongly win" participated along with British subjects in the gains from British "imperialism.") In countries where our aid expenditures are considered only moral reparations, too little and too late into the bargain, there is little reason to expect great effectiveness from them in swaying public opinion in a pro-American direction.

Such half-truth history of the roots of western wealth has been important in implanting among the intellectual classes of most non-white countries a certain marked anticapitalist and pro-Socialist bias, which is often transformed into an anti-American and pro-Soviet one.

Nor are these classes to be overlooked as mere "eggheads." Their social position is at once higher and stronger than it is in America, despite the wretched poverty in which many of them live. Their control over all agencies of communication, in particular, is almost absolute. Short of totalitarian dictatorship, there is no substitute to winning over at least a substantial minority of the intellectuals if one wishes to influence public opinion. If American foreign policy, both political and economic, has thus far fallen short of expectations in influencing the intellectuals of the underdeveloped countries, the explanation lies rather more in this half-truth history, I should guess, than in any imperfections of our policy itself, or our domestic racial troubles, or the alleged anti-intellectualism of American civilization. But be its causes what they may, the anticapitalist and anti-American slant of the intellectuals of the nonwhite and underdeveloped countries constitutes an additional handicap to be overcome, a handicap often overlooked in cold-war prognostications.

Our democratic political institutions can also involve us in difficulties abroad. Voices are raised freely, in Congress and out, begrudging the aid we give, denouncing its beneficiaries, demanding harsher terms, both political and economic. These voices are easy to quote overseas to counteract the political effects of whatever is spent. And, probably more important, it has been difficult for us as a political democracy to contribute funds in aid of what the beneficiaries often want, because the underdeveloped regions of our domestic economy want the same things. At least one distinguished Senator allegedly abandoned his fight for reelection in the face of opponent's campaign comparing pictures of model schools in India (for which the Senator had led in getting funds appropriated) with pictures of ramshackle structures attended by some of the Senator's own constituents.

We seem, in fact, to have run up against a dilemma in our aid expenditures, as between spending on projects largely "invisible" in the countries concerned, and projects more eminently "visible" there. Spending on such "invisible" projects as seeds, insecticides, the services of experts, the exchange of students and teachers, is relatively easy to finance. On the other hand, its effect on foreign political opinion seems to be negligible, whatever its cumulative economic effect may be. Spending on such highly "visible" projects as steel mills, dams, and technical institutes is more appreciated abroad, but appropriations are more difficult to appropriate because of the opposition from representatives of domestic constituencies which want the same things. Also, but less important thus far, these "visible" projects are intended in some degree for eventual competition with our own exports, both agricultural and industrial. It may be increasingly difficult to persuade the representatives to export constituencies to accede to "subsidizing their own competitors."

In facing this dilemma, we have tended in the main to spend on the "invisible" projects for which Congress would most easily appropriate funds, and which may well be for the greatest long-run economic good of the foreign beneficiaries, but which were not what the beneficiaries themselves most desired. We have left the "visible" projects too largely to our competitors across the Iron Curtain. To use a crude analogy, we have given socks and sweaters for Christmas to a little boy who wants an electric train, and let our in-laws give him the train.

SOME GENERAL SUGGESTIONS

1. Aid should be put almost entirely in the form of grants rather than of loans, for three main reasons. Direct grants are more highly appreciated abroad, particularly as against loans from the U. S. S. R., which is short of capital and has sometimes pressed hard for repayment. In the second place, it is doubtful that the American public expects or counts on the repayment of many "loans" made under the heading of foreign economic aid, so that haggling over repayment schedules, interest rates, and so forth, is not only an irritant but a needless one. (Finlands are few and far between.) In the third place, funds already "lent" may be used by borrowing countries as hostages for "ransom" if sanguine expectations of repayment are built up. By this I mean that further loans or other aid may be extracted against our better judgment as conditions for service on earlier loans. (The Germans used this technique effectively in the early years of the Nazi regime.)

2. Aid should be concentrated on what the beneficiaries actually want, not on what we think they ought to want. What they want may, of course, be general programs involving a large number of small items individually almost invisible—like postwar reconstruction in South Korea. They are more apt to be large visible items like dams, bridges, railroads, and factories—or, as in Afghanistan, the paving of the main streets of the capital. Insofar as possible, projects should be supported which are wanted both by the governments and by the people in the grantee countries. Projects wanted by the people but not the government run too high a chance of being sabotaged in government circles by diversion of funds to other purposes. Projects wanted by the government but not the people will usually be ineffective in influencing public opinion.

3. Once aid has been granted, supervision should be reduced to a minimum, and supplied only at the request of the grantee country. We have been criticized for taking back in payment to unwanted American experts, consultants, supervisors, and construction companies too large a proportion of the grants we make. There are other ways of guarding against misuse of our funds.

PROBLEMS OF ALLOCATION

However generous American taxpayers may become, difficult choices will have to be made between alternative programs and projects. We cannot take on ourselves the financing of the entire economic development of the entire underdeveloped world. Allocation problems will always be with us, and must always be faced.

As a first step in the competition for each year's allocations, United States economic staffs stationed abroad, in embassies or in other agencies like the International Cooperation Administration, should list and, if possible, rank projects apparently wanted by both governments and people in the countries where they are stationed. They should prepare, with what local assistance may be obtainable, estimates of probable cost and (if possible) probable benefit, and submit to Washington applications based on these estimates.

It is important that these applications be submitted to the American Government by Americans and not by foreign governments them-

selves. We should not require or expect foreign governments to make formal, mendicant, hat-in-hand applications, and subject themselves to the indignities of possible refusal. Applications should be submitted by Americans to the American Government with the minimum of publicity abroad and the minimum involvement of the prestige of foreign countries or governments. It is not unlikely under such a system that certain foreign governments should deliberately court publicity for their applications and involve their own prestige in these applications as a form of pressure on the United States. Such pressure, however, is easier to resist when no formal international negotiations have begun and the whole matter is strictly intragovernmental.

More applications will undoubtedly be submitted each year than can conceivably be granted. The process of screening then might well be in stages, as is the screening of research and allied applications in the leading educational foundations. The first stage might be in the State Department, International Cooperation Agency, or some joint board representing all agencies concerned. The second stage might be in the Bureau of the Budget, and the third stage in Congress. Each stage of the screening process should be carried on each fiscal year, both with an eye to the total amounts to be approved and to the specific projects which seem most promising.

It is difficult to present in advance anything which could pass for principles to be followed in the screening of applications, and what one says is more likely to be a "counsel of protection" than a "precept for action." A few such general notions may, however, be included:

1. In general, the total volume of new projects approved in the United States should be reduced, other things equal, when the domestic situation in the United States appears to be inflationary, and increased when the domestic situation in the United States appears to be deflationary. The direct contracyclical effects of this policy will hardly be significant. The total volume of expenditures will be small; changes in spending will lag behind changes in commitments and also fluctuate less sharply, since most commitments should probably cover more than a single year. This principle is nevertheless of considerable importance because of the political multiplier mentioned earlier.

2. Competition with other lending agencies, particularly multilateral ones, should be avoided. Projects or programs should be rejected when they are under serious current consideration by the International Bank for Reconstruction and Development, by the Colombo plan, by individual foreign governments, or by private agencies. An exception to this principle should, of course, be made in the case of competition with the U. S. S. R., mainland China, or countries generally hostile to the United States Government.

3. Grants should in general be made contingent on the receiving government's paying for the bulk of the local labor and materials involved, where such a requirement is meaningful. The purpose of this requirement is to give the receiving government a share in the project concerned, and to reduce the easy-come, easy-go attitude toward funds received as free gifts or long-term loans.

4. Insofar as possible, grant policy should not follow the headlines. By this we mean that it should not be concentrated too closely in regions which happen to be in the headlines when grants are being

allocated (the Far East in 1954-55, the Middle East in 1956-57). It should also be as political as possible as between countries, along the lines of Secretary Marshall's original "Marshall plan." It is difficult to imagine a grant being made to (or accepted) by Soviet Union or mainland China in the near future, but grants which help to turn countries from active hostility to being "neutrally against us" or from hostile to friendly neutrality may be the most productive investments possible. (Poland and Yugoslavia are possible illustrations.) At the same time, firm allies should not be overlooked in favor of countries more strategically balanced. The great danger is of too great a concentration for political reasons in countries in the friendly neutral, semially, or wavering ally categories.

5. Again insofar as possible, grant policy should be neutral economically as well. Socialism, welfare statism, inflationism, unfair discrimination against American exports, unfriendly attitude toward American private capital (even to the point of confiscation) should not in themselves bar favorable consideration. (This suggested policy of "turning the other cheek" toward confiscating countries is in no way inconsistent with compensating American investors partially or completely expropriated abroad.)

Conspicuous production, on the other hand, should seldom if ever be supported. By conspicuous production is meant the grandiose and spectacular project which the country itself is likely to abandon as laughably wasteful and uneconomical after a few years. (Steel mills located without reference to adequate iron and coal resources are common cases in point. Likewise fancy tourist hotels and airports in countries unsafe for foreign visitors.)

Corruption and diversion represent major problems in many countries, implying as they do that American grants would be wasted outright, or at the very least applied for purposes other than were intended. The temptation to supervise and police grants in countries of poor repute for corruption and diversion will be difficult to withstand, and also the temptation to apply stricter standards to foreign than to domestic politicians and civil servants in regard to corruption and diversion. My suggestion is that all these temptations be avoided sedulously as good-will measures, but that really bad records of past corruption and diversion be made bases for refusal of grants until housecleaning has taken place. (An analogy here is the problem of censorship of publications. What I am advocating is like the use of postcensorship rather than precensorship for newspapers or magazines, assuming some form of censorship to be required.)

A lesser problem: some governments are willing to inform beneficiaries of American aid where the aid comes from; other governments do everything possible to keep the beneficiaries of American aid from realizing their indebtedness to this country. Since foreign aid is a weapon of competitive coexistence, it seems to follow that governments of the first type should be favored over governments of the second type in the allocation of grants. Here again, supervision should be avoided in favor of judgment based on the past record of the government concerned.

6. Another aspect of economic neutralism is that aid be not confined to governments or public agencies. Private projects may often be expected to win out over public ones, especially in countries with

corrupt, inefficient, or visionary governments. Particular companies whose projects are assisted should however be unmistakably native in ownership, top management, and financial control. Funds should be channeled to these companies through public agencies, much as foundation grants to scientists in this country are usually channeled through universities and research institutes. To reduce the competitive advantage of the recipient companies, they should be required to repay both principal and interest to their home governments, even though further payment by the home governments to the United States Government has been waived. (It would seem natural to require eventual repayment to the United States in these cases, but such a requirement would almost certainly bias the selection process in favor of private projects. In addition, home governments require mollification where private projects have been preferred over projects of their own; eventual receipt of both principal and interest should mollify them.)

PUBLICITY AND PUBLIC OPINION

Questions naturally arise as to the political feasibility of such a plan as has been outlined above. Two areas where adverse political reactions may be expected are the less developed regions of the United States, and foreign countries disappointed in the allocation of grants.

Trouble in neither of these areas is avoided under the existing system of foreign aid administration, but these proposals would in all probability increase their severity. The attempt is presently made to minimize adverse reaction by a policy of secrecy regarding the details of the apportionment of aid expenditures, both by countries and by types of program. It is not impossible that declassification of this information would help rather than hinder the success of the entire foreign aid program—whether the present one or one reformulated in the direction of the present suggestions.

An almost certain advantage of declassification and increased publicity would be to prevent occasional inevitable instances of corruption, diversion, or maladministration from being advertised as typical, since the great volume of contrary evidence would become available.¹ Another advantage would be to permit rural Congressmen and Senators (and their constituents) to compare amounts spent for specific types of aid in specific foreign countries with the large amounts the Federal Government will undoubtedly spend for similar aid to States and localities at home. Here specific breakdowns (educational aids, highway aids, electrification aids, flood control aids, etc.) will be as useful as overall figures, since domestic concern seems to rest on specific types of expenditure as well as on overall totals.

As between foreign countries, the present secrecy policy leaves most or all countries feeling discriminated against vis-a-vis some or all of their neighbors and rivals. (Small countries are concerned with totals, larger ones with per capita figures.) Their feelings are probably exacerbated by the substitution of fantastic rumors for adequate

¹ The "great volume of contrary evidence" must of course include the honest mistakes and the mice born of mountains along with the spectacular successes. As my colleague Prof. John M. Hunter has put it to me in criticizing an earlier draft of these notes, the U. S. Government should regard foreign aid much as business concerns regard their research programs. Neither can be policed very carefully; it is seldom that even half the individual projects "pay off" in either case; but sometimes even the negative results are contributions to practical knowledge, and the aggregate benefits at least equal the aggregate costs.

evidence regarding the distribution of American aid. A policy of publicity should permit a frank admission to any particular country that it was left out in any particular year, together with the admonition that the equity of the program as a whole must be judged over a longer period.

SUNFED AND SIMILAR PROJECTS

These proposals imply continued American control over the details of American aid appropriations. To that extent they are unilateral, and run counter to schemes for transferring control to multilateral international organizations and concealing the identities of individual grantor countries. At present the most ambitious of these internationalist proposals would establish a Special United Nations Fund for Economic Development (SUNFED) administered by the United Nations. If the SUNFED proposal or any similar plan is adopted, with large-scale American financial participation, the foregoing paragraphs of course become irrelevant.

A main attraction of the multilateral and international proposals is that it transfers the unpleasant and often fruitless task of dunning debtor countries from individual creditor countries to an international organization such as the United Nations or one of its subsidiary agencies. If loans are replaced by grants, there need be no dunning of debtors by creditors in any case, and this advantage disappears.

In a competitive coexistence context, an important purpose of foreign aid is vitiated if grants or loans come indirectly through international organizations rather than directly from the United States, the United Kingdom, or the Soviet Union. If the Soviet Union and its allies are willing to put their foreign economic aid into a common pot, to be allocated by United Nations agencies in which there is no veto, it may of course be in the American interest to follow suit and lessen the acerbity of the coexistence competition. But barring a change of heart in the Kremlin, there is more to be lost than gained by America's merging its aid funds with those of other developed countries, while the Soviet Union garners all the competitive advantages of going it alone and having its aid clearly identified.

A PERSPECTIVE ON FOREIGN AID

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Debate as to the merits and demerits of United States foreign economic aid has gone on now for over a decade—in the Halls of Congress, in special congressional committees, in the popular press, and in attempts at scientific, nonpartisan investigation. It is doubtful whether there is a single position on any of the many facets of economic aid which has not been thoroughly aired—probably several times; and it is doubtful whether many or any really significant facts have failed to come to the light of day. At the present juncture, therefore, the potential contribution of a single panel participant is limited. The role which I propose for myself is a modest one, of offering a certain perspective on the foreign-aid problem, a perspective of moderation. This perspective frequently resolves the difficulties of extreme positions, and often affords answers which are per se appealing.

One extreme position would deny any justification to United States public grants and loans for economic-development purposes in foreign countries.¹ I share the view that developing economies must largely supply their own capital; and I share the view that private capital from creditor countries carries with it know-how and techniques in a way superior to public sources of capital. And yet to imagine that in the present scene we must rely completely upon private capital is tantamount to admitting foreign aid as a weapon of international diplomacy for the Soviets and denying it to the United States and other free governments. This I believe to be abhorrent to common sense.

A number of studies of Soviet foreign aid and the recent Soviet trade drive come out with the same conclusions.² Soviet aid is now small compared with our own; but it is conducted astutely from strategic angles, is increasing rapidly, and Soviet administrative and economic capacity would permit it to assume a very large role. In these circumstances, can it be a part of sensible policy to bind the economic arm of the free world and compel us to rely solely on military defense and defense aids?

American foreign aid antedated the first efforts of the U. S. S. R. in this direction by a full decade and must therefore have had an inde-

¹This is the position represented by the American Enterprise Association in its study, *American Private Enterprise, Foreign Economic Development, and the Aid Programs*, for the Special Committee To Study the Foreign Aid Program, Government Printing Office, Washington, 1957.

²Klaus E. Knorr, *Ruble Diplomacy: Challenge to American Foreign Aid*. Center of International Studies, Princeton University, November 16, 1956; *Economic Development Assistance*, Committee for Economic Development, New York, N. Y., April 1957; Donald R. Hodgman, *Soviet Foreign Economic and Technical Assistance Bureau of Business and Economic Research*, Reprint No. 28, University of California, Berkeley, 1957; *Foreign Assistance Activities of the Communist Bloc and Their Implications for the United States*, Study No. 8, prepared for the Special Committee To Study the Foreign Aid Program, U. S. Senate, 85th Cong., 1st sess. Government Printing Office, Washington, 1957.

pendent rationale. Ethical, economic, and political arguments have been adduced, but in each of these cases it is quite possible to state the argument for economic aid in so extreme a form as to make of it a piece of obvious nonsense.

Thus the ethical argument has sometimes been represented as resting on a philosophy of leveling the wealth among nations. This kind of argument has occasionally cropped up in some of the debates in the United Nations; but it is difficult to believe that it has ever been considered seriously in the Congress of the United States or by many American citizens. How very far from a leveling operation is the actual foreign-aid program is shown first by existing absolute differences in average per capita income—\$2,400 in the United States, compared to \$760 in Venezuela and \$50 in Burma—and, second, by the fact that, distributed on a per capita basis over the population of the underdeveloped world, American foreign aid amounted to 40¢ per annum for the years 1946–52,³ and not much more in subsequent years.

In view of the slowness of economic development even under the most auspicious circumstances, the leveling argument can be completely discounted. But it is not on that account necessary to ignore the fact that American sympathy for the underdog, the old missionary spirit in new form, or common sentiments of sympathy and compassion have played and will probably continue to play an important role in American foreign aid. Nor does it seem at all realistic to suggest, as actually has been done, that this humanitarian interest be allowed to express itself through private (nongovernment) channels. The fact that Israel, for example, has been able to muster significant volumes of capital for development through bond sales to patriotic citizens or friends abroad would scarcely point to an equally successful operation of this sort by India, Peru, or southern Italy. Thus on commonsense grounds of practicability, if the humanitarian interest of the United States in the poorer nations is to find any effective expression, it must typically be through the channel of public funds.

The economic argument for foreign economic aid has, like the humanitarian argument, sometimes been stated so implausibly as to constitute its own negation. Investment in economically backward areas has been represented as a necessity for the capitalistic, advanced, industrial nations as a means of staving off depression, unemployment, or low returns on capital. So far as concerns mere argument, this ought to be recognized immediately as the ancient Marxian bromide which maintains that capitalism can survive only by exporting its surplus savings to colonial areas—the Marxian theory of capitalist imperialism. Far from being any kind of argument in favor of American foreign aid, this kind of argument is, in fact, the chief argument against it at the hands of its most bitter enemies, the Communists. So far as the facts are concerned, and not mere dialectic, the profitability of investment in the United States economy itself—or for that matter the economies of most of the Western European and European-culture nations of the world—has been so great in the postwar scene that the practical complaint on the part of newly developing countries has not been the too great, but the too small, flow of private investment from the West.

³ Brinley Thomas, *International Movements of Capital and Labour Since 1945*. *International Labour Review*, September 1956.

The truth is, of course, that the economic gains which presumably attend a program of economic aid for the United States itself are real but too small to be a critical consideration. This is a fact which follows almost automatically from the large area and high degree of economic self-sufficiency of the continental United States. Foreign trade and commerce constitute a small percentage (4 or 5 percent and sometimes less) of our gross national product. Of course, we benefit if American foreign investment helps to develop cheaper or more abundant foreign supplies of raw materials; of course, we benefit also on the export side, since American foreign investment extends the market for our goods, particularly our producer goods. And the outflow of capital undoubtedly keeps up domestic returns of capital, though the ratio of foreign to domestic investment is so low (probably in the region of 1:30) that this influence is slight. Thus the United States derives real but limited economic advantages from the investment of public and private funds abroad. These advantages would scarcely bulk large enough to constitute rational economic grounds for aid in the form of gifts or low-interest loans.

Compared to either the ethical or the economic arguments, it is the political grounds for foreign aid which are overwhelmingly important. This has been true throughout the postwar period but even more so since the end of the European recovery program, which possessed an economic significance for the United States greatly in excess of current aid to the underdeveloped areas. But even if the political aspect of foreign economic aid is paramount, it is quite possible to make it into an absurdity by extreme or distorted representations of the possible connection between public (United States or international agency) investment in underdeveloped countries and the political gain to the United States or the free world.

One travesty of the real gain is to represent aid as attempting to purchase friendship. One must suspect those who doubt the possibility of buying friendship between nations of believing that this is a possibility between persons. Be that as it may, the more quickly it is realized the better not only that purchasing friends is impossible, but that the role of even the most benevolent benefactor can easily become a thankless one. The political motive of foreign aid is neither to evoke gratitude nor elicit friendship, at least in any direct way related to the flow of dollars.

The political argument for aid rests upon the possible association of improvement of living standards and economic stability outside the Soviet orbit. Even here the argument can easily be overdrawn, to its great disadvantage. In the first place it must be obvious that economic aid, even when it has started to raise per capita incomes, does not always guarantee against successes of the Communist or totalitarian camp. Ghana and British Guiana afford recent illustrations. But why should it be thought necessary to hold that rising standards of living are always a guaranty of adherence to democratic government, no matter what the complexion of domestic politics, no matter how intense racial or religious factors may be, and so forth? A remedy may be good without being able in every instance to surmount other factors.

In the matter of rising standards of living as a bulwark against communism, it is certainly necessary to avoid dogmatism. The issue involves numerous imponderable elements; quantitative or objective

proof is impossible; and all that can be done is to establish a few benchmarks for which agreement might be fairly widespread. For one thing, it would probably be generally admitted that reasonably prosperous countries have not fallen under Communist rule except by external aggression. At the other extreme, it would also probably be generally admitted that countries which have joined the Communist ranks without external compulsion have not been countries marked by notable improvement in the standard of living. Finally, there would probably be some degree of agreement that the growth of material welfare—the reduction of unemployment or the raising of per capita incomes—in some conspicuous cases, such as Western Europe under Marshall aid, and the examples of Taiwan, the Philippines, and probably also Mexico, has reduced the force of Communist movements. These three propositions probably suffice to show some connection between the abatement of Communist pressure and the achieving of higher levels of living. But there is no invariant connection. It would seem, however, that if the Communist threat to the free world is held to be a serious one, foreign economic aid holds forth sufficient promise to be a welcome supplement to purely military defense and military aid. Putting the matter moderately, one must agree that “There seems to be a good chance that judicious foreign aid by the United States will in several of these countries [not yet politically committed], and perhaps in many, tilt the balance in favor of reasonable progress and stability outside the Soviet orbit.”⁴

The moderate view is compelled to assign to “judicious foreign aid” an essential role in the defense policy of the United States for itself and the free world nations. But what is “judicious” foreign aid? More specifically, is there any possibility that a reasonable perspective on foreign aid will be able to afford a cue as to its desirable size? Now it is undoubtedly true that “the use of economic policy for foreign-policy purposes has throughout known history yielded results of low predictability.”⁵ Precise answers are therefore impossible. But again there may be considerations which narrow down the latitude of arbitrary choice.

For one thing one may view with considerable scepticism proposals to increase United States foreign economic aid by several multiples on the basis of gains which are sometimes alleged to accompany “crash” programs of investment in underdeveloped countries. For a while, theories which emphasized the possible gains in savings of large-scale production for a large number of simultaneously expanding industries enjoyed a certain vogue. But for this kind of gain to be had from accelerated programs of investment there are substantial risks of a serious nature: the risk of misdirected investment (haste makes waste), of inflation, of balance of payments difficulties, and so forth. In short, although a few Latin American countries for a few years have achieved striking rates of investment and of growth of gross national product, it is quite impossible to generalize these experiences to the proposition that intensive investment programs will usually yield vastly better results than more deliberate ones. Furthermore, unless such a program were conducted wholly with foreign capital (and this can scarcely be viewed as salutary) there would

⁴ Klaus Knorr, *Ruble Diplomacy*, p. 29.

⁵ *Idem*, p. 19.

appear to be rather narrow limits to the forced deflection of productivity gains into capital formation. Russia has always been able to do so by totalitarian devices. But democratic governments and even the less powerful dictatorships have generally had to bow to the desire of the population to "cash in" on economic progress by rising levels of individual consumption and/or extended social-welfare activities of government. Thus, much of the supposed attractiveness and most of the supposed economic gains have gone out of the "big push" of investment for the underdeveloped regions.

While the case is fairly strong against increasing our foreign economic aid by several multiples, the case is equally strong against reductions from recent levels. In the first place any reduction would have a bad influence strategically at a time when Soviet economic aid is coming rapidly to the fore. In the second place, the reduction of aid would entail the end or attenuation of specific aid programs of proven merit, with consequent economic waste and frustration in the recipient countries. Finally, the present magnitude of aid corresponds in a general way to the notion of a marginal or "spark plug" contribution to foreign economic development, without our assuming the responsibility of providing the main substance for development. Even with its vast productive power, the United States cannot attempt to provide capital equipment for two-thirds of the world's population now living in relative penury; and it is more than questionable whether this country should undertake to do so even if it could. But the notion of a "grubstake" is easy to justify on the humanitarian, economic, and political arguments already adduced.

To specify exactly how large this grubstake ought to be is, of course, impossible. In terms of the alternative uses of revenue, switching the somewhat more than \$1 billion now devoted to foreign economic aid to road construction would approximately double the present Federal program, or switching it to atomic energy would increase this activity by 60 percent. These are perhaps illuminating comparisons, but they prove nothing. It has been said that anyone making pronouncements on the desirable magnitude of funds for foreign aid (or presumably any other) purpose, should stipulate the test he is using for excessiveness or deficiency. But this is demanding the impossible. Not even the individual person can state objective criteria for his own budget allocations; and for a nation the undertaking would be even more preposterous. We can probably give numerous reasons for not reducing foreign economic aid below its present level and good reasons against increases by several multiples. There would furthermore seem to be a certain reasonableness in a growth of foreign economic aid as the American economy expands.

Thus, if we continue to experience a growth of gross national product by \$15 billion annually, it would not seem excessive that foreign economic aid absorb a billion dollars of this increase, following the suggestion of the Committee for Economic Development, to a total of \$2¼ billion annually.⁶ This proposal would seem all the more attractive if economies could be effected in military aid or defense support. At present our reliance upon the sword for friends and allies so far overshadows our reliance upon the ploughshare that a small

⁶ Committee for Economic Development, *Economic Development Assistance*, New York, April 1957, p. 21.

experiment of shifting in the other direction might be worth the try.

The foregoing observations on foreign aid result from an attempt to see what results emerge from a perspective on the problem consciously aimed toward moderation. In conclusion it may be possible to draw two further inferences from the same viewpoint. Recently a good many voices have been raised in favor of some kind of long range commitment on foreign aid. Year-to-year appropriations, it is said, preclude any sensible planning of longer range projects in aid-receiving countries. Against the undeniable logic of this argument, stand first the unwillingness of Congress to make more than 1-year commitments and, second, the actual need of a considerable amount of uncommitted aid money to meet the exigencies of the current year. One way of having the "better part of both worlds" would be a limited fund for commitments up to, say, 5 years. The appropriation act of September 1957 took a step in this direction, but too small a step for really practical significance. United States foreign aid dollars would go further in the fostering of economic development by a greater degree of continuity.

I should like to remark finally that a balanced view will assign important roles to both private investment by United States firms abroad and to public loans and grants by the United States Government and international agencies. The case in favor of an enlarged flow of private capital scarcely needs arguing. The persons who have to be convinced are the private owners of funds, and the most effective argument would be the creation of attractive conditions in the borrowing countries: stable and dependable governments, absence of inflation and expropriatory taxation, equitable treatment of foreigners, reduction of exchange controls, etc.

But it may be necessary to argue the case on the other side. Many countries in the relatively early stages of development cannot attract private capital without a certain amount of public investment as an underpinning; investment in highways, port facilities, and public utilities generally do not attract enough foreign private capital, but are necessary complements to private ventures. Instead of competing with private capital, public loans and grants generally move into a kind of vacuum created by large risks, low profits, and slow returns. By bridging over these dead spots for private enterprise, public capital draws along private capital in its wake. There is the additional fact that public lending agencies, international or national, can be influential with national governments in the borrowing countries in securing equitable and attractive treatment for foreigners, the abandonment of inflation, etc., whereas the private firm could scarcely make its voice heard.

In underdeveloped economies, public and private capital are thus complementary in peculiar degree. But it does have to be recognized that public loans and grants are made to foreign governments, and thus our foreign aid does serve to extend the sphere of governments and contract the sphere of private enterprise. There are several ways of offsetting this result. Foreign government can make the capital available to private business by way of loans or subsidies. The United States can encourage the type of operation undertaken by the new International Finance Corporation, which—unlike the In-

ternational Bank—does not require the guaranty of the government in the borrowing country. Finally our foreign aid administration can remain alert in discovering and promoting devices to promote private enterprise. I do not want to enter into this subject. But it is obviously advantageous to make our foreign aid dollars go as far as possible in encouraging a parallel flow of private finance.

SELF-HELP, TRADITIONAL INVESTMENT AND FOREIGN ECONOMIC AID

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INTRODUCTION

If one cuts beneath the luxuriant underbrush of words and figures on the economic development of underdeveloped countries, he finds that the issues involved largely boil down to the age-old economic problem of making the best use of resources. Another related generalization that may help to put the issues in perspective is this: Every economy that classifies itself as underdeveloped, and most of the world's nation states so regard themselves, is making a poorer use of its resources on the average than it is capable of making in the light of usable, low-cost techniques of production and economic organization. The economic performance of such economies leaves something, often much, to be desired. In the typical case, such an economy actually is capable unaided of effecting substantial improvements in its economic performance both over the short and long run.

Resources made available from the outside are welcome, of course, either as supplements to a feasible local effort or as substitutes for it. This raises a key question: Under what conditions are outside resources likely to supplement, rather than work as a substitute for, an appropriate local effort? I contend that we stand the best chance of avoiding a (wasteful) substitutionary role only if our scarce resources are made available, save in genuine case of emergency, on the basis of the same market-type tests as those which have governed international long-term capital movements in the past.

The above remarks are intended both as a summary of, and introduction to, my position regarding the general problem of underdeveloped areas and America's economic relations with them. Field work abroad, including an advisory role with respect to the development policy of foreign governments, and a study of the relevant literature persuade me that it is in such a general context that we should view the question of foreign aid in relation to the growth and stability of the American economy.

GENERALIZATIONS ABOUT RESOURCE USE

In the profusion of analyses of economic development, perhaps more so than in other areas of economic discourse during recent years, it has been common to find writers and speakers mixing basic and side issues in all manner of combinations. Let me indicate some typical

¹ Statements in this paper do not necessarily reflect the views of the institutions with which the author is affiliated.

side issues. They would include such matters as comparative national economic wellbeing and related discourses on the numerous variants of egalitarianism,² the much-exaggerated problem of disguised unemployment,³ the country distribution of the more valuable manufactured exports in world trade, the largely irrelevant and unmeasurable secular terms of trade,⁴ and balance of payments considerations, including that hardy perennial, the so-called dollar problem. These steadfastly must be viewed for what they really are—side issues and thus items which have little or no place in the basic discussion.

What do the underdeveloped countries require in the way of resources from us? In attempting to answer this question we have been writing developmental prescriptions without having completed proper and thoroughgoing diagnoses. The World Bank, to be sure, has pointed up a number of important things. And some independent analysts have likewise done useful work of a limited sort. Still, Americans have failed to take a sufficiently hard look at the basic issue, which is whether the underdeveloped countries have been doing all they can reasonably be expected to do to help themselves both at the individual producer level and in the sphere of government-producer relationships.

American analysts must know a great deal more than they now know about the main technical aspects of the economic performance of the underdeveloped countries. In particular, we need to know a lot, country by country, concerning the effectiveness with which the countries are using their own resources. To this end, I would like to point up some relevant considerations, which will be set forth as generalizations for the sake of brevity. Generalizations, in this as in other contexts, do not, of course, fit all cases. In framing the following inter-related comments, I have sought to throw light on the way resources are used today in a typical underdeveloped nation and to indicate, at least by implication, that which has to be done to improve economic performance. Lest my position be misunderstood, let me add that I do not counsel perfectionism before action is taken in the financing of economic development.

First, we must not lose sight of the fact that the great bulk of the people make a living in agriculture. Let us note that which is usually emphasized in this connection: It is that per capita output is low,

² Numerous difficulties, as yet not sufficiently appreciated by many writers, stem from international comparisons based on the concept of income as conventionally measured. For instance, the much-lamented widening of the inequality of (conventionally measured) income per head as between the underdeveloped countries and the developed ones disregards the benefits stemming from a reduction in the death rate. A reduction in this rate, of course, increases the ratio of productive to unproductive workers in the society, an obviously beneficial change.

Comparisons of income per capita can be seriously misleading in another respect. Improved economic conditions may easily result in the death rate declining more rapidly in the underdeveloped countries where per capita income conventionally measured is less than the median or average for all nations. A discussion in such situations which centers only on the conventional measurement will be quite misleading because it will emphasize the analyst's (statistical) fabrication, namely, widening inequality, rather than the important change—the real economic improvement in the countries in question.

Among recent works, Dr. G. Myrdal's *An International Economy* is open to a great number of objections of this kind.

³ The latest writer to make exaggerated statements about this (emotionally charged) issue is R. Nurkse, *Reflections on India's Development Plan*. *Quarterly Journal of Economics*, May 1957.

⁴ For example, the United Nations Economic Commission for Latin America has published all manner of untenable propositions under this heading which purport to show that the industrial countries owe a large but unspecified debt to the underdeveloped nations. For an exposure of some of the shoddy statistics that have been used by the proponents of the view under discussion, see P. T. Ellsworth, *The Terms of Trade Between Primary Producing and Industrial Countries, Inter-American Economic Affairs*, summer 1956.

save in export sectors. Much more important, however, is the feature which usually gets little attention, perhaps because most of the writers know little about underdeveloped agriculture and particularly the fact that most rural areas have only recently emerged from subsistence production: such output is capable of substantial expansion at relatively small cost in terms of scarce resources, especially foreign capital. Everywhere, moreover, agricultural employment can be markedly upgraded, and sometimes it may even be expanded quantitatively, with individual and national gain. The potential for improvement in agriculture is perhaps the most important single generalization that may be made about the problem of underdeveloped economies.

The second generalization closely parallels the first. It is that in most underdeveloped areas typical rural producers labor under at least several serious handicaps, each removable: a deep distrust of local (county) officialdom owing to longstanding abuses of the peasants—for example, the stealing of chickens and pigs; a neglect of long-range livestock improvement at the farm, community and national level, with the result that output is small in relation to scarce feed inputs; a common neglect of the simple techniques of cereal production, especially soil-crop correlations, seed selection, soil drainage, and fertilizer-output relations; poor or nonexistent facilities for procuring production credit; insufficient low-cost storage capacity; the absence of trusted market news services, which handicaps small producers particularly in the marketing season; a host of land-tenure difficulties, chief of which perhaps is the frequent absence of any incentive for the operator to effect improvements on another man's land, so that the economy suffers a significant loss of capital formation.

Third, import requirements for food and fiber frequently are higher than necessary⁵ and indigenous capital formation in most sectors of the economy is much smaller than the underlying situation would make possible. Though something like a hen-and-egg sequence is involved, a good case can be made for placing primary responsibility with the rural sector (itself a reflection basically of defective government-producer relations); that is, for the view that rural capital formation lags behind its potential more than is the case in any other sector. The behavior of the rural economy thus leads to the loss of substantial capital to the economy as a whole; in consequence, otherwise attainable economywide cumulative growth goes unrealized. In contrast, other basically agricultural economies which enjoy better intergroup rural economic relations and operate within a close distance of optimum technical levels of production deploy their rural resources with much better effectiveness. Not unexpectedly, they show results that count in terms of impressive rural economic growth and an expanding national market for nascent industry which badly needs local outlets for output derived from plants of economic, rather than subeconomic, size. In this connection, let me emphasize that for the majority of underdeveloped countries the most effective route to industrialization is by way of a vastly strengthened agriculture. In contrast, the direct route, because of the want of econ-

⁵ This results in a net loss of resources to the underdeveloped areas in view of the fact that the indicated imports often originate outside such areas.

omywide underpinning and the existence of inappropriate or immature institutions, is almost certain to be characterized by haste and waste. This route will generally involve haste and waste, let me add, no matter how much sophisticated sloganizing is used; for example, in the form of the plea that the United States underwrite what is vaguely referred to as the underdeveloped countries takeoff to self-sustained growth.

There is a fourth important, but I believe overplayed, consideration. It is that basic public-service facilities—such as roads, irrigation projects, vocational education facilities, and agricultural experiment stations—are insufficient and/or poorly distributed in relation to areas of comparatively high potential output. Outside resources should be able to make a sizable contribution in this sector of development, at least in the earlier stages of growth. I return to this matter later on.

Fifth, government-private sector relations usually leave very much to be desired from the critically important standpoint of realizing a maximum activation of latent human and material resources. It is here that we find case after case of ideological considerations overpowering both commonsense and relevant records of achievement among the western countries now classified as "developed."⁶ Bad or inadequate government-private sector relations seldom take the same shape in any two underdeveloped countries. But the following may be said to point up the issue: Many governments have seriously encroached upon the private sector, not uncommonly at the expense of neglecting investment and/or maintenance in the area of public-service facilities proper;⁷ corruption often takes a high toll, in the economic sense of diverting funds (resources) having high investment potential to extra-legal consumption by the bureaucratic "elite"; industry is overregulated, not infrequently to serve narrow political ends; government-run enterprises often use labor in extremely wasteful ways, thus saddling the economy with such things as burdensome costs and discouraging minimum essential capital maintenance or greatly reducing feasible capital formation in such enterprises; tax policy frequently seeks to absorb such a high proportion of increments to income, especially business income, as to deter or prohibit private investment which (1) gives a higher yield per unit of capital than typical government investment, and (2) is more flexibly attuned than government-run operations to changing market demands and problems of efficiency in resource use;⁸ and the protection of property is often so deficient as to require innumerable instances of import-originating, small-scale private capital formation that is without social net advantage, merely to provide minimum physical protection of the sort that is achieved at low resource cost in developed countries through public action; moreover, because of the absence in many underdeveloped nations of

⁶To illustrate just one facet of this matter, a recently deceased United Nations economist—a specialist on the Middle East and adviser to governments—has emphasized in a professional journal that because the Middle East countries have to use organized measures to conserve water resources individual farmers should operate only as employees of the state.

⁷Mr. Black, president of the World Bank, summarized this view at the recent annual meeting of the World Bank and Monetary Fund: "I deplore the decisions of governments which tend to reduce investment in their own legitimate spheres of activity to branch out into fields where private enterprise, domestic or foreign, is willing to do the job."

⁸In a number of instances, however, the tax system is quite regressive. Looked at in isolation, this is a factor favorable to capital formation. Incidentally, our own tax system was regressive during all of the stages of economic growth now included within the vague concept of an underdeveloped economy.

an environment favorable to private property and free enterprise, we find that a sizable amount of capital belonging to the citizens of such countries is invested abroad.

Sixth, tariff and other forms of protection against imports often channel scarce resources either into fields which are inappropriate to the country's basic endowment or prematurely into certain industries which could be developed at a later date either without protection or with small amounts thereof. The result is that the yield of scarce capital is reduced, generally with cumulative adverse consequences for local capital formation.

FOREIGN CAPITAL: ITS ROLE AND THE FORM IN WHICH IT SHOULD BE PROVIDED

Clearly, the contribution required of outside resources is small in relation to the total job. Yet there is an important role to be played by foreign capital. This may be indicated under two headings. First, there are the capital-intensive areas of early-stage development in which foreign capital traditionally has made significant contributions. These are largely confined to the field of public service facilities. Most of the necessary capital has to originate locally, but some well-chosen projects will justify recourse to outside capital. Second, private foreign capital, which has long contributed significantly to the development of many underdeveloped economies, awaits only an appropriate investment climate before it surges ahead increasingly with innumerable, highly catalytic direct investment activities (extractive and industrial) in every corner of the free world.

In fact, there is no reason why existing private and public sources of direct-investment and bona fide loan capital in countries such as the United States cannot supply all the truly necessary outside resources. This is not to say that the maintenance of recent levels of such foreign investment will necessarily suffice, impressive⁹ as such investment has been. We should expect a substantial increase in exports of American long-term capital to the underdeveloped countries when and if many of them effect marked improvements in the general areas outlined above. In this connection, too, "nothing succeeds like success."

Why should American policy seek to have outside resources originate exclusively¹⁰ with direct-investment and bona fide loan capital? There are a number of reasons. No other system remotely approaches it in apportioning scarce resources consistently with established principles of resource allocation. It operates in terms of economic tests,¹¹ not unworkable political ones. It puts a premium on good economic performance in both the private and public sectors of underdeveloped

⁹ See, for example, American Private Enterprise, Foreign Economic Development, and the Aid Programs, American Enterprise Association, pp. 1-6, a study prepared for the Special Committee To Study the Foreign Aid Program, U. S. Senate, 1957; and Collado, E. G., and Bennett, J. F., Private Investment and Economic Development, Foreign Affairs, July 1957.

¹⁰ Largely because of its importance in the area of technical education, we probably should continue our bilateral technical assistance program at about existing levels while continually striving to upgrade the quality of the personnel representing the country abroad.

¹¹ Contrast this with, for example, the M. I. T. group's noneconomic criterion of "absorptive capacity," a wholly unworkable engineering concept. For a critique of this concept, and the alleged "limited capacity" of the underdeveloped countries to absorb foreign capital even on a gift basis, see my "MITAID—Waste, International Bickering and Some Development," Inter-American Economic Affairs, autumn, 1957.

countries as a precondition for winning the use of foreign resources. It minimizes the role of diplomacy in deciding how American resources are to be used abroad, an important consideration when it is remembered that diplomats usually prefer the easy way out that is available to them when they have the power to make or recommend gifts. In favor of those forces in the underdeveloped lands who genuinely believe in the efficacy and flexibility of a strong private enterprise approach to economic growth.

Contrast this position with the views of people who favor very large grant-aid and grant-like "soft" loans for development, with emphasis on government-to-government relations and an indifference to socialistic development policy in underdeveloped lands. Perhaps the best illustration of the opposing view is that of the Center for International Studies of M. I. T. In a report submitted to the Special Senate Committee To Study the Foreign Aid Program, the M. I. T. writers urged that very large grant and other aid be given a country without strings attached whenever it was found to be making what is vaguely referred to as an "additional national effort" toward economic development. The looseness of, and dangers inherent in, such an arrangement are well revealed by the M. I. T. procedures for determining whether an additional national effort is being made. Only two rules of thumb are prescribed. First, the Government must "launch measures to capture a good fraction of increases in income for the purposes of further investment"; and second, the "country's leaders [must] have worked out an overall development program."¹²

It is a revealing commentary on this type of thinking to note that the United States could never have qualified as a country making an "additional national effort" according to these criteria. Significantly, the only nations that satisfy the M. I. T. tests in full are the Communist countries, all of which, as their long-suffering consumers will attest, employ stern measures "to capture a good fraction of increases in income for the purpose of further investment" and ruthlessly pursue "overall development programs."

Clearly, there are right and wrong ways of assisting other countries in their economic development. The last thing we should do is to encourage them—by providing easy access to our Treasury—to accept some of the central features of the Communist ideology in the guise of "development imperatives." Yet we should be doing pretty close to that if we liberally assisted nations which take the ideological position that they must exercise comprehensive control and direction of the economic life of their citizens.

The upshot of this discussion is that foreign economic aid should not be regarded as a policy variable with respect to governmental actions having to do with the growth and stability of the American economy. Rather, such aid should be terminated as soon as feasible. We have better tools with which to work, even if foreign government officials long accustomed to receiving economic aid publicly deny this in the hope of keeping "costless" resources within their grasp. The United States has the capital and, more importantly, thoroughly tested institutions and mechanisms capable of being adapted to foreign re-

¹²The Objectives of United States Economic Assistance Programs, committee print, 1957, pp. 57, 58. I have dealt critically with the MIT study in my "MITAID . . .," op. cit.

quirements with which to assist the economic growth of friendly countries on mutually satisfactory bases. We should proudly put our case in such terms. In doing so, we should be ever mindful of the truly great fact that it is our type of system rather than the collectivist brand which, as the long record of human experience shows, yields both efficient growth and economic and political freedom.

FOREIGN AID—SOME ISSUES AND PROBLEMS IN ASSESSMENT

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In public discussion, foreign aid is in a class with the Yankees—blisteringly hated or ardently loved. Yet unreserved convictions are unwarranted on whether or not foreign assistance is an efficient allocation of American resources. Aid involves intractable uncertainties and inherent difficulties of assessment. This paper deals largely with some basic obstacles to firm conclusions on whether or not the benefits from foreign aid exceed the costs.

THE PEACE EFFECTS

The main thrust of foreign assistance is to maintain peace, or at least to avoid a major nuclear war, and to preserve and expand the number of countries which are friendly, or at least not hostile, to the United States. That is the way one State Department-International Cooperation Administration staff memorandum put it.

The means by which aid serves these ends are roughly as follows. Foreign aid appropriations equip and train Allied forces. In 1956, over 60 percent of net United States grants and credits took this form, though, for the postwar period, military aid constitutes about one-third of the total. Some allies (now primarily Turkey, Pakistan, Taiwan, Korea, and Vietnam) receive economic aid for it is felt that they cannot support their own defense efforts without nonmilitary help from us.

Government grants and credits, partly out of foreign aid appropriations but also from the Export-Import Bank and from the proceeds of the sale of agriculture surpluses overseas, provide capital and finance the transfer of technical know-how to assist the long-term economic growth of certain underdeveloped countries. The Secretary of State recently stated that, unless the aspirations of the people of underdeveloped countries for greater growth are met, they may install governments which are unfriendly if not violently opposed to the United States.

Foreign aid appropriations also provide emergency assistance to shaky governments to sustain them during imminent internal threats. Examples include recent assistance to Jordan during an internal crisis, to Guatemala after the overthrow of its pro-Communist government, to Iran after the ouster of Mossadegh, and to Bolivia. In these instances, the likely alternative government was thought to be less favorable to the United States.

Economic assistance has also been used in an attempt to prevent countries (Afghanistan for example) from becoming entirely dependent on Soviet aid. And both economic and military aid were used to support Tito's withdrawal from the Soviet camp.

Some general problems in assessment

One major difficulty in determining whether aid constitutes an efficient allocation of resources is that, as between individual Americans, peace is indivisible. Unlike peas and carrots, it cannot be divided and sold to individual consumers by the pound. Consequently it cannot be produced in response to individual consumer demand as in a market place. Therefore, one cannot say that more or less resources are used in gaining security than individual consumers in total would want.

Another major problem is the difficulty of knowing what the policies of other countries would be in the absence of aid, which involves a difficult estimate of the behavior of other governments. Three examples show the relevance of this.

(1) An assessment of aid requires knowledge of the effect of aid on Sino-Soviet policies. Military strength is purely a relative matter. Few benefits would be gained from an increase in the military posture of the free world if this induced the Red bloc to raise its defense expenditures to maintain the previous ratio of strength.¹ Hence, any assessment of increased aid must involve some assumption about the Communist response. Obviously, the appropriate assumption is difficult to determine.

(2) An assessment of aid requires a judgment of the effect of aid on the balance of power within aided countries and the consequences of any shift in that balance. For example, in one Latin American country, United States assistance supports a government which, in its ideological outlook, is probably not predisposed to the United States. The withdrawal of aid probably would bring down that government, for aid provides half of its revenues. Among the possible alternative governments are ones which are more and less favorable to the United States. But which would come to the top in a revolution set off by the weakening of the present government?

(3) An assessment of aid requires an estimate of what the government in power in fact does with the aid. A given type of assistance may produce an unrelated type of benefit. Yet, discussions of aid often assume that the benefits are directly related to the type of assistance provided. The transfer of military items to allies, for example, increases their military strength and consequently we are supposed to gain certain defense benefits. But, at least in principle, all military aid could in fact result in economic assistance and all economic aid could provide military assistance. The nature and complexity of this problem was developed in a recent colloquy between Congressman Otto Passman, chairman of the subcommittee in charge of foreign-aid appropriations, and Mr. John Hollister, then director of the agency which administers part of United States foreign assistance:

MR. PASSMAN. * * * In the past, practically all nations have budgeted a certain amount of their national income for national defense, and when we go in and pick up mili-

¹This must be qualified for the possibility that increased Communist defense expenditures could sap the economic strength of the Sino-Soviet bloc more than additional aid would weaken our strength. This would restrain the growth of the bloc's productive capacity and thereby affect its ability to increase its military strength in the future or reduce its willingness to offer grants and credits to underdeveloped countries as an instrument of political penetration.

tary checks, it releases the money that country normally would spend for national defense for economic purposes or other purposes. In effect it is helping the economy of the country.

Mr. HOLLISTER. Perhaps I do not follow you. You mean in a country where we help them militarily we assist the economy by our military expenditures?

Mr. PASSMAN. Yes. If we are paying for their tanks and planes and ships for national defense, that releases the amount of money which before that time they had spent for national defense for such things as flood control, irrigation, and so forth, to strengthen their economy.

Mr. HOLLISTER. In some cases. In other cases the whole point of our military expenditures is for the military defense of the United States.

Mr. PASSMAN. That is the claim, but it certainly helps the economy of a country to be relieved of the responsibility of spending its own money for armament and military purposes; it releases that money to strengthen its economy.

Mr. HOLLISTER. That must be counterbalanced in that everything you put into one of those countries in the way of a military establishment increases the cost of keeping that military establishment going. The people in the military services must be fed and clothed; they are taken out of economic pursuits, et cetera. So it is one of those complicated questions you cannot give a direct answer to.

Mr. PASSMAN. That is right. It is like the old saying you can take figures and do anything you want to with them.

Mr. HOLLISTER. Yes. Here is a country that has a certain appropriation on the military side and a certain appropriation on the economic side. If we say, "Raise your military budget, and we will increase your economic aid," it looks like we are raising the economic aid. If we say, "Put more money in your economic budget, and we will give you more military aid," it might look the other way.²

The disparity between the kind of aid and the type of benefit appears in another way. For its mutual-security program for fiscal year 1958, the administration had to divide nonmilitary aid into that which supported United States military objectives and that which aided economic development. Officials were frank to say that the distinction was exceedingly difficult to make. Estimates of the economic-development content of previous nonmilitary aid to countries with whom we had mutual-security treaties ranged from 20 percent to 60 percent. Two examples will suffice to show the problem. Assistance to build a road serves military objectives since the road facilitates troop movements; but it also provides economic benefits since the road permits more internal and external trade. Aid for the modernization of the Turkish Army, while increasing military strength, also released surplus soldiers for civilian uses.

Unless one assumes that an equivalent amount of military aid and nonmilitary aid bring exactly equal benefits to the United States, the

² Hearings, Mutual Security Appropriations for 1958, Subcommittee of the Committee on Appropriations, House of Representatives, pp. 7-8.

disparity between the mixture of aid provided and the type of resulting benefits makes assessment of the aid program difficult.

Without attempting a balanced presentation of pros and cons, let us consider some basic uncertainties regarding military and developmental assistance.

Problems in determining the benefits from military assistance

It is tempting to assert that the United States must obtain net benefits from military aid because the Department of Defense plans and administers the program. Presumably DOD would allocate funds between foreign and domestic expenditures in a way designed to maximize United States national security. However, the Special Senate Committee To Study the Foreign Aid Programs contends that it has not:

Expenditures on military aid must be weighed primarily against the return which could be expected if these funds were spent directly on the National Defense Establishment. The committee is not satisfied that this principle is now being followed under present procedures. Military aid appears to be considered as an end in itself, insufficiently related to the total problem of national defense and its cost.

The committee also expressed some doubt about the relationship between military aid and the strategic concepts of United States defense.

THE TYPE OF WAR

The benefits gained from military assistance depend on the type of war we may have to fight. Obviously this is difficult to predict. For all-out nuclear war, military aid is perhaps largely wasted since it consists to date entirely of conventional weapons. Yet, some persons see a need for some conventional forces in a nuclear war, if for nothing else than mopup and occupation.

In any event, under present circumstances, our ability to threaten massive retaliation depends significantly on access to overseas bases. Sufficient intercontinental bombers and guided missiles are lacking. The fact that we can disperse our retaliatory forces instead of concentrating them in the United States is itself an advantage. Military assistance arms and trains forces which provide some protection for overseas bases. And our rights to those bases may depend on aid. This was the case in Spain, where we bought the base rights with aid, having little intent of using Spain's troops in the integrated defense of Western Europe.

In Western Europe, United States assistance is a relatively small part of the recipients' gross national product—probably no more than 2 percent in any country and less than one-half of 1 percent in several. Hence, it is difficult to argue that these allies could not possibly provide their own defense now, assuming, of course, that they put their dollar balance in order so that they might purchase equipment from us. But it is also difficult to know what their reaction with respect to base rights would be if we withdrew our assistance. Some might hope to avoid national demolition if the Russians move by evicting American forces; others might conclude that their ultimate defense depends upon the ability of the United States to threaten massive retaliation and would therefore not take such drastic action. Their

response would also be affected by their interpretation of United States policy: Does the withdrawal of United States aid indicate that we would not assist in their defense? Clearly, the effect of a cessation of military assistance would depend on what other commitments we would undertake and how it is done.

To the extent that we simply have exchanged aid for bases, the transaction is a bilateral bargain. The price is indeterminate and could fall anywhere within a significant range. We may have paid more than we need have to gain the bases; i. e., some of our aid brings us no benefits. But without knowing the minimum price of our landlords, one could not tell for certain.

Any assessment of military aid in respect to a limited war—conventional or tactical nuclear—is uncertain because there is no certainty that such wars will remain at the subhydrogen level. One bomb leads to another, bigger each time, and the war, almost unwittingly, is dragged into the superhydrogen era. This would suggest reliance on a trip wire—not extensive force buildups—to unleash massive retaliation. Against this, some argue that neither side would dare use the ultimate weapon in fear of the consequences of retaliation.

But suppose this uncertainty is settled in favor of a limited war. The value of military aid remains subject to doubt. The defense efforts of our allies in Western Europe have fallen far short of their commitments and their plans. The NATO commander stated that an irreducible minimum of 30 divisions is necessary for the defense of Western Europe; at present he has only 15, of which probably only the American divisions are ready for immediate combat. The Defense Committee of Western European Union recently excoriated NATO members for their failure to achieve essential force goals, to cooperate adequately in planning, logistics, and supply; it suggested that failure to attain higher force levels might require a fundamental shift in military strategy in Western Europe.

Outside of Europe the ability of aided countries to stop an all-out attack is also in doubt. But the key issue is not, however, what is necessary to beat back aggression but what is needed to prevent it. Forces insufficient to win may nonetheless deter aggression by making it just slightly too expensive for the Communist bloc. The point at which this line is crossed is a neat judgment, especially since it must be an estimate of the judgment of a potential aggressor of the benefits and costs of aggression. Furthermore, even if local forces cannot prevent aggression and if United States national security requires the defense of every country on the Soviet-Sino rimland, local troops can slow the Communist drive until American help arrives and any quantity of local forces would assist United States troops.

THE SAVINGS

Proponents of military assistance assert that it would cost us many times more than present aid expenditures to achieve the same military strength through our own efforts as is now provided from a combination of aid and allied forces. Admiral Radford guessed it would cost 4 or 5 times as much to replace the 21 Korean divisions with American troops, and one estimate suggested an overall saving of \$25 billion per annum. The cost of maintaining a foreign soldier falls far below

the cost for an American soldier, and the cost to the United States in aid of arming a foreign soldier is much less than that of an American soldier because foreign governments bear part of the burden. Hence, we save resources through military assistance.

Despite the frequent implication that the saving measures the benefits we derive from foreign aid, such figures do not faithfully serve that purpose. If we compare the cost of obtaining a given level of military strength through a combination of aid and United States and allied forces with the cost of obtaining the same strength through our own efforts, the difference measures the benefits of aid to us only if United States national security remains constant. But this cannot be assumed with certitude. The training levels of foreign troops are, with some exceptions, lower than ours, and in some instances the foreign forces are structured for internal security missions rather than combat in the common defense. The United States Government has complete control over its own forces whereas its control over foreign troops is much less firm. The obvious, and extreme, example where our aid may have low productivity for United States security is Yugoslavia. Assistance to Tito may have preserved him and thereby helped to create dissension in the Communist bloc. But it may also have helped to arm a potential enemy.

Despite the foregoing, the saving figures are not necessarily an overestimate. The United States Government does not obtain all of its military personnel in the free market so that the real cost of United States defense expenditures is somewhat higher than suggested by monetary data.

Proponents of military assistance frequently note that for every dollar of aid since the Korean war, our allies have spent \$5.50 on defense and that they have increased their ground forces by 1.3 million men. United States aid stimulated this or made it possible, according to some proponents. Assuming that we must have, to maintain our security, forces equivalent to those now financed by our allies, such figures would seem to suggest the benefits we derive from military assistance. But they fail because, as a few administration witnesses admit, we do not know what level of expenditures or forces would be undertaken by our allies in the absence of aid. There is even the possibility, suggested by the colloquy between Passman and Hollister, that our aid substitutes in part for military expenditures which our allies would otherwise undertake. Unless one knows what would have been done in the absence of aid, one cannot calculate the payoff from aid.

THE SIDE EFFECTS

Military assistance has numerous side effects, all of which must be considered in assessing its value to the United States. For example, aid to ex-mother countries has adversely affected our political relations with ex-colonial territories. The use of American equipment by the British and French in their African actions dramatized this issue, and brought formal complaint from Arabs. Also military assistance to Pakistan incensed India, and, according to the American Ambassador, the difficulties between India and the United States "grew chiefly" out of our aid to Parkistan. Another alleged effect has been to slow the economic growth of underdeveloped countries receiv-

ing military assistance. They have been obliged to provide complementary resources to make use of aid items in order to achieve established force goals. Without additional growth their political stability is allegedly threatened to the detriment of United States interest. Thus, an assessment of military aid requires an estimate of the significance of the adverse political consequences of military aid and it requires a judgment of the relative importance of various countries to the United States.³ None of these are easy.

Problems in determining the benefits from developmental assistance

The uncertainties surrounding aid for development involve three separate issues.

Will development, per se, bring political benefits?—An early rationale for foreign aid was that poverty breeds communism. But the facts began to deny this generalization. The frustrated intellectual was seen as the germ carrier of communism. Paradoxes were noted where the richer part of a nation would show the greatest Communist strength while the most conservative influences were found in the poorest, backward areas.

Now, a new rationale prevails. Without adequate rates of economic growth, the newly restless people of the underdeveloped world may install governments unfavorable to the United States. Unemployed intellectuals can find satisfying work in connection with development programs and projects. The very fact of getting on with development breeds hope for the future. Yet, while development may satisfy the discontented, it may also create new sources of discontent and, therefore, induce political instability. Development restructures peoples' wants and needs. It rips them out of their traditional ways and cuts their previous ties, creating insecurity. Development is change, and change creates dissatisfaction which can be exploited by unfriendly parties to propel themselves to power.

Forced economic growth is occurring in many of the aided nations. Does aid in its present amounts or forms raise the tempo of progress beyond the discontent-creating level or is that level not yet reached? The tools of social science are not now sharp enough to provide a firm answer.

How much development will aid induce?—It is not certain that a given amount of aid always constitutes an equivalent net increment in the amount of resources used for development in the recipient country. For example, to what extent does aid allow the recipient governments to divert their tax moneys away from development purposes? And to what extent does aid allow them to relax their efforts to obtain resources through other means—higher taxes, removal of restrictions on private foreign investment, and increased reliance on indigenous private initiative? It is a rare underdeveloped country that could not make some additional gains in these ways.

Furthermore, because aid is largely channeled through governments, less meaning may attach to economic growth made possible by United States aid than to development which results from voluntary,

³ An interesting benefit alleged by proponents of military assistance is that the military-assistance appropriations, which financed the purchase of military equipment from the armed services, helped to modernize United States forces because the funds received were used to buy new equipment. If this is valid, it implies that Congress was more willing to vote funds for foreign aid than for domestic defense, for why else use the circuitous means of modernizing United States forces?

market-determined decisions. A rise in national income resulting from state-induced expenditures must be adjusted in some degree for the fact that individual consumers have not passed judgment on the increment in output. This is of some importance to the earlier question of the political benefits resulting from development because, if those benefits derive from the increased well-being of individuals, the favorable effects of aid-induced growth would be less than they might first seem.⁴

Finally, population growth permitted by the economic growth which may be caused by aid inhibits a rise in per capita income. We know relatively little about the response of population to increased real income. Total income may outrace population growth if a massive initial increase in income occurs. But the kind of data necessary to determine accurately the required initial rise in income or the amount of aid necessary to bring it forth simply do not exist. Aid short of the required amount is wasted. This does not suggest that more aid is necessary, because any proposed increment may also fall short of the required amount and, therefore, also be wasted.

Will aid, per se, bring political benefits?—It is contended that aid, independently of its effect on economic growth, gains cooperation, or at least a favorable attitude toward the United States, from key groups within the governments of the recipient countries. (This also applies to military assistance where political leadership or strength rests with local military personnel.) Aid strengthens the government in power—against internal subversive forces and, in some degree, against other political parties. While we need not be reluctant to gain the enmity of the subversive groups—we have already got that—our support for the present government may backfire when other political parties or persons finally ascend to power, believing that United States aid helped keep them out before or supported corrupt and inefficient governments. While gaining cooperation now, is United States aid creating political troubles for the future?

It is not really certain that we only gain cooperation or favorable attitudes. Aid must be divided. But there are no purely technical, objective formulas for the allocation of aid among countries.⁵ It must be a political decision. Those who get less than they think they deserve are miffed. The Arabs complained of the amounts received by Israel. The Latin Americans were embittered by the sums provided to Europe. We must say "No" to some requests. The Lebanese in 1953 wanted more aid than our Government thought advisable.

⁴ This is not conclusive. Aid may substitute for higher taxes and increased reliance on private enterprisers. Therefore, aid may indirectly affect the distribution of income, which may itself affect the political benefits derived from development as well as the rate of development.

⁵ The use of absorptive capacity to allocate aid, as suggested in recent proposals, is deficient because it takes the form of aid as given. If a country cannot absorb a given item, this may reflect a failure to provide, through aid, sufficient quantities of complementary resources or services. A nation's ability to absorb trucks without wheels is probably zero, but why provide trucks without wheels? Any limit on the amount of technical service and advice which we will provide in the construction and operation of aid projects could not be founded on technical or engineering criteria. And, if such limits were imposed, any consequent limitation on amounts of other assistance provided would merely indicate that the advice content of the projects selected was too high. Different projects could be undertaken to permit greater amounts of aid unless the recipient country literally could do nothing with any aid items without foreign supervision. Clearly, there is no limit to the amount of aid a nation could absorb if it were given in the form of free dollars which could be disposed of as the Government sees fit; consequently, limitations on absorptive capacity must stem from the specification of the types of goods to be provided or the end use of aid. Unfortunately, such limitations are nontechnical.

American technicians were, in opposition quarters, charged as spies, and frequent demands were made that the Americans go home.

The presence of American technicians, some of them not too well equipped for representation of the United States and most of them living at higher standards than the bulk of the local population, has created difficulties, though there also have been some outstanding successes.

With the Soviet Union extensively in the aid field, we run the risk that the beneficiaries of United States aid may thank the Russians for it rather than us, on the argument that our fear of Russian penetration induced our gifts.

One could go on with additional adverse effects, but little purpose is served. The point is that foreign aid does have unfavorable side effects and, until one can estimate the extent and importance of these and cast them in balance with the favorable results, no firm assessment of aid is possible. Even if one were reasonably certain that the program produces net benefits, it does not necessarily follow that those benefits would be sufficient to cover the cost.

DOES AMERICAN HUMANITARIANISM JUSTIFY AID?

Do the United States aid programs constitute an efficient allocation of resources in respect to our humanitarian desires? The Secretary of State, in defending the aid programs, once said that the United States could not live happily as an island of prosperity in an ocean of poverty. But, even if true, this does not necessarily justify aid.

If one thinks of charity as an act which provides satisfaction to the giver, we do ourselves a favor by relieving overseas poverty and helping others protect themselves from communism. In principle, to create an efficient allocation of resources, the United States Government should give just that amount of money which American citizens want to give to satisfy their desire to be charitable. But why won't the American people give that sum individually? Why it is necessary to tax them to do so? There is an element of compulsion over the individual in every tax bill. How, then, can one contend that tax-financed aid simply reflects the humanitarianism of the American people? Doesn't taxation indicate that people are being forced to give more than they actually want to give?

Two possible answers exist, neither of them very helpful. One is that the Government may collect and administer money for charity more efficiently than private charities can. Obviously, it is cheaper for an American citizen to give charity when he pays his tax bill, since he has to pay some taxes anyway. The alternative is to write (requiring additional effort) a separate check (wasting paper), with additional ink (wasting ink), and mail it (at an additional cost of 3 cents) to his favorite charity or the embassy of his favorite country. The saving in stamps alone could run to \$2 million. Against these savings, one must allow for the administrative expenses of United States Government aid—about \$32 million for ICA alone in fiscal 1938—which would not be required under individual charity if Americans would send freely disposable funds to their favorite embassies. (Private charity would not compare as well, however, if Americans insist, as does the Congress, on American supervision of aid.)

Even if there is a saving through Government, is it worth the risk that the Government may be overtaking the individual in terms of his desire to help others? And, if it is cheaper to use the Government, why not establish a separate Government fund to receive voluntary additions to one's tax bill?

A second possible answer is that a gift to an underdeveloped country from one American would bring satisfaction, by relieving overseas poverty, to other Americans who are distressed by foreign squalor, i. e., an act of charity by one American benefits other Americans as well as the benefactor. No individual benefactor would necessarily allow for these "neighborhood" or "external" effects in determining the level of his charity. There is no evidence that such effects exist. But if this interdependence held among all taxpayers, it might be sensible to tax all of them in order to subsidize their individual expenditures for charity or in order to carry out more charity through government aid than they would undertake individually. But, in view of the numerous complaints against foreign aid, it is doubtful that such a strong interdependence assumption can be made.

These issues can be avoided by assuming that humanitarianism toward foreigners is a duty which the American people will not completely fulfill individually. At one extreme, ancient Christian principles are invoked to support the view that aid is a duty; at the other extreme, modern gimmicks of welfare economics and the international demonstration effect are called in support. This approach leaves some key questions unsolved: How much money does Christian duty (or welfare economics) require? Whose conception of duty shall we use—the foreigner's or that of certain Americans? And this approach does not explain why individual Americans must be forced to do their "duty" through taxation instead of being persuaded to do so voluntarily by the proponents of this view. Again, it may be cheaper to have them convince some key Congressman and Government officials rather than millions of individual Americans, but is the saving worth the risk implicit in the use of compulsion? And does an apparent act of charity have any ethical content when the burden is largely borne by persons other than those who decide to provide charity? And in what sense has a taxpayer fulfilled a moral obligation if he is compelled to do so by law?

THE COST OF AID

Do aid figures provide an accurate measure of the money cost of assistance provided by the United States Government? And do they faithfully show the real loss of goods and services by the United States? No detailed analysis is possible in this brief space, but the following comments will show some of the problems and uncertainties involved.

The money cost of aid

The public and the Congress generally hear two figures. One is the President's request for the mutual security program, and the other is the sum of net utilized grants and credits reported by the Department of Commerce.

Whether or not these figures accurately show the money cost of aid depends on how one defines aid. For example, if one regards military

grants as aid, then the cost of the Korean war might properly be included since it too involved the transfer of United States resources overseas to serve the cause of peace and freedom. In addition, because United States law permits American firms operating overseas to offset certain foreign taxes against their United States tax liability, the burden of increased foreign taxes is sometimes borne by the United States Treasury; in a sense, this drain could be regarded as foreign aid. Finally, loans are included in figures popularly regarded as aid. Yet the aid element in loans, in the sense of resources given up, is less than that in grants since some of the loans will be repaid, i. e., the resources are not given up forever. On this argument, perhaps the only aid in loans is the difference between the interest rate that the borrower would have had to pay to private lenders and the amount charged by the government plus defaults. The correct determination of items to be included is obviously of significance since the size of foreign aid is a politically sensitive issue. Unfortunately, no clear-cut criteria exist which admit of straightforward application.

Without attempting to define aid, several exclusions from the popular figures should be noted. The Department of Commerce net grants and credits figure is deficient with respect to assistance related to the surplus agricultural disposal programs. Under the Agricultural Trade and Development Act of 1954, and section 402 of the Mutual Security Act of 1954, the United States sells surplus stocks of agricultural commodities overseas for foreign currencies and claims and then grants and/or lends part of the proceeds to foreign countries. The disbursement of the proceeds has lagged far behind the sale so the United States has accumulated foreign currencies and claims. By failing to use those proceeds, we have provided over \$1 billion of short-term aid to foreign countries. While it is not suggested that this lag will create a permanent revolving fund of aid, it is not unlikely that this assistance will grow for some time. The necessary adjustment for this aid can be readily made because the Department of Commerce, having recognized this deficiency, provides the data in the same source from which the net grants-and-credits figure is drawn.

Another large understatement of the money cost of United States aid stems from the pricing policies on agricultural surplus. The surplus products are sold overseas for less than their cost of acquisition and shipment. If one is interested primarily in determining the money cost of aid to the taxpayer, then the money value of the loans and grants made out of the proceeds of the sale of agricultural products should be increased by the pro rata "loss" suffered by the Commodity Credit Corporation. The CCC is reimbursed for this loss but the amount is not included in the foreign assistance figures. Under agreements signed through mid-1957, the loss will equal about \$900 million.

The President's mutual security request does not include the foregoing items. Nor does it include such important items as loans by the Export-Import Bank (\$233 million gross in 1956) and loans and grants out of the proceeds of agricultural surplus sales (\$74 million in 1956). The growing importance of the latter (\$1.8 billion is planned for this purpose under sales agreements signed by mid-1957) will make the President's request a less and less accurate measure of United States Government aid.

The real cost of aid

The true cost of the aid program is the amount of real goods and services which the United States would have had in the absence of the aid program. A thorough analysis of whether or not the money cost accurately reflects the true cost would require a detailed analysis of the American economy in relation to the aid program. For example, one would need to consider the possibility that the aid purchases from certain industries brought greater economies of large-scale production than those lost through the contraction of demand suffered by other industries because of the additional taxes or reduced nonaid government expenditures necessary to finance the aid. No such detailed effort is attempted here. Rather, two matters of recent discussion and one long-held complaint will be considered.

MILITARY ASSISTANCE

According to several proponents of military assistance, a serious overstatement of the cost of military items shipped overseas has occurred in the past because of incorrect pricing. This raises doubt about aid figures.

The military items transferred overseas come from new United States production and from the armed services' stocks. Part of that obtained from stocks is called excess by the Department of Defense and is defined by law as stocks exceeding DOD's mobilization reserve requirement. *Prima facie*, it would seem that in giving away excess items we, in fact, give up nothing of value to us. But the Department of Commerce figures include excess items at their original cost. Consequently, the real cost of foreign aid is overstated by \$787 million.⁶

The validity of this assertion depends on the accuracy and nature of the mobilization reserve requirement. First, it takes account of the time required to procure goods after M-day. Therefore, any item which is "excess" need not be useless but only easily procured. Second, its size shifts with political and military estimates so that it involves a forecast. It is evident that some of the excess items could be used in a conventional war. Therefore, one cannot contend unequivocally that the cost of the aid program is overstated in respect to excess items.

Entirely apart from excess items, the real cost of some of the material obtained from the mobilization reserve may have been lower than the money cost reported to the Department of Commerce by DOD. The armed services, in effect, sell mobilization-reserve items to the military-assistance program and use the receipts to replace their stocks. Until 1956, the law required the armed services to charge the military-assistance appropriation for such items at their replacement cost. But the replacement items were sometimes significant improvements over the material shipped overseas. Therefore, some of the items provided to our allies were in some degree obsolete in terms of United States needs.⁷ They should, therefore, have been priced below replacement cost. A small flurry was created in 1956 when the Comptroller General testified that much of the military assistance had con-

⁶ This is the difference between original cost and the cost of repair and rehabilitation from the beginning of the program through March 1957. There is also an overstatement for military-equipment loans. Overstatement does not occur in the mutual security appropriation for only funds for repair and rehabilitation are requested.

⁷ This does not mean they were obsolete in respect to the allies' needs and capacities to use equipment.

sisted of World War II items, many of which were not being issued to United States forces. He estimated an overcharge in excess of \$1 billion. Recent reports have made much of this point in supporting military-aid appropriations.

If the Comptroller General's estimate were accurate, the combined overcharge on excess items and mobilization-reserve material would exceed 10 percent of the total military-assistance program—a not insignificant overstatement. However, the Comptroller General's estimate cannot be used because the overcharge was estimated against original cost. Suppose there had been no qualitative improvement in the replacement items but replacement costs doubled because of general inflation. Charges against the military-assistance appropriations which equaled original cost would provide the armed services with funds only sufficient to replace half of the items delivered abroad. Since the armed services would need to replace the other half (because they came from the mobilization reserve), additional appropriations directly to them would be required. These should, however, be considered as part of the cost of the military-assistance program. Therefore, while the substitution of improved equipment for military-aid items at replacement cost has caused an overstatement of the true cost of the aid program, the precise amount cannot be indicated.

Still another source of overstatement relates to overseas procurement of items given to Allied Nations. The United States Government has paid over \$2 billion for such goods and, to the extent that those dollars have been used by foreign nations to purchase United States goods and services, this type of assistance constitutes a draft on our resources. Because, however, of the growth in the value of international trade since the beginning of offshore procurement, trading nations find it necessary to hold larger dollar reserves than they otherwise would. Therefore, and for other reasons, it is not impossible that some of the dollars spent for overseas procurement lie unused, in which case such aid has not cost us real goods and services. Two of the major recipients of such dollars, Belgium and Italy, increased their reserves significantly since the start of the program. It is impossible, however, to estimate the amount of offshore procurement which has not resulted in a demand for United States goods.

Against these possible overcharges, one major understatement must be put. The salaries of military personnel in the program are not charged against the military-assistance appropriation. And no allowance is made for the time spent by individuals who work on various aspects of the program but who are not employed directly in it. Since virtually everyone in the Pentagon, from the janitor to the Chairman of the Joint Chiefs of Staff, spends part of his time on the program, the understatement of the cost could be significant.

AGRICULTURAL SURPLUS DISPOSAL

While the money cost of foreign assistance through surplus disposal is greatly understated, on one line of argument the money cost seriously overstates the true cost of foreign aid. Given the price-support programs, the surplus stocks dispatched to foreigners could not be used by the American people. Therefore, these aid programs do not reduce the amount of real goods and services otherwise available to the United States.

At minimum, this is misleading. The disposal programs restrain the growth of surplus stocks. All other things equal, present CCC investment would have been more than \$4.2 billion higher, or 57 percent higher, in the absence of the special, foreign-aid related programs.⁸ If the continued accumulation of surplus would bring a taxpayers' revolt against the agriculture support programs, then the aid-disposal programs cost the American people something because they help to preserve, for some indeterminate period, the uneconomic allocation of resources inherent in the domestic farm-subsidy program.

A more direct cost stems from the relationship between the aid-disposal programs and the level of support prices. Under the law, within limits, the support price rises as surplus stocks fall. When the disposal program reduces surpluses to the point of raising the support level, as it has in cotton and rice, an additional incentive is given to farmers to invest more capital, better seed, more effective pesticides, and fertilizers in agriculture. Resources are, therefore, diverted from more economic uses, increasing the real cost of foreign aid.

Against the foregoing, the disposal-aid programs may save real goods and services by reducing regular foreign-aid appropriations. This is just another way of saying that it is better to give away goods one cannot use than goods one can use. By generating local currency to finance projects which might otherwise be financed with regular aid moneys, we oblige the recipient to accept goods less useful to us than he might otherwise get. ICA guessed that their request for fiscal year 1957 would have been \$50 million greater in the absence of the Agricultural Trade and Development Act of 1954. It was not stated, however, that a substitute aid appropriation would have been spent for non-surplus commodities.

The real cost of loans

A frequent charge against the aid program is "We'll never get the money back." To the extent that loans become grants through defaults, the real cost of foreign assistance is increased.

In the literal sense, this charge is undoubtedly exaggerated unless war, a serious depression, or a strongly unfavorable shift in political relations with our debtors ensues. In comparison with \$18.2 billion loans since 1940, only \$8 million of loans have been charged off and \$107 million of principal and interest due remains unpaid for 90 days or more—less than 1-percent loss assuming the worst for those loans not charged off but due.

But in the sense of never getting goods and services back, the charge has real foundation. Continued world inflation will further convert United States loans into grants.

A million-dollar loan allows foreigners to buy an equivalent amount of real goods and services from the United States.⁹ We eventually regain goods and services with interest because, to accumulate the dollars with which to repay us, the foreigners who borrowed the money must export more to the United States (providing us with additional

⁸ This statement assumes that all of Public Law 480, title I, exports were attributable to the aid portion of the transactions. With some exceptions this is not an unreasonable assumption, because the aid element apparently constitutes the major attraction to foreign "buyers." The data include secs. 550 and 402 transactions under the Mutual Security Act.

⁹ Assuming that the loan has a negligible effect on United States import and export prices.

foreign goods) or must import less from us (leaving us with more of our own goods). But if inflation intervenes between the date on which the proceeds of the loan are spent by the borrower and the date of repayment, we regain, aside from interest payments, fewer real goods and services than we initially give up. For example, if the prices of United States imports double, foreigners need export only half as many additional real goods to us to obtain the required dollars to repay the loan. If the prices of United States exports double, a dollar reduction in foreigner's purchases from us leaves us with only half as many additional goods as would have been the case if prices had not risen.

Inflation hurts the creditor. But within nations, the creditor's loss is the debtor's gain so that the total supply of goods and services in the country remains the same, save for the effect of inflation on production. But between nations, a whole nation loses.

From the date that England drew out the last of the British loan of \$3.75 billion (March 1948) to the time that repayments first began (December 1951), we had lost over one-quarter of the real value of the loan in terms of United States import prices. With respect to United States export prices, the loss was "only" 21½ percent. Since 1948, United States import and export prices have risen about 25 percent and 10 percent.

In a world of forced-draft development and high employment policies, secular inflation is quite conceivable. We must therefore remember, in judging foreign aid, that inflation adds to the burdens of foreign assistance and the uncertainty over future price levels further adds to the difficulty of assessing aid. Many of our recent loans have maturities of 30 or more years so that inflation can take a very heavy toll.

Finally, a special problem in repayment may arise as a result of the surplus agricultural disposal program. Under that program the borrowing nation is given the option of repaying in dollars or, at a higher interest rate, in foreign currency. In principle, the economic problem of repayment is exactly the same. The borrower must increase its exports and/or reduce its imports. Hence, there will be no more economic difficulty in regaining goods and services from local currency loans than from dollar loans. But there may be more political difficulty. Since the United States Government will receive local currency it will have to begin the process of transferring goods to the United States by spending the money itself or selling it to American importers. Therefore, the onus of any ensuing increase in the dollar balance-of-payments problem of the country will fall on the United States. To preserve good political relations, the result may simply be relending (a euphemism for default) of the local currency. In sum, the real cost of these loans is also uncertain.

CONCLUSION

Aristotle summarized the theme of this paper when he wrote:

to give money away is an easy matter, but to decide to whom to give it, and how large a sum, and when, and for what purposes, and how, is neither in every man's power, nor an easy matter. Hence, it is that such excellence is rare and praiseworthy and noble.

X. FEDERAL EXPENDITURES FOR NATURAL
RESOURCE DEVELOPMENT

FEDERAL EXPENDITURES FOR NATURAL RESOURCE DEVELOPMENT

FEDERAL EXPENDITURES AND PROGRAMS FOR THE DEVELOPMENT OF NATURAL RESOURCES

DEPARTMENT OF THE INTERIOR

Statement submitted by Fred A. Seaton, Secretary of the Interior

This statement addresses itself to the following questions which have been formulated by the Subcommittee on Fiscal Policy: (1) The relationship of Federal expenditures and programs for the development of natural resources and for regional development to the processes of economic growth in the private sectors of the economy; (2) the usefulness or limitations of such programs for purposes of stabilization; and (3) the standards employed by the Department of the Interior in determining the kind and size of such programs requested.

While the Department of the Interior is the principal natural resources agency in the Federal Government, it is not the sole Federal agency in this field. The total expenditures of the Department which amounted to \$572 million during the fiscal year 1957 comprised only one-third of the estimated total Federal expenditures on the conservation and development of natural resources. The Department of Agriculture, the Tennessee Valley Authority, and the Corps of Engineers of the Department of the Army accounted for most of the remaining two-thirds. This statement does not purport to cover the activities of all these agencies, but is limited to the expenditures and programs of the Department of the Interior.

Before discussing the various programs of the Department in connection with the issues raised by the subcommittee, it would be helpful to set forth certain considerations which are associated with Federal expenditures on natural resources development.

Under our free enterprise economy, the basic responsibility for the development and use of our natural resources rests with private groups and individuals. The expenditures of the Federal Government on the conservation and development of water, land, forest, mineral, fish and wildlife, and outdoor recreation resources are small in relation to the total expenditures on these activities by State and local governments and private enterprise. The role of the Federal Government is limited to supplementing and strengthening the efforts of other governmental units and private enterprise. Thus, even the most comprehensive analysis of Federal expenditures on natural resources development is inevitably only a partial analysis.

Federal programs for the development of natural resources are almost entirely long range in two respects. First, the full economic effects of many of these programs may not be felt for several decades,

and second, the projects themselves, notably in the field of water resources development, may require years and perhaps decades to complete because of their complexity.

Because of the long-range nature of many of these projects, private enterprise would be reluctant to undertake them in the face of the great uncertainty inherent in any long-term investment. Another consequence of this aspect of natural resources projects is the difficulty of making precise economic evaluations of such projects. The analysis of expenditures whose major effects occur in the future must be based on the underdeveloped art of economic forecasting.

Because of the limited magnitude and long-range character of Federal expenditures for natural resources development, the greatest economic impact of these expenditures will come from the results of the expenditures in the form of increased productive capacity, rather than from their immediate contribution to aggregate demand. This imposes a severe limitation on the usefulness of these expenditures as an instrument for counteracting cyclical fluctuations in the economy.

Many of the results of these expenditures, though they are tangible, cannot be accurately measured in monetary terms. This is true of expenditures on research, on certain types of conservation, and on the development of recreation resources which are freely available to the public.

A measure of the total contribution of Federal expenditures on natural resources development to the growth of the private sectors of the economy would have to take account not only of the direct effects of these expenditures on the productive capacity of the economy, but also of the indirect effects on private investment which can be attributed to the initial Federal expenditure. For example, an irrigation project which brings arid land into production may stimulate a volume of private investment well in excess of the amount of the Government expenditure. The development of a quantitative measure of the total economic effects of Federal expenditures on natural resources development would require highly involved statistical techniques which cannot be attempted here.

The economic effects of Federal expenditures on natural resources development are frequently expressed in terms of their direct and indirect contribution to the gross national product, which includes not only the effect on the economy's productive capacity, but also the total demand induced by the utilization of the additional productive capacity. In this paper, however, we are concerned primarily with the contribution of Federal expenditures to the growth of the economy. Whether the increase in productive capacity is used will depend upon the level and composition of demand throughout the entire economy.

The most direct economic impact of many types of Federal expenditures for natural resources development is local or regional. This arises from the fact that some resources cannot be transported over long distances. In addition, there are statutory limitations on the geographical scope of certain programs. The activities of the Bureau of Reclamation, for example, are confined to the 17 Western States. This factor imposes a serious limitation on the usefulness of the Department of the Interior's expenditures as an instrument of national fiscal policy.

The basic objectives of the Department of the Interior are to foster the development and conservation of our natural resources so that we

can produce, at the lowest possible cost, the food, fiber, and raw materials needed by our growing population and expanding economy; and to protect and enlarge the opportunities for outdoor recreational activities such as fishing, hunting, and camping.

As the economy grows, the demands on our natural resources will continue to increase. According to the most authoritative estimates, our 1975 population will need about 453 billion gallons of water a day—nearly twice as much as we need now. Our electric power generating capacity will have to increase from 123 million kilowatts in 1956 to about 321 million kilowatts in 1975. Our requirements for minerals and fuels in 1975 have been estimated at more than double our present consumption.

The most serious problems confronting our natural resources industries arise, paradoxically, as a result of our high level of economic activity. The unprecedented output of our farms, factories, and mines is causing tremendous drains on some of our resources.

In the field of electric power, for example, we have reached a stage where most of the economically feasible hydro sites have been developed. It has been estimated that during the next 20 years, falling water can provide no more than 8 percent of our new generating capacity, unless we are prepared to pay a substantially higher price for our electrical energy. It is clear that we must continue our unremitting search for new sources of relatively lower-cost energy if we are to meet our growing needs.

Our increasing consumption of minerals is causing heavy depletion of known deposits of our high-grade ores. To counteract this trend, we must find ways of using economically our low-grade ores, and making greater use of those minerals that are still abundant, such as magnesium.

The economic forces which are exerting an upward pressure on the costs of producing electric power and minerals are also making themselves felt in the development and use of our water resources. Unless we do a more effective job in the conservation and use of our water supply, some regions of the country face the prospect of paying a substantially higher price for water.

Our rapid economic growth is having a profound impact not only on energy, mineral, and water resources, but also on our great scenic, wilderness, and historic areas, and on fish and wildlife resources. With higher incomes, more spare time, and more and better highways, more people than ever are visiting the national parks and other recreation areas. Within the past 6 years, the number of visits to the national park system has increased by two-thirds. To accommodate the rapidly growing number of visitors, we must improve and expand the facilities in our national park system and other outdoor recreation resources.

The sections of this paper which follow describe the programs of the Department of the Interior for the conservation and development of our natural resources and the relationship of these programs to economic growth and stability.

The annual expenditures on the various programs of the Department of the Interior during the past 4 years are shown in table 1.

TABLE 1.—Expenditures¹ of the Department of the Interior on the conservation and development of natural resources

[Fiscal years. In thousands of dollars]

	1954	1955	1956	1957
Bureau of Reclamation:				
General investigations.....	\$3, 167	\$3, 755	\$4, 754	\$5, 350
Construction and rehabilitation.....	167, 602	130, 753	127, 499	125, 324
Operation and maintenance.....	18, 348	19, 683	21, 831	21, 387
General administrative expenses.....	4, 416	3, 684	3, 771	3, 651
Emergency fund.....	177	264	245	57
All other funds.....	2, 693	2, 554	3, 016	14, 024
Total ²	196, 403	160, 693	161, 026	165, 978
Bureau of Land Management:				
Management of lands and resources.....	11, 464	12, 160	14, 157	17, 586
Construction.....	1, 427	1, 970	4, 367	4, 310
All other funds.....	25, 988	35, 073	33, 526	38, 683
Total.....	38, 878	49, 203	52, 050	60, 579
Bureau of Mines:				
Conservation and development of mineral resources.....	15, 458	13, 832	13, 982	13, 857
Health and safety.....	4, 627	5, 129	5, 431	4, 894
Construction.....	1, 009	276	443	4, 131
General administrative expenses.....	1, 150	982	1, 109	954
All other funds.....	1, 644	-943	-1, 400	-541
Total.....	23, 888	20, 219	20, 965	23, 836
Geological Survey:				
Surveys, investigations, and research.....	26, 710	27, 390	27, 852	29, 992
All other funds.....	241	-309	33	-324
Total.....	26, 951	27, 081	27, 885	29, 668
National Park Service:				
Management and protection.....	8, 965	9, 191	10, 410	11, 406
Maintenance and rehabilitation of physical facilities.....	7, 978	8, 624	9, 128	9, 941
Construction.....	15, 016	15, 861	23, 134	35, 852
General administrative expenses.....	1, 236	1, 050	1, 241	1, 265
Total.....	33, 195	34, 726	43, 913	58, 464
Fish and Wildlife Service:				
Management of resources.....	7, 939	7, 208	7, 858	10, 132
Investigations of resources.....	4, 345	4, 371	4, 820	4, 546
Construction.....	560	383	536	1, 115
Fish restoration and management.....	2, 461	3, 787	4, 260	4, 324
Wildlife restoration.....	13, 450	13, 791	13, 193	13, 669
Migratory bird conservation.....	4, 477	6, 455	5, 187	4, 242
Promotion and development of fishery products and research.....		1, 170	3, 581	4, 009
General administrative expenses.....	807	720	810	824
All other funds.....	3, 809	4, 351	3, 949	6, 486
Total.....	37, 888	42, 238	44, 194	49, 347
Bureau of Indian Affairs:				
Education and welfare services.....	49, 100	61, 031	45, 603	45, 028
Resources management.....	12, 622	11, 031	12, 313	13, 780
Construction (buildings, utilities, and land and water rights acquisition).....	17, 087	14, 526	10, 553	9, 951
Road construction and maintenance (CA).....		5, 095	8, 999	9, 789
General administrative expenses.....	3, 047	2, 644	2, 798	2, 938
All other funds.....	2, 023	2, 428	8, 151	9, 685
Total.....	83, 880	96, 756	88, 418	91, 171
Total for Department.....	535, 140	515, 299	511, 790	572, 079

¹ Exclusive of trust funds.² Discrepancy in totals are due to rounding.

NOTE.—General departmental administrative and other expenditures are not shown separately.

NATURAL RESOURCES EXPENDITURES AND ECONOMIC GROWTH

Water resources

One of the Department's most important programs for expanding our resource base is the reclamation of arid and semiarid lands

through the construction and operation of irrigation projects by the Bureau of Reclamation in the 17 Western States.

Since 1902, the Bureau has built facilities which furnish a full or supplemental water supply for 7.7 million acres of irrigable land which represents approximately one-quarter of all the irrigated land in the 17 Western States. The crops produced on these lands served by reclamation projects during 1956 were valued at \$952 million.

The earliest reclamation projects were constructed for irrigation water storage without regard to the flood-control needs of downstream areas and the multiple uses of water. However, Congress soon recognized the need for the multiple-purpose development of water resources and amended and expanded the original Reclamation Act to include not only irrigation and flood control, but also municipal water, hydroelectric power, navigation, fish and wildlife, recreation, and pollution abatement.

As towns adjacent to projects grew, many of them exhausted their initial supply and looked to the water stored for irrigation as a solution to their municipal water problem. Out of this, there evolved the practice of developing water for municipal use. As a consequence, reclamation projects have contributed an important part of the water supply of many communities, including the metropolitan area of southern California, Salt Lake City, and several municipalities in the Great Plains States.

While the Bureau of Reclamation does not construct projects exclusively for the generation of hydroelectric power, it has built 18 multi-purpose projects with power facilities. These projects have 36 powerplants with a total generating capacity of over 5 million kilowatts.

The Federal Water Power Act provides for the licensing of power sites by the Federal Power Commission for development by State or local governments and private utilities. However, there are many instances where sites suitable for hydroelectric development are also suitable for the construction of storage dams and reservoirs. In such cases, the Bureau undertakes investigations of the feasibility of multi-purpose development and presents its findings to Congress.

Irrigation and farm surpluses

The need for expanding agricultural production through irrigation must be judged in the light of the expected increase in the demand for food and fiber and the means available for meeting this demand.

The Department of Agriculture has estimated that the output of our farms will have to increase by one-third by 1975, and that the annual increases will have to be about 20 percent greater than the prodigious gains recorded during the postwar years. Livestock production will have to increase by about 45 percent and farm crops by about 25 percent. The annual increase in feed grains may have to be as much as $5\frac{1}{2}$ times greater than the rate of increase in recent years. It has been estimated that the additional output will require the equivalent of 150 million acres of cropland by 1975. There are, of course, many ways in which farm production can be increased through advances in farm technology which increase yields per acre. But we will also have to increase the amount of land under cultivation.

Our productive farm acreage has been diminishing under the steady pressure of growing suburbs, industrial expansion, and land requirements for new highways and airports. Our new superhighway sys-

tem, for example, is expected to require nearly a million additional acres of land. These and other inroads are taking more than a million acres of farmland out of use each year. In contrast with this, reclamation is bringing into production only about 100,000 acres a year.

As far as farm surpluses are concerned, irrigation in the West contributes very little to the production of the 5 principal crops which comprise about 87 percent of our agricultural surpluses. About three-quarters of the irrigated land produces forage and grain crops which are fed to livestock in the dry grazing areas of the West.

Federal reclamation projects accounted for 0.4 percent of our total corn production, less than 2 percent of our wheat production, 2.8 percent of our rice production, 5.8 percent of our production of upland cotton, and no tobacco. Table 2 summarizes for the principal crops, the relationship of the production on these projects to total United States production and the total amount under crop support in 1956.

TABLE 2.—The production on Federal reclamation projects of principal crops under the Federal price-support program as related to United States production and total amounts under price supports—1956

Crop	U. S. Bureau of Reclamation projects							
	Production	Price-support program		Production		Assumed support		
		Amount	Per cent United States production	Amount	Per cent United States production	Amount ¹	Per cent United States support program	Per cent United States production
Corn..... bushels.....	3,451,292	434,729	12.60	13,931	0.40	1,441	0.33	0.04
Wheat..... do.....	997,207	250,874	25.16	19,709	1.98	4,568	1.82	.46
Cotton:								
Upland..... bales.....	13,303	3,829	28.78	775	5.83	92	2.41	.69
American-Egyptian..... do.....	49	1	1.91	20	41.85	-----	41.99	.80
Barley..... bushels.....	372,495	76,391	20.51	28,476	7.64	2,993	3.92	.80
Oats..... do.....	1,152,652	35,996	3.12	10,420	0.90	530	1.47	.05
Sorghums..... do.....	205,065	42,056	20.51	4,498	2.19	309	.73	.15
Rice..... do.....	47,402	23,727	50.05	667	2.81	365	1.54	.77
Rye..... do.....	21,558	3,144	14.58	84	.39	21	.65	.10
Beans..... hundredweight.....	17,114	4,694	27.43	4,743	27.72	1,023	21.80	5.98
Flaxseed..... do.....	48,712	17,424	35.77	993	2.04	9,354	.05	.02

¹ Data on amount of any crop under price-support loans and purchase agreements is available on a State basis. The proportion of total State production which is under support is applied to the production on Federal reclamation projects to arrive at a calculated or assumed level of support for crops grown on reclamation projects.

The irrigated lands in the Western States produce many of the crops which have become an important part of our diet. They produce virtually all of our apricots, almonds, walnuts, filberts, dates, lemons, figs, and prunes. They also supply about 95 percent of the grapes and plums, 90 percent of the lettuce and sweet cherries, 75 percent of the avocados, pears and cantaloups, 65 percent of the asparagus, 50 percent of the peaches, 87 percent of the fresh peas, and more than 50 percent of the commercial truck crops. Many of these crops cannot be grown in any other part of the country and much of this production takes place during the off season for other producing areas.

The long-term character of reclamation projects relates not only to their long amortization period which extends over 50 years or more, but also to the long period of time required for the investigation, planning, and construction of the projects. These investigations frequently require many years. After Congress authorizes a project, there is an additional delay before appropriations are made and detailed plans and specifications are complete. Thus, many years usually elapse before construction is completed. Farm layout and development and the establishment of an optimum cropping program entail further delays in achieving full production. Depending on size, a period of from 5 to 20 years may be required before an irrigation project is fully developed and producing.

It is clear that the reclamation program is directed toward the long-term objective of developing our agricultural resource base to serve our future needs. The ultimate merits of the program cannot be appraised on the basis of current conditions. They can be judged only in the light of future developments.

Lands and forests

Our expanding economy is creating additional demands for the use and development of the public lands and their resources. In addition to private sources of demand, States and counties are showing increased interest in acquiring or using public lands for such purposes as recreation, wildlife, and forest management.

While the programs in the field of lands and forests are primarily management and conservation programs, they do have certain developmental features.

As manager of the public domain which comprises 468 million acres of land in the United States and Alaska, the Department of the Interior through its Bureau of Land Management administers programs concerned with the classification, use, and disposal of public lands and the development, conservation, and use of the natural resources on these lands.

The Bureau of Land Management is responsible for the disposal of public lands to private and public organizations and individuals for various uses. The Bureau also issues leases, licenses, or permits for land use. Where conflicts arise in the competing demands for land use, the Bureau resolves such conflicts by a process of land classification which allocates lands to their highest uses in the interest of maximum development.

The Bureau manages Federal grazing areas totaling 170 million acres. These Federal rangelands provide seasonal or year-round forage for nearly 10 million head of livestock which represent an important element in our production of meat, wool, and leather.

Through the granting of grazing permits in grazing districts, and grazing leases on public lands outside grazing districts, the Bureau administers grazing and range activities to protect the productivity of lands, permit the highest use of forage, and, at the same time, retard soil erosion and provide watershed areas. Programs are also carried out for the rehabilitation and more effective use of rangelands.

The Bureau administers more than 161 million acres of forest and woodland, which consist of 46 million acres of commercial forests and 115 million acres of noncommercial woodlands. It carries on a program of sustained-yield forest management for the purpose of obtain-

ing continuous timber production at the highest possible level. Under this program, timber sales amounted to more than \$27 million in 1956. In addition, the Bureau of Indian Affairs manages 6 million acres of commercial forest on Indian trust lands which produce an annual harvest valued at approximately \$14 million.

Mineral resources

Mineral resources, unlike water and timber, cannot be renewed. With every ton of ore we take from the earth, we reduce an irreplaceable supply. At the same time, it should be recognized that Nature has probably endowed the earth with more bodies of ore than we shall ever need. The problem is to find the concentrations of ore which are necessary to meet the demands of a growing and changing economy. Changes in the composition of the demand for mineral resources arising out of technological advances may be more significant than the overall growth of demand. Minerals and metals which were unknown only a few decades ago have assumed major importance in our industrial economy.

The principal objectives of the Federal Government in the field of mineral resources are (1) to assure an adequate supply of mineral raw materials at the lowest possible cost to meet our security requirements and the needs of an expanding economy; (2) to maintain a mining industry capable of competing in peacetime and which can provide high-level production in the event of war; and (3) to bring about an orderly and wise use of our mineral resources.

The major contributions of the Federal Government to the development of our mineral resources come from programs of scientific research and development. The Bureau of Mines and the Geological Survey carry on programs for the collection, interpretation, and dissemination of information concerning minerals; the development of new prospecting techniques; and research in all types of minerals technology. Since mineral resources are not renewable, the long-range supply problems can be solved through the development of better methods of locating new ore bodies, by improvements in the processing of lower grade deposits, and by searching out and learning how to utilize new materials. At one time, the mining industry had to rely upon fortuitous outcroppings to locate mineral deposits. But, with the depletion of some of our resources, it has become necessary to reach below the earth's surface.

Although the actual prospecting for minerals is primarily a task for private industry, the minerals investigations of the Department of the Interior have directly or indirectly resulted in the discovery of significant new deposits. The Yellow pine tungsten deposit in Idaho is a case in point. Another is the San Manuel copper find in Arizona, where the Department's initiative in investigating a relatively unpromising outcrop resulted in the discovery of one of the country's largest copper deposits.

The work of the Bureau of Mines in the beneficiation of ores has complemented the work of the mining industry in the processing of lower grade ores that could not be profitably mined before. Its work in cooperation with the industry to bring into production the low-grade taconite iron deposits of Minnesota and Michigan is helping to offset the depletion of the high-grade iron ores of the Lake Superior district, and is contributing to the efficiency of blast furnaces by providing them with a high-grade feed.

Another of the Department's outstanding contributions to the strengthening and diversification of the minerals industry has been the development of new mineral products. Titanium, for example, which is light in weight yet strong and highly resistant to corrosion, has given impetus to technological developments where these characteristics are necessary, as in aircraft-frame construction, marine equipment, and jet engines. Another example is zirconium, which is contributing to advances in the technology of atomic energy.

The most serious problems confronting the mining industry are the steady decline in the known deposits of higher grade ores, the tendency toward higher costs of mining the low-grade ores, and the cost of searching for and mining deeply buried ore deposits. The Department of the Interior is helping to solve these problems by taking the lead in research for better techniques for finding ore and for the development of better mining methods. Through a program of direct financial assistance to private industry, the Department also encourages exploration.

Under the authority of the Defense Production Act, the Defense Minerals Exploration Administration within the Department of the Interior has since 1951 conducted a program to encourage exploration for strategic and critical materials. While the program has had special appeal for small operators who have been active in exploring for highly strategic minerals which do not occur in sufficiently large deposits to interest large companies, some of the outstanding discoveries, such as the large zinc deposits in Tennessee, have been made by the large companies.

Recreation resources and commercial fisheries

With rising incomes and more leisure time, the demand for recreation can be expected to grow in the years ahead. The Department of the Interior has important responsibilities for the development of outdoor recreation resources to meet these growing needs. Through the National Park Service, the Department administers 29 national parks and other areas of scenic or historic importance. The Department is also active in the development and conservation of fish and wildlife resources.

The number of visits to the national parks is expected to rise from 55 million in 1956 to 80 million in 1966. To accommodate this rapidly growing number of visitors, the National Park Service initiated last year a \$900 million, 10-year program of improvement and development. This program, which is known as mission 66, provides for the construction of roads and trails, the expansion of water and sewage systems, and more visitors' centers, museums, and administrative buildings. Private enterprise will undertake the expansion and improvement of overnight accommodations, restaurants, shops, service centers, and the like.

The task of providing adequate outdoor recreation facilities extends beyond the national-park system. Tens of millions of Americans participate in the sports of hunting and fishing. The Department of the Interior, through the United States Fish and Wildlife Service handles the Federal responsibilities for the conservation of fish and wildlife resources. The specific programs of the Service include the management of the migratory-bird resource, wildlife control, and work in the sports-fisheries field on Federal lands in coop-

eration with the States. These programs, like those in lands and forests, are mainly management and conservation programs.

The basic problem concerning fish and wildlife resources is how to expand these resources in the face of a diminution in the amount of land and water available for habitat. Part of the solution lies in the multiple use of our land and water resources. The Department's management program also includes the conservation of marshes and wet lands for migratory waterfowl, and land acquisition for wildlife refuges.

In addition to its activities in sports fisheries and wildlife, the United States Fish and Wildlife Service also conducts an active program for the conservation and development of our commercial fisheries. The program includes biological and technological research to improve productivity, the restoration of mature fisheries, the development of latent fisheries, and the location of new ones. The Service also provides statistical and marketing services to private industry.

NATURAL-RESOURCES EXPENDITURES AND ECONOMIC STABILITY

The relatively small magnitude and long-range character of Federal expenditures for natural resources development severely limit the usefulness of these expenditures as an instrument for promoting economic stability. Their principal economic consequences arise out of their effects on the maintenance and expansion of productive capacity rather than from their initial impact on demand. The effectiveness of Federal fiscal policies for promoting economic stability depends primarily on their ability to stimulate or curtail total demand. Natural-resources expenditures are simply too small to have a significant effect on total demand, though they may have important local effects. Moreover, their size and character are determined by their expected long-run impact on supply or productive capacity rather than by their short-run income-generating effects.

These expenditures are long range, not only with respect to their principal economic effects, but also in terms of the time elapsing between the decision to spend and the actual expenditure. This is especially characteristic of expenditures on reclamation projects. The long expenditure period makes it difficult to accelerate or curtail these expenditures rapidly enough to counteract short-term fluctuations in the level of economic activity.

While the effectiveness of natural-resources expenditures as an instrument of anticyclical policy is very limited, once the projects are completed these expenditures can make a significant contribution to the stability of particular regions, especially in the field of agriculture.

A depression in an agricultural area may be caused not only by a general decline in demand and prices, but also by a contraction of output resulting from natural disasters, such as drought and floods. By providing protection against such disasters, the construction of irrigation and storage dams reduces the vulnerability of certain agricultural regions to depressions wrought by Nature.

Irrigation projects may also contribute to stability by providing the means for the diversification of crops. Irrigated land can be more readily adapted to new crops than dryland farming. An area which depends on a single crop is more vulnerable to sharp fluctua-

tions in demand and prices than one which can grow a variety of crops. Even during a period of general prosperity, a single-crop, dryland area may find itself in a depressed condition as a result of a sharp decline in the price of its crop. However, this is less likely to occur in an irrigated region which is capable of growing a variety of crops.

STANDARDS FOR DETERMINING SIZE AND CHARACTER OF PROGRAM

The level of Federal expenditures on natural-resources development, like all Federal expenditures, is dictated first of all by the size and composition of the national budget. The size of individual programs is determined by the estimated long-term needs for particular resources. Since Federal programs for resource development are designed to supplement and strengthen the efforts of State and local governments and private enterprise, their size and character will also be influenced by the extent to which these efforts are expected to meet future needs. The level of certain programs, notably research in water, mineral, and fishery resources, is also influenced by the availability of technical and scientific personnel.

In general, the resource-development programs of the Federal Governments do not lend themselves to rigorous evaluation with respect to their economic efficiency because of the almost insuperable difficulty of measuring the results of these programs. This is especially true of the research programs and other programs whose benefits cannot be readily expressed in monetary terms.

However, in the field of water-resources development, a serious effort is made to calculate the economic costs and benefits of specific projects. Under this procedure, costs and benefits are reduced to monetary terms. The project is generally considered to be economically justified if total benefits are estimated to exceed total costs, and if the proposed project is the least costly of the alternative means for meeting the particular needs. The complete analysis of the projects also includes consideration of benefits which cannot be expressed in monetary terms.

Costs can be measured with reasonable accuracy. Benefits are much more difficult to estimate even if the analysis is confined to primary benefits. For one thing, these benefits occur in the future and their estimation involves a large element of uncertainty. And secondly, certain benefits such as recreation which does not have a market price are incapable of monetary measurement. The analysis therefore involves a substantial element of judgment. However, despite the conceptual and statistical limitations of benefit-cost analysis, it does represent one of the few serious attempts to evaluate the economic efficiency of Federal expenditures.

CONCLUSION

The resource programs of the Department of the Interior that contribute most directly to economic growth are those which are oriented toward the expansion of the Nation's resource base. These programs include reclamation which increases the amount of productive land, the supply of usable water for domestic and industrial purposes, and electric power generating capacity; and the development of the na-

tional-park system and fish and wildlife resources to accommodate greater demands on these outdoor recreation resources.

Though their results are more difficult to identify than those of the above programs, the research and data collection activities in water, mineral, and fishery resources conducted by the Geological Survey, Bureau of Mines, and Fish and Wildlife Service, respectively, represent a vital part of the programs of the Department of the Interior for natural-resources development.

In addition to the development programs, the Department of the Interior also conducts a number of programs which are aimed at the conservation of our resource base. As manager of the public lands, the Bureau of Land Management is concerned almost exclusively with this type of program. Indeed, conservation is an integral part of virtually all Federal programs in the field of natural resources.

Since this statement deals mainly with programs that contribute to economic growth, conservation has not been emphasized. But we should not overlook the simple axiom that in order to achieve maximum growth, we must not allow our resources to be wasted.

EVALUATION OF FEDERAL EXPENDITURES FOR WATER RESOURCE PROJECTS

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Federal water-resource programs have been relatively immune from the economy drives that have affected other Federal expenditures. Expenditures for fiscal 1958 for the major project-building agencies are expected to be in excess of \$850 million, a moderate increase over 1957, and an increase of over \$150 million compared with 1956. It is true that this part of the Federal budget was subjected to budget reductions earlier than the rest, having reached peaks in 1950 and 1953. But given the general tightness in the budgetary situation, and considering particularly the drastic cuts that have been made in such vital fields as missiles development and foreign aid, every Federal expenditure must be scrutinized carefully to see if it is the best use to which the limited funds can be put, and to see if the transfer of resources from the private sector to the public sector can be justified.

This paper seeks to throw some light on these problems by examining the contribution of water-resource projects to national income and to regional income. It also deals with some of the evaluation practices now employed by the Federal agencies, and calls attention to some of the difficulties of joint private and public development.

EFFECT ON NATIONAL INCOME

Water-resource projects are investments; they absorb resources and generate output which are additions to the stream of goods and services which constitute the national income. Unlike most public expenditures, the outputs are predominantly economic and can be valued by prices, directly in the case of power and irrigation, indirectly by measures which are price equivalents in the case of flood control, navigation, and water supply. Therefore it is possible to estimate how much is added to future national income by any project and this can be compared with the cost.

The benefit-cost analyses which are submitted to the Bureau of the Budget and the Congress for each project at the time that authorization or appropriation is requested¹ can serve to show whether the additions to national income, or benefits, exceed the subtractions, or costs, that is, whether a project increases or decreases the national income. The results of the benefit-cost analysis are usually presented in terms of the benefit-cost ratio.

¹ For fuller discussion of benefit-cost analysis see Federal Interagency River Basin Committee, Subcommittee on Benefits and Costs, Proposed Practices of Economic Analysis of River Basin Projects, Washington, D. C., May 1950, and O. Eckstein, Water Resource Development, The Economics of Project Evaluation, Harvard University Press (forthcoming).

TABLE I.—Benefit-cost ratios of projects for which funds were requested in 1957 budget

Benefit-cost ratio	Number of projects			
	Navigation	Flood control	Multipurpose Corps of Engineers	Bureau of Reclamation
0 to 0.99.....				1
1.0 to 1.29.....	1	8	8	5
1.3 to 1.59.....	6	8	6	4
1.6 to 1.99.....	4	6	4	2
2.0 to 2.99.....	6	6	1	6
3.0 to 4.99.....		1		4
Over 5.0.....		2		1
	Ultimate total cost ¹			
0 to 1.0.....				3
1.0 to 1.3.....	1,000	115	837	100
1.3 to 1.6.....	480	157	801	222
1.6 to 2.0.....	180	130	405	12
2.0 to 3.0.....	198	431	158	388
3.0 to 5.0.....		24		838
Over 5.0.....		141		13

¹ In millions of dollars.

Table I is a tabulation of the benefit-cost ratios submitted by the Corps of Engineers and the Bureau of Reclamation for the projects included in the budget requests for fiscal 1957. Most of the projects are already under construction. The group as a whole will constitute the bulk of the construction program of the next several years. While all the projects (except one) have benefit-cost ratios above 1.0, the table must be interpreted in the light of the quality of the benefit-cost figures.

BENEFIT-COST ANALYSES AS INDICATORS OF CHANGE IN NATIONAL INCOME

The concepts and techniques that have been employed by the agencies to measure benefits in the past 15 years have yielded figures which considerably overstate the additions to national income. In this section we examine some of the major sources of bias. We interpret the purpose of benefit-cost analyses to be the measurement of benefits and costs "to whomsoever they may accrue" in the Nation, which is its purpose as specified in the Flood Control Act of 1936 for that field.

Indirect benefits

The biggest source of bias in benefit-cost analysis is the excessive use of indirect (or secondary) benefits. Benefits are claimed in two categories, direct and indirect, where the former correspond to market values or their equivalents, and the latter to a potpourri of other concepts designed to measure repercussion effects. In the case of irrigation, they are, primarily, profits accruing in processing and on sales of project inputs; in flood control they are designed to represent the reduction of losses of wage payments and of the other losses attributed to the interruption of economic activity due to floods; in navigation they are the benefits of the stimulation of activity along the waterway and of increased property values. In the case of irrigation projects, indirect benefits may exceed direct benefits, while in the other fields

they vary more widely, but are sometimes also of the same order of magnitude.

In times of full employment, which is the setting in terms of which the programs are justified, there is no economic rationale for claiming significant amounts of indirect benefits. The capital in processing industries would not be idle in the absence of the project; much of the loss of wages and profits caused by floods is compensated by greater activity after the flood and by offsetting gains elsewhere; similarly, the increased rents and profits along waterways are likely to be balanced by losses along transportation routes from which traffic is being diverted.²

Of course, there are some beneficial repercussion effects to which there are no offsets; that is, there are some genuine external economies. Supplemental irrigation water for an agricultural economy that is declining due to deterioration of the water supply may permit more effective utilization of processing capacity and of other sunk investments. On new irrigation projects, some of the capital of associated businesses will earn a higher return than it would earn in its alternative uses. Some of the reductions in income payments caused by floods will not be made up later, and so on. But it is most unlikely that such benefits could exceed more than 10 or 20 percent of primary benefits.

Rail rates as a measure of navigation benefits

The major source of bias in the evaluation of navigation benefits is the use of rail rates as a measure of the alternative cost of transport. From the point of view of the transport user, it is true that the rail rates are the cost that he actually would incur. But, from the point of view of the Nation, it is only the long-run, out-of-pocket, rail cost which should be counted. The difference between rail rates and out-of-pocket cost is a commodity's contribution to system overhead, and, in the event the commodity is diverted to the waterway, either the railroad suffers a loss of income, or the rates on shipments that cannot be diverted are increased. With the typical gap between out-of-pocket costs and rail rates on the order of 20-30 percent, the resultant overstatement of navigation benefits is very considerable. An arithmetic example will make this clear. Suppose a commodity is shipped at a rail rate of \$3.60 a ton, but with out-of-pocket costs equal to \$2.70. If the cost of shipping by barge is \$1.50, the navigation benefit would be figured to be \$2.10 a ton, although the benefit, from a national point of view, is only \$1.20. Thus a gap of 25 percent between rail rates and out-of-pocket costs leads to an overestimate of benefit of 43 percent.

The cost of land

On the cost side of the analysis, land and property to be inundated by a reservoir are valued at their market prices. This understates the cost in the benefit-cost framework. The reason lies in the difference in the interest rates applied on the two sides of the analysis. Benefits are discounted at interest rates of $2\frac{1}{2}$ to 3 percent; the mar-

² For fuller analysis of indirect benefits, see J. Margolis, *Secondary Benefits, External Economies, and the Justification of Public Investment*, *Review of Economics and Statistics*, August 1957, pp. 284-291; H. E. Selby, *Indirect Benefits From Irrigation Development*, *Journal of Land and Public Utilities Economics*, February 1944, pp. 45-51; and O. Eckstein, *op. cit.*, chs. 5, 6, and 7.

ket value of land, however, is determined by the income stream it can produce and by the rate at which this stream is capitalized. This rate is far greater than 3 percent, ranging from 5 to 10 percent at different times. Thus, if a piece of farmland can produce a net income of \$100, it may sell for \$1,000 to \$2,000. To show the nature of the bias, let us suppose that its income is capitalized at 6 percent, making its market value, and hence its stated cost, \$1,667. If the benefit-cost analysis uses an interest rate of 3 percent, the annual cost of flooding the land will be stated as \$50, even though the loss of farm income is twice that figure. If the benefit of the project is between \$50 and \$100 a year, the benefit-cost analysis, by present standards, would justify the project, even though the change in income would be negative.

This bias understates this part of project costs by 50 percent. Where a reservoir floods good farmland, this type of cost may be as much as 30 percent of the total, and hence the effect on the cost side of the benefit-cost ratio may be an understatement of costs of up to 30 percent. To eliminate it, we can compute the annual income realized from the land to be flooded, or, in the event that market value of land is to be used, the cost must be doubled if the benefit-cost analysis is to be internally consistent and symmetrical.

Interest rates

The interest rates that have been used for the capital charges represent another important source of understatement of costs. Rates of $2\frac{1}{2}$ and 3 percent have been applied, presumably because the rates on Government securities used to be at that level. The long-term rates paid by Government have risen to 4 percent or so in recent years, which suggests some increase in interest charges, following this line of reasoning. But even this adjustment does not result in proper interest rates, for, in actuality, the funds for projects in the last decade have not come from deficit financing but from taxes. Therefore, the real interest cost of projects depends upon the value of the capital in its alternative uses, uses from which it is withdrawn by taxation. Recent statistical efforts to measure this opportunity cost of Federal funds raised by taxation yield estimates between $5\frac{1}{4}$ and $6\frac{1}{2}$.³ These estimates are based on studies of the likely changes in taxes that would be permitted by expenditure reduction, the incidence of such tax cuts, the rates of return that would be earned on the share of resources drawn out of investments, and the interest rates at which consumers make their voluntary saving-borrowing decisions.

These estimates of opportunity costs do not necessarily argue that Federal water projects should be planned with interest rates of that level. The time perspective of the Government may be considerably longer than that of private persons; it may value more highly the benefits accruing to unborn generations than individuals in their voluntary private choices. Also, the conservation aspect of the program argues against high interest rates. But, if low interest rates are used in the design and evaluation of projects, we must be on guard against using the low interest rate as a device to justify poor projects. To assure that capital is not wasted on investments incapable of yield-

³ J. V. Krutilla and O. Eckstein, *Multiple-Purpose River Development*, Studies in Applied Economic Analysis (Johns Hopkins Press), forthcoming, ch. 4.

ing a reasonable return, projects should not be considered justified unless benefits exceed costs by a compensating margin. Given the average capital intensity of projects, a benefit-cost ratio of 1.3 and an interest rate of 3 percent assure that the average rate of return of projects is equal to the opportunity costs of the money.

The present program

Keeping in mind these considerations, an examination of table 1 shows that a significant share of the projects in the present program is not justified economically, which is to say that the national income will be reduced by their construction. Because of the wide range of concepts and of quality in benefit-cost estimation, it is not possible to pick any one benefit-cost ratio and say that all projects that exceed it are justified and all others are not. But, given the magnitudes of the biases we have listed, and our list is far from exhaustive, there is very strong evidence that less than half of the projects can be justified. In some instances, it is not the overall quality of the project which is inadequate, but rather the excessively large scale for which the project plans provide. But, whatever the cause, our conclusion is inescapable, as far as any evidence on the economics of the projects so far presented by the agencies is concerned.

There are other projects that are eminently worth while, representing genuine opportunities for public investment, the progress of which is much delayed by the need to spread limited funds over so many undertakings. There are also enormous backlogs of projects not yet started, parts of which are of high quality. Emphasis on projects of the highest economic merit would assure that the programs make a positive contribution to national income.

What can be done to promote the selection of projects which are of greatest advantage from the national point of view? Perhaps the most important step is a reform of the benefit-cost-evaluation procedures and rigid insistence that only justified projects be built. The Subcommittee on Benefits and Costs of the Interagency Committee on Water Resources has, for almost a decade, been working to improve these procedures. But progress has been slow, primarily because there is little pressure from the Congress or the President in this direction. Before the benefit-cost figures can command public confidence, the sources of upward bias enumerated above must be removed. Also, to assure that the estimates of physical and economic magnitudes in project analyses be realistic, the review function in the executive branch should be strengthened by establishment of an independent board of review⁴ with a modest but highly competent staff of its own, or by increasing the staff and power of the Division of Resources and Civil Works of the Bureau of the Budget.

WATER RESOURCE PROJECTS AND NATIONAL ECONOMIC GROWTH

While the return on the investment in many projects is much below the rates of return earned in other sectors of the economy, the projects nevertheless represent additions to the Nation's capital stock. With the funds for the projects raised by taxation, a substantial part of the resources required for projects is drawn out of consumption uses,

⁴This is one of the recommendations of the President's Advisory Committee on Water Resources Policy. Water Resources Policy, December 22, 1955.

the rest out of investment. Insofar as it is the former, the rate of capital accumulation is increased; insofar as it is the latter, resources are diverted from private investments yielding certain rates of return; and if the project yields a lower return, the rate of growth of the system is retarded.

In order to estimate the percent of resources for projects which are drawn out of consumption and investment, it is necessary to make some assumption about the nature of the tax cut which is being forestalled by these particular expenditures. If the next tax cut would be an increase in the exemption of the personal income tax or a splitting of the first bracket, then much the largest part of the resources could be assumed to be drawn out of consumption, thus significantly increasing the share of national income going into investment, and thereby raising the rate of growth. If an increase in the rate of growth is in itself desirable, and the growth of the Russian economy is a strong argument in support of that position, then projects yielding a reasonable rate of return can be justified on these grounds. But these considerations do not support the undertaking of submarginal projects, yielding, as they do, rates of return of 1 to 4 percent. For one thing, there are far more effective means by which the Government can step up the growth rate, such as changes in the corporation income tax or investment in technical education and scientific research; for another, at least to some extent, submarginal projects compete for the outputs of capital-goods industries, driving up the prices of capital goods and thereby discouraging a certain amount of private investment.

If it is assumed that the forestalled tax cut would be much more favorable to investment, perhaps consisting of a reduction of corporation income taxes and of upper-bracket personal income-tax rates, the case against submarginal water projects becomes even stronger. With the bulk of resources for the projects drawn out of investment rather than consumption, the loss in potential future returns on the private investments is likely to outweigh the returns on the water project. Further, the private investments generate subsequent reinvestment through accumulation of depreciation allowances and the plowing back of retained profits, while the public projects, with their extremely limited repayment requirements, ultimately simply have their capital consumed, though at a very slow rate, given the extreme durability of many water-resource projects.

Thus, it can be seen that the criterion of economic growth reinforces our previous conclusions. Projects with adequate rates of return, reflected in sufficiently high benefit-cost ratios, hasten the rate of growth of the economy, particularly if the funds for the projects are taxed out of consumption uses. Submarginal projects, on the other hand, are likely to reduce the economy's rate of growth.

EFFECT ON REGIONAL INCOME AND GROWTH

There is little doubt that the income of a region in which a project is built will be increased. The disbursement of public funds for construction and the economic opportunities created by the project affect the incomes of residents in the area favorably, and since, on most projects, much the largest part of project costs is covered out of national tax revenues, the cost borne locally will fall far short of the

benefits. If regional development is a bona fide objective of the Federal Government, the regional effects of projects may be considered to outweigh in significance the effects on national income. Statistical investigations into the magnitude of incomes generated locally by the operation of irrigation projects indicate that income in associated businesses near the project is about 1.1 to 1.7 times as large as the income earned on the project.⁵ While most of this income represents diversion from one region to another, if the development of a certain region is weighed particularly heavily in Federal policy, it can be argued that the regional effects may provide a basis for project justification.

Two broad lines of argument have been used; on the one hand, it is contended that regions that have been laggard in developing should be the recipients of Federal developmental expenditures; on the other, regions that have been growing very rapidly, in part due to past Federal investments, must be given further investments to assure continuance of the high rate of growth. If both of these lines of argument are accepted, there is the implicit view that all regions in the United States should grow at the same rate. Given the diversity of resource endowments, and given the preferences of people to live in different places, this position in favor of uniform regional growth is indefensible. In the case of laggard regions, which are, in some cases, also the regions with lowest per capita incomes, the Government should give some sort of assistance. But whether water-resource projects are the best method of aiding the people is not at all clear. In the case of the rapidly growing regions, clearly there will be a need for public services, including the services supplied by the Federal Government, such as flood control and navigation projects. Since the Government has supplied these services in the old regions, it presumably should continue to do so elsewhere as the need arises. But where the subsidized public projects are the main cause of growth, they must be judged by their capability to contribute to the national economy, and not by their regional effects, for given a sufficient subsidization of certain key factors of production, such as power or transportation or water, economic growth can be stimulated anywhere.

The magnitude of economic activity that may be triggered in this way may be very large and the resultant regional benefit considerable. But as a matter of national policy, the extent to which this is merely diversion of activity must be kept in mind. The creation of regional economies under hothouse conditions, dependent on the continued largesse of the Federal purse, may be undesirable from many points of view, not the least of which is the resultant political pressure for continuance and expansion of the subsidies.

WATER RESOURCE PROJECTS AND BUSINESS CYCLE POLICY

The preceding discussion assumed that the economy is in full employment. In times of depression, the opportunity cost on the funds and the resources used for projects is very low, of course, and insofar as there are multiplier effects, the costs may actually prove to be benefits. In the event of serious depression, water-resource projects

⁵ These studies are summarized in M. E. Marts, *Use of Indirect Benefit Analysis in Establishing Repayment Responsibility for Irrigation Projects*, Economic Geography, April 1956, pp. 132-138.

are among the relatively few areas in which the Federal Government can step up the rate at which it contributes to the effective demand for goods and services. The evaluation procedures need to be adapted drastically for this condition, stressing the low opportunity costs and the employment-generating potential of projects.

In the depression of the 1930's it was found that a considerable period elapsed between the time the decision was made to use public works as a countercyclical weapon and the time significant employment effects began to be felt,⁶ a period commonly well in excess of a year. To some extent this timelag has been shortened. The coordinator of public-works planning in the Executive Office now maintains an account of the shelf of project plans in the hands of various agencies, and while the administrative and engineering capability to simultaneously undertake a large fraction of the shelf is quite limited, the rate of expenditures could be stepped up considerably. The large number of projects under construction at any one time, while undesirable from some points of view, does make possible the rapid expansion of outlays, simply by accelerating the rate of construction. But there still remain severe obstacles, of which the most important is the necessity for Congress to vote specific appropriations. While Congress is not in session, little can be done.

Water-resource projects would only be appropriate for coping with major depressions. For the typical minor cycle, lasting 2 years or so, the technology of project building precludes countercyclical variation. The typical project takes several years to construct; to phase the expenditure flow against minor cycles, a precision in short-run forecasting would be required which is beyond the present capability of economic science.

Should there be another major depression, water-resource and other Federal public-works programs can make a contribution. Given the size of the fluctuations in total effective demand that would be involved, and given the size of the Federal budget, it is clear that public works are no more than a minor weapon in the stabilizer's arsenal. At the present time, Federal water-resource expenditures are one-fourth of 1 percent of GNP and are little more than 1 percent of the Federal budget. This is no reason to overlook the potential, and particularly for the large multidam, multipurpose program on major rivers, depressions provide the opportunity to make large investments in this kind of social overhead at little cost.⁷

THE PARTNERSHIP APPROACH

Prompted both by ideological and budgetary considerations, the Eisenhower administration has sought to transfer some of the water-resource activities to private companies and to State and local units of government. Progress has been rather slow and the reasons are not hard to find. The users of the services are reluctant to surrender

⁶ U. S. National Resources Planning Board, *The Economic Effects of the Federal Public Works Expenditures, 1933-38*, Washington, 1940.

⁷ We have assumed that any future shortage of effective demand is of a short-run nature. If, at some point in the future, possibly after Government budget outlays have declined, there should prove to be inadequate investment opportunities as a long-run phenomenon, causing unemployment and an inadequate rate of growth, water-resource projects of the sort most likely to generate complementary investments could be considered as an offset. This point of view is expressed forcefully by Professor Hansen in *Trends and Cycles in Economic Activity*, Review of Economics and Statistics, May 1957, pp. 105-115.

the subsidies that came with the Federal programs; the State and local governments are not eager to take on responsibilities without Federal evacuation of some tax areas,⁸ and perhaps most important of all, the political struggles between advocates of public and of private power is still more or less in a state of stalemate.

Greater private and local participation in water-resource development would be extremely desirable. First, it is much the surest way to eliminate projects of no economic merit, for the local people will not be willing to bear the costs unless the benefits can really be expected to accrue.⁹ Also, if we accept the present limit on the national debt and the resultant pressure against undertaking public investments as one of our institutional assumptions, partnership—or completely private development—may provide the only means by which needed projects may be financed. In my view, these are overriding reasons.

So far, however, little progress has been made in assuring the comprehensive development and integrated operation of large river systems. Recent researches by Dr. J. V. Krutilla indicate that the losses caused by failure to assure private development which is efficient from the public point of view are likely to be severe.¹⁰ Under present law, private companies cannot be compensated for the increase in energy made possible at public dams located downstream from the private installation. This is an acute problem on rivers where hydroelectric development was started in public hands but is to be continued privately, for there is no incentive for the private company to build the proper amount of storage capacity into its reservoirs, or to plan its release schedules in a manner most beneficial to the whole river system.¹¹ The resultant losses can run into millions of dollars. Also, some of the outputs of projects are nonmarketable; for example, flood control cannot be sold, and so no revenues are produced. A private company responsible to its stockholders cannot be expected to incur large expenses to provide these free gifts to the area. Theoretically, the Federal Power Commission has the power to require private companies to provide such benefits as a condition of issuing its license, but as the researches of Dr. Krutilla show, in practice, the FPC exercises this power with extreme moderation. If there is to be an increase of private development of our water resources, serious efforts need to be made to find answers to this range of problems.

REVENUE REQUIREMENTS OF PROJECTS

In principle, costs incurred for irrigation, power, and municipal water supply are considered reimbursable; that is, the beneficiaries

⁸ Nor did State officials respond with much enthusiasm to the offer of President Eisenhower to transfer both some taxes and activities to the States. *New York Times*, June 26, 1957, p. 1.

⁹ Where the local political unit is large, some of the problems that have plagued the Federal program recur. The beneficiaries of projects will endeavor to get the rest of the community to subsidize them by financing projects partly out of general revenues. It is the failure of the beneficiaries to finance the projects which unlooses the political pressures which push governments into unjustified undertakings. For a billion-dollar example at the State level, see J. C. DeHaven and J. Hishleifer, Feather River Water for Southern California, *Journal of Land Economics*, August 1957, pp. 198-200.

¹⁰ J. V. Krutilla and O. Eckstein, *Multiple Purpose River Development*, Johns Hopkins Press (forthcoming), especially chs. 5 and 6.

¹¹ For some possible solutions to these problems, see Krutilla and Eckstein, *op. cit.*, chs. 5, 6, and 9.

are supposed to repay the costs over the life of the project, usually assumed to be 50 years. Navigation and flood control are not reimbursable, though local interests are required to make contributions of lands and easements for local projects. In practice, with the exception of power and water supply, local revenues and contributions have been extremely small. In the case of irrigation, no interest is charged and revenues from power are used to help defray the investment. To illustrate this procedure, table II summarizes the financial analysis of the irrigation investment so far authorized for the Colorado River storage project. If interest is ignored, total payments of irrigators plus the assigned power revenues will equal the irrigation investment. In fact, the Government does pay interest, and even if we use a rate as low as $2\frac{1}{2}$ percent, the irrigators pay only 6 percent of the total cost, power pays 49 percent, and the taxpayer 45 percent. This computation assumes that the power rates can actually be maintained at the high levels that are intended, a dubious assumption considering the rate of progress being made on atomic and solar power.

TABLE II.—*Summary of repayment analysis of irrigation investment of Colorado River storage project*¹

Source	Total payments, ignoring interest (in millions)	Present value of total payments ² (in millions)	Percent distribution of total payments, including interest
Payments of irrigators ³	\$36.6	\$15.2	5.4
Contribution from power revenues ⁴	246.2	139.7	49.4
Contribution of taxpayers.....	.....	127.9	45.2
Total.....	282.8	282.8	100.0

¹ Source: U. S. Congress, House of Representatives, Report on Colorado River Storage Project, H. Rept. 1087, 84th Cong., 1st sess. Our analysis assumes that the cost allocation is correct.

² We assume an interest rate of $2\frac{1}{2}$ percent.

³ Assumes equal annual payments for 50 years after a development period of 10 years.

⁴ Assumes equal payments for 50 years. Since actual power revenues will build up gradually, the contribution from power is overstated slightly.

On flood-control projects, local contributions cover 5 percent of the cost of the program, and are confined to local projects.¹² It would be difficult to make flood control completely reimbursable because of the large number of people who are protected and because communities other than the main beneficiaries of any project are unlikely to be willing to contribute, knowing that if the project is built the protection cannot be withheld from them whether they pay or not. Nevertheless, the Federal Government could insist on considerably larger contributions than it now receives, and if it encouraged the formation of flood-control districts, it could collect local contributions even in the case of reservoir projects, which are now exempt by law.

Our inland waterway system has traditionally been free of tolls. Local contributions are required for local works, but not on the waterways themselves. For the St. Lawrence seaway, strictly speaking an international project, it has been planned to impose tolls sufficient to make it self-liquidating, and it was on that basis that the authoriz-

¹² Report of the Chief of Engineers to the Subcommittee To Study Civil Works, published as vol. 3 of U. S. Army Corps of Engineers, Annual Report of the Chief of Engineers, 1951, pt. I, p. 337.

ing legislation was passed. There is now considerable agitation to eliminate the tolls.

In all of these fields, whether revenues should be collected or not is fundamentally a question of equity on which economics can shed no light. Whether the Congress chooses to redistribute income from the taxpayers to the project beneficiaries is an ethical and political issue. Nevertheless, the effect of the lack of revenue requirements on the efficiency of the water-resource program must be mentioned. Clearly here lies the main source of pressure for bad projects, and until this is diminished it is impossible to have the programs concentrated on projects of genuine economic merit. Also, with the severe fiscal needs of the Federal Government in these times, project charges should be considered a potential tax source. Surely money raised through charges on project beneficiaries would be considered an equitable tax.

CONCLUDING COMMENTS

America's water problem is receiving growing public attention. Newspapers run features on the threatening water shortage and on the possibilities of towing icebergs to southern California. There are severe shortages in many places, and the demands for water will continue to grow at a rate greater than the growth of the economy. Much research is needed to devise economical means of meeting this problem, and increased expenditures of Federal funds for this purpose can be expected to yield large benefits in the long run. Also, the growth of the economy's assets increases the potential losses from floods and generates continued need for additional control measures. Thus the significance of the problems and the need for solution can be expected to continue in the coming years.

The present water-resource program meets this challenge most imperfectly, however. In the case of at least half of all the projects that are being built, it is unlikely that their effect on national income will be positive; and even though they all represent additions to the Nation's capital stock, the return on many projects is so low that their net effect will be to reduce the rate of growth of the economy. The effect on regional incomes and growth is less ambiguous because of the large subsidies in projects; but regional effects, being in large part diversionary, are only a limited justification for national investments.

To improve the quality of the water-resource program, the following steps are suggested:

1. Improve the concepts of benefits and costs used for the economic analyses.
2. Make organizational changes in the executive branch of the Government to strengthen the process of review of project proposals.
3. Increase the level of user charges to discourage the political pressure for dubious projects.
4. Make legal and administrative changes to assure that partnership projects develop our rivers as efficient integrated systems.

Once the quality of the program is assured, we will be capable of dealing with the worsening water problems in the coming years.

WATER RESOURCES

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SOME VERY GENERAL CONSIDERATIONS

Federal expenditures relating to our water resources are intimately associated with the problems that have arisen in connection with water use and supply. Abstractly considered, water in association with land is our most fundamental natural resource and in its relation with the phenomenon of population growth has become an increasingly scarce commodity. Hence there can be no questioning that its proportionate supply and use provide the very underpinning for the growth and stability of the economy. In the production of goods and services the economic allocation of scarce water resources constitutes our most fundamental problem. But this problem has several different facets, depending upon how this resource is organized and used. It may be a matter of individual or collective use and supply. Thus we meet at the very outset of our consideration of this problem the question of its institutional orientation.

Should the supply and use of this resource be organized as a collective State function supported by taxation? Should it be organized on a less collective scale and supported by beneficiaries alone under a system of fees and special assessments? Should it be set up as a public utility where the supply and utilization are commercially organized under a system of governmentally fixed rates, or may the supply and utilization be safely left to individual initiative? Are combinations of these arrangements more suitable under given circumstances? These are political questions, the answers to which are a matter of public policy and come to us freighted with historical antecedents.

SOME HISTORICAL CONSIDERATIONS

From both an engineering and social point of view the major problems arising out of the development of our water resource may be summarized as follows:

1. The provision of a domestic and industrial water supply from surface or ground-water sources, adequate in quantity and quality. The great bulk of our population takes service from public utilities which are mostly public agencies. In rural areas private supply is still pervasive.
2. The companion piece to these water utilities are the sewer systems, again dominantly public. The systems are usually supported through a combination of taxes and special assessments, though there is a new tendency to place sewer facilities on the backs of water utilities through a system of water-rate surcharges. Private systems of industrial waste disposal and sewage treat-

ment also are designed to make headway against the growing water pollution.

3. Similarly, the growing intensity of floods requires measures of flood control by way of "upstream engineering," the construction of levees to confine high water and of reservoirs to reduce peak flows. Best results flow from combinations because intense rains give point to the quip of the proponents of reservoirs "that they would like to see 7 inches of rainfall perched on a leaf." They are organized as public agencies with public financing by means of taxes and special assessments.

4. Irrigation and drainage to regulate water supply for agricultural purposes by means of natural underground storage and artificial reservoir storage with appurtenant distribution systems and drainage collecting systems. These are usually organized as territorial districts or cooperatives.

5. Soil conservation to retard runoff and prevent sedimentation of downstream water courses. Soil conservation is accomplished by means of strip cropping, terracing, check dams, and similar structures. They are usually organized as soil-conservation districts with taxes and special assessments.

6. Aids to navigation, such as harbors and maintenance of adequate river channel depths by means of slack-water pools. Dams with appurtenant locks control water levels and water flows. Supplied by Federal agencies—Corps of Army Engineers, Public corporations—with Federal taxes and tolls (St. Lawrence seaway).

7. Hydroelectric power by means of dams, reservoirs, and powerhouses. Supplied by Federal, State, and local public agencies or as private licensees of the Federal Power Commission, financed by means of Federal or local public funds or private funds, but subject to reimbursement out of power sales.

8. Facilities for public recreation and maintenance of wild and fish life. They are provided by Federal, State, and local public agencies with Federal tax funds supplemented by imposition of fees.

Until the end of the 19th century Federal participation in the development of our water resources was decidedly limited, although the Congress had the constitutional power to regulate interstate commerce under the commerce clause. This power had been held to include navigation which gave Congress jurisdiction over navigable waters of the United States. It also included flood protection and watershed development. A further extension of this power authorized Federal generation and sale of hydroelectric power or its development by other agencies, public or private, under a Federal license. Regulation and disposal of water and land resources in the public domain stem from the property clause of the Constitution, under which the Reclamation Act was passed by Congress in 1902. With the spread of the movement for conservation of our natural resources, Federal activity, both regulatory and proprietary, was stepped up. Under the treaty powers of the Federal Constitution, treaties with foreign governments—and with Indian tribes—were held by the courts to be the supreme law of the land. They regulate and dispose of water resources in international streams. Under the compact clause of the

Constitution, States, with the consent of Congress, have apportioned the water resources of interstate streams among themselves.

FROM SINGLE PROJECT TO COMPREHENSIVE PLANNING

The last century and a half have witnessed the gradual evolution of our Federal water-resources policy from one which had in view the planning of single-project and single-purpose development of a given water resource to one which comprehended the progressive planning and development of multiple projects for multiple purposes for an entire river system. The growing realization that, for the best economic development and conservation of these water resources, a basinwide approach to the problem would be necessary was never more succinctly stated than in a letter by President Theodore Roosevelt transmitting the report of an early waterway commission :

Every stream should be used to its utmost. No stream can be so used unless such use is planned for in advance. When such plans are met, we shall find that, instead of interfering, one use can often be made to assist another. Each river system, from its headwaters in the forest to its mouth on the coast, is a single unit and should be treated as such.

However much the members of the second Hoover Commission disagree among themselves, they were as one with respect to this aspect of national policy :

(a) That water resources should be developed to assure their optimum use and their maximum contribution to the national economic growth, strength, and general welfare.

(b) That water-resources development should be generally undertaken by drainage areas—locally and regionally.

CRITERIA DERIVED FROM DIMENSIONS OF ECONOMY

In securing better utilization of our scarce, and hence costly, natural resources, economists and engineers have long sought to achieve what may be called economies of the load factor. As applied to electric-power production, the load factor has been defined as the ratio of the average power (average load) used to the maximum power (peak) used during a certain period of time. This ratio measures economy in the use of capacity already installed. A higher load factor expresses greater economic productivity. This is true because the same fixed cost of the plant when divided by the greater output of the plant operating at a higher load factor will yield a lower cost per unit of output.

Another dimension of economy is expressed by the diversity factor. Applied to power production, it is an economy which relates to the installation of power-producing capacity and arises out of the diversity in the time of individual peak requirements. If the demand for service comes at different times, the same plant capacity can be made to serve different customers. Hence, the diversity factor has been defined as the ratio of the sum of the maximum power demands of the subdivisions of any power system, or parts of a system, to the maximum demand of the whole system, or part of the system under consideration, measured at the point of supply. The effect of diver-

sity in bringing about savings in power installations can climb to a peak when there is diversity between the demands made upon individual power stations, and when these power sources can be interconnected by means of transmission ties into a regional power system.

A third dimension of economy has to do with the size and scale of operations. Load factor and diversity factor economies apply to small as well as large plants and are therefore independent of the scale of operations. With the expansion of the market, it is possible to secure fuller utilization of existing plants, but when this expansion becomes continuous it also becomes possible to increase the size of plants as the electric utility business has been doing for some time. Electrical operations started on a small scale, with plants serving customers only in the immediate vicinity. Soon the combination movement set in, with intervals of short-lived competition, but the end result was citywide and later areawide consolidations. Inefficient, high-cost plants were retired from service or relegated to carry only the peak load. The aim was to carry the continuous or "base" load by means of the most efficient productive instruments available. Another economy of scale arises from the technological fact that larger units of equipment cost less per unit of capacity.

A final category of economies are those of joint cost. Another way of stating this is to say that some products or services may be jointly produced. When one of the joint products is of greater economic importance than the other, the other may be called a byproduct, often rising to this economic status from being a waste product. The important point, however, is that the production of one product is technically so arranged that its production will of necessity lead to the production of the other. There is an extension of this principle when it is cheaper to turn out 2 or more products or services from 1 central process or structure than to produce them separately. The best exemplification of the operation of this principle is the Tennessee Valley Authority which so planned and designed the construction of dams as to regulate the Tennessee River for flood-control, navigation, and power purposes as true joint products. The joint production of these services realizes certain economies whose separate realization would have been more costly, if not impossible, if an attempt had been made to develop the river without using these multiple-purpose structures.

In general, the concatenation of these dimensions of economy in any organization, whether public or private, provides an opportunity to realize the optimum of production of goods and services and raises economic productivity to a higher power. This is the principle concealed in the quotation from President Roosevelt's letter. Bringing water for irrigation or urban water-supply purposes from a distance and over mountain ranges may create "heads" for the production of hydraulic power. The Los Angeles-Owens Valley aqueduct would be an example where joint costs are of the byproduct variety. In general, operations of most utilities, especially if they are multiple-service enterprises, illustrate the organization of these dimensions of economy in their operations. But its application need not be restricted to utilities.

The foremost examples of the operation of these principles, especially joint cost, as applied in the development of our water and energy resources are afforded by the Colorado River, the Columbia

River, and the Tennessee River. These Federal examples are what Max Weber would have called three ideal types of policy formation. Referring back to our previous discussion of the institutional bases for these problems, the Colorado exemplifies the States-rights and interstate-concept approach. The Columbia exhibits the old-line departmental agencies in action; that is to say, the Bureau of Reclamation, the Corps of Army Engineers, supplemented by the Bonneville Power Administration to provide some interagency coordination. The Tennessee approach was *sui generis*, in that the Tennessee Valley Authority was a Federal corporate instrumentality with a single, unified jurisdiction over the water and related resources of an entire watershed.

THE PROBLEM OF JOINT COST ALLOCATION

The prime focus of all controversy over the development of our water and related resources (How much development should there be? Who is to do it, public or private agencies?) has to do with the technique of joint cost allocation. Unless this has first been explored we are set adrift upon the field of hauling and pulling as to who should get the benefit of this dimension of economy. However briefly and inadequately, I propose to discuss this first before commenting on these three distinct types of procedure in developing water resources.

At the threshold of any consideration of the economies of multiple-purpose projects, whether State, Federal, or local, we meet this question of joint-cost allocation. One standard of judging the economic value of different employments of natural resources is to measure their comparative costs. Cost is not the only standard, of course, but it is the most abiding and universal.

All multiple-purpose projects, if their costs are to be properly brought to book, involve the problem of cost allocation. This was specifically recognized in section 14 in the Tennessee Valley Project Act. The TVA Board was required to investigate the present value of Wilson Dam and certain steam plants acquired from the Army engineers and also the cost of constructing all future dams "for the purpose of ascertaining how much of the value or the cost of said properties shall be allocated and charged up to (1) flood control, (2) navigation, (3) fertilizer, (4) national defense, and (5) the development of power." These "findings" of the Board, when approved by the President of the United States, were to be considered final and were to be used in keeping the "book value" of the properties. I may state parenthetically that no allocation was ever made to fertilizer production. Instead, the fertilizer plant was treated as a consumer of TVA power and bore its share of the cost as a ratepayer. National defense was likewise eliminated as the recipient of a joint cost allocation except during the war emergency. It was the present writer's assignment to make this first allocation.

Isolating joint costs

The first step in securing a segregation of project costs among the functions recognized in the act was to distinguish structures or identifiable parts of structures which served only a single purpose. For example, the powerplant portion of Wilson Dam was structurally capable of serving only for the production of power. Similarly, navigation locks serve only a navigation purpose. In the case of storage

dams like Norris, according to "rule curves" laid down for their operation, the capacity of the upper portion of such dams is reserved to store exceptional runoff and is therefore held available only for the single use of flood control. The remainder of the dams, however, usually their spillway sections, jointly serve all the various uses to which the particular dam is put. Costs attributable to these sections may thus be isolated as joint costs. However, an additional adjustment must first be made before all joint costs have been accumulated. If in the case of main river dams, the lock section and powerhouse section (usually at opposite ends) were removed, it would be necessary to replace them with a nonoverflow section. The estimated cost of such replacements should thus be subtracted from the cost of the lock section and powerhouse section and added to the joint cost. This operation puts all single-purpose expenditure on an incremental cost basis. Here then is the incidence of the allocation problem because some share of the remaining joint costs must be assigned to each of the single purposes.

The effect of public policies

In developing principles and methods of allocating joint costs for Federal projects one must bear in mind the legal limitations, both constitutional and statutory, in accordance with which these water-control works were designed, constructed, and operated. According to the TVA Act these works must provide at least an 11-foot channel to make possible 9-foot draft navigation in the Tennessee River and maintain a water supply for the same from Knoxville to the mouth of the river at Paducah. The dams on the main stem and on the tributaries must together control destructive floodwaters in the Tennessee, lower Ohio, and lower Mississippi drainage basins. In operating these works the Board was required to regulate streamflow "primarily for the purpose of promoting navigation and controlling floods." Insofar as consistent with these primary purposes, the Board was "to provide and operate facilities for the generation of electric energy in order to avoid the waste of waterpower."

In order to help liquidate costs, the Board was authorized to transmit and market this power. In other words, the Board was not at liberty in the development and operation of these multiple-purpose dams to give priority or even equal consideration to power but must give priority to navigation and flood control with electric generation subordinate thereto. The release of water from storage was accordingly not in the charge of the power department but in charge of water control departments. The allocation of joint costs had to recognize all of these limitations.

Further study of the allocation problem for TVA dams, as well as for other Federal projects, brought awareness of the dynamic aspect of joint costs. Under unified development plans for an entire watershed, single dams were only interdependent units in a progressive program. However critical the Muscle Shoals section of the river may have been for navigation, Wilson Dam in overcoming this barrier made only a partial contribution to the contemplated channel. Full value for navigation would emerge only after all the dams in the program were constructed. The same consideration applied to flood control and power. From this point of view it might have been better to defer allocation (which the act did not permit) until full development

had been obtained. However, if allocations were to be made on a dam-by-dam basis as the statute contemplated, a formula would have to be developed which would envisage both main river and tributary storage dams operating on an integrated plan. Such a formula would have to be flexible and capable of progressive application.

Another early step in the development of an adequate allocation technique required that expenditures be segregated into project costs and nonproject costs. Project costs were defined as those expenditures either directly necessary for any one of the functions or jointly necessary because of the coordination of different functions. Nonproject costs pertained to related objectives of silt control, reforestation, soil conservation, and recreational development.

One further troublesome question arose because the speed with which the navigation channel and flood protection was being achieved might have no reference to the rate at which related power facilities would be needed to supply the effective demand for electric power. If such power structures were not included in the original design and construction program, the ultimate economy to which the plans were adjusted would not be achieved. Happily, the accelerated defense program relieved the situation; but such advance expenditures, ultimately chargeable to power, might have been temporarily segregated in some account, labeled "Power installation held for future use."

THEORIES OF JOINT COST ALLOCATION

We come now to a discussion of theories for allocating the joint construction expenditures of multiple-purpose structures. For this purpose we suggest a fourfold classification which distinguishes the different theories according to their basic criterion: (1) Benefit, (2) vendibility or price, (3) use of facilities, and (4) cost.

Benefit theories

Allocations of joint cost based upon some criterion of benefit drew its chief protagonists from the ranks of flood-control engineers. A. E. Morgan, former chairman of TVA, was one prominent advocate. It was recommended in reports by the National Resources Board and its subcommittees, by the Mississippi Valley Committee and by various regional planning committees. Historically, the benefit theory had its origin in the law of special assessments where the cost of drainage or irrigation works, flood-protection works, street improvements and park facilities were assessed against abutters or properties organized into districts in proportion to special benefits conferred. It should be noted, however, that this procedure was used only where a single purpose was involved and all drew the same kind of benefit from the improvement. In such cases the total assessment was limited strictly to the cost of the improvement but assessed to individual beneficiaries in proportion to ascertainable special benefits.

Proponents of the benefit theory proposed to extend the use of this method of allocation to multiple-purpose dams conferring more than one class of benefits. All benefits were to be reduced to the common denominator of economic value as measured by money.

The benefit theory was rejected by the TVA Board over the objection of Chairman A. E. Morgan, and this action became one of the reasons for the controversy which raged inside the Authority. The

controversy led ultimately to the dismissal of Chairman Morgan by President Franklin Roosevelt and to an investigation of TVA in 1939 by a joint committee of the Congress, whose majority report upheld the action of the Board in disapproving the benefit theory.

The benefit theory was rejected for two reasons, one practical, the other theoretical. It was rejected because of the great practical difficulty of securing definite measures of the economic value of benefits in advance of their full realization. It was also rejected because the theoretical infirmity of benefit as a means of cost allocation resides in the fact that the reasoning is circular. To measure the share of joint costs to be borne by power users by a forecast of the future economic value of power was placing the cart before the horse in any measure of cost of service. The relative amounts of other benefits which the public will derive, particularly from navigation and flood control, can only be effectively measured years after the projects have been completed and the traffic or utilization of flood protection develops.

Conservative forecasts of the economic value of the different kinds of benefits to be realized in the future have their place in comparing their dollar or social values with a forecast of the costs of construction and operation, the so-called benefit-cost ratios. These are promoters' ratios by means of which the different projects may be compared with each other in order to determine their relative economic feasibility. They are a part of the authorization and appropriation process which I do not have space to consider. Where the margins of advantage are larger (let us say 2 to 1 as compared with 1.5 to 1), greater economic feasibility may be indicated. They supply a basis for the calculus of probabilities and serve to guide the direction which public or private investment of capital may take. They are useful, probative techniques for the exercise of judgment in securing authorizations of projects. They do not have the same validity as an economic test of reasonable allocation of project expenditures already made for purposes of cost reimbursement.

Vendibility theory

Economists have considered the pricing of commodities or services produced at joint cost. Joint products, produced for an open market under conditions of effective competition, will tend to be sold at prices which between them will equal their joint cost of production plus a competitive profit. But the accrual of the total receipts will depend upon the relative demands for each. Should the marketing of one of the joint products entail some special expense, the price for this product must cover at least these special, incremental costs and some share of the joint costs proportional to the relative intensity of the demand for this product. In short, selling joint products is a case of disposal at "all that the traffic will bear."

A Committee on Financial Policy inside the TVA, in making recommendations to the Board, took the following position:

This theory of pricing joint products is of little assistance to us in suggesting a method of allocation unless the fundamental assumption upon which the theory is based also applies in the disposal of the services rendered by multiple-use dams. This assumption is that the prices of all the joint products are fixed by the interplay of demand and supply in an open market. If that were true, the allocation of joint

costs would be accomplished automatically through market demand. Hence we call this the vendibility theory of allocation.

In applying this theory to the Authority's projects, it should be noted that of the services rendered by multiple-use dams, only two—fertilizer and power—are vendible or partly vendible commodities under the provisions of the Tennessee Valley Authority Act. Navigation and flood control are not subject, or at least not yet subject, to any system of charges or of special assessment against beneficiaries. Even the special costs traceable to navigation and flood control may not be recovered by means of tolls but are regarded (along with joint costs) as a general cost of government.

Under plans adopted by the Authority for distributing fertilizer, even the special costs assignable to fertilizer production will not be recouped. All distribution of fertilizer transcending merely experimental use aims to secure large-scale distribution for purposes of large-scale demonstration. The objective is mass education of practical farmers in the use of fertilizer, but under circumstances which will make possible an evaluation of the best procedure. Except, therefore, as fertilizer production consumes power which is paid for through a system of interdepartmental charges, it will not be the source of a dependable income sufficient to liquidate a share of the joint cost. * * * However, since large quantities of electric power are required for the fertilizer program, the Board has taken the position that with respect to such use the fertilizer works is to be given the status of an ordinary commercial customer of the electricity department. In this respect, the fertilizer works makes its contribution to cost liquidation as does any other electrical customer, with this difference; that the production of fertilizer can, in the main, be adjusted to the use of secondary power.

The vendibility theory thus breaks down because there is no open market in which the services produced by the Authority under conditions of joint supply can be sold.

Use of facilities theories

Theories of a third type would distribute joint costs upon the basis of the comparative use of the joint facilities. To each single function would be allocated such share of the joint cost as is measured by the extent of its use. This method is commonly employed by cost accountants. The oldest illustrations are derived from the railroad field where apportionments of common cost between the freight, mail, express and passenger branches of the service are made upon some comparable use units like the car-mile, passenger-mile, ton-mile, or other convenient measure.

A use theory breaks down when there are no common use units or where differences in the use units of different utilizers are so great as to preclude their being reduced to some comparable basis. Since the acre-foot of reservoir capacity or the acre-foot of water released are available as measures of joint use of dams, the applicability of a use theory based upon the acre-foot of storage or reservoir capacity was carefully considered.

I cannot in this summary bring a discussion of details. Nor can I do more than mention certain companion theories based upon equal apportionment where the potentiality of use is approximately the same, or upon differential apportionment where the utilization of stored water can afford some clue as to the comparative use of facilities. It must suffice to state the conclusion of the financial policy committee on this point:

Division of the cost should not be made solely on the water-use theory since the storage capacity is capable of serving each function, even though it may not be used by one or more of the functions in any year. Thus the method, if applied, should involve a combination of both capacity and water use, such combination being subject to individual interpretation in connection with each project in applying the method. Because of the fact that the Authority's projects, as outlined in its report on the unified plan for the development of the Tennessee River system, are only partly in process of construction and that, therefore, adequate data for a complete application of a combined reservoir capacity and water-use theory will not be available until much later; the application of this type of use of facilities theory is at present attended with difficulties.

Cost theories

The only cost theory having validity is one which elsewhere I called the alternative-cost-avoidance theory. As is now generally recognized, by constructing dams which serve multiple purposes, the TVA was able to achieve savings in construction expenditures over what these expenditures would have been if single-purpose dams had been constructed. The planning and construction of dams for navigation, flood control and incidental power on a watershed basis thus enables the Authority to achieve the aforementioned economies of joint construction cost.

Since the aim in combining multiple purposes in a series of structures is the savings to be achieved, it is also possible to use the ratio in which these higher expenditures are avoided by joint action as a basis for allocating joint costs. In other words, in applying the principle of alternative cost avoidance, the measure of participation in common expenditures is the alternative cost for which these common expenditures have been substituted.

In applying this method it is necessary to secure estimates of the lowest alternative cost by means of which substantially the same quantity and quality of service for each separate function can be obtained. The fundamental assumptions which underlie the cost estimates for single-use structures must be as reasonable and practical as they can be made. They must be based upon experience and arrived at after adequate investigation. On account of the scarcity of available sites, the construction of a single-use dam at a given site may make impossible the achievement of other purposes for which the given site is likewise most suitable. This practical difficulty does not prevent the use of calculated alternative costs of single-use projects for purposes solely of allocation of multi-use investment.

In order to resolve a difference of opinion between members of the technical staff of TVA, the alternative-cost-avoidance theory was re-

christened "alternative justifiable expenditures." In this more palatable form, suggesting the benefit theory so strongly urged by A. E. Morgan, the committee was able to agree upon a definite mode of allocation procedure.

THE TVA FORMULA OF JOINT COST ALLOCATION

The alternative justifiable expenditure theory has been consistently applied by TVA with the beginning of the period of normal operations, and its accounts have been formalized upon the basis afforded by this formula of joint cost allocation. The method was approved by the majority report of the joint congressional investigating committee of 1939 and favorably commented upon, as well as used, by the Reclamation Service. The Federal Power Commission, in response to a congressional resolution, investigated TVA allocation procedures in 1949 and generally approved the method.

In order to illustrate these allocation procedures, we have rearranged the findings of the FPC into a table which summarizes the allocation as of June 30, 1945, when the 9-foot navigation channel required by statute had been achieved. In the table, section A shows the segregation of total cost between joint costs and direct costs. Joint costs of \$345,633,150 of the multiple-purpose system must be allocated. This is accomplished in section B. The first step is calculating the costs of alternative single-purpose systems capable of equivalent performance. Subtracting the actual direct costs not avoided provides a measure of alternative costs avoided. A comparison of actual joint costs of \$345,633,150 with alternative single-purpose costs avoided of \$611,023,099 provides a calculated measure of the economy of joint cost. The allocation is made upon this basis. Section C merely records the total investment costs by adding in other items such as chemical plant, construction in progress, etc.

TVA allocation procedures, 16-project multiple-purpose system, June 30, 1945

A. Total investment costs-----	\$562, 774, 051
Direct navigation cost-----	41, 278, 423
Flood control-----	47, 262, 000
Power-----	128, 600, 478
Joint cost of multiple-purpose system-----	<u>345, 633, 150</u>
B. Alternative costs avoided :	
Navigation-----	217, 532, 000
Dredging saved-----	8, 000, 000
Total-----	<u>225, 532, 000</u>
Flood control (storage of 11,162,000 acre-feet)-----	227, 704, 000
Power (capacity of 856,000 kilowatts)-----	<u>374, 928, 000</u>
Total-----	<u>828, 164, 000</u>
Subtracting direct costs not avoided leaves alternative costs avoided :	
Navigation (30.16 or 30 percent)-----	184, 253, 577
Flood control (29.53 or 30 percent)-----	180, 442, 000
Power (40.13 or 40 percent)-----	<u>246, 327, 522</u>
Total (100 percent)-----	<u>611, 023, 099</u>

Allocating actual joint costs on preceding percentages:	
Navigation.....	\$103, 689, 945
Flood control.....	103, 689, 945
Power.....	¹ 138, 253, 260
Total.....	345, 633, 150
Total system—adding direct to joint costs:	
Navigation.....	144, 968, 368
Flood control.....	150, 951, 945
Power.....	438, 856, 667
Total.....	734, 776, 980
C. Total investment all purposes:	
Multiple-purpose reservoirs.....	562, 774, 051
Single-purpose hydro.....	43, 828, 484
Fuel-electric plants.....	27, 816, 789
Other electric plants.....	100, 357, 656
Chemical plant.....	10, 620, 451
General plant.....	13, 004, 172
Construction in progress.....	29, 637, 650
Unamortized acquisition adjustment.....	1, 916, 299
Prelim. investigations.....	136, 398
Total.....	790, 091, 950

¹ Other power costs to be added, \$172,002,929.

AGENCIES FOR COORDINATION AND PLANNING

Closely connected with the foregoing substantive aspect of cost allocations is the question as to who has the primary responsibility under the statutes in making them. One of the criticisms has been that there has been a signal lack of consistency with respect to the application of principles and methods.

The greatest degree of uniformity has been achieved by TVA where the Board of Directors make the cost allocations. They become final for accounting purposes with the approval of the President. Under reclamation law as amended by the Reclamation Project Act of 1939 the Secretary of the Interior has the responsibility of making them for projects concerned with irrigation, water supply, power, navigation, and flood control. The only other agency which has been given a major share of responsibility has been the Federal Power Commission. It was specifically named to allocate costs to power in the Bonneville Project Act and the Fort Peck Act. Inferentially the Commission also has responsibility under the Rivers and Harbors Act of 1945 with respect to the McNary project on the Columbia River and certain projects on the Snake River. The Flood Control Act of 1944 provides that the FPC approve rates for the sale of surplus power from dams constructed by the Corps of Army Engineers but that the actual sale of the energy be in the hands of the Department of the Interior. Inferentially again this may give the Commission some jurisdiction over cost allocations since these are the basis for the general level of rates. On the other hand, it has been pointed out by the Commission and others that with respect to Missouri River projects and projects throughout the country constructed by the Army engineers no provision has been made with respect to cost allocations

to power development. This dispersion of responsibility is an important factor in importing a great amount of uncertainty and instability into the economics of water resources. The Jones subcommittee which investigated this specific subject in 1952 came to the conclusion that proposed allocations be initiated by the construction agency but that the Bureau of the Budget be designated as the executive agency to approve final allocations.

A perplexing aspect associated with this generic problem has to do with reimbursement policy as was recognized by the Cooke Commission in 1950. Cost allocations, rate policies and reimbursement are tied together in making a decision as to who should be the paying partners. Multiple-purpose projects that involve the allocation of reimbursable costs in the form of water and power rates, special assessments and fees, and that involved also the determination of subsidies from the Federal Treasury are hard projects to deal with.

Irrigation projects have been most troublesome so far as fixing the length of the repayment period is concerned. To assure that a given project be classed as economically feasible, it was provided from the very beginning of Federal investment that these funds be made repayable by means of repayment contracts but without interest. First fixed at 10 years in 1902, the repayment period was extended to a maximum of 20 years in 1914, to 40 years in 1926, and in 1939 to 50 years with a 10-year development period added. Special statutes have expanded the reimbursement schedule to 68 years, including a development period. In the case of "sick projects," Congress has brought relief by providing for payments of over 100 years with additional chargeoffs where lands proved to be nonirrigable. Among the reimbursables, the irrigation function has had the poorest history.

Among the nonreimbursables, the navigation function has long been a thorn in the flesh of land transport agencies, particularly of the railways. The historic policy has been to provide these waterways toll-free to users whether they be common carriers, contract carriers, or private carriers. Recently there have been some significant exceptions in the case of the Panama Canal and the St. Lawrence seaway. With present-day standards of construction and operation, bulky and heavy raw materials and commodities important for agricultural and industrial production have found inland navigation to be the cheapest mode of transport. Again, historically, waterway improvements have been used to secure reductions in railroad rates which the carriers by rail were willing to grant to keep the traffic on the rails. This loss in revenues has been recouped by charging higher rates on non-competitive traffic. Railway management has long recognized that this "erosion of the rail rate structure" has been a serious consequence of free waterways. This reduction in the price of rail transport has been regarded and measured as one of the "benefits" justifying the cost of waterway improvements by the Army engineers. But waterways have also created traffic, particularly on the Great Lakes and the upper Ohio River, which could only move by water.

Such wrong-headedness of our historic transport policies is finally being recognized in a growing demand that the "inherent advantages" of water transport, to quote the Cooke Commission, "be integrated into a broader program designed to provide the Nation with an economical and efficient coordinated transportation system, including railroads, motor transport, waterways, and airways. In such a coor-

minated system all forms of transportation should be considered as complementary rather than competitive with each other." In this attempt at coordination, the Cooke Commission suggested the imposition of user charges or tolls based upon full costs, thereby yielding a return on these Federal expenditures. The second Hoover Commission of 1955 makes the more moderate proposal "that Congress authorize a user charge on inland waterways except for smaller pleasure craft, sufficient to cover maintenance and operation and authorize the Interstate Commerce Commission to fix such charges."

It is my conviction that the diverse and conflicting nature of the public and private interests involved in Federal, State, and local expenditures for water resource development make them a proper subject for a series of congressional inquiries with due recognition of all the conflicting interests involved.

SOME ISSUES FROM CURRENT PROJECTS

In the space that remains, I will state my own position as to some of the issues that arise out of current projects.

The most important issue is that in adopting the river basin, multiple-purpose approach, we do nothing to subvert that approach for transitory or temporary reasons. For best results the operation of these projects must be hydraulically and electrically integrated.

The Tennessee Valley Authority has achieved the status of a going concern, with benefits accruing both nationally and locally. It is carrying out the allocation, ratemaking, and reimbursement policies laid down by Congress in the Tennessee Valley Project Act as amended. In the course of the development of these policies, TVA achieved complete control of the territorial market in which its surplus water-power must be sold, in order to reimburse power costs and help liquidate other costs attributable to other public purposes. Because it is definitely in the wholesale power business with its distributors dependent upon it for economical supply, TVA should be authorized to function as a public utility. It should be authorized to issue revenue bonds because its power operations are being carried on under the proprietary power of the Federal Government. In that way TVA can relieve the Federal budget of expenditures that are truly reproductive. It makes payments to local and State governments in lieu of taxes and it can make similar payments into the Federal Treasury. It should be able to amortize a portion of the Federal investment from taxation in order to establish corporate equity which will support its bonded indebtedness. TVA is not a conspiracy directed against the surrounding private utilities. It grew up and was nurtured in the soil of ineffective regulation which characterized the predepression period, particularly in the South.

The Pacific Northwest, with its dependence upon the water resources of the Columbia River, provides an opportunity for testing the efficacy of what may be loosely called the partnership plan of natural resource development. The significant rise of public power agencies even before Columbia River development began, like the cities of Eugene in Oregon and Seattle and Tacoma in Washington, provide, together with the previously existing private utilities, a solid base for regional participation. Subsequently, the setting up of public-utility districts and cooperatives, the organization of the Bonne-

ville Power Administration as a marketing agency, and the creation of the Northwest Power Pool during World War II as an integrating device, have further enlarged the base for cooperation between the public and private sectors of this regional power and water resource economy.

Evidence that such cooperation can be worked out is found in the licensing by the Federal Power Commission of the Grant County Public Utility District to construct the Priest Rapids project on the Columbia River. To attain this end, the preference clause in the Federal Power Commission Act of 1920 was indispensable. Power from this dam will be sold to 8 public agencies and 4 private utilities, with 36½ percent of the total output reserved for the Grant County Public Utility District.

With respect to the nonpower purposes of this multipurpose project, the license provides that the district must so construct the dam as to make possible the addition of a navigable lock at a future date. It also provides that the district must at its own expense provide flood-control storage equivalent to the flood protection now provided by the natural constriction of the channel. The district must also provide flood control by advance release of water from its reservoirs if requested by the Corps of Engineers, though for this operation the Federal Government will pay compensation to make up for the lost electric energy. It remains to be seen whether these somewhat complex arrangements can be made to function as effectively as does the unified control exemplified by TVA.

Another example of the partnership policy in action is the Puget Sound Utilities Council whereby the cities of Seattle and Tacoma, the Snohomish and Chelan Public Utility Districts and the Puget Sound Power & Light Co. are cooperating in the construction of multipurpose dams that are a part of the unified plan for the development of this watershed. The principal criticism that has been and can be made of this arrangement is that the Bonneville Power Administration and the other Federal agencies will lose their power to plan and initiate projects thereby failing to control the pace and sequence of development.

In the Pacific Southwest where the compact approach was used in the development of the water resources of the Colorado River, further promotional activity, in the lower basin at least, is moribund because the parties to the compact must await the outcome of litigation over water rights. The original weakness in the plan was that the apportionment of water to the States in the lower and upper basins had been made with inadequate records of the quantity of runoff in the river. Although much in the way of physical development has actually been accomplished, further programs under the compacting procedure will be slow and costly.

THE USE OF NATURAL RESOURCE EXPENDITURES TO PROMOTE GROWTH AND STABILITY IN THE AMERICAN ECONOMY

Lawrence G. Hines, professor of economics, Dartmouth College

Seldom has a statistical projection excited so much enthusiasm as the trend line of American economic growth. Like the rainbow with the pot of gold, although it describes no descending arc, the growth trend promises leisure and plenty in the not distant future. Economic growth, generally indicated by increasing gross national product, is more often than not advanced uncritically as an important and laudable goal of American economic activity. Moreover, economists find themselves in unusual agreement on the major requisite for promoting economic growth: Maintain (or create) ample opportunities for investment. Of course there are minor discords over the precise role to assign to consumption and investment, but the historic 16 or 17 percent investment component of gross national product generally has been accepted as a reasonable benchmark of how much capital formation we must have to prevent a serious dip in the growth trend. At the same time, investment of this magnitude is thought to provide the necessary underpinning of the economy and facilitate the achievement of the somewhat antithetical goal of stability. But at this point more caution must be observed.

Although economic growth usually has been achieved with a stable capital-output ratio, it is not a sound inference that economic growth can be endlessly stimulated by raising the capital side of the equation—or more properly, it is not a reasonable premise to assume that capital accumulation can be indefinitely increased.¹ Capital accumulation must be based on sound technological innovation, new markets, or other demand-increasing avenues of profit-making opportunities else the rise in output will founder on the diminishing marginal productivity of later capital installations. In short, a boom level of investment may overreach the optimum ratio. But if the innovation or “newness” achieved by capital rationalization is underwritten by consumer purchases, we can tilt the growth line more sharply upward.

It is commonplace for economists to avoid the question of the social worth of economic activity (at least when viewing the output of the market economy) but certainly Government policy cannot ignore this question. Assuming that we can push the rate of growth in the American economy substantially above its present level, or for that matter, maintain it at its present level—should this be an overriding objective of Federal policy? Although growth in one sense is inseparable from the announced objective of stability, that is, in its

¹ See A. H. Hansen, *Economic Growth and Stability, Federal Tax Policy for Economic Growth and Stability* (Washington: Joint Committee on the Economic Report, 84th Cong., 1st sess., November 9, 1955).

counteraction to a downturn in economic activity, some of the increase in economic output of the American economy is devoted primarily to satisfying the consumer's passion for keeping up-to-date: pointed shoes, and Easter-egg cars. Moreover, consumer acceptance—even clamour—to spin the economic wheel of wealth faster to keep from going backward should not blind us to the fact that such consumer demand is largely implanted by the producer. Although economists may understandably feel uneasy if called upon to appraise the worth of such accelerated obsolescence, a critical choice may confront the Government policymaker in deciding between alternatives that will have less growth stimulation for the American economy, but which may possess intrinsic merit or strengthen the economy in important areas. At the same time, capital growth is itself temporarily responsible for a decrease in consumers goods. The drive for newness in capital stock necessarily reduces the production of consumers goods during the period of capital creation. If this accelerated obsolescence is produced primarily by a jockeying for position among major producers, the resultant consumer benefit may be slight indeed and at times have virtually no effect upon the positions of the competitive contestants.

To meet the requirements of public policy, the economist's crude dollar measure of productivity (or growth) of the economy must be refined by further analysis. Depending upon the preeminent objectives of society at the time, e. g., increased capacity for war, enhancement of public welfare, improvement of international goodwill, etc., some types of economic and noneconomic activity may contribute more to the accomplishment of these objectives than others. Thus, it is impossible to ignore the fact that equal units of national income are not equally productive in attaining given objectives. Although it may not be possible in many cases to substitute one type of resource-using activity that promotes a given societal goal at the expense of another resource-using activity that has a neutral or negative effect, we should recognize that some of the most productive activities undertaken in our society have little effect upon the generation of gross national product. For example, secondary and tertiary effects of consumer spending and induced private investment may be very meager from a program to increase educational opportunities and stimulate the arts. Indeed, gross national product may initially fall as resources are withdrawn from the labor market for a time and the net (crude) effect of such a program may be to stimulate the economy much less than investment that calls forth a demand for brick, mortar, and machines. But if not now, at least eventually we may reach an imbalance in the accumulation of brick, mortar, and machines in relation to the opportunities for cultural expression and development. We may even reach the conclusion that transfer payments may substantially enhance productivity if they result in equipping a segment of our society to contributing more satisfactorily to the accepted goals of our society. It is the continuing obligation of our governmental organizations to prevent such an imbalance from seriously impairing the productivity of our society.

The twin goals of growth and stability are to a large extent the product of preoccupation with problems of the great depression and post-World War II eras. We want to avoid a return to the economic distress of either, but in our concentration on problems of the past

we may fail to recognize more important needs of the future. At the same time we are sometimes inclined to deplore any divergence from stability and treat moderate inflation and deflation as equivalent evils. Quite possibly we fear inflation too much, at least the type of inflation that has mildly harassed the American economy during the past 10 years. Although we can posit a constant growth rate and a dead level of stability, such a situation seems so unlikely that it is better to err on the side of mild inflation than moderate deflation. Such a course has its disadvantages and inequities: The fixed income group may be seriously distressed, employers may face the pinch of a tight labor market,² tax adjustments upwards may cause discontent, etc., but there are compelling compensating factors in the general strengthening of the economy and the ascendancy of lower income families to higher income positions. Compared with the last period of normalcy of the 1920's, our society is better off economically in almost every way: Home and farm ownership has increased, savings per family has virtually doubled, inequality in income distribution has decreased. On the basis of rational economic choice, moderate inflation does not appear to be too great a price to pay for such developments. This does not mean that public policy should be unconcerned about checking inflation and indifferent to the singular hardship it may cause among certain groups. We should maintain an interest in stability of our economy and stability of the purchasing power of the dollar, but we should be more than critical of a program that is willing to abandon stability of relatively full employment to attain neat stability of purchasing power. We should in turn devise special programs to meet the needs of those groups particularly distressed by a mildly ascending price level.

THE THEORY OF PUBLIC EXPENDITURES

In a short time we have come a long way from the dictum of Jean Baptiste Say that "The very best of all plans of [public] finance is to spend little." In approximately 25 years, spanning 1929 to 1955, total Federal, State, and local expenditures have moved from less than 10 percent of gross national product to slightly over 25 percent, with 1943 and 1944 war expenditures coming close to half of the gross national product for those years. Moreover, the rise in government expenditures over this period has occurred almost entirely at the Federal level, with State and local expenditures in 1929 over twice as high as Federal expenditures—7.3 percent of gross national product for State and local and 2.5 percent for Federal, while in 1955 the State and local proportion of gross national product had risen only 0.2 of 1 percent to 7.5 percent, but Federal expenditures had increased to 17.7 percent of gross national product.

With combined Government expenditures constituting slightly over one-fourth of total gross national product, it has become a widely accepted truism that one of the most important forces for inflation or deflation lies in the taxation and expenditure policies adopted that affect this decisive portion of our national product. In short, the role of public expenditures has changed over the last 20 years from

² See Paul A. Samuelson, *Full Employment Versus Progress and Other Economic Goals, Income Stabilization for a Developing Democracy* (New Haven: Yale University Press, 1953, M. F. Millikan, ed.).

relatively minor outlays for activities that could not easily be undertaken through the private economy to a myriad of governmental functions and duties involving a different level of expenditure. This change has created a new threat and a new opportunity. If this quarter portion of gross national product can be brought under rational, decisive control, it may greatly assist in alleviating the problems of insecurity and instability that have plagued us in the past. If it cannot, we may be attempting to predict and control the course of an economic tumbleweed. But in either case, we can no longer view public expenditures purely from the standpoint of whether particular outlays are desirable or undesirable in their own right; we are forced to think in terms of the magnitude of the total expenditures and the fiscal appropriateness of particular outlays. Another dimension, which has various subdimensions, has been added to the problem of the selection of Government activities.

Briefly, these well-known major fiscal dimensions may be separated on the point that divides inflation and deflation. Historically, of course, our original concern with the countercyclical features of public expenditure programs was directed toward deflation and generally, since public expenditures demonstrate a pronouncedly greater flexibility in an upward direction, we have thought of expenditures as appropriate primarily as a means of stimulating economic activity rather than dampening down its upward thrust. Taxation and monetary controls have been relied upon and prescribed with more success in meeting the problems of inflation. But it is impossible to ignore the fact that public expenditures of one-quarter of gross national product cannot really be thought of as neutral or passive, even if income and outgo are perfectly balanced. It makes little difference whether a deficit is created by lack of taxes or excess of expenditures, or that an overbalance of receipts over outlays is the result of curtailed expenditures or increased taxes. The important fact is that large expenditures do provide an opportunity for curtailment, although there may be compelling reasons for not pressing this fiscal advantage. A rational approach to public expenditure policy cannot ignore the consideration of the suitability of different types of public expenditures for fiscal control, although the decision may sometimes be that certain government functions are so important that they must be maintained irrespective of their fiscal inappropriateness.

Countercyclical fiscal policy as a means of combating deflation was embraced tentatively during the later period of the great depression. The experience during this period was somewhat inconclusive, but the trial maneuver was long enough to provide clues to the requisites and limitations of positive fiscal policy. The concern of this paper is with expenditure policy, although it is unrealistic to ignore the important role of taxation and borrowing.

The primary lesson of the depression appears to be that the magnitude of deficit expenditures (and/or tax relief) must be sufficiently great to compensate for the decline in consumer purchasing power. Moreover, the public expenditure must carry with it sufficient stimulus to encourage the private economy to take up again the full employment level of investment, else the recovery will be tentative and short lived. In other words, public expenditures must not only fill the gap resulting from decreased private consumption and investment, but provide a rejuvenating force that will restore these activities to their

previous vigorousness. It is apparent from a close inspection of our experiences during the great depression that our expenditure policy was not sufficiently vigorous to achieve this goal. During the early period of the depression total expenditures by State, local, and Federal Government for public-works projects were actually below the levels of the late 1920's, largely as a result of drastic curtailment of State and local outlays. This cut heavily into the normal government contribution to national product. At the same time tax increases, rather than tax relief, helped to counteract the possible stimulus to recover from deficit spending. Partly because of the insufficiency of government deficit spending, partly because of fiscally inappropriate tax policies, and partly because of the hostility and suspicion of this new tool of deficit finance, the American economy had to wait for recovery to be achieved by the deficits of World War II.

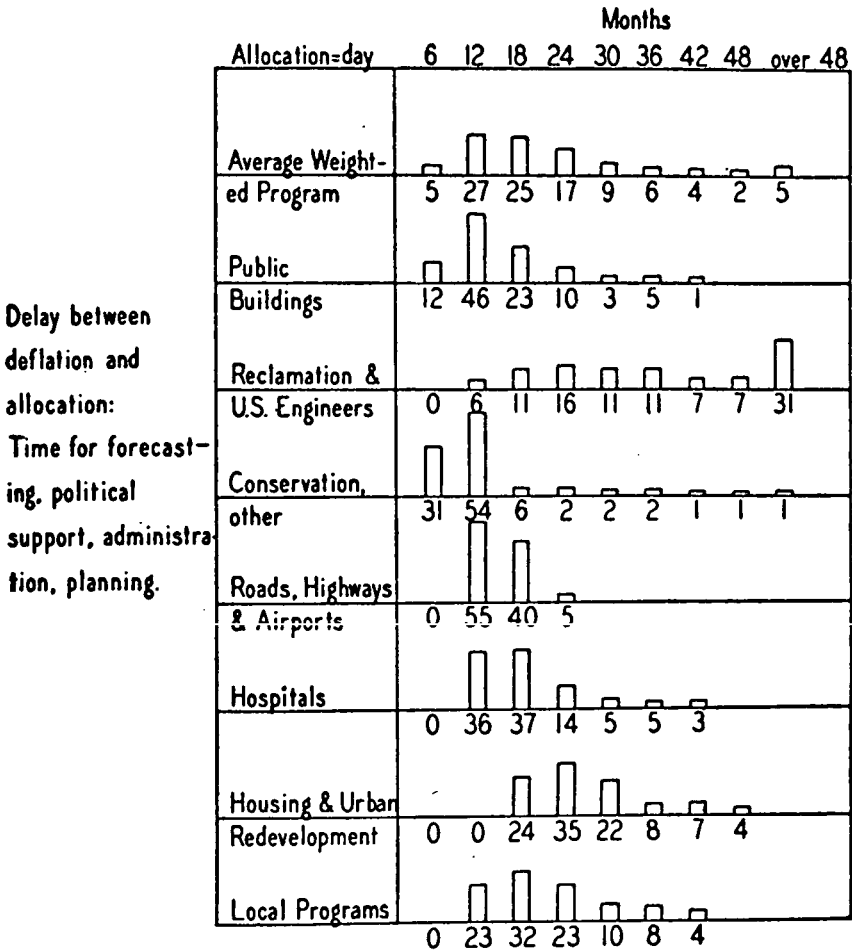
A lesson not so apparent from the experience of the great depression is that public expenditure policy is a cumbersome and unwieldy thing. It is sometimes assumed that the time required to initiate a full-scale Federal public works (expenditure) program during the great depression was largely the result of indecision and lack of experience with compensatory finance. Certainly the unfamiliarity with this new tool must account for considerable delay in its use, but even after spending decisions have been made and allocations of funds achieved, a distressing delay must take place before the funds circulate in the economy in amounts sufficient to have any significant effect in raising the level of economic activity. Ideally, public expenditures should be subject to the smallest possible controlled variation during a given expenditure period: 3 to 6 months' lag between decision to spend and the accomplished fact of spending. Actually, public expenditures do not lend themselves to anything like the precision of control necessary to promote great confidence in their use. It is a misconception to believe that the lag in the stimulating effect of public expenditures can be overcome by having an administrative organization ready to undertake projects and a shelf of plans already certified. The lag between appropriation or allocation time and the peak impact of spending is so great that had we attempted to counteract the recessions of 1948-49 and 1953-54 with extensive expenditure programs the peak impact of such activities would have occurred in time to add further embarrassment to our attempts to control rising prices. Although some types of public expenditures lend themselves to more sensitive control than others, for the most part the use of public expenditures as a counteracting influence for anything other than a well-established, serious depression does not appear appropriate. The more resilient approach through tax policy seems to offer prospects of greater success.

The sluggishness of public works is well illustrated by public housing expenditures, frequently designated as a desirable objective of Federal expenditures, partly because of the stagnation in the construction industry which generally accompanies a recession. Persuasive arguments appear to favor stimulation of the construction industry through some form of public housing program: The administration organization for undertaking a Federal housing program exists in at least a modified form; our Federal Government has probably as much experience in housing public works as any other large-scale undertaking; housing construction uses large amounts of manpower

and materials, hence promising secondary and tertiary stimulation of the economy; to some extent housing projects can be undertaken in localities where the depressed condition of the construction industry is greatest and where the greatest benefits from stimulation may be expected; Federal assistance for housing development and community slum clearance is a generally accepted function of the Federal Government, affording the opportunity for Federal cooperation with State and local governments.

The great disadvantage of a large-scale housing project is the lapse of time between the allocation of the funds for the program and the time at which the expenditure finally affects the private economy. As is shown in chart I, a timelag of 2 years occurs before any significant effect on the private economy can be expected from public housing expenditures. This timelag is partly the result of problems peculiar to housing programs—for example, condemnation proceedings normally require from 2 to 3 years—and partly a characteristic of large-scale contracting.

CHART I. PERCENTAGE OF FUNDS EXPENDED IN EACH 6-MONTH PERIOD BY VARIOUS PROGRAMS



Source: Reproduced with permission from S. J. Maisel, Timing and Flexibility of a Public Works Program, *The Review of Economics and Statistics*, vol. 31, No. 2 (May 1949), p. 151. Reproduced by permission of the Harvard University Press. Compiled from J. K. Galbraith, Economic Effects of the Federal Public Works Expenditures, 1933-38 (National Resources Planning Board, Washington, D. C., 1940), pp. 74-106; E. J. Howenstine, Jr., Dovetailing Rural Public Works Into Employment Policy, *The Review of Economics and Statistics*, vol. 28 (1946), pp. 163-169; International Labor Office, Public Investment and Full Employment (Montreal, 1946), pp. 134-146; U. S. Congress: Special Senate Committee on Postwar Economic Policy and Planning, hearings, pt. V: S. Res. 102, p. 1111 (Washington: 78th Cong., 2d sess); S. J. Maisel, unpublished study based on FPHA Report S-100.

TABLE I.—Federal Government expenditures for the development of natural resources

[In millions]

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957 (esti- mate)	1958 (esti- mate)
Conservation and development of agricultural land and water resources	\$26	\$27	\$25	\$27	\$32	\$39	\$49	\$285	\$241	\$237	\$346	\$341	\$317	\$244	\$286	\$305	\$579	\$636
Conservation and development of land and water resources	302	381	337	247	163	162	333	505	756	884	948	1,038	1,122	960	815	803	940	1,070
Conservation and development of forest resources	27	27	32	36	38	43	53	61	66	78	81	95	107	117	118	138	163	186
Conservation and development of mineral resources	6	9	19	26	23	21	24	26	29	34	36	35	38	37	37	38	88	99
Conservation and development of fish and wildlife	7	8	8	7	8	8	11	12	18	23	26	30	34	38	43	45	64	61
Recreational use of natural resources	14	13	8	5	4	5	11	17	19	24	30	33	30	33	35	44	76	76
Defense production activities							¹ 174				2	5	3	1				
General resources survey	2	3	2	3	3	4	10	10	13	16	18	21	25	27	34			
Total natural resources expenditures ²	411	467	431	351	272	282	665	916	1,143	1,395	1,486	1,599	1,675	1,457	1,367	1,409	1,925	2,126
Total Federal budget expenditures	13,387	34,187	79,623	95,315	98,703	60,703	39,289	33,069	39,507	39,606	44,058	65,410	74,274	67,772	64,570	66,540	68,900	71,807
Resource expenditure percent of total budget	3.0	1.4	0.5	0.4	0.3	0.5	1.7	2.8	2.9	3.5	3.4	2.4	2.3	2.1	2.1	2.1	2.8	3.0

¹ Development and control of atomic energy.² This category differs from the United States budget "Natural resources" category by the addition of "Conservation and development of agricultural land and water."

Source: Compiled from various issues of Bureau of Census, Statistical Abstract of the United States and Bureau of the Budget, The Budget of the U. S. Government.

Quite as important as whether a public works program can be initiated quickly is the question of whether the project is susceptible to wide variation in expenditures upon short notice and quick termination. Projects that involve considerable prior planning and large units of construction, such as housing, flood control, and reclamation, are generally extremely inflexible. Once a housing or slum clearing project is initiated, for example, strong community pressure may be exerted to continue the undertaking even though it may no longer be fiscally appropriate.³ Aside from these pressures, termination of a partially completed housing development, flood-control dam, or reclamation project is generally not feasible if the project is to provide any benefit from the original investment. As a result, only in cases where the portent of the future is clearly for a prolonged depression is it safe to risk undertaking such projects for their countercyclical influence.

Aside from the activities of the Bureau of Reclamation and the civilian functions of the Army engineers, as indicated in chart I, expenditures for conservation activities are relatively good candidates for counterfiscal projects. The prime advantage of such expenditures is that the appropriations flow into the money stream of the economy rapidly. The larger portion of natural resource expenditures goes for the purchase of labor services and involves the use of easily available equipment. The process of spending natural resource allocations is largely that of adapting existing organizations to the task of increased activities and recruiting workers to perform the services required. During a recession the recruitment of labor is generally simple, but the location of the greater bulk of the unemployed in eastern urban areas may retard the initiation of projects that are undertaken in less densely populated regions of the country. As a result, the problem of mobility is a major disadvantage of natural resource expenditures as a countercyclical influence. Additional disadvantages are that expenditures for resource development usually involve the use of little machinery and equipment, hence reducing the secondary and tertiary influence of such spending, and rarely employ manpower at the skills practiced prior to unemployment. These are serious disadvantages that restrict the potential impact of such programs and decrease their attractiveness to the unemployed worker. Many resource development activities, such as the improvement of watersheds, small upstream flood-control projects, reduction in forest-fire hazard, and the like, provide some gain, however, even though a whole area is not covered or the original plan is not fully completed.

³ Professor Abbott describes well, if somewhat cynically, the forces that work against curtailment of expenditure: "Spending begets an organization of spenders—an administrative staff as a minimum, supported by an administrative budget, to supervise the outlay of the appropriation. Spending necessarily produces records, and records in the Government seem to have a will and an ability to survive and perpetuate themselves that are almost independent of the desires or actions of the recordkeepers. Very often it results in the acquisition by the Government of assets that must be preserved and maintained—office furnishings, if nothing more. Almost always it fathers 'projects' which will take some months or years to complete and which must be continued or else result in a complete waste of the public moneys already spent. By its nature it develops, from out of its own administrative organization, experts who can, from their familiarity with the records that they themselves keep, assemble more facts in its defense than can be brought to bear by its opponents who do not have ready access to the information. Above all, spending establishes a host of vested interests that range from the employees actually on the payroll to the business firms and local government bodies in the districts where the funds are spent." (By permission from *Management of the Federal Debt*, by C. C. Abbott. Copyright, 1946, McGraw-Hill Book Co., Inc., p. 166.)

TABLE II.—*State expenditures for natural resources*

[In millions]

	1915	1925	1930	1937 ¹	1940	1941	1942	1943	1944	1945
Natural resource expenditures.....	3	56	74	59	101	119	123	119	132	144
Total State expenditures.....	448	1,603	2,275	2,629	4,569	5,491	5,515	5,510	5,709	5,775
Resources expenditure (percent of total).....	.67	3.6	3.3	2.2	2.2	2.2	2.2	2.1	2.3	2.5

	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
Natural resource expenditures.....	166	207	244	290	477	518	548	531	762	793
Total State expenditures.....	6,216	7,953	10,211	11,557	12,907	15,020	15,834	16,850	36,607	40,375
Resources expenditure (percent of total).....	2.7	2.6	2.4	2.5	3.5	3.4	3.5	3.2	2.1	2.0

¹ Financial Statistics of States not published in 1935.

Source: Unless otherwise indicated, "Natural Resource" expenditures from Bureau of Census, Summary of State Government Finances, and "Total State Expenditures" from Statistical Abstract of the United States, 1915-40, vol. 64 (1942); 1941, vol. 65 (1943); 1942-48, vol. 71 (1950); 1949-50, vol. 73 (1952); 1951-52, vol. 75 (1954); 1953, vol. 76 (1955); 1954-55, vol. 78 (1957). "Natural Resource" expenditures for 1953-55 from Statistical Abstract. The revised data for the years 1942, 1944, 1946, and 1948, issued in Bureau of Census, Revised Summary of State Governmental Finances, 1942-50, has been disregarded to emphasize data consistency within a year period as opposed to comparability over a period of years.

For the most part, State expenditures for the development of natural resources (recorded in table II) cover activities similar to those of the Federal Government, although a large component of such expenditures is generally for agricultural assistance. It is questionable whether much of the assistance to agriculture by both the State and Federal governments can be legitimately classified as developing natural resources. Even an expenditure, such as the so-called soil-bank program which is defended as a conservative measure, largely an expedient to achieve other objectives: reduce surplus agricultural output by withdrawing acreage from cultivation and increase some farmers' income (generally the more articulate) through government subsidy.

Although both the legitimacy of such subsidies as natural resource development expenditures and the soundness of such a program of income redistribution can be questioned, it remains that such expenditures usually can be accomplished without the time lag that characterizes most construction projects and other activities for which there is not an existing, well-operating bureaucracy. Aside from the important question of whether it is desirable to perpetuate misallocation of resources in the agricultural industry, which frequently exhibits a deficiency of mobility from the field, these types of payments—like any subsidy that requires negative or no action—lend themselves well to counter-cyclical manipulation. One great disadvantage is the tendency of such payments to be built into our system and become "normal" government expenditures, especially in those portions of the agricultural industry exhibiting more or less chronic depression. Moreover, it is possible that the various subsidy payments to agriculture have already reached a magnitude that prohibits very much upward flexibility without compounding seriously the problem of inequity in the distribution of farm income and the problem of the imbalance of resources between the agricultural and non-agricultural industries.

Certain types of expenditures, such as Federal aid to State and local governments that encourage decision-making and administration by the lower units of government, may have special advantages over purely Federal actions—particularly if the Federal-aid system requires financial participation by the lower unit of government. It is sometimes argued that at the lower level of government the citizen is better acquainted with “local” issues and more likely to arrive at a “rational” decision.⁴ Even if we accept the above thesis, two factors appear to restrict the extent to which the advantage of “local rationality” can be exploited: the inability of State and local governments to keep pace or “match” Federal expenditures during deflation and, as the data in tables III and IV indicate, the size of such expenditures is not very impressive.

By adapting the share to be matched by the non-Federal agency to the financial capacity of the lower governmental unit, however, it may be possible to increase expenditures during deflation periods on projects that bring greater participation by State and local units of government. An example of the type of program that might be expanded is found in the Water Pollution Control Act of 1956, Public Law 660, which provides Federal assistance to municipalities for the construction of water pollution abatement systems. Although the amounts appropriated for 1957 and 1958 are comparatively small, a serious approach to the problem of control of water pollution in the United States may provide expenditure opportunities of a quite different order of magnitude. The fiscal experience of the somewhat experimental recent approach to the control of water pollution is tabulated in table V.

TABLE III.—*Grants-in-aid to State and local governments for natural-resource development*

[In millions]

	1950	1951	1952	1953	1954	1955	1956	1957 ¹	1958 ¹
Agriculture: Watershed protection and flood prevention.....					6	10	16	20	28
Natural-resource development.....	17	18	20	23	25	26	26	37	39
Water-pollution control.....								2	3
Construction of waste-treatment facilities.....								7	62
Total grants-in-aid, shared revenues, loans, and repayable advances.....	2,269	2,434	2,604	2,857	2,657	3,124	3,753	3,317	3,848
Resource aid, percent of total grants-in-aid.....	.75	.74	.77	.80	1.2	1.2	1.1	1.9	3.4

¹ Estimated.

Source: Bureau of the Budget, The Budget of the U. S. Government.

⁴ See R. A. Dahl and C. E. Lindblom, *Variation in Public Expenditure, Income Stabilization for a Developing Democracy*, op. cit.

TABLE IV.—Federal aid to State and local governments for natural resources,¹ fiscal years 1950, 1952, 1954-57

[In thousands]

Aid for natural resources	1950	1952	1954	1955	1956 (esti- mated) ²	1957 (esti- mated) ²
Total aid to States and local governments.....	\$43, 654	\$57, 280	\$75, 045	\$83, 202	\$86, 570	\$108, 547
Grants-in-aid.....	16, 957	19, 755	24, 940	25, 934	25, 983	36, 550
United States section, St. Lawrence River- State and private forestry cooperation.....	9, 466	10, 037	9, 800	9, 509	10, 465	10, 465
Drainage of anthracite mines.....					300	3, 000
Wildlife restoration ³	7, 491	9, 518	12, 848	12, 796	10, 880	11, 700
Fish restoration and management ⁴		200	2, 293	3, 522	4, 188	4, 035
Proposed legislation:						
Partnership projects (Defense, Army Department, Engineers).....						5, 000
Partnership projects (Interior Depart- ment, Reclamation Bureau).....						2, 200
Shared revenues.....	26, 697	37, 525	50, 105	57, 268	60, 587	69, 797
Federal Power Act.....	28	28	35	33	31	37
Grazing receipts, to States.....	185	288	349	352	370	368
Proceeds to States, sales of public lands, materials.....	5	118	67	86	134	246
Alaska school lands, income and proceeds.....		(⁴)	1	1	3	2
Boulder Canyon project, payments to Ari- zona, Nevada.....	600	600	600	600	600	600
Oregon and California land-grant fund, to counties.....	1, 762	3, 172	6, 422	11, 756	9, 000	8, 755
Coos Bay Wagon Road grant lands, Oregon.....	44			143	43	50
Oil and gas royalty payments, Oklahoma.....	4	6	9	12	7	8
Mineral Leasing Act, to States.....	11, 325	15, 108	18, 741	22, 189	24, 940	26, 917
Migratory Bird Conservation Act, to counties.....	⁵ 1, 991	255	471	564	547	550
Grand Teton National Parklands, Wyo. National-forest fund, to States for counties.....	7, 753	13, 993	18, 695	16, 471	19, 428	26, 089
National-forest receipts, Arizona, New Mexico.....	61	107	123	103	114	115
Flood Control Act.....	468	813	989	1, 053	1, 190	1, 250
TVA, payments in lieu of taxes.....	2, 471	3, 036	3, 579	3, 878	4, 152	4, 786
Loans and repayable advances (net of collec- tions).....						2, 200
Proposed legislation: Partnership projects.....						2, 200

¹ Detail will not necessarily add to totals because of rounding.² In the budget of the United States Government for the fiscal year ending June 30, 1957.³ Part of a larger appropriation account.⁴ Less than \$500.

Source: Bureau of the Budget, The Budget of the U. S. Government, 1957, pp. 1148-1149; 1956, pp. 1192-1193; 1954, pp. 1132-1133; 1952, pp. 996-997.

TABLE V.—Fiscal data on water pollution control appropriations

[In thousands]

	1957	1958
Program grants to States (to develop State activities).....	\$2, 000	\$3, 000
General headquarters activities, including Sanitary Engineering Center at Cincinnati.....	2, 224	3, 500
Construction grants to assist municipalities.....	50, 000	45, 000
Total.....	54, 224	51, 500

Source: U. S. Public Health Service.

This program is selected for special attention ⁵ because it is pre-eminently a matter of resource development (or resource rehabilita-

⁵ A similar problem resulting from urban concentration, air pollution, might have been chosen as an illustration of a Federal grants program for resource development, but the air-pollution program even more than the water pollution control program is in its infancy. Public Law 159, 84th Cong., 1955, established "An act to provide research and technical assistance relating to air-pollution control." At the present time expenditures have been concentrated primarily upon research and study carried on with States, Federal agencies, and universities. The program is administered by the U. S. Public Health Service and has the following appropriation record: 1956, \$1,784,000; 1957, \$2,740,000; and 1958, \$4,000,000.

tion); it involves a resource whose use extends to the most varied directions (industrial, agricultural, domestic, and recreational); it involves issues of interstate jurisdiction that compel Federal participation and possible initiation, but require decisions and construction at the local level; and it appears to have favorable countercyclical fiscal characteristics. Construction of pollution-abatement installations take place in local communities, with greater need for such abatement installations generally coinciding with the more highly industrialized, heavily populated urban centers. The local organization for administering such installations (local waterworks or sewage-disposal authorities) are frequently available to undertake such programs.⁶ The engineering design for pollution-abatement systems is relatively standardized and the installations themselves are not subject to unique local specifications or wide stylistic variations, such as is the case with housing developments, school plans, flood-control projects, and the like. The construction of pollution-abatement systems uses large amounts of concrete, moderate quantities of steel, and specialized pumping equipment, thus promising some degree of stimulation to investment as well as to consumption. Finally, although such systems operate most successfully when construction is completed to capacity design, it is possible to terminate construction somewhat short of the optimum plan and still obtain benefit from the installation.⁷

CRITERIA FOR THE SELECTION OF NATURAL RESOURCE DEVELOPMENT PROJECTS

“Crab and all sorts of things * * * plenty of choice, only make up your mind.”

Alice's problem of choice was small compared with decision making in the formulation of public policy. Complications occur in making up the public mind as a result of: (1) The necessity for a small number of individuals (legislators and administrators) to decide on the basis of imperfect information what other people would like; (2) the special nature of conflicting public policy objectives, such as the goals of stimulation of economic activity or improvement of resource allocation,⁸ which do not lend themselves to decisions on the basis of personal experience; (3) the lack of a ready mechanism, such as the market economy, that can be relied upon more or less automatically to assemble a consensus from conflicting opinions.

⁶ A serious and increasingly important reservation should be noted in the case of the available community administrative organization for undertaking water pollution-control projects. The growth of metropolitanism, i. e., the spread of residential developments beyond the boundaries of existing community administrative organization, may be expected to create more rather than less administrative no man's land.

⁷ Pollution-treatment plants are usually designated as “primary” or “secondary.” Primary treatment consists of settlement and secondary treatment involves filtration and biological reaction. Flexibility in pollution treatment may be obtained by treating less than the total volume of the community's waste water and through progressive expansion of pollution treatment from primary to secondary coverage. Although it is generally conceded that virtually all communities should provide primary treatment as a means of water-pollution control, the practice is far from universal, thus providing an opportunity for extensive expenditure. Further flexibility is available in the decision to advance from primary to secondary treatment.

⁸ Thus the payment of subsidies to farmers for not producing may be a more flexible form of countercycle stimulation than housing projects, but at the same time may enhance the misallocation of the economy's productive resources.

Although the problem of decision making in public policy is by no means new, with each enlargement of the variety and extent of governmental activities the impact of public policy upon the economy becomes more significant. Growth in size and variety of Government undertakings has stimulated interest and research in developing procedure by which public-policy decisions will be more nearly in accord with defensible standards of choice.⁹ The most refined attempt to provide a basis for economic evaluation of public expenditures by a governmental agency is found in the Report to the Federal Inter-agency River Basin Committee on Proposed Practices for Economic Analysis of River Basin Projects¹⁰ by the subcommittee on benefits and costs. This document has been prepared through the cooperation of the Departments of Agriculture, Commerce, and Interior, the Army Corps of Engineers, and the Federal Power Commission. These departments and agencies represent most of the important Federal Government units that carry on programs for the development of natural resources. Although skepticism is undoubtedly justified in appraising the influence that some parts of the interagency report have had upon either the participating Federal agencies or Congress, it provides an accepted framework for the presentation and analysis of economic data for most federally sponsored water-control projects. As a result, adherence to the philosophy and procedures advanced in the interagency report are sometimes important features in the competition for appropriations and the justification before Congress of agency expenditures. Briefly, project justification relies heavily upon benefit-cost analysis, which in turn is very closely identified with the standards of value established in the private market economy. For example, the interagency report holds that—

* * * In order for the effects of a project to have economic value in terms of benefits or costs it is necessary that there be a need or demand for the goods and services produced by or used for the project.

The most practicable measure of the relative desirability of goods and services for meeting the various needs and demands which exist is the market price in dollars. * * * To the extent that project effects can be assigned an actual or estimated market value, they may be defined as benefits and costs in terms of the market value in dollars of the increases or decreases in goods and services that are expected to result if a project is undertaken.¹¹

Although the interagency report is studded with careful disclaimers that private market data alone should not serve as the basis for determining the acceptability of a Federal project, the very nature of

⁹ Major contributions to the investigation of policy determination in governmental natural resource-using projects have been made by S. V. Ciriacy-Wantrup, *Resource Conservation: Economics and Policies* (Berkeley: University of California, 1952); O. Eckstein, *Benefits and Costs: Studies in the Economics of Public Works Evaluation* (Cambridge: Ph. D. thesis, Harvard University, April 1955); R. N. McKean, *Cost-Benefit Analysis and Efficiency in Government* (Santa Monica: RAND Corp., 1955). The most thoroughgoing Federal agency study of this problem is to be found in *Proposed Practices for Economic Analysis of River Basin Projects: Report to the Federal Interagency River Basin Committee* (prepared by Subcommittee on Benefits and Costs, Washington, D. C., May 1950). This report is generally known as the Green Book.

¹⁰ Cited above, note 9.

¹¹ *Ibid.*, pp. 7-8.

the benefit-cost ratio, which is the end product of the benefit-cost analysis, creates an almost irresistible temptation to place primary emphasis upon this succinct and ready means of comparing different projects. Unfortunately the admonitions to evaluate projects in terms of their appropriateness from the standpoint of the public viewpoint may be rather futile if the benefit-cost ratio excludes considerations that are not expressed by data translated from or into the parameters of the private market economy. In such a case the decisive point is the dividing line between so-called tangible and intangible benefits, with the former comprising the benefit side of the ratio and the latter "described with care" and "recognized and considered apart from the analysis of monetary values."¹² The inter-agency report distinguishes between tangible and intangible effects as follows:

The tangible effects of a project are, for the purposes of this report, defined as those measurable in monetary terms, and the intangible effects are those which cannot be measured in monetary terms. Most of the effects of most projects, whether benefits or costs, can be evaluated on the basis of market prices. Some tangible effects cannot be evaluated directly on the basis of market prices, but their values may in some cases be derived or estimated indirectly from prices established in the market for similar or analogous effects or may be derived from the most economical cost of producing similar effects by alternate means. Other effects cannot be evaluated in monetary terms by any satisfactory device and so are called intangible.¹³

It is understandable that the typical Congressman, harried by a nagging conscience to try to cut Federal expenditures, should be attracted by a benefit-cost ratio that purports to reveal clearly and quickly whether a particular public project in natural resource development is worth the Government expenditure that is requested. The answer is seemingly simple: if the ratio of benefit to cost is greater than unity, the Government is getting its "money's worth." Projects that have a higher ratio of benefit to cost must be better Government "investments" than undertakings with a lower ratio. Although it is of course possible to look behind the benefit-cost ratio to the analysis of the data and the description of the intangible features of a given project, those activities that do not lend themselves to monetary interpretation are at a greater competitive disadvantage in the struggle for congressional appropriations—especially in the press of Washington decision-making.

In view of the strong emphasis in the interagency report on the use of private market data as measures of benefits and cost and the frequent allusion that the cost to the community of resource use by the Federal Government is the output consequently foregone by private production, it is surprising that participating agencies do not necessarily consider the benefit-cost ratio to provide information on whether resources should be shifted from the private to the public sector of the economy. One would expect—and most reviewers have

¹² *Ibid.*, pp. 26, 27.

¹³ *Ibid.*, p. 26.

assumed—that the emphasis upon private market data and standards has been primarily for the purpose of facilitating comparison between public and private direction of resources and providing a measure of efficiency.

Two major aspects of project cost accounting prevent the benefit/cost ratio from indicating whether it is economical to shift resources from the private to the public sector of the economy: (1) the use of a 2½ percent interest rate and (2) the unsatisfactory arrangement for tax allowance. Although a low rate of interest may correspond to the long-term Federal Government borrowing rate, thus in a partial sense representing the risk to the lender, such a rate can hardly reflect adequately the economic hazard of investment in a given resource development project. Indeed, if the repayment history of some irrigation developments is indicative of “return on investment,” a phenomenally higher rate of interest might be required to attract resources away from the private economy for such activities. It may be unnecessary to point out that the Federal Government borrowing rate is largely disassociated from the risk and uncertainty of the projects that it undertakes and therefore provides no basis for relating private and public investment.

In considering the proper treatment of taxation in the benefit-cost analysis, the interagency report is concerned primarily with the aggregate effect of such levies upon the tax capacity of the economy or the pertinent region. It is apparently not concerned with the impact that a given method of tax accounting may have upon the scale of development of resource use in public as compared with private undertakings. Although portions of the report's consideration of tax accounting are subject to conflicting interpretation, apparently an allowance for taxes comparable to that encountered in similar private investment is made through reduction in price (but not to measure benefits), rather than addition to cost. Since benefits are measured when possible by the prevailing market price, the allowance for taxes via price reduction in effect permits the Government investment to exploit a lower portion of the demand curve. In other words, it is simple to justify larger capacity than comparable private installations if the benefits for the public installation are measured by the price obtained by the private installation, and if the Government price and cost actually does not include a tax allowance equivalent to the tax-cost outlay by the private firm. The effect of this accounting technique—including tax outlays in establishing project benefits and excluding them in computing project costs—is to provide a purely artificial basis for the expansion of Government installations. This stimulus to expansion will of course cause the greatest distortion in resource allocation vis-à-vis the private economy when the activity involved is subject to significant economy of scale.¹⁴

¹⁴ The relevant portions of the interagency report appear to be the following:
“* * * The primary effect of a river-basin project on local government units arises from changes in the real-estate tax base. The local government revenues may in some cases be reduced to a greater extent than the corresponding reduction in the costs of the services it provides. In other cases, the local tax revenues may be increased by the project proportionally more than are the costs of providing services to such an area. When decreases in tax revenue in a given taxing unit are offset by decreases in the costs of governmental services, no allowance needs to be made in project costs. Also when increased revenues are sufficient just to cover both any increased costs of service and any losses in tax revenues from lands withdrawn from the tax base, no allowance needs to be made in project costs. A tax-adjustment problem arises when an adversely affected taxing district cannot benefit from the increased tax returns in other areas which may

The justification for including taxes on the benefit side and deducting them when computing government project costs may be the result of an analytical misconception. It may be argued, for example, that since the shift of resources between private and public activities occurs from "marginal" private investment, the taxation issue "washes out" because the marginal firm does not bear taxes. The misconception involved here is that although the marginal firm may not bear taxes—in the sense that such levies must be compensated for by price adjustment—the effect of the higher private price is to curtail private investment at the same time that it enhances the benefit figure for public projects and increases the latter's scale of operation.

The net effect of the use of such a double standard for the treatment of cost outlays in government and private investment renders invalid the use of the benefit-cost ratio as a measure of the economic appropriateness in terms of private market appraisal of shifting resources from the private to the public sector of the economy.

Quite aside from the technical inadequacies of benefit-cost analysis, however, the appropriateness of using private market standards for determining public investment is questionable. At times a half-administrative, half-economic argument is made in defense of the use of these types of evaluation that hold up government expenditures and investment to the assumed rigorousness of the private market. It is contended that although the standard is not perfect, it helps to hold in check those Federal agencies that are adept at creating local pressure-group support for their functions and most frequently the beneficiaries of "pork barrel" appropriations. More often than not, however, the benefit-cost analysis results not in restraining the agencies that have built empires of bureaucracy, but merely hamstringing other agencies that have not yet developed such an effective entree to the Federal purse.

Although benefit-cost analysis is not intended to provide the only or main basis for project justification, very frequently it has attained an influence in decisionmaking quite out of keeping with its proper role—even if the analysis were performed satisfactorily. The acceptance of the private market standard as a criterion for Federal project justification places the public interest in a peculiar double jeopardy. The private market standard, i. e., justification of public investment on the basis of whether it can yield a return commensurate with private investment, ignores the critical difference between the purposes of private and public economic activities. Moreover this procedure confers on resource allocation decisions of the private market an economic and ethical omniscience unfortunately not possessed by the market economy. Although the American economy has an impressive record by pragmatic test of its ability to increase national output, it does not follow that its ordering of resource allocation represents the apogee of output and efficiency. There are areas in the American economy where its efficiency is under restraint and other areas where the direc-

have their tax base raised by the project * * *. The total reduction in net tax revenues in adversely affected taxing districts may be regarded as a project benefit, and may be accounted for as a deduction from tax charges included in associated costs.

* * * When the benefits of a Federal projects [sic] are evaluated on the basis of the cost of producing similar products from an alternative private source, the estimate of private costs should include taxes that would be payable. Proper comparison may also be obtained if project costs for given purposes are compared with the charges less taxes for comparable products and services from private sources" (ibid., pp. 30, 31).

tion of resources seem to falter. The efficiency of the market economy is retarded by various monopoly restrictions of business and labor, by certain subsidies and controls imposed by government, by an institutional background that affects mobility of resources, by less than complete consumer knowledge, which sometimes makes the "consumer sovereignty" doctrine read backward.

But even if the view is accepted that the market economy cannot be excelled in the excellence of its efficiency, we are confronted with the fact that the private market must avoid those activities that are not susceptible to the precept that price must cover cost. The result is well known. Such functions as education, public health, and national defense must be carried on outside the framework of the private market. Moreover, the pattern of resource allocation that results from consumer choice cannot be sanctified with ethical justification. The production arrangements and the distribution of goods and services in the American economy conform to no higher ethical standards than those implicit in the underlying distribution of wealth and income in our society. It appears strangely inappropriate that the value system of the private market should be accorded such importance in the selection and justification of Federal projects when one of the main functions of government is to initiate or supplement activities that cannot be adequately performed by the market. Such a partial view of the problem of project selection as that presented by the benefit-cost ratio acts as a Procrustean mold to eliminate nonconformity with the decisions of the market economy. To point out the inadequacy of this approach, however, is not to decry the use of economic analysis for project justification. The remedy for this situation is more, not less, economic analysis—but an analysis that does more than mirror the value judgments of the private market. Economic analysis must include a careful consideration of the public interest.

FEDERAL EXPENDITURE POLICY FOR ECONOMIC GROWTH AND STABILITY IN THE AREA OF NATURAL-RESOURCE DEVELOPMENT WITH SPECIAL REFERENCE TO THE POTENTIAL IMPACT OF ATOMIC-ENERGY DEVELOPMENTS ON THE ENERGY, FUEL, AND POWER ECONOMIES OF THE COUNTRY

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THE BROAD OBJECTIVES OF THE UNITED STATES ATOMIC-ENERGY PROGRAM

The broad objectives of the atomic-energy program in the United States can perhaps best be stated by quoting from the declaration of the Atomic Energy Act of 1954:

1. Atomic energy is capable of application for peaceable as well as military purposes. It is, therefore, declared to be the policy of the United States:

(a) The development, use, and control of atomic energy shall be directed so as to make the maximum contribution to the general welfare, subject at all times to the paramount objective of making the maximum contribution to the common defense and security.

(b) The development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living, and strengthen free competition in private enterprise.

The purpose of this paper is to examine, in the light of the aforementioned policy statement, the present status of the atomic-energy industry in the United States and the direction in which it is likely to move—keeping in mind the impact of fast or slow rates of atomic-energy growth on the competitive energy, fuel, and power economies of the country.

In the first part of this paper it will be assumed that the speed and direction (as well as the incidence and degree of impact) of the United States atomic-energy industry will essentially be in response to economic forces. In the latter part of this paper certain changes in the rules of the game will be considered and the probable effects of the changes discussed.

WORK ALREADY DONE IN THE FIELD

A great deal of basic work has already been done (and continues to be done) in the field of inquiry under discussion. Because of the limited amount of time available for the preparation of this paper it was considered necessary to draw heavily on the basic material which has already been gathered and analyzed.

AN ANALYSIS OF THE UNITED STATES ENERGY ECONOMY

Before discussing the potential growth of atomic-energy use in the United States economy, it will perhaps be desirable to take a brief look at the market for energy sources before the entry of the new fuel.

Very detailed and comprehensive studies are available on energy production and consumption in the United States (see, for example, Barnett, Lyon, and Colby). Data were taken from Barnett, Lyon, and Colby, sources in the Federal Power Commission, the Census Bureau, and from worksheets prepared by the author in order to draw up the rough sketch of energy flow in the United States in 1947. Data for 1954 are still being revised; however, the sketch given as figure 1 in this paper will serve the purposes of the present discussion.

In the preparation of figure 1, from another study, various components of energy consumption were systematically removed from the estimated total production of energy in the United States in 1947 until only that component remained which was consumed by the manufacturing industries for nonpower purposes (please see the bar on the extreme right).

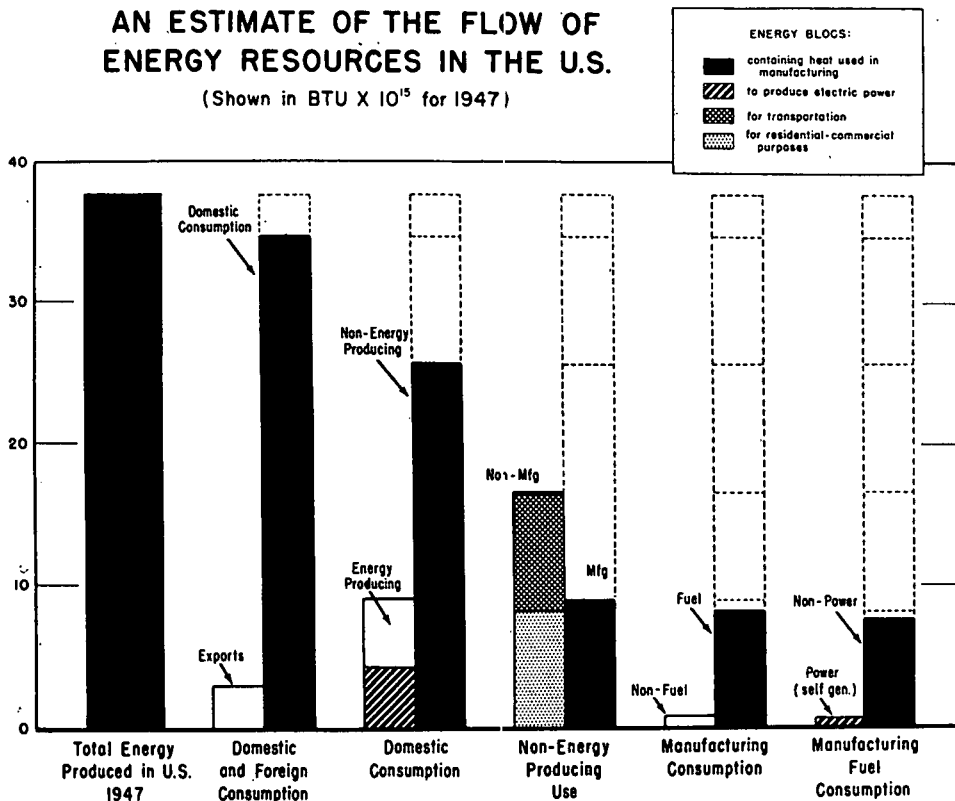
The key or legend indicates those components of the energy market which may feel a more direct impact in the years ahead. The order in which the components are listed (power, industrial heat, transportation, and residential-commercial) are roughly ordered according to the amount of study to which each component has been subjected as a potential market for atomic energy. At one time it was generally held that the above-mentioned order also ranked the various component markets according to the degree of attractiveness (from the standpoint of atomic energy); however, there are many people in the field who now feel that this is not true.

In this paper the component markets will be discussed in the order indicated by the legend of figure 1.

FIGURE 1

AN ESTIMATE OF THE FLOW OF ENERGY RESOURCES IN THE U.S.

(Shown in BTU X 10¹⁵ for 1947)



THE MARKET POTENTIAL OF NUCLEAR ENERGY IN THE UNITED STATES

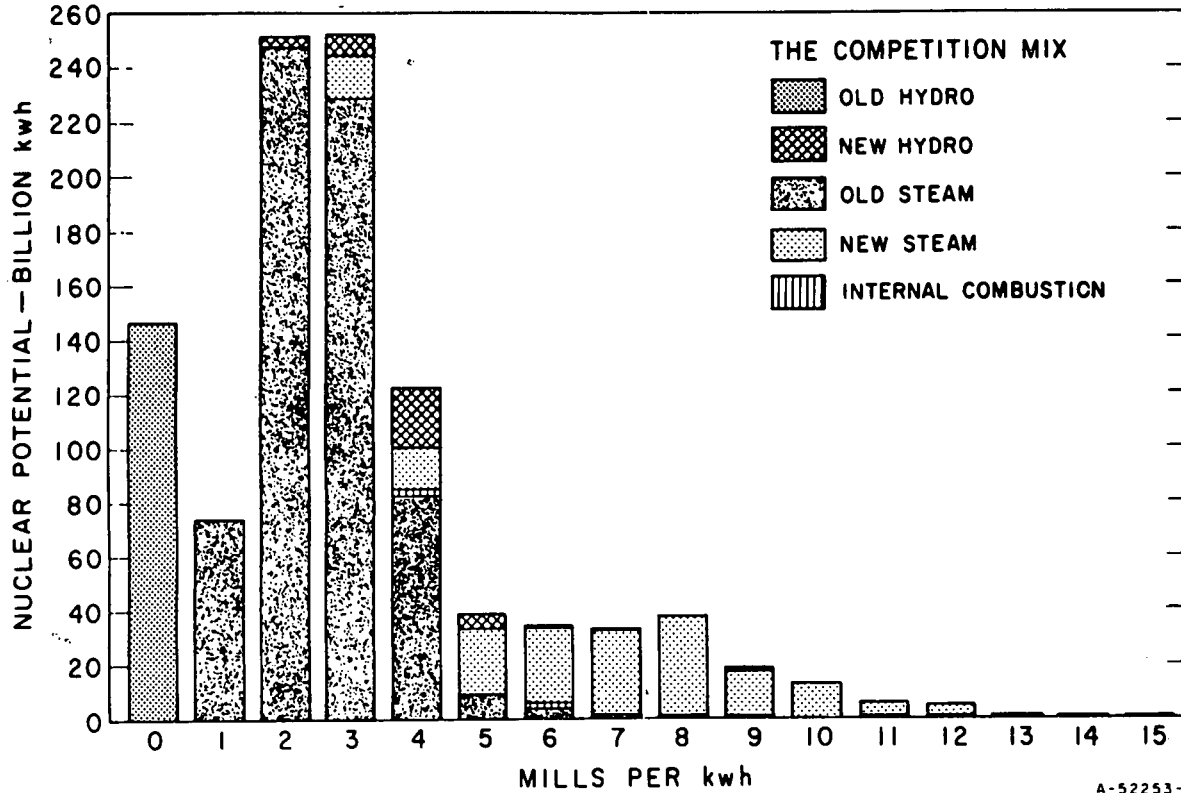
Power

The data given in figure 2 (taken from another study) illustrate the economic setting within which nuclear power finds itself now and will find itself in the years immediately ahead in the United States. In other words, if nuclear power can be generated only at costs in excess of 10 or 12 mills per kilowatt-hour, such power is of little economic interest in the United States.

If nuclear-power costs can be reduced over time, roughly as illustrated by the line given in figure 3, then one can derive a projected development of nuclear power shaped primarily by economic forces, as shown in figure 4. Note that only a very slow growth can be expected before 1970. Most of the growth will take place at the expense of steam-electric plants which would otherwise have been built. In addition, the bulk of the fuel which will be displaced, as nuclear power enters the market, will be bituminous coal in the United States.

The data given in figures 5 and 6 indicate the existing and projected differences between the power-market situation in the United States and other areas. Whereas there is a large and immediate market for 12- to 15-mill nuclear power in Europe, the market in the United States is relatively small.

FIGURE 2



THE MARKET POTENTIAL FOR NUCLEAR POWER AT VARIOUS COSTS OF GENERATION, 1965

A-52253-7

GENERATING COST OF NUCLEAR POWER

mills / kwh

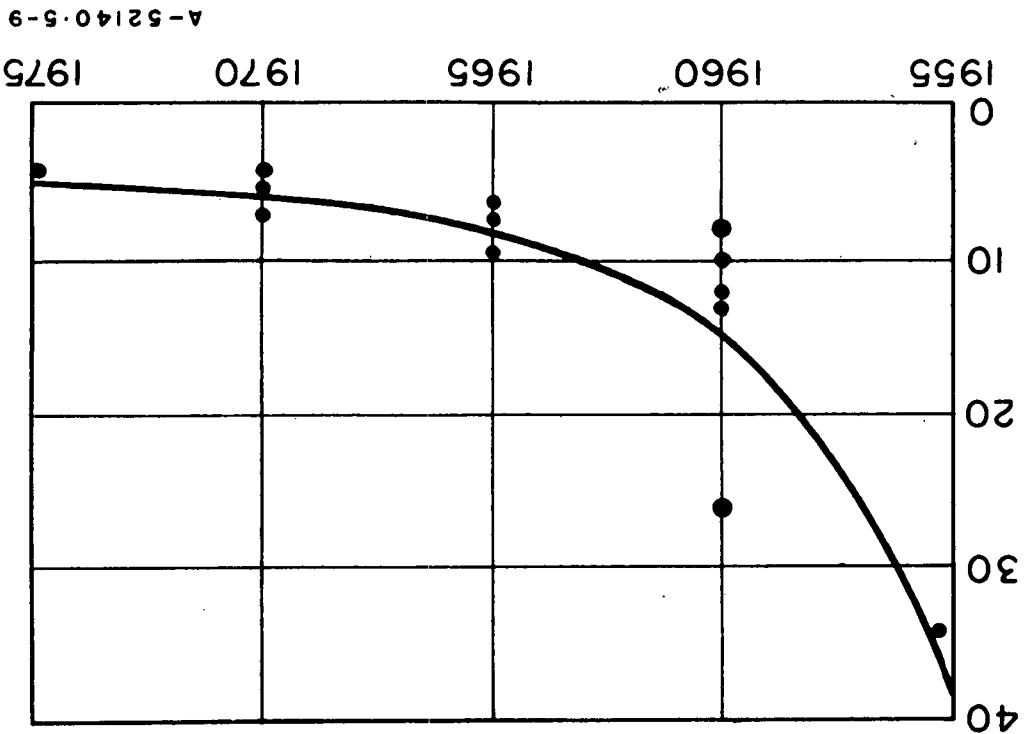


FIGURE 3

A-52140-5-9

PLOT OF NUCLEAR COST AS A FUNCTION OF TIME

FIGURE 4

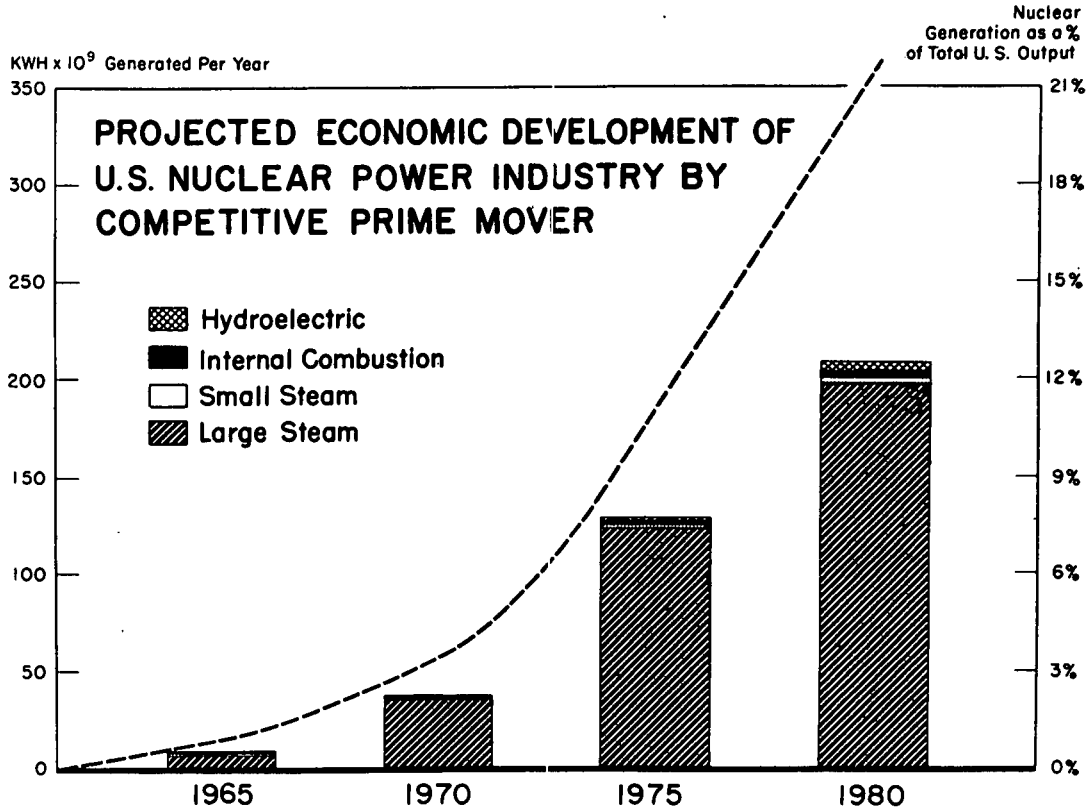


FIGURE 5

Potentials Shown in
KWH x 10⁹ Per Year

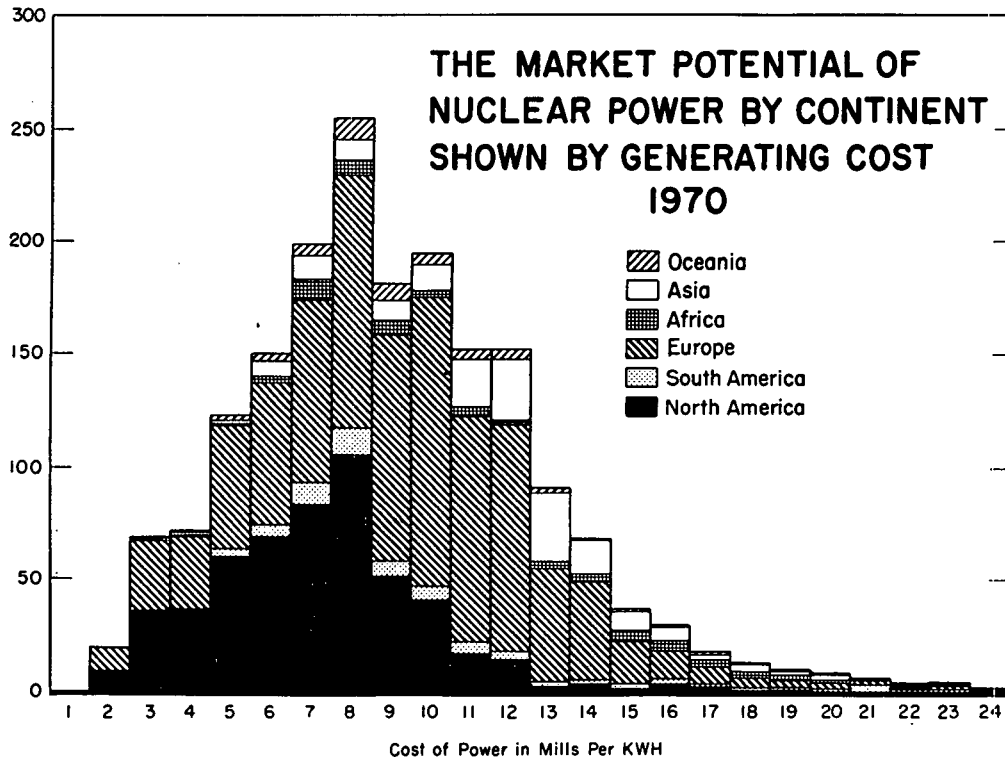
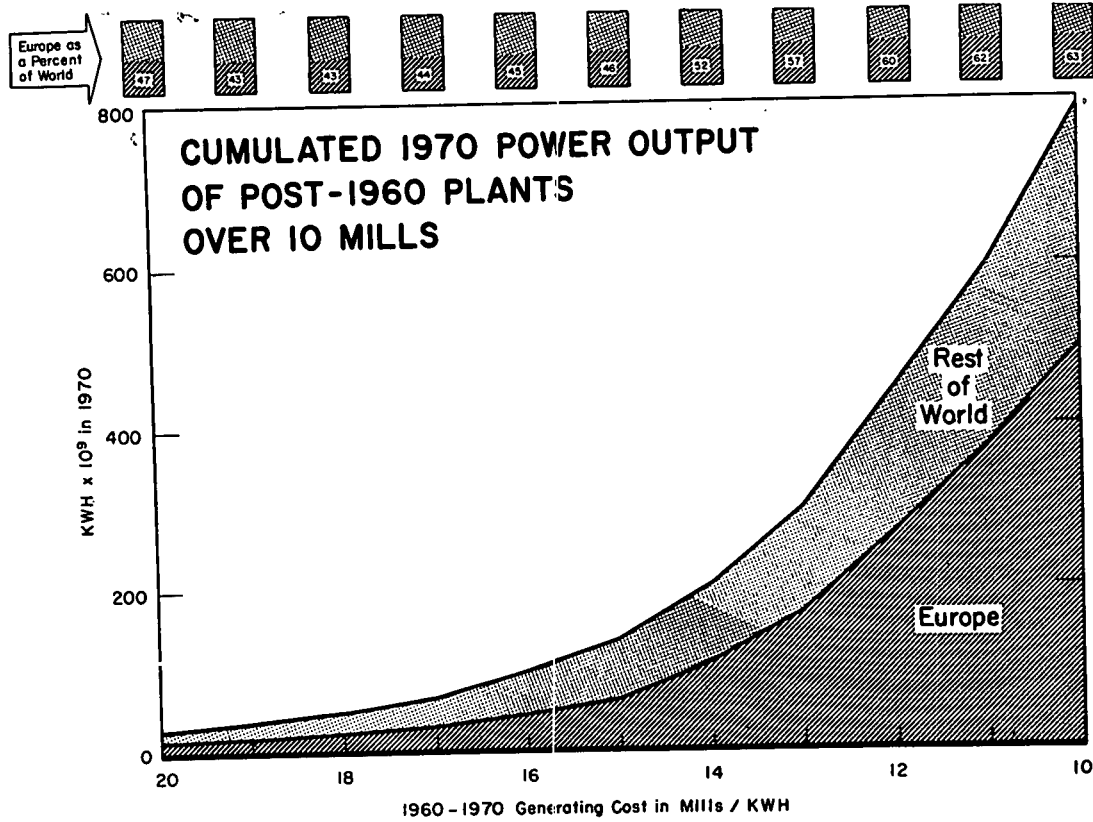


FIGURE 6



Industrial heat

The bulk of the boilers sold to the manufacturing industries in the United States are used to generate heat rather than electric power. Of course, some boilers are used to make steam which in turn generates power and later gives up additional energy to supply heat to industrial processes.

The characteristics of industrial-heat boilers may be somewhat discouraging to nuclear-reactor designers since they must be cheap, small, and generate small amounts of steam at low pressure. However, if nuclear reactors can generate steam of the same quality and quantity at a lower price, they will be able to invade a large and expanding market. Estimates of how large the industrial-heat market is at each price level must await further study.

Transportation

A technical-economic study of the potential of nuclear energy in the field of marine propulsion is currently being undertaken by Stanford Research Institute and the American Standard atomic-energy division. This work is being sponsored by the Maritime Commission and the Atomic Energy Commission. Studies in other branches of transportation have been undertaken by several other groups. Among people working in this field are Dr. Lyle Borst, of New York University, who has done work in the possible application of nuclear energy to rail transportation.

Residential-commercial applications

A relatively small amount of work has been done in this field. However, Schurr and Marschak did give the subject some attention in their study, *Economic Aspects of Atomic Energy*.

CONCLUSIONS REGARDING THE MARKET POTENTIAL OF NUCLEAR ENERGY

The conclusions, regardless of application, will, of course, always be the same. In a greatly simplified form, one can always say that it is merely a matter of cost. At this point a great deal of the simplicity disappears.

The energy-cost structure varies from area to area, so that nuclear energy for a particular application is likely to be competitive in certain areas sooner than in others. The energy-cost structure in the United States is such that, although the total market (at all price levels) is large, the size of the market at higher price levels is very small. For this reason, the atomic-energy industry in the United States is likely to grow less rapidly than in other areas if the development of the industry is determined by economic forces alone. Stated somewhat differently, the likely penetration of nuclear energy into markets now held by other sources of energy, fossil fuels, and conventional generating equipment will tend to be smaller in the United States than in other areas of the world.

In Geneva paper P/475, the author concluded that nuclear-energy costs will have to be reduced—nuclear energy cannot expect the costs of conventional sources of energy to rise substantially in the United States in the years ahead. In the paragraphs which follow, some general consideration will be given to the prospects for reducing nuclear-energy costs.

PROSPECTS FOR NUCLEAR ENERGY COST REDUCTION

Nuclear-energy use in the United States can be expected to grow faster than a rate such as suggested by figure 4 if costs are reduced at a rate faster than given in figure 3. The effective costs of nuclear energy can be reduced by (1) research and technical progress, or by (2) administrative action. Examples of both methods are suggested in the paragraphs which follow.

From the standpoint of the powerplant operator, the cost of nuclear power is composed of elements which are similar to those which constitute the cost of generating power by conventional means. In order to illustrate the similarities (as well as the differences), an analysis of the cost of power from a large (100–150 megawatt) nuclear powerplant built in the 1960–70 period is given in table 1. The figures given in table 1 are given for illustrative purposes only; however, the magnitudes of the figures are not unreasonable.

TABLE 1.—*An analysis of the cost of nuclear power produced by a 100–150-megawatt plant in the 1960–70 period*

<i>Cost component</i>	<i>Estimated cost in mills per kilowatt-hour</i>
Plant ¹	6.0
Operation and maintenance.....	1.0
Fuel:	
Uranium consumption.....	1.0
Fuel fabrication.....	1.5
Fuel reprocessing.....	2.0
Fuel-inventory charge.....	.5
Gross cost of production.....	12.0
Plutonium credit.....	2.0
Incentive credit.....	(²)
Byproduct credit.....	(²)
Net cost of production.....	10.0

¹ At about \$200 per kilowatt of plant capacity, 13.5 percent overall investment charge, and 50 percent lifetime plant factor.

² Not known.

A plant cost of around \$200 per kilowatt of capacity does not seem unreasonable in view of the estimates made by such reactor builders as General Electric, Babcock & Wilcox, and North American Aviation Corporation. A good estimate of operation charges must await the actual operation of a commercial nuclear powerplant for some period of time. It is possible, of course, to design a nuclear-power station in such a manner as to reduce plant costs at the expense of higher fuel and operating costs, or the other way round. Even the fuel cost components can be varied by the design of the plant. Uranium consumption can be reduced at the expense of high-cost fabrication and fuel reprocessing; it may be possible to eliminate fuel-reprocessing costs (and also plutonium credits) and reduce uranium consumption per kilowatt-hour through the use of very expensive fuel fabrication techniques, and by discarding long irradiated fuel elements. The optimum cycle and the final level of costs reached by each component will be determined through a whole series of cost-balancing and cost-trading activities between cost components, as reflected by a design and development program.

COMPETITIVE POSITION OF NUCLEAR POWER¹

For purposes of discussion, let it be assumed that nuclear power could be produced at a given place for 10 mills per kilowatt-hour. Assume, also, that a comparable amount of power could be produced by conventional means at the same time and place for 7 mills per kilowatt-hour. Faced with such alternatives, the powerplant executive would, in all probability, elect to build the conventional plant.¹

But let it be assumed that the Government would like to encourage the construction of the nuclear plant as a means toward fulfilling a Government objective. The nuclear plant can be built by the Government with public funds, or the Government can provide an incentive credit to encourage the construction of the nuclear plant, and thereby make nuclear power competitive in the eyes of the powerplant operator. The incentive credit can be given directly by a capital subsidy or an outright operating grant, or indirectly by one of a number of means, including the following:

1. Waiving of fuel charges.
2. Interest-free or low-interest-bearing loans.
3. Low charges for use of Government goods and services.
4. Reduction in price of fuel.
5. Increase in the credit for plutonium.
6. Purchase of nuclear powerplant operating reports.

SIGNIFICANCE OF INCENTIVE CREDITS

Direct subsidies can be designed to encourage nuclear powerplant construction without affecting powerplant design. However, the effects of indirect subsidies are much harder to control. If a government wishes to encourage a reactor operating by reducing chemical processing charges, it discourages entry into the processing field by the chemical industry. If the price of fuel is reduced, then designers will be encouraged to waste fuel and save expensive plant. If the price of plutonium is raised, then plant designs and operating cycles will be shifted accordingly.

From the standpoint of the equipment suppliers and powerplant operators, it will be extremely difficult to make plans for the future if indirect incentive credits are used and frequently changed.

Unexpected changes in prices due to policy shifts could cause a great deal of hardship to the individual manufacturer. However, no business enterprise is wholly immune from such hazards; most businesses are affected to some degree by changes in taxes, tariffs, tolls, and regulations resulting from Government policy decisions.

RELATIONSHIP OF PRICE TO COST

Some have suggested that Government prices for goods and services should be made equal to their costs—but to which costs? Let it be

¹The author recently conducted a survey among leading powerplant executives of power-producing organizations in the southern United States. It was found that the power executives were of the opinion that: (1) Nuclear and conventional power generation costs should be figured on the same basis (13-15 percent overall investment charge; 50-60 percent lifetime plant factor, etc.). (2) Nuclear plants should be installed only when and if the cost of nuclear power is equal to or less than the cost of conventional power on a comparable basis.

assumed that irradiated fuel from many nuclear powerplants will be reprocessed in a Central Government chemical reprocessing plant. The basis for pricing could be any one of the following costs:

1. Average cost at present plant throughput.
2. Average cost at optimum plant throughput.
3. Average cost at maximum plant throughput.
4. Marginal cost at present plant throughput.
5. Marginal cost at maximum plant throughput.

Each price would have different advantages and disadvantages, and a different set of impacts. It is important, therefore, that each manufacturer become familiar with the pricing policies and bases of the Government before becoming heavily committed in any particular direction (or with any particular reactor type) in the nuclear-power field.

CONCLUSIONS

On the basis of facts developed by studies mentioned in this paper and by other studies in the field it is most difficult to prove an economic need for nuclear energy in the United States.

If one seeks to prove a need for nuclear energy now in order to conserve valuable, limited fossil fuels, he must in turn prove that the fossil fuel saved now will be more valuable in the future than the uranium, stainless steel, and zirconium used now—and thereby effectively not available in the future. Stated somewhat differently, one must prove that the higher fuel cost or expenditure now will be more than offset by even higher fuel revenues in the future.

It might be easier to show that nuclear-power development should be encouraged because the additional cost associated with nuclear-power generation will be more than offset by the additional non-power-economic benefits brought to the country or to a particular region. For example, the presence of a nuclear-power industry in a particular State (or in the country as a whole) might attract sufficient ancillary economic activity to justify the payment of a subsidy by the shareholders of the company, by the ratepayers of the system, or by the taxpayers of the State.

It might, on the other hand, be easier to prove a future economic need for nuclear energy in terms of the economic benefits which will accrue to the American economy should the United States become a nuclear workshop supplying reactors to all parts of the world as nuclear power becomes competitive with power generated from local, conventional resources. In this case it might be held that the dollars invested today in the nuclear-energy field will be returned many times over in the future. Persons holding this position would, in the final analysis, also have to hold that public or private dollars invested in this direction will show a greater social or private return than an equivalent sum invested in any other available direction.

If one determines that there is a noneconomic need (such as international prestige) to encourage or expand the use of nuclear energy, then there is a cost involved and either or both of two action courses are suggested: Government construction and/or subsidies for private construction. It is beyond the scope of this paper to discuss the relative merits of either of these courses of action; however, it is clear that some concrete aid (other than the removal of restrictive rules,

regulations, and laws) is called for if the industry is to be encouraged. Subsidies for encouragement can come from such groups as shareholders, ratepayers, or taxpayers.

If the subsidy rather than the public construction course is taken, then there are many economic arguments which tend to favor the use of a direct subsidy or capital grant even though such action may be politically difficult to take. In the end, it will produce the same effect at a lower overall cost.

The amount of direct subsidy or capital grant needed to encourage a given, desired amount of activity in the nuclear-energy field is directly proportional to the competitive gap between nuclear and non-nuclear-fuel costs. This suggests that consideration might be given to the granting of subsidies to United States firms engaged in nuclear-energy activities in high-fuel-cost areas overseas.

THE DEVELOPMENT OF NUCLEAR ENERGY

Perry D. Teitelbaum, economist, Council for Economic and Industry Research, Inc., and Philip Mullenbach, research director, Nuclear Energy Study, the Twentieth Century Fund, Washington, D. C.¹

The next 25 years will undoubtedly see the large-scale entry of nuclear energy into a variety of applications as a consequence of substantial progress in nuclear technology for peaceful uses. This period will also see substantial economic growth in the United States, accompanied by a major rise in energy consumption as a whole. In the rest of the world, growth in economic activity and particularly energy is likely to be even more rapid.

The United States supply of conventional energy, including overseas oil sources, seems generally adequate to meet projected demands on it, if foreign demands could be ignored. But the combined requirements of all countries may tax the world supply to a relatively greater degree, with inevitable consequences for the United States supply situation. This, too, will influence the rate of entry of nuclear energy. In these circumstances it may be useful to analyze the likely magnitudes of future energy demand and supply, including the scale and scope of nuclear energy, as a background for considering the basic problem before this panel, Federal expenditures for atomic-energy development.

The first section of this paper presents projections of United States energy supply and demand over the next quarter century (nominally, to 1980) and indicates some of their implications. The second section considers the problems of policy criteria in regard to public expenditures on atomic energy for peaceful uses.

ENERGY PROJECTIONS AND ECONOMIC GROWTH

Nuclear energy "needs"

In seeking to establish a frame of reference for the present projections, we may usefully begin with the following classification of nuclear energy "needs." As suggested subsequently, we are here concerned mostly with domestic "needs."

1. Military, including weapons and reactors for propulsion, power, and heat.

¹ The views expressed are those of the authors and not necessarily those of the organizations with which they are associated. The authors were formerly on the staff of the National Planning Association project on the productive uses of nuclear energy. This paper is based, in part, on the research and publications of the NPA project. Mr. Teitelbaum takes primary responsibility for the first section on energy projections and economic growth, and Mr. Mullenbach takes primary responsibility for the second section on nuclear energy expenditures and national policy. The authors gratefully acknowledge the cooperation of the staff of the National Planning Association and of the Division of Finance, AEC.

2. Foreign relations, based on intangibles associated with foreign policy, such as prestige derived from technical leadership, and the tangibles of foreign markets.

3. Domestic, including power, heat, propulsion, and radiation.

In the past, almost all of the United States investment in nuclear research and development, and in physical plant and equipment has been directed toward military applications. Progress toward non-military applications has been largely a byproduct. This situation has been slowly changing in the past few years, although expenditures for military applications still represent an overwhelming proportion of the total. In future periods, considering the already high level of weapons production and stockpiles that undoubtedly exist, and the ever-broadening economic potentials for peaceful uses of nuclear energy, strictly military applications may account for successively smaller, although still substantial, fractions of public and private expenditures. Determination of a suitable balance by the Federal Government between outlays for military and nonmilitary applications will mostly depend on factors peculiar to each; only to the extent that military applications yield byproducts for other applications need they be considered together.

There is also a "need" to maintain technical leadership in nuclear science and technology as an adjunct of United States foreign policy. In the present juncture of world affairs, great importance is attached to achieving preeminence in this field. Such leadership may also be instrumental in securing suitable international control of the atom for peaceful purposes.² Some consideration must therefore be given in any policy deliberations to maintaining this leadership.

Related to the foregoing foreign policy considerations, but susceptible of separate treatment, are the economic opportunities for United States industry to supply foreign demands for nuclear fuels, reactors, and related goods and services. While no systematic overall analysis of the United States share of this "market" has as yet been undertaken, it is possible that many opportunities will exist in the next few decades. Table 1 below indicates the general order of magnitude of these foreign demands. Since these data refer exclusively to electric power generation, they would be substantially enhanced if nuclear energy becomes significant in industrial heat and propulsion applications.

The foreign market may also represent a useful "crutch" for a domestic nuclear industry to lean on during its early years: The higher competitive cost thresholds for nuclear power and heat in foreign markets as compared with those in the United States will offer domestic producers of nuclear fuels and hardware an opportunity to "earn while they learn" during the next decade, at least, so that the experience gained could yield improvements in nuclear technology with resulting cost reductions which may permit a subsequent large-scale entry into the United States market.

² See Summary of Findings—Policy Suggestions for the Future, Reports on Productive Uses of Nuclear Energy, National Planning Association, Washington, September 1957, ch. VI, for a fuller discussion of this question.

TABLE 1.—Range of free world requirements for nuclear power, 1956 and about 1980

[Thousands of kilowatts, at high plant factor]

Free world	1955 conventional power capacity	Nuclear power capacity	
		1965	1980
Western Europe:			
Euratom.....	47,688	2,000-8,000	60,000-75,000
United Kingdom.....	27,250	5,000-6,000	50,000-66,000
All others.....	26,269	500-1,000	5,000-15,000
Total.....	101,207	7,500-15,000	115,000-156,000
Asia:			
Japan.....	14,512	500-1,000	9,500-15,000
India.....	3,221	100-500	1,500-3,000
All others.....	2,940	200-500	500-1,500
Total.....	20,673	800-2,000	11,500-19,500
Africa.....	5,510	200-500	1,500-3,000
North America:			
United States.....	130,896	1,500-4,000	60,000-227,000
Canada.....	12,678	500-1,000	5,000-15,000
All others.....	3,299	100-500	500-1,000
Total.....	146,873	2,100-5,500	65,500-243,000
South America:			
Brazil.....	2,970	100-500	2,000-3,000
All others.....	4,987	100-500	2,000-3,000
Total.....	7,957	200-1,000	4,000-6,000
Oceania.....	4,459	200-500	1,000-3,000
Free world total.....	286,679	11,000-24,500	197,500-430,500

Source: Summary of Findings, *ibid.*, table V-1, p. 45.

From the viewpoint of the domestic economy, nuclear energy can most usefully be thought of as an energy source which will acquire significance by preempting energy markets or applications based on its unique characteristics. In some cases, particularly in regard to radiation energy and some applications of high temperature furnace heat in industry, both of these developments will occur simultaneously. The present projections are concerned largely with the entry of nuclear energy into the domestic fuel and energy economy and they ignore other possible nuclear markets. To the extent that this "partial" analysis is valid, policymakers are free to alter the stated projections and implications to introduce the influences of the broader issues of military and foreign policy and of foreign markets for nuclear energy.

Specific underlying assumptions

Generally speaking, the present projections assume a continuation of the essentially full employment conditions which have characterized the United States economy in the post-World War II decade. They also assume that the cold war will continue, with continued heavy outlays for defense and foreign military and economic aid; that population growth will be rapid; and, based on the full employment assumption, that industrial technological progress will proceed at a more rapid pace than in the past.³

³ The present projections are taken from a staff study prepared by Perry D. Tettelbaum for the National Planning Association project on the productive uses of nuclear energy.

The following assumptions were made regarding fuel and energy prices and costs:⁴

1. Nuclear energy costs: These can be best illustrated in the case of electric power generation. (See table 2.)

TABLE 2.—Nuclear power cost assumptions

Cost item	Large plants		Small plants	
	Short term (1965)	Long term (1980)	Short term (1965)	Long term (1980)
Plant cost, per kilowatt.....	\$225	\$150	\$350	\$190
Generating costs at a 50 percent lifetime plant factor (in mills per kilowatt-hour):				
Fixed charges ¹	6.9	4.6	10.8	5.9
Operating and maintenance.....	2.0	.5	2.5	1.5
Fuel costs ²	3.0	.8	4.7	2.5
Total.....	11.9	5.9	18.0	9.9

See footnote 3.

¹ At 13½ percent, consisting of: Interest, 1.5 percent; equity return, 4 percent; Federal income taxes, 4 percent; other taxes and charges, 2.2 percent; insurance, 0.2 percent; and replacement and amortization, 1.6 percent. These figures assume a 50-50 bond-equity private financial structure with an average 8 percent equity return. Federal income taxes were figured at 50 percent, other taxes at about the national average. The amortization and replacement component reflects a 25- to 35-year plant life on a sinking fund basis.

² Includes fuel inventory.

2. Coal: At most, an average rise in delivered prices of 15 to 20 percent is envisaged by 1980, based on ample reserves, an increasingly alert and aggressive management, substantial progress in mining techniques, a decreased tendency for coal miners' wages to continue to rise more rapidly than those in other industry groups, and lowered transportation costs. (See 5 below.)

3. Oil: Increased dependence on ample overseas sources (assuming no drastic changes in the Middle Eastern situation), the low ceiling on United States crude oil price rises imposed by shale oil, and the continued availability of United States sources of supply, assuming improved techniques of finding and drilling for new-oil reserves and of producing oil, all suggest only a moderate oil price rise at most.

4. Natural Gas: Domestic supplies are deemed ample to support projected demand, although average well prices may increase substantially. The domestic supply may also be augmented by Canadian and Mexican gas and by the development of tankers carrying natural gas liquefied under pressure and at low temperature.

5. Fuel transportation: Through a variety of developments, fuel and energy transportation real costs are expected to continue their long-term downward trend. These developments include increased use of barges, conveyor belts, and pipelines for coal; supertankers for oil; larger pipelines and tankers for natural gas; and improved long-distance transmission techniques for electric energy.

Other underlying assumptions include the following: In constant 1955 prices, gross national product in 1980 is projected to rise by about 1.3 times above 1955 levels. This yields a figure of around \$90 billion (or \$960 billion in 1957 prices). The industrial production

⁴ All references to prices or costs should be understood to be in real, or constant dollar, terms.

index is projected to 324 (1956=143); steel ingot production is estimated at 225 million tons (117 million tons in 1955); and electric power generation is projected to 1,795 billion kilowatt-hours (629 billion in 1955).⁵

Energy supply and demand in 1980

Based on the foregoing assumptions (and on other related assumptions), we have projected domestic primary energy consumption to double between 1955 and 1980, from 40.3 to 80.9×10^{15} b. t. u. Table 3 summarizes this projection in terms of supply by primary fuels:

TABLE 3.—*Domestic energy consumption by primary source, 1955 and 1980*

Primary energy source	1955			1980		
	Conventional units	10^{15} B. t. u.	Percent of total	Conventional units	10^{15} B. t. u.	Percent of total
Bituminous coal and lignite (million tons).....	423.4	11.1	27.2	735	19.2	23.7
Anthracite (million tons).....	23.6	.6	1.5			
Liquid petroleum products ¹ (billion barrels).....	2.81	16.3	41.1	5.8	33.6	41.5
Wet natural gas (trillion cubic feet).....	10.1	10.9	26.7	17.4	18.7	23.1
Hydro (billion kilowatt-hours).....	118	1.4	3.4	271	2.4	3.0
Nuclear energy (10^{15} B. t. u.).....	-----	-----	-----	-----	7.0	8.7
Total.....	-----	40.3	100.0	-----	80.9	100.0

¹ May include liquid fuels in 1980 derived from shale oil and coal, as well as from crude oil, although no allowance is made for this in the coal projection.

Source: See footnote 3.

Table 4 summarizes the energy consumption projections and their nuclear shares in applications liable to nuclear competition. The overall nuclear share of these components is approximately one-sixth. Comparison of the total for these applications (39.6×10^{15} B. t. u.) with the total for all energy in table 3 (80.9×10^{15} B. t. u.) demonstrates that roughly half of total energy consumption in 1980 will not be affected directly by nuclear energy.⁶

⁵ 1980 was chosen as the target date for the projections solely as an analytical expedient. It should more properly be considered to represent a convenient way of saying "the next 2 or 3 decades."

⁶ It may be noted that tables 4 and 5 include estimates of energy consumption for military purposes. These estimates are introduced solely to have a complete account of the domestic energy budget and represent rough approximations of the appropriate components. The figure for the U. S. Navy is largely based on publicly announced plans for nuclear naval capacity as applied to total capacity of naval vessels on active duty. The figure for the Air Force is essentially an arbitrary estimate. These estimates have no significance, however, in regard to current or future outlays on military or civilian applications of

TABLE 4.—Potential nuclear share of energy consumption in competitive applications, 1980

Energy consuming category	Installed capacity, 10 ⁶ kilowatts (heat)		Energy consumption, 10 ¹² B. t. u.		Nuclear share of total (percent)
	Total	Nuclear	Total	Nuclear	
Steam electric generation.....	732	192	14, 798	4, 307	29
Industrial process and furnace heat.....	(¹)	53	20, 740	1, 454	7
Ship propulsion.....	122	23	2, 064	491	24
Railroad locomotion.....	169	8	1, 000	96	10
U. S. Navy.....	60	60	450	450	-----
U. S. Air Force.....	(¹)	40	500	110	-----
Other military.....	(¹)	17	(¹)	100	-----
Total.....	-----	393	39, 552	7, 008	18

¹ Not estimated.

² Civilian categories only.

Source: See footnote 3.

Table 5 summarizes significant aspects of the competitive interfuel struggle derived in conjunction with the projections in tables 3 and 4: the projected displacement of fossil fuels and hydro by nuclear energy in particular applications.

TABLE 5.—Projected displacement of conventional energy by nuclear energy, by consuming sectors, 1980

[In 10¹² B. t. u.]

Energy consuming sector	Added— nuclear energy	Displaced—			
		Coal	Oil	Gas	Hydro
Electric power generation.....	4, 307	2, 260	884	276	51
Industrial process and furnace heat.....	1, 454	765	468	281	-----
Ship propulsion.....	491	-----	491	-----	-----
Locomotives.....	96	-----	96	-----	-----
U. S. Navy.....	450	-----	450	-----	-----
U. S. Air Force.....	110	-----	110	-----	-----
Other military.....	100	-----	20	-----	-----
Total, in 10¹² B. t. u.	7, 008	3, 025	2, 459	557	51
Total, in conventional units.....	¹ 270	² 118	³ 410	⁴ 538	⁵ 5.6
Percent of total in 1955.....	17	26	15	5	5

¹ Million tons coal equivalent.

² Million tons.

³ Million barrels.

⁴ Billion cubic feet.

⁵ Billion kilowatt-hours.

NOTE: Totals do not balance because a higher thermal efficiency is assumed in conventional than in nuclear electric-power generation. In addition, the conventional energy losses in the "other military" category, except for an estimated substitution for oil by package power reactors, cannot be specified because of its miscellaneous nature.

Source: See footnote 3.

Because of their long-run nature and because of their dependence on assumptions that are subject to varying degrees of uncertainty, the foregoing projections must be considered to offer no more than an estimate of the relevant orders of magnitude. Nevertheless, the nuclear projections are more likely to be too low than too high: first, because generally conservative assumptions were introduced at various stages in their derivation; second, because we cannot make any allowances for applications of nuclear energy that are as yet undiscernible.

ble. The potential pervasiveness of such applications may be appreciated, however, by considering as an analogue the impact that electric energy has had on the pattern of energy consumption during the past quarter century, in terms of its direct substitution for other energy forms and of new uses that were unknown in 1930.

Others have undertaken more detailed considerations of the potential impacts of nuclear energy on specific energy-intensive industries.⁷ To a large extent, these analyses concern applications of nuclear electric energy, exclusively; hence they ignore the possibilities (considered in the present projections) of either low or high temperature nuclear-based heat in industrial applications. They are also based on energy-cost comparisons which may since have shifted slightly in favor of nuclear energy, at least for the long run. The present projections of nuclear energy in industry, which thus cover a wider range of possibilities, may therefore on this score appear more optimistic than would be indicated by these other studies.

Implications for public policy and economic growth

The primary implications of these projections for future economic growth and for emerging questions of energy policy are these:

First, potential supplies of fossil fuels available to the United States appear sufficient to meet projected demands at no more than moderate increases in real costs over the next quarter century. Nuclear energy can be expected to become competitive in the United States only as the result of substantial progress in technology and cost reduction.

Second, the growth of total energy demand required to sustain economic development is rapid, with total energy consumption expected to double and electric power consumption expected to triple in 25 years. All forms of energy supply will be called on to meet this growth. As a supplementary source, nuclear energy can help in meeting a part of growing boiler fuel needs, in providing a restraint on price increases of fossil fuels, in reducing the disparity between energy cost differentials in various regions of the United States, and in providing stimulus to the economic growth of such regions as New England and the upper Mississippi Valley where energy costs have constrained the development of energy-intensive industrial activity.

Third, nuclear energy alone cannot solve the problem of the steadily growing dependence of the Nation's energy economy on fluid fuels, secured in part from lower cost foreign sources that seem vulnerable to interruption. Aside from the contribution of nuclear energy in special applications such as ship propulsion, the United States economy will have to look mainly to a domestic synthetic liquid fuels industry, from shale or coal, to lessen the dependence on foreign sources of petroleum.

Finally, owing to the close interrelations existing between different energy sources and between domestic and overseas supplies, the Nation for many years has needed and still needs an overall energy policy. While recognizing that nuclear fuel has already multiplied the Nation's energy potential, such an overall policy should be concerned with broadening the energy base and assuring supplies at minimum cost, consistent with considerations of national security.

⁷ See, for example, *Economic Aspects of Atomic Power*, S. H. Schurr and J. Marschak, Princeton University Press, 1950; and *Atomic Power*, W. Isard and V. Whitney, Blakiston Co., 1952.

The economic growth of other advanced industrial nations of the free world has already been seriously affected by the constraints imposed by inadequate and assured energy sources at reasonable costs. With proper management of our resources—including the technology of synthetic liquid fuels and of nuclear energy—there need be no similar problem here. We can therefore meet the expanding energy needs implied by the rapid economic growth foreseen in the United States during, and far beyond, the next generation.

NUCLEAR ENERGY EXPENDITURES AND NATIONAL POLICIES

Development of nuclear energy in the United States, we have seen, will be one of several technical advances that will help to broaden the energy base of the economy, restrain the tendency toward rising cost of energy sources and hence contribute to longtime economic growth. Yet, the influence of nuclear energy on resource development is unlikely to be large in the short term. Federal expenditures for nuclear energy could depart substantially from present levels without producing immediately discernible effects upon resource development and economic growth.

The connection between development expenditures now and the Nation's future growth, while remote in time, is nonetheless real. Indeed, the wide range of nuclear energy applications, not merely in electric power, but also in ship propulsion, radiation, and process heat, seems certain to result in long-term economic benefits here and abroad. Moreover, large public and private investment undoubtedly will be necessary to achieve the long and difficult transition from technical to economic feasibility of all these applications.

Applications receiving the largest investment support in the development phase may not prove to be the ones contributing the most to longer term growth. The nonpower uses, such as radiation processing, may prove more productive, in terms of increments in national product per dollar of research and development expense, than may reactor-produced electricity.⁸ But the economic effects of nuclear energy's wide application—and particularly electric power—should be assessed not alone by cost-benefit relations or by economic growth potentialities. Especially important will be the extent to which the Nation's generally accepted foreign and domestic policies may be supported by the development of nuclear energy, and help provide solutions to worldwide energy problems.

Most of the productive applications of nuclear energy are deep in the developmental stage and may remain so for several years. Only isotopes, thus far, have crossed the threshold into competitive usefulness. For this series of Joint Economic Committee papers, perhaps the atomic-energy expenditure programs fall more sensibly into the "research and development" category than "natural resources." No single classification can be satisfactory, however, since the purposes of nuclear-energy development are multiple, covering national security, foreign aid, as well as natural resource development. National policies governing the scale and quality of this development program have roots extending into virtually all the budget categories used by the committee's staff.

⁸ Addresses by AEC Commissioner Libby have reported the hundreds of millions of dollars that have already been saved by industrial applications of isotopes.

Size and direction of development spending

The magnitude of peacetime public expenditures for atomic energy—military and civilian purposes—is without parallel. Since the beginning of the effort in the National Research Council (1940), the total investment by the Government has exceeded \$17 billion, of which \$15 billion has been expended since the war. (See table 6.) The investment in plant approaches \$6.6 billion, and costs of all operations are now nearly \$2.0 billion. The Commission's major expansion programs, begun in 1950, have now been largely completed and yearly costs of new plant are running at \$320 million—one-fourth of the peak reached in fiscal year 1954. (See tables 6, 7, and 8.)

TABLE 6.—U. S. Government investment in atomic-energy program, June 1940 through June 1957 (preliminary)

[In millions]	Appropriation payments, net of reimbursement
War Department (NDRC, OSRD, and MED) : Fiscal year 1941 through fiscal year 1947 (part)-----	\$2, 233. 4
Atomic Energy Commission: Fiscal year 1947 (part) through fiscal year 1957-----	13, 577. 6
Total payments, net-----	15, 811. 0
Unexpended balance of appropriations, June 30, 1957-----	¹ 1, 284. 8
Appropriations transferred-----	5. 6
Total appropriated funds-----	17, 101. 4
Less collections paid to U. S. Treasury and property and services transferred to other Federal agencies (net)-----	107. 6
Total investment through June 30, 1957-----	16, 993. 8
Less cost of operations, including depreciation and obsolescence from June 1940 through June 30, 1957-----	8, 591. 4
AEC equity at June 30, 1957-----	8, 402. 4

¹ \$2,324,000,000 of appropriations for fiscal year 1958 not included.

Source: 1956 Financial Report, U. S. Atomic Energy Commission, October 1956. Preliminary 1957 data from Division of Finance, AEC, Oct. 2, 1957.

TABLE 7.—Summary financial data for U. S. Atomic Energy Commission, fiscal years 1950-57

[In millions of dollars]

Fiscal year—	Cost of operations ¹	Percent increase	Plant construction costs incurred	Percent change	Completed plant at June 30	Percent increase
1950-----	414. 8	-----	256. 1	-----	1, 809. 6	-----
1951-----	494. 6	19. 2	459. 2	79. 3	1, 924. 8	6. 4
1952-----	684. 2	38. 3	1, 082. 2	135. 7	2, 133. 9	10. 9
1953-----	904. 6	32. 2	1, 125. 6	4. 0	3, 149. 5	47. 6
1954-----	1, 039. 2	14. 9	1, 215. 1	8. 0	4, 090. 3	29. 9
1955-----	1, 289. 5	24. 1	842. 5	-30. 7	5, 858. 3	43. 2
1956-----	1, 608. 0	24. 7	301. 7	-64. 2	6, 466. 0	10. 3
1957 (preliminary)-----	1, 968. 3	22. 4	317. 0	5. 1	6, 596. 7	2. 0

¹ Includes depreciation.

Source: 1956 Financial Report, U. S. Atomic Energy Commission, October 1956. 1957 data from Division of Finance, Oct. 2, 1957.

TABLE 8.—AEC investment in plant and equipment, June 30, 1957, preliminary

[In millions]

	Completed plant	Construction in progress	Total	Percent of total
Production facilities:				
Raw materials.....	\$7.1	\$0.4	\$7.4	0.1
Feed materials.....	235.9	21.9	255.8	5.7
Gaseous diffusion plants.....	2,318.2	8.4	2,326.7	33.7
Production reactors and separation areas.....	1,560.7	68.0	1,628.8	23.6
Weapons production and storage.....	709.8	39.1	748.9	10.8
Heavy water.....	202.7	1.3	204.0	3.8
Other production facilities.....	340.9	13.9	354.8	5.2
Total production.....	5,433.3	153.0	5,586.3	80.9
Research facilities:				
Laboratories.....	541.4	24.3	565.6	8.2
Reactors.....	84.1	94.8	178.9	2.6
Accelerators.....	60.2	13.4	73.6	1.1
Other.....	66.1	11.9	78.0	1.1
Total research.....	751.8	144.3	896.1	13.0
Communities.....	267.3	4.1	271.4	3.9
Other.....	144.3	9.9	154.2	2.2
Total.....	6,596.7	311.2	6,907.9	100.0

NOTE.—Detail may not add to total due to rounding.

Source: Division of Finance, U. S. Atomic Energy Commission, Oct. 2, 1957.

Current rates of operating expenditures and plant construction for research and development on nuclear reactors for military and civilian purposes are shown, insofar as they have been segregated by the Atomic Energy Commission, in tables 9 to 13. The key facts indicated by the AEC's figures are these:

Thus far, roughly \$450 million of development and construction expenditures have been dedicated to civilian reactors.

By rough comparison, about \$900 million of development and construction expenditures have been devoted to military reactor development (excluding construction of the materials production reactors at Hanford and Savannah Rivers).

Expenditures for military, civilian, and undesignated reactor research are expanding rapidly. For each of these categories, annual development expenses are now (fiscal year 1958) more than double those 2 years ago.

Government commitments to support "cooperative arrangements" with groups outside the AEC are just beginning to be substantial, but no expenditures for construction are expected until fiscal year 1959.

In brief, these development expenditures for civilian purposes are on the order of many millions annually—\$150 million is a guesstimate—and they are rising rapidly. They are large, too, when compared with expenditures rates for military reactors. Important technical, economic, and national policy objectives can be set forth to justify such large and growing expenditure programs; they also raise the question of still further expansion in public expenditures.

Technically, reactor developments of the last few years have revealed the need for an extensive program along several promising lines, including not only a wide variety of technically feasible designs for central station powerplants, but also reactor designs for ship pro-

pulsion, for remote use, and for radiation processing. The United Kingdom has found it best to concentrate on two lines of power-reactor design, one being practical immediately and the other holding promise for the longer term. The United States, however, has not had to decide on 1 or 2 courses of development and has proceeded on many fronts, at least at the experimental level.

Furthermore, the scientists and engineers in AEC and industry have found the task of bridging the cost gap between technical feasibility and competitive usefulness to be more difficult and time-consuming than it appeared in 1953 and 1954. Also, the volume of private investment in reactor development and construction, while significant and growing, has proved to be less than presupposed by passage of the Atomic Energy Act in 1954 permitting wider private participation in atomic energy development.

Finally, on the political front, each year since the President's farsighted U. N. atoms-for-peace address in 1953, the international situation has become a progressively more impelling reason for wider international cooperation in nuclear energy. The wide declassification of United States information on reactor technology, the scientific conference at Geneva (1955), the numerous bilateral agreements, the startling success and expansion of the British reactor program, the formation of Euratom with United States encouragement, and the Suez crisis—all of these events underscore the desirability of a reactor development program that fully supports the Nation's foreign policy objectives, as well as the purely domestic.

The roots of national policy for power reactor development

Practical manifestation of the need for civilian applications of nuclear energy preceded the formation of the Atomic Energy Commission, pursuant to the Atomic Energy Act of 1946. The Manhattan Engineer District (MED), recognizing the promise of the atom for productive purposes, began before the end of the war a number of exploratory power reactor projects, particularly at Oak Ridge. The institution of three national laboratories, a product of the MED, was a most constructive step taken at this time, laying the ground for wide development of nuclear energy under Commission auspices.

Considerably later, the AEC in 1949 established the Reactor Development Division which led to the "industry participation program" and, later, to the declaration of Commission power reactor policy, June 24, 1953. The Commission's declaration, in brief, held " * * * the attainment of economically competitive nuclear power to be a goal of national importance * * *," recognized the responsibility of the Commission to continue reasearch and development, and to promote the construction of experimental reactors which contribute to technology and to design of economic units; and, among other things, expressed the conviction that progress toward economic nuclear power could be further advanced through participation in the development program by "groups outside the Commission." The act of 1954 gave body to virtually all the Commission's proposals for providing reasonable incentives for encouraging wider participation.

The President's atoms-for-peace address, December 8, 1953, set forth the policy objectives that now underlie the provisions of the 1954 act providing carefully circumscribed authority and conditions for

permitting wider international cooperation in certain atomic energy matters.

These developments are the primary policy bases for nuclear energy development programs, and from them stem the criteria for evaluating the character of the expenditure programs in this field.

Suggested criteria

The six criteria listed here are illustrative of the relevant questions and the brief comment on each is intended to evoke discussion and provide background rather than to represent a sufficient answer.

The primary standard to be suggested is this: *Is the program adequately supporting, without the waste of resources or jeopardy to national defense and security, the Nation's major policy objectives, first, to achieve, without delay, economic nuclear energy applications through the efforts of both Government and private enterprise; and, second, to permit the achievement of foreign policy objectives that necessitate growing international cooperation?*

Differences in personal value judgments about these questions explain much of the controversy concerning the desirable rate and scale of atomic energy programs. Yet recent debate has suggested that a narrowing of extreme points of view may be occurring. Acceleration of reactor development has been generally accepted by the legislative and executive branches. Moreover, it is accepted that, although domestic needs for a new source of power are not pressing, the needs of Western Europe, Japan, and other free nations are urgent. (See table 1.) There is no question that it is in the United States policy interest to participate in fulfilling these needs. Finally, it is accepted that nuclear energy development calls for the technical and financial resources of both the Government and industry, but with the Government taking the lead in experimenting with new approaches to reactor design.

Not yet resolved is the detailed manner in which the Nation goes about the problem of reconciling its domestic and foreign programs for nuclear energy. The domestic development program is motivated primarily by the goal of achieving economically competitive nuclear power through reliance on the efforts of nongovernmental groups, supported by strong Government assistance. On the other hand, the more urgent foreign program, motivated primarily by international necessities, presupposes the early availability of economically useful nuclear power. While the premises of the two programs seem to be in conflict, it is possible with the ample resources we possess to contemplate a nuclear power development that is aimed at accomplishing the purposes of both policies. The key issue then is how to rectify the present disparity between the domestic and foreign programs of the United States.

Is the domestic development program to be further accelerated—beyond that warranted by considerations of private motivation and resource needs—or should the scope and pace of the foreign program be cut back to the level of technical realities at home? It would be fruitful to explore both sides of this question at some length, but circumstance and judgment suggest that the second alternative is politically difficult, if not impossible. Our foreign policy and the atoms-for-peace program have led us to 10 bilateral power agreements, the formation of the International Atomic Energy Agency, full support of

Euratom, and the offer of quantities of nuclear fuels. The prospects for augmenting the scope and depth of the effort to achieve economically useful nuclear power may be revealed in the course of examining a few other standards for evaluating the domestic developmental program.

Is there a marked disparity in the pace of reactor development as between military and civilian applications? Is the civilian program interfering with the military reactor development effort? The fact of 2 nuclear-propelled submarines in operation, 14 more vessels now being built, and several more planned, is sufficient evidence that available resources are being found adequate to support a large military reactor program without major diversions to civilian development projects. Civilian reactors, benefiting to a degree by transference of the military reactor technology, have not moved nearly so rapidly to full-scale construction. Only one full-scale, Government-owned power reactor is now approaching completion, and this is a direct offshoot of a design developed for naval ship propulsion. The evidence suggests a gap between the two programs at the construction level. Moreover, the technology of military reactors is not necessarily in the best direction for civilian development; virtually all of the military reactors being built or planned are of the pressurized water design using enriched uranium as fuel. The basic reactor design found suitable for ship propulsion holds no certainty of producing economically competitive central station nuclear power. Several other avenues need and have been receiving investigation.

Is technical progress toward economic use of reactors being sustained and are technical breakthroughs being fully exploited? There has been until recently an obvious preoccupation in the development and construction program with designs that employ natural water and enriched uranium—to the apparent subordination of several other designs, such as the natural uranium heavy-water reactor, the gas-cooled natural uranium reactor, and reactors using plutonium as fuel, among others. The number of technically feasible reactors is great and the capacity of the United States program to explore several simultaneously is a marked advantage (but fertile source of confusion).

Thus, the Government experimental program now covers not only pressurized and boiling-water reactors, but also such reactors as the sodium-graphite, homogeneous, fast breeder, organic-moderated, and liquid-metal fuel. It is at the small, experimental reactor level—rather than at full-scale construction—that the Government has achieved generally recognized success in accomplishing major steps in reactor technology. Indeed, a leading reactor specialist (Zinn) has indicated that the design concept of every power reactor was first developed in connection with the AEC program for the construction of small experimental power reactors.

With the exception of the homogeneous reactor concept, each of the five designs in the Commission's 5-year reactor program (1953) has successfully passed through the small-scale, experimental stage and is substantially ready for full-scale demonstration. In general, major technical advances—such as the boiling-water concept—have been specifically confirmed by experimental reactors of small size, but such advances have not yet been tested for their economic promise at full scale. This experience must be secured soon.

Is the development program being managed in a manner that assures the efficient and reasonably full use of both government and industry resources of technical and scientific talent? This standard presupposes the national importance of reactor development and not the dubious desirability of keeping scientists and technicians busy just for the fun of it. Evidence suggests that the present programs of development and construction are on a smaller scale than the technical resources of industry and government would permit.

Reactor engineering and construction capabilities, for example, are now very great, in part because the Commission's expansion of production reactors is long since passed. Moreover, there is still only a handful of large contractors carrying major responsibility for development and construction of reactors. Smaller companies and new entrants in the field have repeatedly stated that resources are available to permit a greater distribution of reactor development.⁹ And it is still true that major segments of industry, that were formerly in the atomic energy program, have shown no disposition to return by participation in civilian development programs. Also, the national laboratories, all heavily engaged in government and industry programs, have contributed a stream of trained people to all parts of industry. (However, it may be fruitless to speak of potential industry resources that are available if the motivation for productive, profitable participation by nongovernment groups continues to appear remote.)

Are the tone and character of the development program such that the ever-present private versus public power controversy is not exacerbated and, indeed, not raised to a pitch that could stall the development program through failure to find mutually acceptable solutions to common problems? This problem is so thorny that there has been a self-protecting disposition in most statements discussing national policy for nuclear power to sweep the issue under the rug. One need be neither a fool nor an angel to attempt commenting constructively on this contentious matter as it relates to the expenditure program.

⁹ In response to an AEC invitation for proposals for engineering design of a 40,000-kilowatt nuclear-power reactor, 31 architect-engineer firms submitted proposals (AEC Release 1188, October 1, 1957).

Commonsense indicates that both the private and public sectors of the electric utility industry accept the desirability of joint government and industry efforts in developing economically competitive nuclear-power reactors useful in both types of systems. Also, each sector is opposed to having the developmental program become exclusively the province of the other. While granting the important potential contribution of the private utilities to reactor development, the public sector expects the program to be administered in a manner that permits its participation with adequate recognition of the differing financial capacity and needs of publicly owned systems. Similarly, the private utilities expect the development program to be administered in a way that provides necessary government assistance yet avoids arrangements that might extend the scope of federally owned utility systems or that might compromise the mandate of the act that the Commission is prohibited from generating electric power for commercial purposes (sec. 44).

These points of view are compatible—though the underlying fears that spokesmen of each sector have expressed concerning the aggressive ambitions of the other are not. While recognizing the views of the Executive branch on national power policy, one must also note that there is no clear evidence that administration of the civilian reactor program has favored one sector at the expense of the other. (See table 10 for the direct assistance being given private utilities and public, municipal, and cooperative systems.) Considering the high degree of government intervention required by reactor development and operation under the act, it would be an administrative accomplishment of surpassing skill if no conflicting claims of favoritism were expressed.

There is a continuing possibility, however, that this controversy could delay or prevent adoption of measures designed to encourage reactor development. It is probable, for example, that private industry will seek progressively greater degrees of government assistance in the construction and operation of full-scale power reactors and will continue to oppose steps moving toward Federal construction and operation beyond experimental sizes. At the same time, supporters of publicly owned systems will be impelled to question the desirability of greater government assistance to private reactor operation and may continue to urge outright Federal construction. However these extremes may finally be compromised or resolved, the impact will appear, in greater or lesser degree, in the reactor expenditure programs for development and construction.

TABLE 9.—Operating expenses and plant construction costs for reactor development, through fiscal year 1958

[In millions]

	Civilian power reactors				Military reactors	Controlled thermo-nuclear power	General research and development	Total development program
	AEC direct program	Cooperative arrangements program	Merchant-ship reactors	Total				
(a) Operating expenses:								
Through fiscal year 1955.....	62.0	3.9	0	65.9	237.6	7.4	146.5	457.4
Fiscal year 1956.....	42.3	0	.1	42.4	91.3	6.6	30.8	171.2
Fiscal year 1957.....	51.8	2.0	.7	54.4	154.2	11.0	44.9	264.7
Fiscal year 1958 (estimated).....	82.9	13.9	3.3	100.1	180.6	21.7	51.9	354.3
Cumulative to June 30, 1958.....	239.0	19.8	4.1	262.9	663.7	46.7	¹ 274.1	1,247.6
(b) Plant construction costs:								
Through fiscal year 1955.....	7.1	.3	0	7.4	131.4	.7	181.2	320.7
Fiscal year 1956.....	8.7	.1	0	8.8	11.7	.6	12.6	33.7
Fiscal year 1957.....	36.6	.7	.3	37.6	31.0	.3	19.1	88.0
Fiscal year 1958 (estimated).....	27.5	0	5.0	32.5	50.7	2.6	34.6	120.4
Cumulative to June 30, 1958.....	79.9	1.1	5.3	86.3	224.8	4.2	¹ 247.5	562.8

¹ Perhaps more than ½ of this sum is assignable to civilian projects.

Source: Division of Finance, AEC, Oct. 2, 1957.

TABLE 10.—Reactor projects jointly financed and supported by AEC and outside groups—The “Cooperative Arrangements Program,” fiscal year 1958 budget

[In millions of dollars]

Utility	Electric capacity (kilowatt)	AEC assistance				Contractors' participation			Total cost
		Research and development ¹	Waiver of fuel-use charges	Construction	Total value	Research and development	Construction ²	Total	
1st round:									
Yankee (Massachusetts) ³	134, 000	\$5. 0	\$3. 0	0	\$8. 0	(⁴)	\$55. 0	\$55. 0	\$63. 0
Power Reactor Development Co. (Michigan) ⁵	100, 000	4. 5	3. 7	0	8. 2	9. 0	45. 2	54. 2	62. 4
Consumers (Nebraska).....	75, 000	26. 2	1. 3	24. 0	51. 5	0	16. 6	16. 6	68. 0
2d round:									
Rural Cooperative (Minnesota).....	22, 000	⁶ 2. 8	. 1	5. 7	8. 6	1. 0	2. 5	3. 5	⁷ 12. 0
Wolverine (Michigan).....	10, 000	1. 6	0	3. 8	5. 5	0	. 8	. 8	6. 2
Piqua (Ohio).....	12, 500	⁸ 3. 5	. 6	4. 0	8. 1	0	4. 0	4. 0	12. 0
Chugach (Alaska).....	10, 000	⁹ 9. 9	. 6	6. 7	17. 2	(⁹)	1. 9	1. 9	19. 1
3d round:									
Florida group ³	136, 000	9. 3	¹⁰ 7. 5	0	16. 8	(⁴)	40. 2	40. 2	57. 0
Northern States (Minnesota) ³	66, 000	6. 0	1. 0	0	7. 0	0	21. 6	21. 6	28. 6
Total	565, 500	68. 8	17. 8	44. 2	130. 9	10. 0	187. 8	197. 8	328. 3

¹ In some instances includes postconstruction research and development.

² Including turbogenerator.

³ Privately-owned. Others are publicly owned.

⁴ Included in construction estimate.

⁵ Excludes a maximum of \$1,640,000 to cover postconstruction costs for operating expenses in excess of conventional costs.

⁶ AMP Atomics, the reactor manufacturer, in September 1957 withdrew its cost estimates for this plant. New higher estimates are being prepared.

⁷ Excludes \$3,600,000 of postconstruction operating expenses.

⁸ Excludes postconstruction operating expenses (maximum) of \$2,500,000.

⁹ \$25,000 contributed by Nuclear Development Corp.

¹⁰ Includes \$5,000,000 waiver of heavy water use charges.

Source: Atomic Energy Appropriations for 1958, hearings before the Subcommittee on Appropriations, House, 85th Cong., 1st sess., pp. 223-232; and S. Rept. 791. Authorizing Appropriations for the Atomic Energy Commission, Aug. 2, 1957, pp. 9-14.

The last suggested standard, intimated by the preceding discussion, is this: *In seeking wide, industrial participation as contemplated by the act, are the forms and degrees of government assistance reasonable and clearly visible, and will they best serve the goal of achieving economically competitive nuclear power?* The extent of nongovernmental reactor development and construction, while increasing, has still not become large. One private, small experimental power reactor thus far has been constructed, and two full-scale plants are in process of construction that do not depend on substantial degrees of government assistance. A number of other nongovernmental plants are planned, each involving such direct government aids as preconstruction research and development, and waiver of fuel use charges, aside from such indirect benefits as government indemnification for reactor hazards, guaranteed fuel reprocessing charges and long-term fixed prices for byproduct plutonium.

Present government assistance, direct and indirect, is varied, subject to change and not easily identified. Yet there are still other aids that could be brought to bear, such as pricing plutonium at its weapon value, granting nuclear fuel without any use charges, pricing U-235 at out-of-pocket expense rather than full cost of production (including plant depreciation), and many others. Present and potential devices for assistance are so numerous and intricate that there is grave danger of the expenditure programs failing to consider both real and dollar costs pertaining to them. Also, there is a risk that additional assistance, designed mainly for the immediate purpose of accelerating technical development and gaining experience in full-scale plant operation, could become a permanent crutch in commercial operations, not only of generating stations, but also of supporting facilities. Achieving economically competitive nuclear power could become a simple, but meaningless bookkeeping task.

Unfortunately, there is no practical way to judge when the cost of additional government assistance exceeds the additional contribution to technical development. But the variety of devices already being used, within the limits of the "no subsidy" provision in the act (sec. 169) is itself a warning.

The only alternative to more and more government assistance, in order to promote technical development and private full-scale plants, is not necessarily the obvious one of Federal construction and investment. Though the desirability of doing so might be open to sharp differences of opinion, the expenditure program could continue to follow its present pattern: Industry being expected to construct full-scale demonstration reactors, and AEC taking responsibility for development and construction of experimental reactors—and such others as the Congress itself may specify in authorizing appropriations for projects and programs. The cost of constructing full-scale power reactors is large—on the order of \$50 million to \$75 million each. A national policy therefore that shifts the cost of constructing or operating demonstration plants to the Federal Government could have a large impact on the reactor expenditure program. Yet the expenditure rate could be doubled before approaching the present scale of the military reactor program.

If one accepts the desirability of accelerating construction of full-scale units in order to demonstrate the costs and reliability of nuclear

power, then progress toward competitive reactors could be advanced by (a) increasing degrees of government assistance, (b) by outright subsidies, (c) by government construction, or (d) possibly by a mixture of these. If the premise of full-scale construction is not accepted, then extraordinary construction measures are not necessary and the present program may be relied on, perhaps at the cost of some delay, to provide the answers being sought. But there are differences among the technical experts as to the necessity of full-scale construction. Some stress the need for prior nuclear fuel experimentation and subordinate the role of plant problems; but most insist that full-scale plants for most designs are necessary, not only for proving out the fuel cycle, but also providing the operating and plant experience that different reactor designs require.

The fact that full-scale reactor construction requires between 4 and 5 years, including engineering design, and that construction of several reactor designs has not yet begun, means the construction phase that the civilian reactor program has only recently entered may be long indeed. The serious delays and obstacles the reactor development program has experienced may be measured by the low rate of construction costs currently being incurred. (See table 9.) In fiscal year 1958 the plant costs of the direct government program are actually less than in fiscal year 1957. More striking still, the reported construction costs of the "cooperative arrangements" program are nil in the current year, no construction being expected until fiscal year 1959.

This extremely limited construction effort, is partly offset by the current construction of a few privately owned plants and by the Government-owned plant at Shippingport, Pa. But it suggests that the development program may be lagging behind the scale of effort required to support the prompt achievement of major national policies set forth 3 and 4 years ago. One danger is that the present program may fail to complete the construction phase in time to be of maximum use in assuring the Nation's full participation in international developments and in meeting the needs of other countries. It seems likely that international developments not discernible now, as well as the foreseeable needs of the International Atomic Energy Agency, Euratom, and the bilateral agreements will place heavy demands on the Nation's ability to deliver, in the form of guaranteed reactor designs and performance.

Establishment of Euratom in particular opens the immediate and promising possibility of joint arrangements between the United States and the six nations in the construction of full-scale demonstration reactors in Europe. Were joint arrangements to be successfully worked out, the two-way benefits could be substantial. Euratom, a major step toward Western Europe's integration, would be able to make the first step toward the 15 million kilowatt target for 1967.¹⁰ The United States on its part would secure the indispensable experience and knowledge of constructing and operating full-scale pilot units.

¹⁰ A Target For Euratom, May 1957

¹⁰ A Target for Euratom, May 1957.

TABLE 11.—Civilian power reactor construction costs, fiscal year 1958 budget

[Costs in millions]

	Total estimated cost	Through fiscal year 1955	Fiscal year 1956	Fiscal year 1957	Fiscal year 1958	After
Pressurized water reactor.....	\$50.0	\$1.2	\$7.1	\$35.7	\$6.0	0
Fast power breeder.....	29.1	0	0	.3	5.0	\$23.8
Argonne boiling reactor.....	8.5	0	0	0	2.5	6.0
Liquid metal fuel reactor.....	17.5	0	0	0	1.5	16.1
Sodium reactor experiment.....	4.7	0	0	0	.3	4.4
Consumers Public Power District.....	24.0	0	0	0	.4	23.6
Rural Coop Power Association.....	5.7	0	0	0	1.5	4.2
Wolverine Electric Coop Association.....	3.8	0	0	0	.3	3.5
City of Piqua, Ohio.....	4.0	0	0	0	.5	3.5
Chugach Electric Association.....	6.7	0	0	0	0	6.7
Plutonium Fabrication Laboratory, Hanford.....	4.0	0	0	0	.5	3.6
Zero power reactor, ANL.....	2.7	0	0	0	1.8	.9
Power reactor test building and hot cells, LASL.....	2.6	0	0	0	.8	1.8
Hot cells and waste storage system, Santa Susana, Calif.....	2.2	0	0	0	.5	1.7
Fuel Technology Center, ANL.....	10.0	0	0	0	2.0	8.0
Plutonium fabrication facility, ANL.....	3.0	.2	1.1	.5	1.2	0
Engineering test equipment for HRP, ORNL.....	.8	.1	.1	.2	.4	0
Plutonium recycle reactor, Hanford.....	15.0	0	0	0	5.0	10.0
Total.....	194.4	1.6	8.2	36.8	30.0	117.8

NOTE.—Totals may not add due to rounding.

Source: Division of Finance, AEC, Oct. 2, 1957.

TABLE 12.—Plant construction costs for selected AEC programs, fiscal year 1958 budget

[Costs in millions]

	Through fiscal year 1955	Fiscal year 1956	Fiscal year 1957	Fiscal year 1958
Biology and medicine.....	\$29.5	\$0.7	\$3.4	\$5.3
Physical research.....	116.2	9.1	12.5	28.9
Production of radioisotopes.....	0	0	0	0
Food irradiation.....	0	0	0	.4
Atomic power, by reactor concept:				
Pressurized water.....	1.2	7.0	35.7	6.1
Boiling water.....	.8	.6	.4	4.0
Homogeneous.....	1.0	0	0	.3
Fast power breeder.....	4.1	1.1	.5	10.8
Sodium graphite.....	0	0	0	1.2
Liquid metal fuel.....	0	0	0	1.5
Organic moderated.....	0	0	0	.5
Plutonium recycle.....	0	0	0	3.1
Pressurized heavy water.....	0	0	0	0
Advanced design.....	0	0	0	0
Cooperative arrangements program.....	.3	.1	.7	0
Total.....	7.4	8.8	37.3	27.5
Civil atomic propulsion.....	0	0	0	5.0
Thermonuclear power.....	.7	.6	.3	2.6
Military and classified projects.....	131.4	11.7	31.0	50.7
General research and developing, supporting operations, equipment, etc.....	181.2	12.6	19.1	34.6

Source: Division of Finance, AEC, Oct. 2, 1957.

TABLE 13.—Operating expenses for selected AEC programs, fiscal year 1958 budget

[Costs in millions]

	Through fiscal year 1955	Fiscal year 1956	Fiscal year 1957	Fiscal year 1958
Biology and medicine.....	172.1	28.4	31.6	36.0
Physical research.....	274.0	49.5	60.7	71.0
Production of radioisotopes.....	7.4	1.7	2.3	2.4
Food irradiation.....	0	0	.1	.1
Atomic power—by reactor concept:				
Pressurized water.....	17.2	15.2	14.6	21.0
Boiling water.....	9.0	4.7	5.0	5.0
Homogeneous.....	21.3	10.7	10.7	11.8
Fast power breeder.....	9.1	4.7	6.1	13.6
Sodium graphite.....	5.4	5.0	6.1	7.9
Liquid metal fuel.....	0	1.6	3.5	8.0
Organic moderated.....	0	.3	3.6	5.5
Plutonium recycle.....	0	0	1.0	4.0
Pressurized heavy water.....	0	0	.5	4.0
Advanced design.....	0	.1	.4	2.0
Cooperative arrangements program.....	3.9	0	2.0	13.9
Total.....	65.9	42.3	53.8	96.8
Civil atomic propulsion.....		.1	.7	3.3
Thermonuclear power.....	7.4	6.6	11.0	21.7
Military and classified projects.....	237.6	91.3	154.2	180.6
General research and developing, supporting operations, equipment, etc.....	146.5	30.8	44.9	51.9

Source: Division of Finance, AEC, Oct. 2, 1957.

ATOMIC POWER AND ENERGY RESOURCE PLANNING

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Atomic energy was introduced to the world as a force of unprecedented destructive power, but in opposition to its military potential, scientists emphasized the physical similarity between destructive and commercial applications. Both utilize the same atomic fuels and are founded upon the same basic science concepts. Atomic swords could be made into atomic plowshares in a direct sense.

The high hopes for commercial applications were incorporated in domestic legislation and became the cornerstone of the United States proposals for international control of all atomic energy applications. Realization of these hopes, however, was necessarily postponed in deference to the more immediate and increasingly apparent requirements for manufacturing atomic armaments. The prospects of international agreement faded, and with them the prospects of early commercial application. The United States atomic energy industry grew rapidly as a result of the impetus of defense preparedness.

In recent years, sufficient capacity for production of atomic fuels has been available to satisfy military goals and at the same time to permit the growth of peaceful applications. Atomic electric power, atomic space and process heat, food irradiation, thermonuclear power, atomic propulsion, and related civil applications are being studied. Radioisotopes, a longstanding commercial (and research) byproduct, are being used on a large scale in American science and industry.

From an energy resource standpoint, the most important of these in the foreseeable future will be atomic electric power and atomic space and industrial process heat. Others are in too early a stage of development to permit meaningful discussion of their commercial prospects, or, like radioisotopes and food irradiation, are not primarily energy sources.

THE ENERGY RESOURCE PROBLEM

There are four major limitational factors in man's environment: food, water, energy, and other mineral and nonmineral resources. We need no figures to remind us of the general significance of each of these, though their quantitative relationships to material welfare are far from simple in advanced economies. For present purposes, we shall rely upon accepted projections of economic growth as these determine (and are determined by) human needs, giving sole attention to energy requirements and energy resource availability.

The quantitatively most significant energy resources in the world today are coal, oil, gas, and vegetable fuels. The first three taken together account for three-quarters of present world energy consumption, while vegetable matter, which (in the form of fuel wood) was the most important source of energy a century ago, accounts for another

15 percent.¹ The remainder of the energy is derived from falling water, direct muscular efforts of men and draft animals, and other sources quite unimportant quantitatively. In the United States, approximately 96 percent of the energy is derived ultimately from coal, oil, and gas. The rest is from falling water (in the form of hydroelectric power) and unclassified noncommercial sources.

As a first approximation in analyzing energy needs and resources, we shall lump together all energy from whatever source, usually on the common basis of electricity equivalents, in kilowatt-hours, at full calorific value. This means, for example, that a short ton of bituminous coal contains approximately the same energy as 7,680 kilowatt-hours of electricity; a barrel of crude oil, 1,700 kilowatt-hours of electrical equivalent; and so on.

It does not mean that either the coal or the oil will actually produce the corresponding amounts of electricity, simply because there are energy losses in the process of converting these fuels to their electrical equivalents. If there were no such losses, however, the coal and the oil would in fact yield the indicated kilowatt hours. In expressing all energy resources on the common basis of energy content, we are merely assuming (for the time being) that they are good substitutes for one another in satisfying (by one means or another) various ultimate consumer wants.

Energy and economic growth

A rough but unmistakable correlation between energy consumption and economic progress can be shown in two ways.

First, while real national income in the United States increased 3.83 times from 1900 to 1950,² the total amount of energy consumed increased 3.48 times.³ At the same time, efficiency in heat collection and conversion to other energy forms increased 2.7 times.⁴ In other words, the economic growth of the United States in the first half of the 20th century was accompanied by an almost proportionate increase in energy consumed, but a 9.4-fold increase (2.7×3.83) in energy used per dollar of real national income.

Second, comparing the countries of the world today, we find a roughly equivalent percentage improvement in per capita real national income with greater per capita consumption of fuels. Using data for 1949, one study reported that approximately a 3-percent improvement in national income corresponded to a 2-percent increase in energy consumption.⁵ Another study reported 1952 data for 42 individual countries showing a range from Burma with lowest per capita annual income of \$43 (and annual per capita energy consumption of 0.27 metric ton of coal equivalent) and Haiti with lowest energy consumption of 0.25 metric ton of coal equivalent (and per capita income of \$65) to the United States with highest values of

¹ United Nations Department of Economic and Social Affairs, *World Energy Requirements in 1975 and 2000*, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. 1 (United Nations, 1956), pp. 21, 22.

² J. F. Dewhurst and Associates, *America's Needs and Resources* (Twentieth Century Fund, 1955), pp. 40-41.

³ Calculated from data given by J. F. Dewhurst et al., *ibid.*, p. 1114.

⁴ P. C. Putnam, *Energy in the Future* (Van Nostrand, 1953), p. 90.

⁵ E. A. G. Robinson and G. H. Daniel, *Need for a New Source of Energy*, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. 1 (United Nations, 1956), pp. 36-41.

both at \$1,857 and 8.18 metric tons of coal equivalent.⁶ In other words, the extremes of the data show a forty-three-fold increase in real income accompanied by a thirtyfold increase in energy consumption, and a twenty-nine-fold increase in real income accompanied by a thirty-three-fold increase in fuel consumption. This is essentially the same relation as found in the other nation-by-nation study in that it indicates a slightly less than proportional increase in energy consumption with economic growth.

Certain conceptual difficulties attend the nation-by-nation comparisons. There are differences in energy costs which account for more or less intensive use of energy by countries having approximately the same levels of national income. Another aspect of the same point is that differences in other mineral and nonmineral resources help determine the product mix of industry, which in turn may be more or less energy intensive.⁷ Finally, differences in climate have an obvious effect upon requirements for space heating, which accounts for a surprisingly large proportion of energy consumed. Putnam assigns 34 percent of the fuel consumed in the United States in 1947 to the end use of comfort heating.⁸

These qualifications are considerable, but not sufficient to prevent our drawing meaningful conclusions. The most serious difficulty, due to space heating, would appear to have a systematic effect in that the more advanced nations happen to lie in the temperate and colder areas of the world. To the extent that this is true, the data are no less regular, but the relation between real national income and energy consumption is reduced to one in which energy consumption increased at a relatively constant, but lower rate with real national income.

Neither of the nation-by-nation studies took into account differences in efficiency of energy conversion, which we have noted were important (by a factor of 2.7) in showing a more than proportionate increase in energy utilization with economic growth in the United States. It is not, however, necessary that they do this, as long as we hypothesize that efficiencies in energy utilization improve in about the same way as economic development proceeds. Then, increases in fuel consumption bring even greater increases in fuel utilization, but in relatively constant proportion. We shall in fact make this hypothesis, except for the mature economies of North America and Western Europe, where technological considerations indicate that future improvements in efficiency of energy conversion, whatever the rate of growth in real national income, will be less marked than in the past.

Projected energy needs

The general basis for projecting energy needs in the future has been established by our discussion of past growth-energy relationships.

Prevailing opinion with respect to future economic growth in the United States puts the matter negatively: there is no basis for thinking that the overall rate of economic growth is slowing down.⁹ Over

⁶ E. S. Mason and Associates, *Energy Requirements and Economic Growth* (National Planning Association, 1955), pp. 3-17.

⁷ For a discussion of these and related problems, see Mason, *ibid.*

⁸ *Op. cit.*, supra, note 4, p. 102.

⁹ See M. Abramovitz, *Resource and Output Trends in the United States Since 1870*, *American Economic Review, Papers, and Proceedings* (May 1956), pp. 14-19, and references cited therein.

the last 10 years, the rate of growth of real gross national product in the United States has averaged about $2\frac{1}{2}$ percent per annum; and over the past 20 years, about $4\frac{1}{2}$ percent.¹⁰ The 20-year period, however, included recovery from the great depression and a major war effort. If we take the $2\frac{1}{2}$ percent per annum as a reasonable figure for the future, past experience suggests a $2\frac{1}{4}$ percent annual increase in energy consumption.

But we must qualify past experience before applying it to the future. First, we have seen that great improvements in efficiency of energy conversion in the United States kept energy consumption down to the observed rate of increase. The average efficiency of energy conversion was estimated at 11 percent for 1900 and 30 percent for 1950¹¹ (giving our previous figure of 2.7-fold increase). The same estimates projected to 2000 A. D. indicate an average efficiency of 42 percent,¹² or only a 1.4-fold increase over 1950. This fact alone would account for almost a doubling of the rate of energy consumption over the rate predicted from experience in the first half of the 20th century. Thus, our $2\frac{1}{4}$ -percent annual increase would become $4\frac{1}{2}$ percent, but we shall round it down to 4 percent to allow for nonlinearity in the relationship of efficiency improvement with time.¹³

At the same time, energy consumption is more strongly affected by industrial activity and manufacturing than by increases in services and commerce. Robinson and Daniel show that a high rate of growth would be required if industrial output were assumed to continue indefinitely as a constant proportion of real gross national product, but argue that the energy-intensive sectors, mining and metals processing, do not normally continue to grow at undiminished rates.¹⁴ It is common experience in advanced economies that primary activities continue to diminish in proportion to tertiary and service functions. This would imply a reduction in the rate of increase of energy needs with growth in these economies.

The President's Materials Policy Commission (Paley Commission) suggested a need for doubling energy consumption in the United States from 1950 to 1975.¹⁵ This corresponds to an annual increase of about 2.8 percent compounded. All things considered, we shall choose 3 percent as the most plausible rate of growth of energy consumption in the United States for the remainder of the 20th century, but recognizing the approximations involved in the process of selecting any one figure, will use a range of figures: $2\frac{1}{2}$, 3, and $3\frac{1}{2}$ percent.

Similar projections for other regions of the world have been summarized by Mason et al.¹⁶ The net result of their survey of prevailing opinion was a projected 2 to $2\frac{1}{2}$ percent annual growth of energy consumption in the mature industrialized countries of Western Europe, with considerably higher and more approximate estimates for other regions. For the rapidly industrializing countries of Latin America and the Soviet Union, they chose a rough overall average annual rate

¹⁰ Calculated using a 3-year moving average from data reported in U. S. Department of Commerce, Office of Business Statistics, Survey of Current Business.

¹¹ Putnam, *op. cit.*, supra, note 4, p. 90.

¹² *Ibid.*, p. 106.

¹³ See *ibid.*, fig. 5-3.

¹⁴ *Op. cit.*, supra, note 5.

¹⁵ Resources for the Future, vol. 1, p. 103.

¹⁶ *Op. cit.*, supra, note 6, pp. 3-6.

of 5 percent for the next 25 years; and hazard a guess of 4 percent for the underdeveloped countries of Asia, Africa, and elsewhere. In the absence of any more exact bases for forecasts of energy needs, we shall use these figures, though with an expanded range to allow for error in the latter cases. Thus, for Western Europe, we shall see 2, 2½, and 3 percent; for the countries midway in the process of industrialization, 4, 5, and 6 percent; and for the underdeveloped countries, 3, 4, and 5 percent. Even though these figures cover a wide range of possible levels of energy consumption, we shall see that they permit useful conclusions with respect to energy need and resource balances.

Table 1 shows projected energy consumption on the basis of our different assumed rates of growth. Using as a starting point observed levels of consumption in 1952, table 1 shows corresponding amounts of energy to be consumed in each of the years 1975 and 2000 A. D., with cumulative total consumptions from 1952. All energy has been converted into kilowatt-hours at full calorific value, including both commercial and noncommercial energy sources.

Projected figures are given for the United States and for eight regions into which the world has been divided.¹⁷ The world totals are sums of the estimates for the eight regions. They correspond to world rates of growth of energy consumption slightly greater than 3, 3½, and 4 percent, which are in good agreement with a world total annual rate of 3½ percent derived in another way by the United Nations Department of Economic and Social Affairs.¹⁸

The principal purpose of table 1 is to provide rough approximations of future needs for later comparison with available energy resources.

TABLE 1.—*Consumption of energy from all sources*
[In kilowatt-hour $\times 10^{12}$ electricity equivalent, at full calorific value]

	2½ percent annual increase		3 percent annual increase		3½ percent annual increase	
	Yearly	Cumulative future	Yearly	Cumulative future	Yearly	Cumulative future
United States:						
1952 (actual).....	9.75	-----	9.75	-----	9.75	-----
1975 (estimate).....	17.3	305	19.4	328	21.8	349
2000 (estimate).....	32.3	910	41.0	1,060	52.1	1,235
North America:						
1952 (actual).....	10.44	-----	10.44	-----	10.44	-----
1975 (estimate).....	18.5	327	20.8	351	23.3	374
2000 (estimate).....	34.7	975	44.0	1,140	55.9	1,320
Latin America:						
1952 (actual).....	1.07	-----	1.07	-----	1.07	-----
1975 (estimate).....	2.68	41.1	3.37	47.3	4.25	54.4
2000 (estimate).....	7.27	159.0	10.8	218.0	19.0	307.0

¹⁷ Countries included within each of the eight regions are shown in appendix A.

¹⁸ *Op. cit.*, *supra*, note 1.

TABLE 1.—Consumption of energy from all sources—Continued
 [In kilowatt-hour $\times 10^{12}$ electricity equivalent, at full calorific value]

	2 percent annual increase		2½ percent annual increase		3 percent annual increase	
	Yearly	Cumulative future	Yearly	Cumulative future	Yearly	Cumulative future
Western and Southern Europe:						
1952 (actual).....	5.49		5.49		5.49	
1975 (estimate).....	8.7	162	9.73	172	10.9	184
2000 (estimate).....	14.3	445	18.2	512	23.1	598
Africa:						
1952 (actual).....	0.766		0.766		0.766	
1975 (estimate).....	1.530	25.8	1.920	29.4	2.420	33.8
2000 (estimate).....	3.230	83.5	5.210	114.0	8.440	156.0
Oceania:						
1952 (actual).....	.314		.314		.314	
1975 (estimate).....	.626	10.5	.787	12.1	.990	13.9
2000 (estimate).....	1.320	34.2	2.140	46.6	3.460	64.0
Asia (except U. S. S. R. and mainland China):						
1952 (actual).....	2.51		2.51		2.51	
1975 (estimate).....	5.00	84.4	6.30	96.5	7.90	111.0
2000 (estimate).....	10.60	274.0	17.10	372.0	27.60	511.0
China (mainland):						
1952 (estimate).....	1.40		1.40		1.40	
1975 (estimate).....	2.79	40.7	3.52	53.8	4.41	61.9
2000 (estimate).....	5.90	153.0	9.51	208.0	15.40	286.0
U. S. S. R. and East Europe:						
1952 (estimate).....	4.96		4.96		4.96	
1975 (estimate).....	12.50	191	15.60	220	19.70	252
2000 (estimate).....	33.80	736	54.60	1,010	88.30	1,420
World total:						
1952 (estimate).....	26.95		26.95		26.95	
1975 (estimate).....	52.30	883	62.00	982	73.80	1,085
2000 (estimate).....	111.10	2,860	161.00	3,620	241.00	4,660

Source: Energy consumption from all sources in 1952 is from United Nations Department of Economic and Social Affairs, "World Energy Requirements in 1975 and 2000" and "Contribution of Nuclear Energy to Future World Power Needs," Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. 1, pp. 19 and 86, respectively. The world totals are the sum of the 8 regions. All figures for 1975 and 2000 were calculated according to indicated annual growth trends continuously compounded. Countries included within each region are shown in appendix A.

Conventional fuel resources

Western standards of living have been realized especially through technologies that rely upon the conventional mineral fuels, coal, oil, and gas. The crucial role played by coal in the industrial revolution is well known, and the significance of the internal-combustion engine for American society can hardly be understated. Having projected world energy needs for expected rates of growth in the remainder of the 20th century, we now ask whether Western nations have the energy resources to continue their growth in present patterns. And we ask

whether other nations, some of which are well along the road to a higher standard of living, will be restrained or redirected in their efforts to attain greater material welfare by the limitations of their fuel endowment.

Estimates of absolute totals of coal, oil, and gas reserves are beset with uncertainties almost as pervasive as those affecting future energy consumption. Table 2 gives a compilation of the most authoritative information presently available for the United States, while tables 3 and 4 provide the same for coal, oil, and gas, respectively, for the 8 regions of the world. Differences in the estimates reflect the limitations of present knowledge.

The concept of energy resources, and all natural resources for that matter, is relative to costs of production and delivery to the place of consumption. A ton of coal in an Antarctic deposit is much less a resource than the same ton in a geologically identical Pennsylvania field. Similarly, a ton of coal in a 10-inch seam 3,000 feet below ground is much less a resource than the same ton in a 6-foot seam accessible to surface earth-moving equipment. Taking this fact into account, our estimates show, insofar as they are known, the different costs of production and delivery to market centers of different resource deposits. As used in tables 2, 3, and 4, "cost" refers to all steps in the process of getting the resource from its place of occurrence in nature (and finding the resource in the first place) to existing market centers, but not to additional processing of the resource, as in the case of oil refining. This means that the figures neglect any changes in the location of industry, which might be brought about by increasing fuel costs themselves. It also means that they take account only of known technologies of extraction, and reasonably foreseeable extensions of these. As a result, we shall be limited in our interpretations of the higher cost data.

The difficulty is compounded when we deal with "ultimately" recoverable reserves. Experts generally interpret this term to mean reserves recoverable under economic conditions as they can conceive of them in the more distant future. The concept, like the idea it attempts to deal with, is wanting in standardization.

Table 2 is divided into four major parts, pertaining to coal, oil, and gas separately, oil and gas lumped together, and oil shale.

The purpose in first showing oil and gas separately is to establish a basis for combining them and to indicate the hazards of the process. In the United States, proved reserves (not ultimate reserves) of crude oil and natural gas presently are found in the ratio of approximately 6,000 cubic feet per barrel of oil. This can be observed in both the Dewhurst and the Pratt estimates of oil and gas shown separately, using an average energy content of 1,700 kilowatt-hours per barrel of oil and 0.293 kilowatt-hours per cubic foot of natural gas, the figures adopted for this study. The Department of the Interior natural gas estimates were calculated using this ratio. (See table 2, footnotes 2 and 3.) We shall see that a different ratio is necessary when dealing with world proved reserves.

The table 2 estimates show a reasonable consistency with respect to resources recoverable at present costs and at levels up to twice present costs. When dealing with ultimate reserves, wide divergences appear, as might be expected.

We shall use table 2 to get representative fuel reserves for costs up to twice the present level. Thereafter, it appears that considerable coal, oil, and gas may still be extracted, but in vaguely known quantities at uncertain costs. Economic and social adjustments will doubtless attend reliance upon ultimate reserves, probably with untoward consequences for economic growth.

TABLE 2.—*Estimates of remaining mineral fuel reserves, United States*[In kilowatt-hours $\times 10^{12}$ electricity equivalent, at full calorific value]

Estimates by—	Coal and lignite recoverable				
	At or near present costs	Up to 1¼ to 1½ times present costs	Up to 2 times present costs	Up to 4 times present costs	"Ultimate" recovery
U. S. Department of the Interior.....	1,820	2,090	-----	7,290	-----
Dewhurst.....	2,240	-----	-----	-----	7,450
Putnam.....	-----	-----	1,760	-----	-----
Estimates by—	Crude oil recoverable		Natural gas recoverable		
	At or near present costs (proved reserves)	"Ultimate" recovery	At or near present costs (proved reserves)	"Ultimate" recovery	
U. S. Department of the Interior.....	150	420	53	445	
Dewhurst.....	55	107	53	81	
Pratt.....	460	-----	63	-----	
Estimates by—	Oil and gas total recoverable (exclusive of oil shale)				
	At or near present costs (proved reserves)	Up to 1.3 times present costs	"Ultimate" recovery		
U. S. Department of the Interior (sum of above figures).....	103	-----	865		
Dewhurst (sum of above figures).....	103	-----	188		
Putnam ¹	73	146	-----		
Estimates by—	Oil recoverable from shale				
	Up to 1.3 times present costs	"Ultimate" recovery			
Dewhurst.....	-----	880			
Putnam.....	117	344			

¹ As of Dec. 31, 1954.² Assumes 6,000 cubic feet of gas for each barrel of oil.³ Includes Continental Shelf and assumes 6,000 cubic feet of gas for each barrel of oil.⁴ As of Dec. 31, 1954.⁵ Putnam uses 3,000 cubic feet of natural gas per barrel of crude oil.

Source: (1) U. S. Department of the Interior, "Impact of the Peaceful Uses of Atomic Energy on the Coal, Oil, and Natural Gas Industries," (Jan. 13, 1956) Peaceful Uses of Atomic Energy, vol. II, Joint Committee on Atomic Energy, 84th Cong., 2d sess., pp. 68-89. Department of the Interior figures have been converted from tons of coal, barrels of oil, and cubic feet of gas.

(2) J. F. Dewhurst and Associates, *America's Needs and Resources* (1955), p. 765. Dewhurst's figures have been converted from British thermal units.

(3) W. E. Pratt, "The Impact of the Peaceful Uses of Atomic Energy on the Petroleum Industry" (Jan. 7, 1956), *Peaceful Uses of Atomic Energy*, vol. II, Joint Committee on Atomic Energy, 84th Cong., 2d sess., p. 93. Pratt's figures have been converted from barrels of oil and cubic feet of gas.

(4) P. C. Putnam, *Energy in the Future* (1952), ch. 6. Putnam's figures have been converted from British thermal units.

By inspection, we choose the following figures as representative of fuel reserves recoverable at costs up to twice those now prevailing in the United States:

	<i>Kilowatt-hours</i>
Coal -----	$2,500 \times 10^{12}$
Oil and gas -----	150×10^{12}
Oil shale -----	120×10^{12}
Total -----	$2,770 \times 10^{12}$

These values may be in error by a factor of 2 (i. e., they may be either twice as great or half as great as they should be).

Table 3 follows the pattern of table 2, applied to solid fuel resources in the 8 regions of the world shown in table 1.

TABLE 3.—*Estimates of remaining coal and lignite reserves, world*

[In kilowatt-hours $\times 10^{12}$ electricity equivalent, at full calorific value]

	Recoverable at or near present costs (U. S. Department of the Interior)	Recoverable up to 2 times present costs (Putnam)	Recoverable up to 4 times present costs (U. S. Department of the Interior)	"Ultimate" recovery (United Nations)
North America -----	2,020.0	2,350	8,070	12,406
Latin America -----	14.5		68	165
Western and Southern Europe -----	515.0		2,360	5,107
Africa -----	74.0	2,350	292	614
Oceania -----	56.0		223	240
Asia (except U. S. S. R. and China) -----	94.0		376	
China (mainland) -----	1,070.0	1,760	4,270	3,191
U. S. S. R. and Eastern Europe -----	1,370.0	2,940	5,490	10,448
World -----	5,210.0	9,400	21,100	32,172

Source: (1) U. S. Department of the Interior, Impact of the Peaceful Uses of Atomic Energy on the Coal, Oil, and Natural Gas Industries (Jan. 13, 1956), Peaceful Uses of Atomic Energy, vol. II, Joint Committee on Atomic Energy, 84th Cong., 2d sess., pp. 68-89. Department of the Interior figures have been converted from tons of coal, barrels of oil, and cubic feet of gas.

(2) P. C. Putnam, Energy in the Future (1952), ch. 6. Putnam's figures have been converted from British thermal units.

(3) United Nations Department of Economic and Social Affairs, Contribution of Nuclear Energy to Future World Power Needs, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. I (United Nations, 1956), p. 86, table II.

World totals differ slightly from the sum of the 8 regions as a result of rounding.

Somewhat less regularity is evident in the estimates applying to costs twice or less present costs. Moreover, Putnam's estimates are not subdivided into all eight of the world regions. Nevertheless, one fact is unmistakable: The United States and the Soviet Union have half or more than half the world's solid fuel reserves. China and Western Europe hold second positions of approximately equal amounts, while the rest of the world does not account for any sizable portion of solid fuel reserves. It is noteworthy that in making his estimates for China and the U. S. S. R., Putnam strikes the rather high fraction of three-fourths of the geologically predicted reserves for these regions on grounds of remoteness. With economic growth still ahead, it is possible that these regions may develop in ways that make the reserves less remote from points of consumption.

Again, we shall choose representative figures. For solid fuel reserves recoverable up to twice present costs in the eight regions of the world, they are as follows:

	<i>Kilowatt-hours</i>
North America.....	3,000×10 ¹²
Latin America.....	30×10 ¹²
Western and Southern Europe.....	1,500×10 ¹²
Africa.....	150×10 ¹²
Oceania.....	140×10 ¹²
Asia (except for U. S. S. R. and China).....	200×10 ¹²
China (mainland).....	2,000×10 ¹²
U. S. S. R. and Eastern Europe.....	3,000×10 ¹²
World.....	10,020×10 ¹²

In the aggregate, these figures may not be in error by more than a factor of 2. Indeed, a factor of 2 either way would make the spread in the total equal to the spread between the Department of the Interior estimates of reserves at present costs and Interior's estimates at 4 times present costs. But estimates for particular regions may be in somewhat greater error. Note in particular that the relative positions of both China and the Soviet bloc vary considerably for one estimate to another.

TABLE 4.—*Estimates of remaining oil and gas reserves, world*

[In kilowatt-hours times 10¹² electricity equivalent at full calorific value]

	Recoverable at or near present costs (proved reserves)			Recoverable up to 1.3 times present costs, Putnam ³	"Ultimate" recovery, U. S. Department of the Interior ⁴
	U. S. Department of the Interior ¹	United Nations ²	Putnam ³		
North America.....	112.0	117.0	106.0	323	990
Latin America.....	33.0	22.0			
Western and southern Europe.....	1.7	.6	5.9	147	37
Africa.....	.3	.2			
Oceania.....	.3	.2	133.0	500	179
Asia (except U. S. S. R. and Middle East).....	6.0	.2			
Middle East ⁵	220.0	167.0	11.7	382	515
U. S. S. R. and East Europe.....	23.0	26.0			
World.....	396.0	300.0	291.0	1,352	2,480

¹ Calculated from proved oil reserves as reported for end of 1954, assuming 2,000 cubic feet of natural gas with each barrel of oil, except in North America, where the figure assumed was 6,000 cubic feet of natural gas per barrel of oil.

² Oil and natural gas reserves separately tabulated in source.

³ Putnam assumes 3,000 cubic feet of natural gas per barrel of oil for all deposits including North America.

⁴ Including Continental Shelf in United States reserves and calculating all reserves on the assumption that 6,000 cubic feet of natural gas are recovered per barrel of crude oil.

⁵ Plus 117 United States oil shale. See table 2, supra.

⁶ Excluding Egypt.

⁷ Not available.

⁸ For countries included, see appendix A.

⁹ Including Egypt.

¹⁰ Plus oil shale.

Source: (1) U. S. Department of the Interior, *Impact of the Peaceful Uses of Atomic Energy on the Coal, Oil, and Natural Gas Industries* (Jan. 13, 1956), *Peaceful Uses of Atomic Energy*, vol. II, Joint Committee on Atomic Energy, 84th Cong., 2d sess., pp. 68-69. Department of the Interior figures have been converted from tons of coal, barrels of oil, and cubic feet of gas.

(2) P. C. Putnam, *Energy in the Future* (1952), ch. 6. Putnam's figures have been converted from British thermal units.

(3) United Nations Department of Economic and Social Affairs, *Contribution of Nuclear Energy to Future World Power Needs*, *Proceedings of the International Conference on the Peaceful Uses of Atomic Energy*, vol. I (United Nations, 1956), p. 86, table II.

World totals differ slightly from the sum of the 8 regions as a result of rounding.

Table 4 extends the world inventory to cover oil and gas reserves. We encounter again the difficult problem of accounting for natural

gas on the basis of estimates which give only crude oil figures. Fortunately, the United Nations has reported estimates of proved reserves (not ultimate reserves) which show oil and natural gas separately. These indicate a worldwide average of 2,120 cubic feet of natural gas per barrel of oil.¹⁹ This is considerably below the 6,000 cubic feet per barrel which we found for the United States, and the difference between the United States and world averages becomes even greater when we note that the United Nations overall data included the United States proved reserves. The reason for the marked difference has been attributed to the age of the United States oil industry. With deeper drilling and more thorough exploration, more gas in proportion to oil is found.²⁰ In view of the uncertainties of the data, we have adopted the round figure of 2,000 cubic feet per barrel for world proved reserves, but in calculating ultimate reserves we use the same figure of 6,000 cubic feet per barrel for the world as for the United States.

Casual examination of table 4 shows the same unevenness in world distribution of oil and gas as in coal. North America, the Middle East, and the Soviet bloc dominate, with Latin America in second position, some oil and gas in Asia, but very little elsewhere. Separate estimates for mainland China are not available, though it appears that China is not destined to become an oil power.

We have no estimates at twice the level of present costs. Putnam chose to cut off his estimates at 1.3 times present costs because he expects (on the basis of a Paley Commission forecast) that a large volume of oil shale can be commercially processed at this point. Oil shales are not included in table 4 except as known to exist in the United States. Putnam reports that half the world supply is in the United States and most of the rest is in Brazil.²¹

It is interesting to note that the ultimate reserves do not exceed Putnam's reserves recoverable up to 1.3 times present costs by very much except in the case of North America. The disparate result here is at least partly accounted for by the inclusion of undiscovered reserves in the Continental Shelf in the United States estimates, but not in other producing regions adjacent to a Continental Shelf.²²

For purposes of our analysis, we shall take the following rough figures as representative of the oil and gas reserves recoverable at costs on the order of twice those now prevailing:

	<i>Kilowatt-hours</i>
North America ¹	500×10 ¹²
Latin America.....	100×10 ¹²
Western and southern Europe.....	20×10 ¹²
Africa.....	10×10 ¹²
Oceania.....	10×10 ¹²
Asia (except U. S. S. R. and Middle East).....	100×10 ¹²
Middle East.....	500×10 ¹²
U. S. S. R. and East Europe.....	400×10 ¹²
World.....	1,540×10 ¹²

¹ Including oil from shale.

¹⁹ United Nations Department of Economic and Social Affairs, Contribution of Nuclear Energy to Future World Power Needs, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. 1 (United Nations, 1956), p. 86, table II.

²⁰ See discussion by U. S. Department of the Interior, Impact of the Peaceful Uses of Atomic Energy on the Coal, Oil, and Natural Gas Industries (January 13, 1956), in Peaceful Uses of Atomic Energy, vol. 2, Joint Committee on Atomic Energy, 84th Cong., 2d sess., p. 83.

²¹ Op. cit., supra, note 4, p. 140.

²² For rough estimates suggesting that a rather considerable volume of oil and gas may be found in offshore deposits elsewhere, see Putnam, op. cit., supra, note 4, p. 154.

These figures may be in error by a large factor in the "have-not" regions. Table 4 shows little on which to base a rough estimate of reserves in these regions, except that they are small. On the other hand, estimates for the Middle East and the Soviet bloc show a reasonable consistency, suggesting a firmer basis for our corresponding approximations. In the case of North America, the figure is not out of line with our previously chosen value of 270×10^{12} kilowatt-hours for oil and gas reserves in the United States.

Adequacy of coal, oil and gas reserves

Coal, oil and gas are versatile energy sources. All can be and are used in the generation of electricity, which has many special conveniences as a form of energy. All, of course, are well suited for space heating. All can be and are used in their natural physical form as fuel in mobile engines; and where fluid fuels are more convenient, coal can be converted to gas (producer gas), to oil by hydrogenation, or used in powdered form.

The physical substitutability of the three fuels is shown in table 5 for three important end uses. For the same energy content, approximately the same conversion to useful energy forms can be made. Efficiencies are almost identical for residential and commercial heating, which accounted for 25 percent of the coal consumption, 25 percent of the natural gas consumption and 20 percent of the oil consumption in 1950, and for electric power production, which accounted for approximately 20 percent of the coal and 10 percent of the gas.²³

A significant difference appears in the use of fuels for transportation, where table 5 shows that $1\frac{1}{4}$ times the conversion to tractive power can be realized from petroleum products as from coal. Moreover, when coal is converted to gasoline and like fluid fuels, approximately half of the energy content of the coal is lost.²⁴ Transportation accounted for 49 percent of the petroleum and 12 percent of the coal consumption in the United States in 1950.²⁵

TABLE 5.—Average efficiencies of the use of energy in the United States, 1947, in selected applications

[Efficiencies as percentages energy output/energy input]

	Bituminous coal	Petroleum products	Natural gas
Transportation.....	4	6	-----
Generation of electricity.....	20	20	19
Residential and commercial (97 percent for space heating).....	60	60	72

Source: P. C. Putnam, *Energy in the Future*, (1952), p. 397.

Thus, it appears that for 2 of the 3 most important end uses of coal, oil and gas, contained energy is a good common denominator. For transportation, oil is more efficient by a factor of $1\frac{1}{2}$ to 2, depending upon whether the coal is used directly or converted into synthetic oil. Other end uses cannot be so easily traced. Some may very well manifest the same efficiencies in conversion, while others have special

²³ Proportions to end uses are from President's Materials Policy Commission, *op. cit.*, supra, note 15, vol. 3, pp. 3, 17-18, and 24.

²⁴ Putnam, *op. cit.*, supra, note 4, p. 238.

²⁵ President's Materials Policy Commission, *op. cit.*, supra, note 15, vol. 3, pp. 3, 17-18, and 24.

functions, as in certain metallurgical uses of coal, though even here alternative (but more expensive) techniques, as the electrolytic reduction of steel, would permit the use of energy from all three fuels on an equal basis.²⁸

With different degrees of scarcity of coal, oil and gas, it appears that the relative energy convertability of these fuels is sufficiently comparable to permit their substitutability for economic growth, and hence their summation in a balance of world resources and needs. We shall later extend the analysis to consider the solid and fluid fuels separately.

Table 6 is our rough balance sheet of needs and resources. It is limited by all of the approximations that went into the figures presented. Even so, the data permit certain conclusions:

(1) Latin America, Africa and Oceania would probably encounter difficulty in carrying out their projected patterns of growth on the basis of home supplies of conventional mineral fuels, even within the remaining years of the 20th century.

(2) Asia, exclusive of the Soviet Union, China and the Middle East would probably experience the same difficulty.

(3) The four regions, North America, Western and Southern Europe, the Soviet bloc and Mainland China, may be able to continue for the remainder of the 20th century on conventional energy resources without experiencing major economic adjustments, so far as our present data can show.

TABLE 6.—Projected energy needs, 1952-2000 A. D., compared with rough estimates of resources of coal, oil, and gas recoverable at costs up to twice present costs

[In kilowatt-hours×10¹² electricity equivalent at full calorific value]

	Coal reserves (1)	Oil and gas reserves (2)	Total, (1)+(2) (3)	Estimated cumulative energy needs, 1952-2000 A. D.		
				Low (4)	Medium (5)	High (6)
United States.....	2,500	270	2,770	910.0	1,060.0	1,235
North America.....	3,000	500	3,500	975.0	1,140.0	1,320
Latin America.....	30	100	130	159.0	218.0	307
Western and Southern Europe.....	1,500	20	1,520	445.0	512.0	598
Africa.....	150	10	160	33.5	114.0	156
Oceania.....	140	10	150	34.2	46.6	64
Asia (except U. S. S. R. and China).....	200	-----	-----	274.0	372.0	511
China (mainland).....	2,000	-----	2,800	153.0	208.0	286
Asia (except U. S. S. R. and Middle East).....	-----	100	-----	-----	-----	-----
Middle East.....	-----	500	-----	-----	-----	-----
U. S. S. R. and Eastern Europe.....	3,000	400	3,400	736.0	1,010.0	1,420
World.....	10,020	1,640	11,660	2,860.0	3,620.0	4,660

Source: Cols. (1) and (2) are from text. Cols. (4), (5) and (6) are from table 1.

A few additional observations can be made if we consider the relative proportions in which solid and liquid fuels have been consumed in recent years. These are shown in table 7 for the United States, North America, Western and Southern Europe, and for the Soviet bloc plus China.

²⁸ Cf. S. H. Schurr and J. Marschak, *Economic Aspects of Atomic Power* (Princeton University Press, 1950), pp. 165-176.

Table 7 shows that fluid fuels already account for well over half the energy consumed in the United States. Moreover, they are expected to continue to gain percentage-wise at least through 1980.²⁷ But table 6 shows that North American oil and gas reserves (about half the energy content of which is in natural gas) will not be able to satisfy this increasing consumption without increases in real cost over our threshold of twice present levels. Home production will probably be supplemented by increasing reliance upon imports and by producing liquid fuels for coal.²⁸ Even from a world standpoint, table 6 shows that oil and gas reserves taken together cannot account for a very large fraction of the energy consumed at no more than twice present costs before A. D. 2000.

Changing world trade patterns in mineral fuels are shown in table 8. Data are given in kilowatt-hours $\times 10^9$, a unit one-thousandth the size of our previous kilowatt-hours $\times 10^{12}$, in order to get more convenient figures. Negative signs indicate imports. We note that Europe (except U. S. S. R.) has traditionally provided the coal exports for the world market, but is sending less and less of its coal abroad. The two principal suppliers of international oil are Latin America and the Middle East (responsible for most of the Asian exports). Both have shown rapid increases in their exports, primarily to the United States and Europe, respectively.

TABLE 7.—*Energy resources consumed in 1952*
(In kilowatt-hours $\times 10^9$ electricity equivalent at full calorific value)

	Coal and lignite	Petroleum products	Natural gas	All others	Total
United States:					
Kilowatt-hours $\times 10^{12}$	3.27	3.60	2.48	0.40	9.75
Percentage.....	33.6	36.9	25.4	4.1	100.0
North America:					
Kilowatt-hours $\times 10^{12}$	3.56	3.82	2.52	.54	10.44
Percentage.....	34.1	36.6	24.1	5.2	100.0
Western and Southern Europe:					
Kilowatt-hours $\times 10^{12}$	4.26	.67	.02	.54	5.49
Percentage.....	77.9	12.2	.4	9.5	100.0
East Europe, U. S. S. R., and China (mainland):					
Kilowatt-hours $\times 10^{12}$	4.11	.70	.15	1.66	6.62
Percentage.....	62.1	10.6	2.3	25.0	100.0

Source: United Nations Department of Economic and Social Affairs, *World Energy Requirements in 1975 and 2000, and Contribution of Nuclear Energy to Future World Power Needs*, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. I (United Nations, 1956), pp. 17, 86

Western and southern European dependence upon foreign oil is clearly seen in table 6, and the precarious nature of political developments in its principal source of supply, the Middle East, is well known. In addition, Western Europe is now facing difficulties with its major energy source, coal.

Western European coal is mined at almost twice North American costs,²⁹ and under sufficiently difficult working conditions that produc-

²⁷ See U. S. Department of the Interior, *op. cit.*, supra, note 20, pp. 73-74.

²⁸ Coal hydrogenation results in a gasoline cost estimated at 11, 28.1, and 36.3 cents per gallon by 3 different authorities. These figures are about equal to, twice as high as, and 3 times as high as the cost of gasoline from fuel oil, respectively. The estimate of 11 cents was made by the U. S. Bureau of Mines as a result of pilot-plant studies. The estimate of 28.1 cents was made by Ebasco Services, Inc., and the estimate of 36.3 cents by the National Petroleum Council. See *Chemical and Engineering News*, vol. 30 (August 11, 1952), p. 3250.

²⁹ See Putnam, *op. cit.*, supra, note 4, p. 140.

tion is restricted by a lack of available labor.³⁰ For this reason, and because of the nature of the mines and mining technology, it has been estimated that the probable annual limits on coal extraction in Belgium and the United Kingdom are only 1.22 and 1.32 times the respective annual rates of coal consumption in these countries.³¹ Compare table 1 showing expected rates of growth of energy consumption in Western Europe of 1½ to 2 times by 1975 and 2½ to 4 times by 2000. Owing to the same limitations, France is already importing part of her coal.³²

The world's traditional coal-exporting region appears soon to become a net importer of coal despite the still sizable local reserves. The reserves will last considerably beyond the year 2000, but unless annual rates of output can be improved beyond those now foreseeable, the coal will not be available in sufficient quantity.

TABLE 8.—*Net interregional trade in commercial sources of energy*

[In kilowatt-hours×10⁹ electricity equivalent at full calorific value]

	Year	Solid fuels	Liquid fuels	Total
North America.....	1929	16.9	0.8	17.7
	1937	-3.4	69.5	66.1
	1950	19.5	-516.0	-494.0
Latin America.....	1929	-61.8	224.0	162.0
	1937	-52.5	322.0	270.0
	1950	-23.7	722.0	698.0
Europe (except U. S. S. R.).....	1929	178.0	-179.0	-1.0
	1937	142.0	-341.0	-199.0
	1950	89.0	-606.0	-517.0
Africa.....	1929	-41.5	-26.2	-67.7
	1937	-42.3	-66.0	-108.3
	1950	5.9	-124.0	-118.0
Oceania.....	1929	(¹)	-24.6	-24.6
	1937	.8	-38.1	-37.3
	1950	-5.1	-85.5	-90.6
Asia (except U. S. S. R.).....	1929	-7.6	24.6	17.0
	1937	-2.5	108.0	105.0
	1950	-11.0	782.0	771.0
Others (including U. S. S. R.).....	1929	-83.7	-19.5	-103.2
	1937	-41.5	-64.1	-95.6
	1950	-74.5	-172.0	-246.5

¹ Negative.

Source: Adapted from E. S. Mason & Associates, *Energy Requirements and Economic Growth* (National Planning Association, 1955), p. 70, table 7.

The Soviet bloc and China taken as a single unit is still coal-based (see table 7), though oil and gas reserves appear to be relatively adequate within the U. S. S. R. (table 6). These regions have not engaged in much foreign trade in energy resources over the past three decades, having been largely undeveloped economically. The rather large proportion which table 7 shows coming from other sources of energy is almost entirely noncommercial, apparently from the combustion of fuel wood, other vegetable matter, and farm wastes. Economic development in this part of the world appears to be relatively free of energy-resource problems, at least for the remainder of the 20th century.

³⁰ See U. N. Department of Economic and Social Affairs, *op. cit.*, supra, note 19, p. 89.

³¹ Estimates of absolute limits upon rates of coal extraction in these two countries are given by the United Nations Department of Economic and Social Affairs, *op. cit.*, supra, note 19, p. 89; and actual figures for 1952 coal consumption are available from the same authority, *op. cit.*, supra, note 1, p. 20.

³² United Nations Department of Economic and Social Affairs, *op. cit.*, supra, note 19, p. 89.

Renewable energy resources

Before going on to consider the potential role of nuclear energy in our resource structure, let us note the present and possible future part that might be played by renewable resources. These include waterpower, windpower, solar energy, and various forms of carbon fixed by nature, as in fuel wood, other vegetable matter, and controlled biological photosynthesis. If we could learn to more efficiently use these resources, there would be less need for concern about the exhaustion of conventional fuel supplies.

The United States in 1952 generated approximately 0.112×10^{12} kilowatt-hours of hydroelectric power. In the same year, world hydroelectric output was 0.377×10^{12} kilowatt-hours, exclusive of the U. S. S. R., East Europe, and mainland China, for which estimates are unavailable.³³ These figures are 1.15 and 1.71 percent of the corresponding energy-consumption totals for the United States and the non-Communist world, respectively, in 1952.

There is still a considerable volume of unharnessed waterpower. The Paley Commission foresaw a maximum annual output of 0.314×10^{12} kilowatt-hours of hydroelectric power in the United States by 1975,³⁴ approximately a threefold increase of existing output. Putnam estimates that hydroelectric capacity can double once again beyond the 1975 Paley Commission level, but this is about the limit of present prospects for hydroelectric power.³⁵ If we make a rough extension of the rather optimistic Paley Commission rate of growth to year 2000, we get about 0.6×10^{12} kilowatt-hours of hydroelectricity annually, which is 1.85 to 1.15 percent of the projected United States energy consumption in that year, depending upon choice of rate of growth of total energy needs (cf. table 1). And there is very little more hydroelectric capacity in sight.

It is easy to see that hydroelectric power will account for only about the same, or perhaps a slightly higher, proportion of total world energy in year 2000. The proportion of total energy from hydroelectric power in 1952 is not much greater for the world (excluding the Soviet bloc and China) than for the United States. And there is no reason to think that hydroelectric power will develop at a rate very different elsewhere than in the United States.

World "ultimate" reserves of unharnessed hydroelectric power are somewhat greater, however, in relation to present harnessed capacity. We have seen that the United States might ultimately hope to have six times the present hydroelectric output it now has. The world as a whole is thought to have a potential of 17 times its present hydroelectric capacity.³⁶ This means that world expansion of hydroelectric facilities will probably continue well beyond 200 A. D., though hydroelectric power may never account for more than 1 or 2 percent of the world's energy.

³³ United Nations Department of Economic and Social Affairs, *op. cit.*, *supra*, note 1, pp. 19 and 22.

³⁴ *Op. cit.*, *supra*, note 15, p. 127.

³⁵ Putnam's estimate is that there exists about 100 million kilowatts more of unharnessed waterwheel capacity in the United States. *Op. cit.*, *supra*, note 4, p. 178. To this must be added an installed capacity of about 18 million kilowatts at the time of this writing. We then get a total, harnessed and unharnessed, of 118 million kilowatts of waterpower. Assuming the same use factor, this is twice the 60 million kilowatts capacity corresponding to the annual output foreseen by the Paley Commission for 1975.

³⁶ Putnam, *op. cit.*, *supra*, note 4, p. 175-176.

We can rather quickly dispose of the prospects of using windpower. After a careful study of these, Putnam gives windpower a cumulative total contribution of perhaps one-fifth the hydroelectric power in 100 years,³⁷ but does not hazard a guess for so short a time in the future as A. D. 2000. Even if he is wrong by a factor of 5, it will not materially change our conclusions.

The prospects of using carbon fixed by nature are almost as limited, but in this case presently known technological possibilities have not yet been fully explored. The basic physical phenomenon is the reduction of atmospheric carbon by chlorophyll with the aid of sunlight. Fats, proteins, and carbohydrates are formed which can be burned to recover the energy in useful form. Whether chlorophyll is in a tree or an alga, the process is the same.

As it now operates, nature is relatively inefficient in using sunlight. If all of the carbon fixed in a year in the United States were burned, it would supply only about $1\frac{1}{2}$ times our present national energy needs,³⁸ and all of the carbon fixed in the world would supply only 4 times present world energy needs.³⁹ Obviously, we have many other uses for vegetable matter than to support combustion, to say nothing of the costs that would be associated with an attempt to collect and use all such yearly crops of fixed carbon. Some vegetable matter may well be converted to fuel directly (for example, fuel wood) and some may be used to produce alcohol (for example, sugar beets) which can be used itself as fuel or as a starting point in the synthesis of gasoline. We have only to remember that we cannot hope to make a dent upon world energy needs unless we do this with a large fraction of all vegetable matter, assuming present technologies.

Some grounds for hope remain, however, in the use of select strains of alga, which can be made 200 times as efficient as most vegetable matter in fixing carbon. Putnam reports a pilot-plant study indicating that electricity from the burning of today's most promising alga, produced under optimum conditions, would cost 40 to 50 times as much as presently available electricity from coal-fired plants.⁴⁰ Many more varieties of alga remain to be studied, however, and there is always the possibility of creating new strains through mutations. Nevertheless, we note that a substantial cost gap must be bridged before this approach offers any reasonable promise.

The most promising continuous source of energy today is the sun. Solar energy reaching continental United States annually is about $14,700 \times 10^{12}$ kilowatt-hours; that reaching the land areas of the world, $246,000 \times 10^{12}$ kilowatt-hours.⁴¹ If only a fraction of 1 percent of this could be usefully employed, it would satisfy our energy needs as far in advance as we can predict them. (Cf. table 1.)

Solar house heating is already technically feasible and is expected to become economically attractive in the southern United States, so that by 1975 there may be about 13 million houses relying entirely upon the sun for space heating (and space cooling).⁴² By year 2000

³⁷ *Ibid.*, p. 191.

³⁸ *Ibid.*, p. 245.

³⁹ *Ibid.*, p. 199.

⁴⁰ *Ibid.*, p. 201.

⁴¹ *Ibid.*, p. 198.

⁴² President's Materials Policy Commission, *op. cit.*, supra, note 15, vol. 4, p. 217.

it has been estimated that solar-space heating will have furnished 60×10^{12} kilowatt-hours of the cumulative future energy consumption in the United States, and should eventually level off at about one-fifth of the total comfort-heating load, or 6 to 7 percent of the total United States energy system.⁴³ One might infer that the prospects are at least as attractive at the same or lower latitudes (north and south) throughout the world.

Certain home uses of solar energy in hot-water heating and cooking are also being found economic. Hot-water heaters are in use in Florida and California. Mass production of inexpensive solar cookers has commenced in India, and many millions of units will probably be sold.⁴⁴ But all home uses put together (except space heating) are expected to make a negligible contribution to the world's energy needs.⁴⁵

There is not now a prospect of utilizing solar energy on any significant scale for industrial process heat or power. The great handicap of solar energy is its discontinuous operation. To fill out the need for continuous energy on a small scale for house heating is not difficult, but when large systems are contemplated, economic problems arise. One technique is to store energy by lifting water, which can be allowed to run down again to recover the energy; another is to employ (reversible) chemical phase transitions. On a large scale, the former necessitates great water storage capacity. The possibilities of the latter have not yet been fully explored.⁴⁶ Also remaining for further research is the development of photochemical generation of electricity.⁴⁷

To summarize, the prospects of utilizing renewable energy resources are limited at the present time. Hydroelectric and wind power may furnish 1 or 2 percent of our future national energy needs, and not a much higher proportion of world energy needs. The combustion of traditional vegetable matter and/or synthesis of gasoline from the same may make a somewhat greater contribution, depending upon the amount of vegetable matter we can spare from other uses. Solar energy will probably account for another 6 or 7 percent of future energy, as technology now stands.

Remaining needs, somewhere in the neighborhood of 85 to 90 percent of the total, are thrown back on exhaustible fuel resources unless technological development in biological photosynthesis or solar power production can open the way for greater efficiency in capturing the vast quantities of energy available from the sun. Since a large part of the problem lies in the technological unknown, there is ground for hope in what might be learned by future research programs.

THE ATOMIC ENERGY POTENTIAL

The development of low-cost atomic power is in progress today and gives every prospect of eventual success in meeting present cost levels

⁴³ Putnam, *op. cit.*, *supra*, note 4, p. 181.

⁴⁴ W. H. Stead, *The Sun and Foreign Policy*, *Bulletin of the Atomic Scientists*, vol. 13 (March 1957), p. 88.

⁴⁵ Putnam, *op. cit.*, *supra*, note 4, p. 183.

⁴⁶ F. Daniels, *Alternate Energy Sources (Unconventional Types)*, *Proceedings of the International Conference on the Peaceful Uses of Atomic Energy*, vol. 1 (United Nations, 1956), p. 81.

⁴⁷ Some applications of photochemical electricity are already in existence. See Daniels, *ibid.*, pp. 82-83.

for electric-power generation. Other applicants of atomic energy in industrial process and space heating may follow. With the expected future stringency and growing real costs of the fossil fuels, coal, oil, and gas, this appears to open a new horizon in energy resources. We shall attempt to evaluate the extent to which it will do so.

Atomic energy resources

The principal device for the controlled release of atomic energy is the nuclear reactor. Fissionable materials (atomic fuels) in solid or liquid form are inserted in reactors of various designs where they undergo atomic disintegration (fission) into highly radioactive atomic waste materials (fission fragments). In so doing, heat, radiation and neutrons are released. The heat is the desired product; the radiation is a dangerous nuisance except for certain special uses; and the neutrons are potentially valuable for the creation of new fissionable materials as the old are consumed.

There are three principal fissionable materials: uranium 235, uranium 233, and plutonium. Uranium 235 is the only one to occur as such in nature. It constitutes 0.72 percent (approximately one one-hundred fortieth) of natural uranium. The rest of natural uranium is isotope 238, from which plutonium can be produced by the capture of a neutron. Thus, in a natural uranium reactor, disintegration of the uranium 235 produces 2 or 3 neutrons, one of which must be captured by another uranium 235 atom to cause it to fission (and hence to continue the chain reaction). This leaves the remaining 1 or 2 neutrons to be captured by the more abundant uranium 238 to produce plutonium, or perhaps to be absorbed in reactor structural materials, in fission fragments, or to be lost in some other way. Essentially the same process is involved in the creation of uranium 233, except that the free neutrons are captured by another element, thorium, placed in the reactor for that purpose.

Regenerative reactors are designed with a view to manufacturing more fissionable materials as the original charge is consumed. The new fissionable materials, however, are not created in optimum arrangement in the reactor for continuous reconsumption, and the fission fragments, which appear in growing abundance as reactor operation proceeds, steal neutrons so that eventually an economic optimum is reached in which it pays to shut down the reactor and to remove original fuel elements and new fuel (in "fertile" materials) for processing, recovery, and refabrication of fuel elements.⁴⁸ Present commercial designs generally strike a balance between the value of energy produced by continuing operation and the value of regenerated fuels, which the United States Atomic Energy Commission (AEC) guarantees to buy back at announced prices.⁴⁹ We shall see that these prices are not intended to reflect the fuel values of the new fissionable materials, but to provide, temporarily at least, a means of giving financial aid.

With the coming development of fluid fuel recirculating reactors, the removal of fission fragments will be continuous and regenerated fuel will be fed back into the reactor in which it is created. This will not change the general nature of the requirements of the fuel cycle, but

⁴⁸ For a discussion of considerations determining optimum regeneration, see J. A. Lane, *Economics of Nuclear Power, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy* (United Nations, 1946), pp. 318-321.

⁴⁹ See AEC release No. 930, November 18, 1956.

will eliminate some of the costs, such as fuel fabrication, associated with solid fuels.⁵⁰

The resource potential of atomic energy will be determined by the extent to which we eventually find it economical to create and use regenerated fuels. This will depend upon the relative values of energy and regenerated fuel. In a free market, the two will move together since the latter derives its value (insofar as commercial, as opposed to military, purposes are concerned) from further energy production and further creation of regenerated fuel. But net revenue from regenerated fuel will not necessarily move proportionately with energy revenue in a given reactor or in the same way as between reactors.

Assuming ultimate discontinuance of the Atomic Energy Commission (AEC) price supports, net regenerated fuel values (to their producers) will be separated from energy values by a differential equal to all of the costs of recovering the fuels and producing more energy (and more regenerated fuels) from them. At low energy values, this will discourage recovery in some reactors. At high energy values, recovery will be more attractive and will lead to reactor designs favoring regeneration. Within the limits of capacity for producing virgin fissionable materials of the same concentration, these will set upper limits upon prices of the regenerated fuels.

Other influences will work to retard the feasible regeneration and use of new fissionable materials. These include losses in chemical reprocessing, diversion to military explosives, use of fissionable materials in military powerplants and engines where regeneration is neither convenient nor desired, and finally, there is the physical fact that 7 percent of all uranium 238 cannot be fissioned in the most complete recovery system because it will finally be transformed into the nonfissionable isotope, plutonium 242, at the end of the plutonium neutron-capture chain.⁵¹

Thus, atomic energy resources are uncertain from the standpoint of degree of usage. They are also uncertain in extent of deposit in the earth's crust.

Table 9 shows announced reserves of atomic energy minerals for five nations. A number of other nations have either stated that they have reserves or are known to have them, but quantitative information is lacking.⁵² These nations are: Argentina, Australia, Belgian Congo, Brazil, Czechoslovakia, Portugal, and Russia. There may be others, though AEC descriptions of reserves in the Western World indicate that these, at least, are well known. Without qualification, AEC looks on South Africa, Canada, and the United States as the most important uranium sources in the Western World, and states that France is the major source in Western Europe.⁵³ Thorium reserves have been

⁵⁰ See remarks prepared by W. Kenneth Davis, Director, Division of Reactor Development, AEC, for presentation at the atomic industrial forum of the International Bank for Reconstruction and Development, Washington, D. C., September 27, 1956, mimeographed release.

⁵¹ See Hearings on Development, Growth and State of the Atomic Energy Industry before the Joint Committee on Atomic Energy, 85th Cong., 1st sess. (February 19, 20, 21, 25, 26, 27, 28, and March 5, 1957), pp. 346-347.

⁵² For announcements pertaining to most, but not all, of these nations, see papers presented by their spokesmen in Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. 1 (United Nations, 1956).

⁵³ Twenty-second Semiannual Report (July 1957), pp. 4-5.

less fully announced, presumably because less well known. The United States, for example, has thorium deposits in Florida, the Carolinas, and Idaho,⁵⁴ but these are not shown in our table.

TABLE 9.—*Known atomic energy mineral reserves*

Country	Contained metal, short tons	Concentration average U ₃ O ₈ in ore
United States ¹	151,000 uranium.....	Percent 0.27
Canada ²	200,000 uranium.....	.10
France ³	50,000 to 100,000 uranium.....	(3)
South Africa ²	308,000 uranium.....	1.025
India ⁴	12,000 uranium.....	(3)
	336,000 thorium.....	(3)

¹ AEC Release No. 1133, Aug. 22, 1957.

² AEC 22d Semiannual Report (July 1957), pp. 4-5. Concentration of South African ores is from Atomic Industrial Forum, Forum Memo (January 1957), p. 11.

³ Not available.

⁴ Atomic Industrial Forum, Forum Memo (July 1957), p. 30.

The table 9 data are given in contained tons of pure metal at the specified ore concentrations. The average grade of domestic uranium ores fed to process during the first 6 months of 1957 was 0.28 percent U₃O₈ (uranium oxide).⁵⁵ At lower concentrations, ore-refining costs will be higher, but this will not have an appreciable effect on fissionable materials costs.

The energy content of fissionable materials is so high (approximately 9.7 million kilowatt-hours equivalent per pound of uranium or thorium) that at the present price level of \$18.10 a pound of pure uranium metal,⁵⁶ costs of metal production would be a very small part of costs of energy. Assuming a thermal efficiency of 30 percent in power generation⁵⁷ and that fuel regeneration permits recovery of one-third of all fissionable material,⁵⁸ metal production will account for 0.0187 mill per kilowatt-hour, which is insignificant as compared with total costs of atomic-power production. We shall see that the latter will fall in the range of 7 to 10 mills per kilowatt-hour. If uranium-metal production costs increase 10 or even 100 times over today's levels, they will not seriously impair the economic prospects of atomic power.

As the demand for uranium metal is now forecasted, 200,000 to 300,000 tons may be required for commercial uses in the United States by 1975.⁵⁹ This estimate is based on optimistic assumptions about the rate of growth of the atomic-power industry, but at least gives us a basis for thinking that reserves shown in table 9 will not serve for very long, especially in view of the fact that they must also provide fissionable materials for military needs.

⁵⁴ F. D. Lamb, *Rare Earth Metals in U. S. Bureau of Mines, Minerals Facts and Figures* (Washington 1956), pp. 735-743.

⁵⁵ AEC Release No. 1133, August 22, 1957.

⁵⁶ AEC Release No. 675, August 8, 1955.

⁵⁷ Thermal efficiencies in modern steam-generating plants are usually 30 percent or higher. See Federal Power Commission, *Steam-Electric Plant Construction Cost and Annual Production Expenses* (published yearly).

⁵⁸ One-third conversion to fissionable materials is assumed by Putnam, *op. cit.*, supra, note 4, p. 214.

⁵⁹ See AEC, *Uranium Ore Requirement for Nuclear Power in the United States, in Peaceful Uses of Atomic Energy*, vol. 2, *op. cit.*, supra, note 20, pp. 113-123.

Putnam refers to a number of low-grade sources, apparently of considerably lower concentration than those shown in table 9, and estimates that world reserves may account for 25 million tons of uranium and 1 million tons of thorium.⁶⁰ Since he made this estimate while acting as a consultant for AEC, we must assume that it was based upon the most complete information available at the time (1953). There is no evidence of any disproportionate incidence of uranium behind the Iron Curtain;⁶¹ therefore, we will assume that the non-Communist world has available a proportional share of this total.

Again making the assumption that fuel regeneration will lead to conversion of perhaps one-third the uranium and thorium into fissionable materials, a total of 26 million tons of metal containing 9.7 million kilowatt-hours per pound will give 168,000 times 10^{12} kilowatt-hours electrical energy equivalent at full calorific value. This is 36 times our highest estimate of future cumulative world energy requirements by year 2000 (cf. table 1), about 17 times estimated coal reserves recoverable at costs up to twice the present levels and about 110 times estimated oil and gas reserves recoverable at twice present costs.

Previous discussion has described the problems of making an estimate of the extent to which we can rely upon fuel regeneration and has indicated something of the vagueness associated with estimates of reserves. If the combined error from these resources has led to estimates which are five times too high, the potential of atomic energy will still exceed by many times the potential of all other energy resources put together.

Commercial uses of nuclear fuels in the United States

Unlike the fossil fuels, fissionable materials do not provide a versatile energy source. The physical requirements of a controlled chain reaction and the various devices that are necessary to protect personnel from intense radioactivity necessarily make a nuclear furnace very large and cumbersome.

In order for a chain reaction to be self-sustaining, it is necessary that at least one neutron from each fission be captured by another fissionable atom. Whether this is achieved depends upon the concentration of fissionable materials in a given mass, the size of the mass (which affects the ratio of volume to surface from which neutrons may escape), and the presence of other materials that will moderate the speed of the neutrons to increase the chances of their being captured by the unburned fuel. Flexibility in the critical mass (minimum-size mass) can be achieved by varying the concentration of nuclear fuel and by the use of moderating materials, but high concentrations and efficient moderators increase costs, and in any event, there is a limit on the size of the critical mass. A reactor can be designed for any power level, but these considerations make reactors very costly in units small enough, say, for the normal family dwelling.

In addition are the limitations due to the intense radioactivity which is a part of the fission process. The only known method of protecting personnel from radioactivity is by massive shielding, which may be a thickness of several feet of concrete for even a small reactor.⁶²

⁶⁰ Op. cit., supra, note 4, p. 214.

⁶¹ See, for example, H. Schwartz' discussion of Soviet uranium reserves, *Russia's Soviet Economy*, 2d edition (1954), pp. 24-25.

⁶² Schurr and Marschak, op. cit., supra, note 25, p. 5. See also AEC, *Twenty-first Semi-annual Report* (January 1957), pp. 109-115.

For the same reason, reactor control and maintenance requires complicated gadgetry, very often two-stage heat removal systems, and special arrangements for fuel insertion and removal. These facts eliminate the prospect of directly using atomic power for transportation in self-propelled small vehicles, though we shall see that atomic energy can in many other ways carry part of the future energy load.

Electric powerplants.—The most promising commercial application of atomic energy today is in large central station electric powerplants, i. e., plants having a rated capacity on the order of 100,000 kilowatts or more. Small nuclear powerplants (of approximately one-tenth this size) are not as well developed economically, but appear to have costs per kilowatt-hour 2 or 3 times those of the large.⁶³

Nuclear powerplants are similar to conventional powerplants except that steam is generated in the nuclear reactor, or in a heat exchanger heated by a fluid which has in turn received its heat from the reactor. After the steam has been delivered to a turbogenerator, electrical generation, transmission, and distribution proceed as before.

Projected trends in the cost of atomic power in large central sections in the United States, 1955–80, are shown in figure 1. The atomic power trends were projected by W. Kenneth Davis, Director, and Louis H. Roddis, Deputy Director, Division of Reactor Development, AEC. They are compared with the author's interpretation of costs of new conventional powerplants.

In their original chart, Messrs. Davis and Roddis gave projections of conventional power costs in the United States, but showed them to have an upward drift. Since no explanation accompanied their conventional cost projections, the latter were replaced by others thought to have substantial justification. Briefly, it is true that conventional cost projections, the latter were replaced by others the same time improvements in conventional steam-plant efficiency appear likely to at least offset their effect in the time period before 1980.⁶⁴

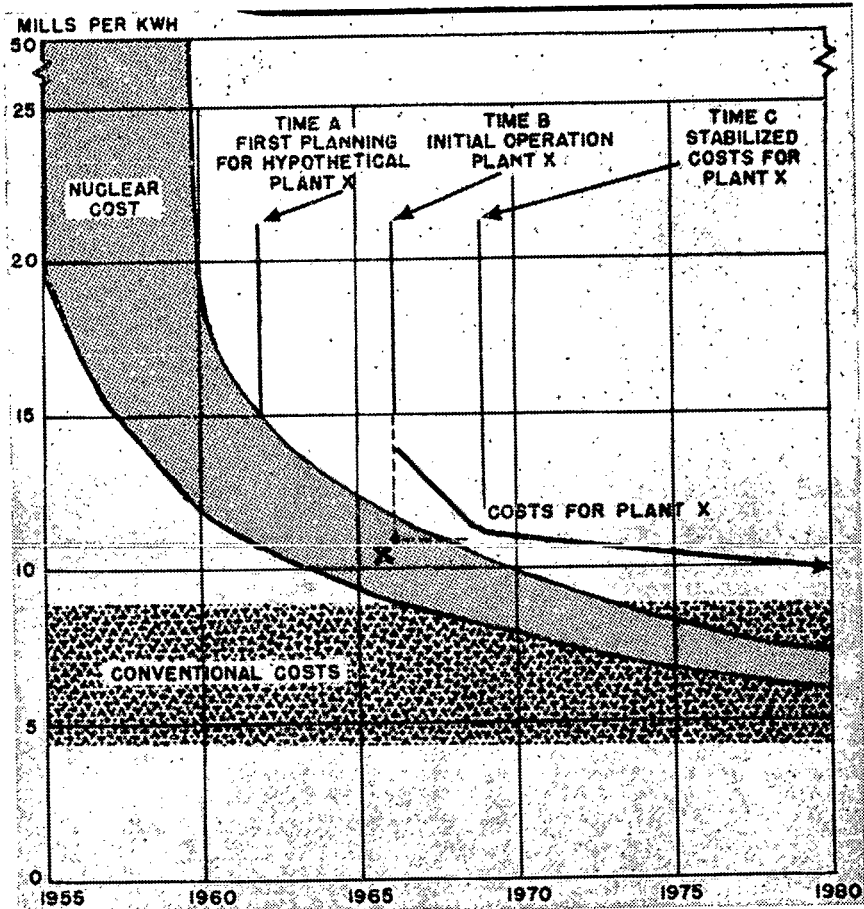
⁶³ See discussion by S. H. Robock, *Nuclear Power and Economic Development in Brazil* (National Planning Association, 1957), pp. 57–61. Robock's data for small plants in the United States were obtained from manufacturer's estimates, except in one case, which was based upon operation of a test facility.

⁶⁴ R. A. Tybout, *The Economics of Nuclear Power*, *The American Economic Review* (May 1957), pp. 352–353, 357.

FIGURE 1. ESTIMATED TOTAL UNIT COSTS OF POWER FROM LARGE NUCLEAR AND CONVENTIONAL POWERPLANTS GOING INTO SERVICE EACH YEAR

[Assumed load factors: For nuclear plants, 70-80 percent; for conventional plants, 50 percent]

[Figures are in 1957 dollars]



Source: Nuclear power projections are from paper prepared jointly by W. Kenneth Davis, Director, and Louis H. Roddis, Jr., Deputy Director, Division of Reactor Development, U. S. Atomic Energy Commission, for presentation at 5th Atomic Energy-in-Industry Conference of National Industrial Conference Board, March 14, 1957, mimeographed AEC release, chart A. Conventional power projections are from R. A. Tybout, *The Economics of Nuclear Power*, American Economic Review (May 1957), pp. 352, 353, 357.

The Davis-Roddis projections use load factors of 70 to 80 percent, which is normal for the first few years of plant operation, but tends to understate fixed costs over plant lifetime.⁶⁵ Since nuclear powerplants will have fixed costs in the range of half to two-thirds their total costs,⁶⁶ this understatement can be significant. For example, if the lifetime load factor is 55 percent, as it may well turn out to be, total unit costs will be in the neighborhood of 20 percent higher than

⁶⁵ *Ibid.*, p. 354.

⁶⁶ *Ibid.*, p. 352.

figure 1 shows for nuclear plants.⁶⁷ Conventional powerplant projections in figure 1 assume a 50-percent load factor. Davis and Roddis do not indicate their assumed annual rates for investment costs, but total unit costs are not sensitive to variations in these, within a reasonable range.⁶⁸

The projections of power costs shown in figure 1 are for plants coming into operation in the indicated years. In the case of nuclear powerplants, this has a complicated relation to average lifetime costs, as can be seen from the example of plant X. Figure 1 shows 4 years between the time A of first planning for plant X and the time B of initial operation of the plant. The plant's rated efficiency is designated by point X in the range of nuclear power costs. But plant X does not attain rated efficiency until after a 3-year break-in period ending at time C. Thereafter, plant X continues to produce at ever lower costs as the result of continuing improvements in newly established supply industries, such as fuel fabrication and reprocessing. Thus, figure 1 shows the cost levels for which new plants coming into operation can be designed, but not the average costs which they will in fact experience. In the case of conventional plants, very little change in total unit costs is expected, and so the designed cost and eventual average cost will be about the same.

Nuclear plants that will come into operation before 1960 will produce power at a wide range of costs, all of which will exceed the costs in alternative new conventional powerplants. Later designs will benefit from (1) research and development, a large part of which is and will continue to be conducted at Federal expense; (2) improvements in plant design and operation resulting from experiences with early atomic powerplants; and (3) economies of scale in industries providing equipment, services, and supplies for atomic power stations. We shall study at a later point the Federal expenditures made to launch the atomic power industry, including AEC-supported research and development. Expected improvements in plant design and economies in supply industries are tangential to our present interests.⁶⁹

As the nuclear power industry matures, figure 1 shows a convergence in the range of costs of power production. This reflects increasing uniformity of plant design in accordance with what we can reasonably expect to know of best-practice technologies. Conventional power costs, on the other hand, do not show a convergence because there are differences in costs of fuel transportation to different parts of the country. Among other things, this reflects one important economic aspect of atomic power—that nuclear fuels are almost weightless and sizeless for their energy content.⁷⁰ Atomic power will become economic first in those regions where conventional costs are high as a result of fuel transportation expenses. These include especially New England, Florida, and the Dakotas.

⁶⁷ Calculated on the basis of data in Tybout, *ibid.*, p. 352.

⁶⁸ For a tabulation of components of investment costs relevant to a comparison of atomic and conventional powerplants, see Tybout, *ibid.*, p. 353.

⁶⁹ These have been discussed by the author, *ibid.*, pp. 355-357.

⁷⁰ Using energy contents of 7,680 kilowatt-hours per ton of bituminous coal and 9.7 million kilowatt-hours per pound of fissionable uranium (as indicated elsewhere in this article), we find that 1 pound of uranium has a heat content equal to that of 1,260 tons of coal.

TABLE 10.—*Forecasts of nuclear additions each year as percent of total additions to electric generating capacity*

	1960	1965	1970	1975	1980
Davis (1955) ¹	4	8	38	60	70
Davis-Roddiss (1957) ²	4	8	26	53	67
McKinney Panel (1956) ³	*4	*7	14	44	63
B. R. Prentice (1956) ⁴	6	6	12½	41	62

*Obtained by graphical extrapolation.

¹ Remarks prepared by W. Kenneth Davis, Director, Division of Reactor Development, AEC, for presentation at the 17th Annual Meeting of the American Power Conference, Chicago, Ill., AEC release, Apr. 1, 1955.

² Paper prepared jointly by W. Kenneth Davis, Director, and Louis H. Roddis, Jr., Deputy Director Division of Reactor Development, U. S. Atomic Energy Commission, for presentation at 5th Atomic Energy in Industry Conference of National Industrial Conference Board, Philadelphia, Pa., AEC release, Mar. 14, 1957.

³ Panel on the Impact of the Peaceful Uses of Atomic Energy (McKinney Panel), Peaceful Uses of Atomic Energy, vol. 2, Joint Committee on Atomic Energy, 84th Cong., 2d sess. (January 1956) p. 23.

⁴ B. R. Prentice, A Forecast of the Growth of the Nuclear Fueled Electric Generating Industry, reprinted in part in Hearings on Development, Growth, and State of the Atomic Energy Industry before the Joint Committee on Atomic Energy, 84th Cong., 2d sess. (Feb. 7, 8, 15, 16, 23, 29, Mar. 1, 5, and 6, 1956), p. 578.

As a combined result of public aids and the eventual economic merits of atomic power itself, installed nuclear capacity will account for an increasing proportion of total electric power generated. Table 10 shows the range of expert opinion forecasting nuclear additions each year as a proportion of new electric generating capacity installed. The first two lines reflect AEC opinion, expressed first by W. Kenneth Davis, Director, Division of Reactor Development, and, second, by Messrs. Davis and Roddis jointly at the same time that they provided the figure 1 forecast of costs. The last two lines express expert opinion from outside AEC.

In Mr. Davis' 1955 forecast, he made it clear that his predictions were based upon a bandwagon psychology assumed to motivate electric utilities to adopt atomic technologies.⁷¹ In his 1957 forecasts with Mr. Roddis, the projections were simply presented as their "best judgment."

The McKinney panel (Panel on the Impact of the Peaceful Uses of Atomic Energy) and B. R. Prentice estimates are related in that Mr. Prentice (General Electric Co.) prepared his estimates for the use of the panel. The panel then revised them slightly to take account of special considerations.

The forecasts were made by a comparison of predicted future atomic power and conventional steam power costs in large plants in each of the eight regions into which the Federal Power Commission divides the Nation.⁷² Lower costs of atomic power were used than have since been reported by Davis and Roddis (fig. 1), but conventional power costs were the same as there reported. The forecasts also took account of the fact that, perhaps for psychological reasons, some nuclear power is being installed before costs compare favorably with conventional power. In view of the body of opinion brought to bear upon the problem by the panel (representing private electric utilities, public power systems, electrical equipment manufacturers, AEC, Federal Power Commission, and the Department of the

⁷¹ See discussion by R. A. Tybout, *The Public Investment in Atomic Power Development, Law and Contemporary Problems*, vol. 21 (winter 1956), pp. 71, 72.

⁷² See Panel on the Impact of the Peaceful Uses of Atomic Energy, *Peaceful Uses of Atomic Energy*, vol. 2, Joint Committee on Atomic Energy, 84th Cong., 2d sess. (January 1956), pp. 8-29.

Interior) and the systematic approach taken, we shall use the McKinney forecasts as a basis for estimating the total volume of energy from atomic power in 1975.

The next step in estimating the future energy potential of atomic electricity is to determine the most likely rate of growth for national electric power production.

The average rate of expansion of electric power production for the Nation as a whole from 1920 to 1950 was approximately 7 percent per annum, continuously compounded.⁷³ This corresponds to an approximate doubling of electric power every 10 years. In view of our annual average increase of 3 percent in the first half of the 20th century,⁷⁴ this has meant an increasing substitution of electric power for other forms of energy. The electric motor has replaced the stationary steam engine with its power-delivery system of shafts and pulleys. In 1950, electric-power consumption was eight times the 1920 level. Use of petroleum in 1950 was more than 2½ times the 1925 level, water power was 4 times, and natural gas 5 times.⁷⁵ Only coal consumption stood at about the same level as in 1925.⁷⁶

The question is whether electricity will continue to grow at the expense of other forms of energy. The Paley Commission felt that it would, but assumed only a 5 percent average (continuously compounded) rate of increase through 1975.⁷⁷ The Federal Power Commission uses a percentage rate declining from 7.2 annually for the 5 years 1955-60 to 3.8 annually for the 5 years 1975-80.⁷⁸ Contributors to the McKinney panel have given the weight of their authority to a growth rate of 6½ percent annually from 1955 to 1980.⁷⁹ The Edison Electric Institute proposes a range of rates from 5.4 to 6.8 percent a year from 1950 to 1975,⁸⁰ while *Electrical World* uses 7.0 percent to 1970.⁸¹

As a rough compromise and while recognizing the uncertainties implied by the differences in expert opinion, we shall use a 6 percent rate of growth per annum, continuously compounded to 1975. The resulting projection of nuclear-power production in 1975 will appear in table 11, following discussion of the prospects for nuclear fuels in other applications.

Beyond 1975, the probable rates of growth of both electrical power and its atomic-energy component are most speculative. We shall make no independent projection for this period, but will note Putnam's forecast for year 2000.

Process and space heat.—Large stationary heat sources, such as provided by nuclear reactors, offer some prospect of utilization for industrial process heating and can be adapted to large central-space heating almost as readily as to electric-power generation. The first application is limited by technological developments, the second by the nature of the market for space heating.

⁷³ President's Materials Policy Commission, op. cit., supra, note 15, p. 103.

⁷⁴ *Ibid.*, p. 105.

⁷⁵ *Ibid.*, p. 103.

⁷⁶ *Ibid.*

⁷⁷ *Ibid.*, p. 119.

⁷⁸ *Estimated Future Power Requirements of the United States by Regions, 1955-80* (Washington, 1956).

⁷⁹ Op. cit., supra, note 72, p. 25.

⁸⁰ *Looking Ahead to the Last Quarter of the First Century of Electric Power in the United States* (June 1954).

⁸¹ *Electrical World*, September 17, 1956.

Industrial process heat requires higher temperatures than electric-power generation.⁸² The problem of obtaining structural and other reactor materials that will withstand the combined effects of temperature and high radioactivity, a difficult problem for electric-power reactors, becomes a limiting factor in the development of industrial process heat reactors. It has been predicted by AEC that perhaps 15 years (from 1955) of research and development will be needed before we can utilize nuclear energy for industrial process heat.⁸³ Thereafter, adoptions will take place first in large installations located in areas of high cost alternative energy sources.

Space-heating applications will also be limited by the requirements of bulk consumption. A typical family dwelling housing 5 persons requires a heat plant with capacity on the order of 25 kilowatts. This is far below the level at which it is economic to generate atomic power.⁸⁴ Similarly, a large hotel or apartment house with a heat plant of 1,000 kilowatt capacity is less than one hundredth the size now judged most promising for electric-power production. In the absence of unforeseen technological changes, nuclear power for space heating will be limited to central-district plants.

Schurr and Marschak have found that to be economically promising, central-district heating requires very high population densities (of the order of 10,000 per square mile) and long cold winters.⁸⁵ There are districts in Chicago, Milwaukee, Buffalo, Boston, and the New York area which fit these requirements and, in fact, account for a significant part of the space-heating load.⁸⁶ With the trend to urbanization, the potential for nuclear-space heating should further improve.

Adequate information has not been developed to make forecasts of nuclear-power consumption in industrial process and space heating, but Putnam has offered informed guesses, which we shall note below.

Atomic propulsion.—Congress has authorized the construction of a nuclear-powered merchant ship jointly by AEC and the United States Maritime Administration.⁸⁷ The powerplant will be a pressurized water reactor of the type already in use in the Navy's submarine, *Nautilus*.

Some indication of the prospects for economic application is merchant-ship propulsion has been provided in a survey report by Rear Adm. H. G. Rickover, Chief, Naval Reactors Branch, AEC. Admiral Rickover indicates that capital costs of the reactor in the *Nautilus* are about seven times as great as those for an equivalent horsepower oil-fired plant, and that for a commercial surface vessel nuclear fuel costs would be about 50 times the cost of fuel oil for equal shaft-power generation.⁸⁸ Within 5 years, Admiral Rickover

⁸² Panel on the Impact of the Peaceful Uses of Atomic Energy, op. cit., supra, note 72, p. 316.

⁸³ *Ibid.*

⁸⁴ *Ibid.*

⁸⁵ Op. cit., supra, note 25, p. 211.

⁸⁶ *Ibid.*, p. 212.

⁸⁷ Public Law 848, 84th Cong., approved July 30, 1956.

⁸⁸ Panel on the Impact of the Peaceful Uses of Atomic Energy, op. cit., supra, note 72, p. 211.

expects nuclear-fuel costs can be reduced to 15 or 20 times those of fuel oil.⁸⁹

Nuclear powerplants offer the special advantage of ability to travel long distances without refueling, a matter of some importance in many military situations. This explains the Navy's interest in nuclear-powered submarines and an analogous interest by the Air Force in nuclear-powered aircraft. But there is no immediate prospect that atomic power can stand on its own economic feet in commercial vehicles, even when installed in vessels as large as merchant ships.

Nuclear fuel potential.—Table 11 shows plausible contributions of nuclear fuels in the United States in 1975 and 2000. Previous discussion has established the basis for our estimate for 1975, viz., that total electric-power generation will grow at a rate of 6 percent annually and nuclear capacity will be installed in accordance with the McKinney growth-rate schedule.

Putnam bases his estimate of nuclear power upon an annual rate of growth of total electric generating capacity of 4¼ percent compounded from 1950 to 2000 A. D. and assumes that 70 percent of all electric power generated in year 2000 is nuclear. His estimate of space heat is based upon one-sixth of the Nation's estimated needs and for process heat, upon one-tenth of estimated needs. Further details are not given.

Comparing the table 11 figures with table 1 estimates, we find that somewhere in the neighborhood of 5 percent of total national energy consumption will be nuclear in 1975 and somewhere from 10 to 20 percent in 2000.

TABLE 11.—*Plausible energy supplied by nuclear fuels in the United States in years 1975 and 2000*

[In kilowatt hour $\times 10^{12}$ at full calorific value]

	1975 ¹	(Putnam) 2000 ²
Electricity.....	1.0	5.15
Industrial process heat.....	(?)	0.53
Space heat.....	(?)	1.32
Total.....		7.00

¹ Calculated in accordance with assumptions indicated in text and applied as shown in appendix B.

² P. C. Putnam, *Energy in the Future* (Van Nostrand, 1953), p. 209.

The difficulties of radically extending our consumption of atomic fuels are implicit in previous discussion. Transportation accounted for 30 percent of all end uses of energy in the United States in 1947 and the Paley Commission expects it to hold approximately the same position through 1975.⁹⁰ The possibilities of using nuclear energy for transportation appear limited except through the medium of electric power, which would necessitate radical modifications in economic and social relationships. The fluid fuel problem is more likely to be solved, in the 20th century at least, by use of oil shales, conversion of coal.

⁸⁹ *Ibid.*, p. 242.

⁹⁰ *Op. cit.*, supra, note 15, p. 125.

Similarly, in comfort heating, which accounts for about a third of energy consumption in the United States,⁹¹ the applications of nuclear heat are limited to central district heating in the absence of a technological breakthrough, unforeseeable at the present time. For industrial process heat, which accounts for 11 percent of present energy consumption,⁹² nuclear fuels offer a potential, though it tends to be especially related to bulk uses and, for example, cannot serve the same chemical function as coke in steelmaking. Primary metals consumption of coke accounts for 4.2 percent of all energy consumed in 1947.⁹³

Nuclear energy finds its greatest potential in the applications of electrical energy. All in all, it would seem generous to conclude that with existing and foreseeable technologies, nuclear energy will provide any more than a quarter to a third of our future energy needs in the absence of far-reaching social and economic changes. Such changes, for example, might take the form of overhead electrification on main highways for cars, buses, and trucks, with reliance on storage batteries or remaining fluid fuels elsewhere, and more community life in high population density areas than can be served by central district heating.

Whether we actually move in either of these directions will depend upon a variety of factors, not the least of which is technological advance in developing other energy sources. Ample opportunities for research remain, for example, in improving upon nature's efficiency in fixing carbon. It is not immediately obvious that the prospects are very much less attractive than for commercial-atomic propulsion.

The nuclear potential abroad

Most regions of the world will face more pressing energy resource problems before the end of the 20th century than will the United States. The underdeveloped countries are, by and large, also the "have not" nations for fossil fuels. The mature economies of Western Europe are in a precarious position with respect to fluid fuels and appear constrained in the extent to which they can exploit home coal reserves. In between are Japan, Brazil, Israel, and certain other nations with a demonstrated understanding of economic progress, but long-term energy resource problems.

In a general way, we shall note the promises and problems of industrial atomic energy for underdeveloped and developed economies abroad. American nuclear power policy is, at one and the same time, an aspect of international development and a form of rivalry with the Soviet Union in demonstrating economic prowess and cementing technological ties with other world regions.

Underdeveloped countries.—Underdeveloped countries face a general problem of capital shortage. Overland transportation is limited and costly, which tends to force local self-sufficiency and low productivity. Equipment for productive techniques, power generation, and energy consumption tends to be concentrated in large cities with access to water transportation. Other areas, even when thickly populated, have substantially no access to energy and no tools with which

⁹¹ Putnam, *op. cit.*, *supra*, note 4, p. 102.

⁹² *Ibid.*

⁹³ Putnam, *ibid.*, p. 391, reports coke consumption by end uses, while the President's Materials Policy Commission, *op. cit.*, *supra*, note 15, p. 125, gives coke consumption as a proportion of all energy consumption.

to use it. Electrification and local access to high energy consuming methods of production is only one part of a far-reaching capital-consuming process, and is dependent upon simultaneous progress with the other parts.

In this context, the capital intensive requirements of nuclear power production appear at a disadvantage. Table 12 shows the capital needs of nuclear compared with those of other electric power generating systems. All figures are for the United States and assume the availability of a standard industrial complex for the production and transportation of cement, steel, and other products.

Nuclear power estimates for large plants are given for the present and expected future levels of capital costs. In both cases, the nuclear figures include all the special supporting industrial process equipment for fuel preparation, fuel enrichment, waste disposal and the production of certain other special materials. Between \$50 and \$100 of these capital costs could be turned into operating expenses by a nation that was willing to buy its enriched fuel abroad.⁹⁴

Assuming the availability of foreign loans, the implied drain upon foreign exchange would appear to be serious but for the fact that many underdeveloped countries must already import coal and oil at high delivered prices. These countries already face a foreign exchange problem as a result of transportation costs for the long distances fuels must be carried. Although nuclear power requires a high capital investment, annual costs of nuclear fuel transportation would be negligible.

Even in underdeveloped countries where coal is mined cheaply, available rail transport usually sets an upper limit of 300 to 400 miles on the distance for economic overland transportation.⁹⁵ Hydroelectric power, where available, cannot be transmitted economically over 400 to 500 miles with present technologies.⁹⁶ Again, transportation costs may work to the advantage of nuclear fuels in economically isolated (though perhaps heavily populated) areas. A qualification is that there must be enough heavy transport available to permit the initial construction of the atomic powerplant.

⁹⁴ W. Kenneth Davis, *Capital Investment Required for Atomic Energy, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. 1* (United Nations, 1956), p. 299.

⁹⁵ United Nations Department of Economic and Social Affairs, *Some Economic Implications of Nuclear Power for Underdeveloped Countries, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. 1* (United Nations, 1956), p. 343.

⁹⁶ *Ibid.*

TABLE 12.—*Investment costs of electric generating stations with special supply facilities*¹

[Dollars per installed kilowatt]

	100,000 kilowatts capacity	10,000 kilowatts capacity	1,000 kilowatts capacity
Nuclear.....	² 350 ³ 250	² 600-700	(?)
Conventional steam.....	135	155	(?)
Internal combustion.....	(?)	138	162
Hydroelectric.....	120	170	240

¹ The only plants requiring special supply facilities are the nuclear plants.² Now.³ Estimated future.

Source: W. Kenneth Davis, *Capital Investment Required for Nuclear Energy*, Proceedings of the International Conference on the Peaceful Uses of Atomic Energy (United Nations, 1956), pp. 299-300, except for the estimate of per kilowatt cost for nuclear plants of 10,000 kilowatts capacity. This was obtained by combining the per kilowatt cost of special supply facilities from W. K. Davis, *op. cit.*, with the per kilowatt electric plant cost from S. H. Robock, *Nuclear Power and Economic Development in Brazil* (National Planning Association, 1957), p. 122, table 2.

A final point works to the disadvantage of nuclear power. Table 12 points to the fact, which we have already noted, that nuclear power is not economical in small plants. Yet, a large part of the market in underdeveloped countries is for small power units. The first Indian 5-year plan is reported to provide for an 800-percent increase in diesel engines used for electric water pumping in agriculture although the fuel must be imported.⁹⁷ The dispersion of power needs which this implies is characteristic of the early stages of economic development. There are only limited opportunities in underdeveloped countries for power consumption on the scale most economic for nuclear plants.

The net result of these various influences is, of course, different in each specific situation, but we may observe that in general atomic power might be attractive for some underdeveloped countries as a result of transportation costs of conventional fuels.

It is worth noting in passing that the underdeveloped countries should have a special interest in solar energy. Solar energy collectors are well adapted to small power outputs and present no problems of importing fuels of any kind. Moreover, most underdeveloped countries lies in the more sunlit regions of the world. The technologies of solar energy collection and storage are relatively unexplored, but even at their present primitive level find a market for cooking in India and space heating in the United States. One can only speculate as to what might result from a national effort to develop solar energy comparable to the effort we are making to develop atomic power.

Developing economies.—In the advanced stages of economic development, nuclear power is more likely to find useful applications in the foreseeable future.

Developing economies are concerned especially with heavy manufacturing production, which tends to make disproportionate energy demands. In a worldwide correlation, Robinson and Daniel found twice the rate of energy consumption with manufacturing production as with real national income.⁹⁸ It follows that in the rapidly developing regions of the world, including the Soviet Union and a number

⁹⁷ *Ibid.*, note.⁹⁸ *Op. cit.*, *supra*, note 5, pp. 38-41.

of South American countries, large markets are opening for energy-intensive uses. Where fossil fuel shortages appear, nuclear power may offer the best solution.

Comparing our previous discussion of energy resources, South American countries would seem to be in the position to first adopt atomic power among the developing economies, and there is some direct evidence that this is the case. Spokesmen for Brazil, Argentina, and Uruguay delivered papers at the Geneva Conference describing plans for energy development.⁹⁹ Of these, Brazil and Argentina indicated clear possibilities for early introduction of nuclear power. In a study of Brazil alone, Robock found economic benefit from nuclear power (despite foreign exchange problems) by 1965 and increasing advantage in the years thereafter.¹⁰⁰

Mature economies.—Mature economies abroad have, if anything, more immediate grounds for economic interest in atomic power than has the United States.

Fuel shortages appear to be not far in the future for the western European countries as a whole and indeed, are present today in the sense that coal production involves costs almost twice those of the United States.¹⁰¹ Japanese electricity is produced 60 percent from hydro power, but suitable hydro sites are almost all in use and delivered coal prices are approximately twice as high per contained kilowatt-hours of energy as in the United States.¹⁰² Both regions also differ from the United States in that they are less heavily committed than are we to a transportation system based on liquid fuels, a fact which would make for less difficult adjustments through electrification.

AEC has indicated that Japan expects to need 500,000 kilowatts of nuclear electric capacity by 1965,¹⁰³ while Britain has announced a program of construction of nuclear power plants which will bring 5 to 6 million kilowatts of nuclear capacity into operation by 1965.¹⁰⁴ Assuming a 3 percent rate of growth of energy consumption in Britain, that the nuclear electric facilities are used at a load factor of 85 percent in 1965, and an average thermal efficiency of 30 percent in the nuclear plants, this means that about 6 percent of all energy consumed by Britain in 1965 will be nuclear.¹⁰⁵

On the continent, the Community of Six (Belgium, France, Western Germany, Italy, Luxembourg, and the Netherlands) through its creation, the European Atomic Energy Community, has drawn up a scheme of cooperative endeavor commonly known as Euratom. This involves supranational authority having certain regulatory functions to protect public health and to prevent diversion of nuclear materials

⁹⁹ See Proceedings of the International Conference on the Peaceful Uses of Atomic Energy, vol. 1 (United Nations, 1956).

¹⁰⁰ *Op. cit.*, supra, note 63.

¹⁰¹ *Op. cit.*, supra, note 4, pp. 137-139.

¹⁰² Delivered coal prices for Japan and the United States, respectively, are from M. Sapir and S. J. Van Hyning, *The Outlook for Nuclear Power in Japan* (National Planning Association, 1957), p. 64, and Federal Power Commission, *Steam-Electric Plant Construction Cost and Annual Production Expenses, Eighth Annual Supplement* (Washington, 1956). Information on Japanese hydro sites is from Sapir and Van Hyning, *op. cit.*, pp. 25-27.

¹⁰³ Prepared statement submitted in hearings on development, growth, and state of the atomic energy industry before the Joint Committee on Atomic Energy, 85th Cong., 1st sess. (February 19, 20, 21, 25, 26, 27, 28, and March 5, 1957), p. 156.

¹⁰⁴ Atomic Industrial Forum, *Forum Memo* (September 1957), pp. 22-25.

¹⁰⁵ Based on 1952 energy consumption, as reported by United Nations Department of Social and Economic Affairs, *op. cit.*, supra, note 1, p. 20.

to armaments and having advisory functions with respect to power generation and coordination of national program.¹⁰⁶ Euratom has announced that it will need a capacity of 3 million installed kilowatts of atomic electricity by 1963 and 15 million by 1967.¹⁰⁷ On the basis of the same assumptions as made for Britain, this will mean that approximately 9½ percent of all energy consumed in the six participating countries in 1967 will be nuclear.¹⁰⁸

If they carry out their plans, both Britain and Euratom will have exceeded the United States in nuclear capacity by 1965 and 1967. The comparable figures for the United States are 2.8 million and 5.4 million kilowatts of installed nuclear power in these respective years.¹⁰⁹ Our previously derived estimate of nuclear consumption as a proportion of the United States total energy consumption is approximately 5 percent in 1975.

Lane reports reactors planned or announced in other countries as follows: Austria, one 10,000-kilowatt powerplant; Canada, a 20,000-kilowatt electric powerplant; Norway, a 20,000-kilowatt process heat plant; Sweden, 3 process heat plants totaling 236,000-kilowatt capacity and 3 electric powerplants totaling 75,000 to 300,000 kilowatts; and the Soviet Union, looking toward a total of 2 to 2.5 million kilowatts.¹¹⁰ In all cases, the plants are to be in operation by the early 1960's.

Foreign assistance.—The United States is giving assistance to friendly nations in their efforts to develop and utilize atomic power. This is generally referred to under the global term "atoms-for-peace," stemming from the President's historic announcement before the eighth session of the United Nations General Assembly, December 8, 1953. In keeping with his proposals, the President subsequently announced that 20,000 kilograms of enriched uranium fuel would be available for lease or sale to friendly nations at \$25 a gram, a price intended to cover AEC's total unit costs of production, but not to yield AEC a profit.¹¹¹ Various other steps have been taken, too numerous to catalog here, but including especially the promotion of the Geneva Atoms-for-Peace Conference and the International Atomic Energy Agency.

For its part in atoms-for-peace work, AEC requested a budget authorization of approximately \$7.7 million, about \$3 million for expenses of international conferences and about \$2.5 million for construction of a training center in Puerto Rico.¹¹² The remainder was for relatively stabilized aspects of AEC foreign aid, as shown in table 13.

Table 13 shows the assisted nations by world region, and for each region, totals are indicated. Four types of assistance are shown. Columns (1) and (2) refer to student training. Columns (3) and (4)

¹⁰⁶ See K. E. Knorr, *Nuclear Energy in Western Europe and United States Policy* (Princeton, 1956).

¹⁰⁷ AEC prepared statement, op. cit., supra, note 103, pp. 155-156.

¹⁰⁸ Based on 1952 Energy consumption for the six Euratom nations, as reported by United Nations Department of Social and Economic Affairs, op. cit., supra, note 1, p. 20.

¹⁰⁹ Calculated from schedule of nuclear capacity installed each year in the United States, appendix B, table B-1, col. (6).

¹¹⁰ J. A. Lane, *Where Reactor Development Stands Today*, *Nucleonics* (August 1956).

¹¹¹ White House press release, February 22, 1956. An additional allocation of 29,800 kilograms was subsequently made available for foreign governments. White House press release, July 3, 1957.

¹¹² Hearings before the Subcommittee on Appropriations on Atomic Energy Appropriations for 1958, 85th Cong., 1st sess. (July 10, 1957), p. 140.

show assistance in actually getting reactors. Column (3) shows licenses issued for export of reactors. In most cases the export is paid for through a grant shown in column (4), but this is not always the case. Canada and Italy are importing reactors not covered by grants. Column (5) shows depository libraries, distinguished by C if classified, by U if unclassified. Columns (6) and (7) show bilateral agreements in effect, and in process of negotiation, respectively. The bilateral agreements provide for exchange of information, classified or unclassified, as indicated, and often include provision for shipment of nuclear fuels under terms noted above.

The general impression given by table 13 is that Europe is receiving by far the greatest assistance in developing atomic energy. Asia comes next, at least in student training, but is matched by the Americas in all other respects. Very little aid goes to other world regions.

TABLE 13.—Selected foreign atomic energy assistance

Country	Students trained at ISNSF ¹		Research reactors licensed for export		Technical library ²	Bilateral agreement	
	Number	Cost to United States	Number	Grant by United States		In effect ³	Pending or in negotiation ²
	(1)	(2)	(3)	(4)		(6)	(7)
The Americas, total.....	29	\$174,000	2	\$700,000	1C, 13U	1C, 9U	5C, 5U
Argentina.....	4	24,000			U	U	C
Brazil.....	9	54,000	1	350,000	U	U	C
Canada.....					C	C	
Chile.....	4	24,000	1		U	U	
Colombia.....					U	U	
Costa Rica.....					U		U
Cuba.....	2	12,000			U		C, U
Dominican Republic.....					U	U	
Ecuador.....	1	6,000					U
Guatemala.....	1	6,000			U	U	
Haiti.....					U		U
Mexico.....	3	18,000			U		
Nicaragua.....							U
Peru.....	1	6,000			U	U	C
Uruguay.....	2	12,000			U	U	C
Venezuela.....	2	12,000		350,000	U	U	
Europe, total.....	132	792,000	10	2,620,000	2C, 17U	5C, 10U	5C, 2U
Austria.....	5	30,000			U	U	
Belgium.....	8	48,000		350,000	C	U	
Denmark.....	4	24,000	2	350,000	U	U	
Finland.....	2	12,000			U		
France.....	13	78,000			U	C	
Germany, Federal Republic of.....	20	120,000	4	350,000	U	U	C
Greece.....	8	48,000		350,000	U	U	
Iceland.....					U		
Ireland.....					U		U
Italy.....	21	126,000	1		U	U	C
Luxembourg.....					U		
Netherlands.....	4	24,000	1	350,000	U	U	C
Norway.....	4	24,000			U	C	
Portugal.....	3	18,000	1	350,000	U	U	
Spain.....	22	132,000	1	350,000	U	U	C
Sweden.....	5	30,000			U	U	C
Switzerland.....	9	54,000		170,000	U	C, U	
United Kingdom.....					U	C	
Yugoslavia.....	4	24,000			C		U
Africa, total.....	9	54,000			2U		2C, 2U

See footnotes at end of table.

TABLE 13.—Selected foreign atomic energy assistance—Continued

Country	Students trained at ISNSF ¹		Research reactors licensed for export		Technical library ²	Bilateral agreements	
	Number	Cost to United States	Number	Grant by United States		In effect ³	Pending or in negotiation ⁴
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Egypt.....	8	48,000			U		
Liberia.....							U
Southern Rhodesia.....	1	6,000					C
Tunisia.....							U
Union of South Africa.....					U		C
Asia, total.....	102	612,000	1	700,000	13U	9U	6C, 3U
Afghanistan.....	1	6,000					
Burma.....	5	30,000					
Ceylon.....	7	6,000			U		U
China (Taiwan).....	1	42,000			U	U	C
India.....	8	48,000			U		
Indonesia.....	3	18,000					
Iran.....	2	12,000					U
Iraq.....	5	30,000			U		U
Israel.....	4	24,000		* 350,000	U	U	C
Japan.....	18	108,000	1	350,000	U	U	C
Korea, Republic of.....	12	72,000			U	U	C
Lebanon.....	1	6,000			U		
Pakistan.....	14	84,000			U	U	C
Philippines.....	5	30,000			U	U	C
Thailand.....	7	42,000			U	U	
Turkey.....	9	54,000			U	U	
Oceania, total.....	2	12,000				1C, 1U	
Australia.....	2	12,000					C
New Zealand.....							U
World, total.....	274	1,644,000	13	4,020,000	* 3C, 45U	7C, 29U	18C, 12U

NOTES

¹ Authorized enrollment at the International School of Nuclear Science and Engineering (ISNSF), 1st sessions commencing from March 1955 to September 1957.

² By "U" is meant an exchange of unclassified information related to research reactors; by "C" is meant an exchange of classified information related to power reactors.

³ Tentative grants; complete plans not submitted by applicants.

⁴ This is the Geneva Convention Reactor which was sold to Switzerland at approximately 50 percent of cost.

⁵ Does not include 4 technical libraries awarded to international organizations.

Sources: Cols. (1), (3), (4), (5), (6), (7) compiled from AEC Releases through Sept. 18, 1957; col. (2) calculated on the basis of costs announced by AEC in hearings before the subcommittee of the Committee on Appropriations on Atomic Energy Appropriations for 1958, House of Representatives, 85th Cong., 1st sess. (July 10, 1957), p. 120. Exact pro rata figure per student is \$5,916.67.

PUBLIC AIDS

The development of civil atomic power is one phase of a predominantly military atomic energy program which from its inception in 1940 to the end of fiscal year 1956 resulted in public appropriations of \$15.2 billion,¹¹³ at least several billion dollars of which would have been necessitated by a single-purpose civil power effort.

Military objectives have already led to the conduct of much of the necessary basic research, have stimulated exploration for uranium ores, and have created the refining, fuel enrichment and fuel reprocessing facilities that give the nuclear power industry a supply base upon

¹¹³ AEC 21st Semiannual Report (January 1957), p. 379.

which to build. The facilities for fuel enrichment and reprocessing even today are publicly owned, though there is every reason to think that as the atomic power industry grows, these traditional industry-type activities will be conducted in the private sector. Until that time, nuclear power will continue to benefit from its base in the public sector, if for no other reason, because the atomic power industry, if based only in the private sector, could not have supported in its early years the scale of fuel enrichment and reprocessing operations that would have kept costs down to their present levels.

These benefits are real, but are unintended byproducts of military preparedness. In principle, we cannot charge them against atomic power, and in practice, information is not available and could not be obtained with any exactitude as to their extent, based upon what might have been the situation in their absence.

The public aids with which we shall be concerned are those explicitly intended to bring atomic power costs down to present levels of steam electric power, plus certain other public expenditures for the joint purpose of furthering both military and civil atomic power, but no expenditures incurred in whole or in part for military explosives.

AEC has undertaken three major programs of financial assistance for low cost civil atomic power. First, the Atomic Energy Commission is conducting research and development on promising reactor concepts. This is generally limited to pilot-plant (experimental small scale) models. Second, the Commission is covering part of the cost of particular full-scale nuclear power stations which will be privately operated under arrangements referred to as the power reactor demonstration program (demonstration program). Assistance of this type is negotiated separately for each project. Third, AEC has adopted a sliding scale of price supports for purchase of regenerated fissionable materials produced in private atomic powerplants, whether or not the plants are operating under demonstration program arrangements.

Other forms of financial assistance are made available by the Federal Government. First, rapid tax amortization is available for civil atomic powerplants, though not for other electric utilities. Second, the civil atomic power industry is indemnified by law against public claims of damages from nuclear accidents over certain levels.

Finally, at the State level, established practices in electric utility regulation have been interpreted to permit atomic power station operators to charge the higher costs of atomic electricity to consumers in higher rates than would have resulted had conventional facilities been installed.

AEC civil-power research

Table 14 shows cumulative AEC expenditures for civil-power research through 1957, plus related projects and cost projections.

Twelve projects appear under the title "Civil-Power Reactors." The first five were AEC's 5-year power reactor development program started in 1954, but since swallowed up in the present expanded (and unnamed) program of civil-power research. The rest of the projects were adopted as they showed technological promise, very often as the result of stimulation by the congressional Joint Committee on Atomic Energy. For example, column (6) shows that appropriations for

fiscal year 1958 included sums that had not been requested by AEC. These originated in the Joint Committee on Atomic Energy.¹¹⁴ The natural uranium (graphite-moderated, gas-cooled) reactor had not been represented before among the civil-power projects.

The pressurized water project, listed first among the civil-power reactors, is a full-scale electric powerplant of 60,000 kilowatts capacity located at Shippingport, Pa. (in the Pittsburgh area) and scheduled to begin operation in December 1957. The plant is owned by AEC, but will be operated by the Duquesne Light & Power Co. under arrangements that will result in Duquesne's paying about 32 percent of all electric power generating costs over the plant lifetime.¹¹⁵ Operating costs shown in column (1) of table 14 for this plant refer only to research and development operations, since the plant is not yet generating power.

TABLE 14.—Atomic Energy Commission reactor development costs

[In millions of dollars]

	Costs through fiscal year 1957			Projected costs		
	Operating (1)	Construction (2)	Total (3)	Operating, fiscal year 1958 (4)	Construction, at completion (5)	Added by Congress, fiscal year 1958 (6)
Civil power reactors:						
Pressurized water.....	47.0	43.0	90.0	21.0	34.5	-----
Boiling water.....	18.7	1.8	20.5	5.0	10.3	-----
Homogeneous.....	42.7	1.0	43.7	11.8	4.7	-----
Fast power breeder.....	20.2	5.7	25.9	13.6	29.1	-----
Sodium graphite.....	16.5	0	16.5	7.9	6.0	-----
Liquid metal fuel.....	5.1	0	5.1	8.0	(?)	-----
Organic moderated.....	3.9	0	3.9	5.5	.8	-----
Plutonium recycle.....	1.0	0	1.0	4.0	(?)	15.0
Pressurized heavy water.....	.5	0	.5	4.0	(?)	-----
Advanced design.....	.5	0	.5	2.0	(?)	-----
Natural uranium.....						3.0
Other.....	5.9	1.1	7.0	0	(?)	-----
Total.....	162.0	53.5	215.5	82.8	115.4+	18.0
Military and classified projects.....	483.1	174.1	657.2	180.6	-----	-----
General development, operation of supporting facilities, etc.....	222.2	212.9	435.1	51.9	-----	3.0

Source: Cols. (1), (2), and (3), unpublished data from U. S. Atomic Energy Commission.

Col. (4), AEC budget request, hearings before the Subcommittee on Appropriations on Atomic Energy Appropriations for 1958, House of Representatives, 85th Cong., 1st sess. (July 10, 1957), p. 217. The AEC budget request of \$2,377,600,000 for operations was granted in the amount of \$2,215,470,000 in Public Law 715, 85th Cong., approved Aug. 28, 1957, without restriction upon reactor development.

Col. (5), AEC prepared statement in hearings before the Joint Committee on Atomic Energy on Development, Growth, and State of the Atomic Energy Industry, 85th Cong., 1st sess. (Feb. 19, 20, 21, 26, 27, 28, and Mar. 5, 1957), pp. 690, 691, and J. A. Lane, Where Reactor Development Stands Today, Nuclconics (August 1956).

Col. (6), Public Law 162, 85th Cong., approved Aug. 21, 1957. No distinction is made between plant and operating expenditures in these appropriations.

Costs are given on the basis of obligations incurred and not for cash disbursed in cols. (1) through (4).

All of the other projects listed as civil power reactors are experimental units, and a number of such units may be included in a given project. For example, the first homogeneous reactor was started in March 1951 at the Oak Ridge National Laboratory, but was shut

¹¹⁴ See S. Rept. 791, 85th Cong., 1st sess. (August 2, 1957).

¹¹⁵ Calculated on the basis of a \$50 million expenditure by Duquesne Light Co. over plant life (see Tybout, op. cit., supra, note 71, pp. 65-66), as compared with AEC's investment of \$64.5 million shown in table 14, column (5), which will substantially complete the AEC expenditure for power generation at Shippingport.

down and dismantled in early 1954. The present homogeneous reactor is also being constructed at Oak Ridge; present plans call for initial operation in December 1957. The costs of both homogeneous reactors are included in columns (1), (2), and (3). The same principle is followed for other civil power projects, except that military and general research precursors are not included with the civil power reactors. The cost of earlier reactor research was assigned in Commission accounts, which were the source of data in columns (1), (2), and (3), to civil atomic power only in cases where this was the clear intention at the beginning of the research.¹¹⁶

Table 14 shows a total cost of civil power reactors of \$215.5 million through fiscal year 1957. In addition, AEC spent \$657.2 million on military reactor development (principally for propulsion) and \$435.1 on general reactor development, including operation of supporting facilities. The general expenditures were intended to further both military and civil goals. At least some part of them should be assigned to civil power development.

Two procedures for allocation of general reactor development expenses between civil and military programs have been described elsewhere by the author.¹¹⁷ The first treats all general expenses in the same way as overhead burden in many industrial cost accounting systems. Applied to the data in table 14, it results in the assignment of \$109.7 million of the general expenses to civil power, bringing the civil power total to \$325.2 million by the end of fiscal year 1957.

The second apportions all general expenses in the same way as common costs are allocated in the most satisfactory of the techniques for our large multipurpose river and regional development projects, such as the Tennessee Valley Authority. This method assigns \$217.6 million of general expenses to civil power, resulting in a total civil power cost of \$433.1 million through fiscal year 1957.

Columns (4), (5), and (6) of table 14 show projected costs as far ahead as these can be foreseen with reasonable assurance. The column (5) figures include the construction costs shown in column (2), except for minor plant costs which are no longer used in reactor projects. An example would be the previously mentioned first homogeneous reactor, now dismantled. This is included in column (2), but not column (5).

¹¹⁶ Physical descriptions of the civil power reactors may be found in AEC semiannual reports of recent years.

¹¹⁷ See Tybout, *op. cit.*, *supra*, note 71, pp. 65, 66.

A rough total of funds spent and committed to civil power can be calculated by adding the projected costs (sum of cols. (4), (5), and (6)) to civil power costs through fiscal year 1957, and subtracting the column (2) costs so as to avoid double counting with column (5). This, of course, will understate total costs even as implied by present projects to the extent that civil power reactor projects already undertaken will necessitate further (specific and general) expenditures before completion. Recognizing this limitation, the indicated calculations give 487.9¹¹⁸ to 595.8 million dollars for civil atomic power, depending upon the method used for allocating general expenses cumulated to the end of fiscal year 1957. For future reference, we shall round this to 500 to 600 million dollars.

There is no immediate prospect of abatement of AEC's civil power reactor research program. Only 1 of the first 5 projects (the boiling water reactor) has all of its projected research facilities in operation.¹¹⁸ Facilities for the rest are scheduled to begin operation at various dates in 1957, or as late as June 1959 in the case of the fast power breeder reactor.¹¹⁹ It may also be significant, as a commentary upon the embryonic state of our technological knowledge, that presently estimated costs of the five reactor plants vary from 36 percent to 89 percent above their original estimated costs.¹²⁰ The rest of the projects are in the study stage, and if carried forward might go considerably beyond the costs shown for them in table 14.

Power demonstration reactor program

Power demonstration projects in prospect at the beginning of August 1957 are summarized in table 15. Projects are identified by the name of proposers, or powerplant operators. The operators are groups of private electric utilities and other business firms in the case of Yankee Atomic Electric Co., Power Reactor Development Co., Florida Nuclear Power Group, and Northern States Power Co., with membership as shown in appendix C. The other five organizations shown in table 15 are public or cooperative bodies. The operators are grouped according to whether the proposals were made in response to AEC's first, second, or third round invitations, directed to American industry and offering different kinds of aid for different classes of atomic powerplants which the latter might propose to build and operate.

¹¹⁸ See hearings, *supra*, note 103, pp. 690-691.

¹¹⁹ *Ibid.*

¹²⁰ *Ibid.*

TABLE 15.—Atomic Energy Commission assistance in power reactor demonstration program

[In millions of dollars]

PART A—ASSISTANCE REQUESTED BY PRIVATE PROJECT PROPOSERS

Operators and plant capacity for each	(1) Preconstruction research and development	(2) Reactor construction	(3) Postconstruction research and development	(4) Total cols. (1)+(2)+(3)	(5) Waiver of interest charges on fuel	(6) Total value of assistance, cols. (4)+(5)
FIRST ROUND PROPOSALS						
Yankee Atomic Electric Co. (134,000 kilowatts)	5.000	-----	-----	5.000	2.980	7.980
Power Reactor Development Co. (100,000 kilowatts)	4.450	-----	-----	4.450	3.703	8.153
Consumer Public Power District (75,000 kilowatts)	18.165	24.013	8.000	50.178	1.325	51.503
Total.....	-----	-----	-----	59.628	-----	-----
SECOND ROUND PROPOSALS						
Shugach Electric Association (10,000 kilowatts)	9.880	6.729	2.500	19.109	0.620	19.729
Rural Cooperative Power Association (22,000 kilowatts)	2.760	5.686	1.640	10.086	0.125	10.211
Wolverine Electric Cooperative Association (10,000 kilowatts)	1.635	3.837	-----	5.472	-----	5.472
City of Piqua, Ohio (12,500 kilowatts)	3.500	4.010	3.600	11.110	0.625	11.735
Total.....	-----	-----	-----	45.777	-----	-----
THIRD ROUND PROPOSALS						
Florida Nuclear Power Group (136,000 kilowatts)	9.300	-----	(1)	9.300	2 7.500	16.800
Northern States Power Co. (66,000 kilowatts)	5.500	-----	0.500	6.000	1.000	7.000
Total.....	-----	-----	-----	15.300	-----	-----
Grand total.....	60.190	44.275	16.250	120.705	17.873	138.583

PART B—ASSISTANCE AUTHORIZED AND APPROPRIATED

	Amount
Authorized by Joint Committee on Atomic Energy:	
1st round proposals.....	\$59.628
2d round proposals.....	48.237
3d round proposals.....	30.000
Research and development on fast breeder technology.....	1.500
Subtotal.....	139.365
Waiver of fuel use charges.....	20.000
Total.....	159.365
Appropriated:	
Previous.....	9.450
Fiscal year 1958.....	129.915
Total.....	139.365

¹ Undetermined.² Includes waiver of heavy water use charges of \$5 million.

Source: S. Rept. 791, Authorizing Appropriations for the Atomic Energy Commission, 85th Cong., 1st sess. (Aug. 2, 1957), except for fiscal year 1958 appropriations, which are in Public Law 162, 85th Cong., approved Aug. 21, 1957, without restriction upon the power reactor demonstration program projects.

The projects represent types of reactors appearing in table 14, but do not give complete coverage of the table 14 reactors. The Yankee proposal shown in table 15 is for a pressurized-water reactor. Rural

Cooperative Power and Northern States have both proposed boiling-water reactors. Wolverine Electric's is an aqueous homogeneous reactor. Power Reactor Development Co. proposed a fast-breeder reactor; Consumers Public Power, a sodium-graphite reactor; Chugach, a sodium heavy-water reactor; Piqua, an organic-moderated reactor; and the Florida Nuclear Power Group, a natural uranium, gas-cooled, heavy-water-moderated reactor. The last draws from the pressurized heavy water and natural uranium concepts shown in table 14, so that there are only the liquid metal fuel and plutonium recycle reactors not represented among the table 15 projects.

All of the table 15 projects are full-scale (large, medium, or small) electric-generating installations. Plant sizes are indicated under the name of each operator in kilowatts of electric power capacity. The plants are being designed with the benefit of information developed in AEC research projects noted in table 14, and will be expected in turn to contribute information of value for the next generation of atomic powerplants.

The dollar values of AEC assistance shown in table 15 are those requested by the proposers of the projects, indirectly approved by AEC in requesting funds in approximately the same amounts, and made possible by Congress in authorizing the necessary appropriations, which are shown in part B of the table. Appropriations authorized by the Joint Committee on Atomic Energy are shown separately in part B for the first-, second-, and third-round proposals, plus a miscellaneous item, research on fast-breeder technology. Compare the subtotals in column (4) showing the requested amounts of demonstration program assistance.

The first round, in which negotiations are still being conducted with respect only to the Consumers Public Power District project (contracts have been signed with Yankee and Power Reactor Development), is completely covered. Close to \$3 million is authorized in excess of the financial assistance requested by participants in the second round and almost \$15 million more is approved for the third round, which is still open and in which we can expect more proposals to be submitted. The waiver of the fuel-use charge requires no appropriations, but has received Joint Atomic Energy Committee authorization with a cushion of \$2 million over amounts requested. Part B also shows that the necessary appropriations have been approved in appropriations legislation.

In its first-round invitations, announced on January 10, 1955, and with an April 1, 1955, deadline for submission of projects, the Commission offered: (1) to waive interest charges (which AEC had set at 4 percent) for the loan of source and special nuclear materials (but not to waive charges for the consumption of these materials); (2) to perform in AEC facilities without charge to the participating firms certain mutually agreed-upon research and development work; and (3) to enter into research and development contracts with participating firms, the resulting information to become AEC property available for public use.¹²¹ The Commission indicated that it would employ the following criteria in evaluating proposals: (1) the probable contribution of the proposed project toward achieving economically competitive power; (2) the cost to AEC in funds and materials; (3) the risk

¹²¹ AEC Release No. 589, January 10, 1955.

to be assumed by the maker of the proposal; (4) the competence and responsibility of the maker of the proposal; and (5) assurances given by the maker of the proposal against abandonment of the project.¹²²

In subsequent negotiations, the terms of AEC assistance were further liberalized. First, the fuel use charge waiver was to expire July 1, 1962 (7 years after July 1, 1955).¹²³ Instead, the use charge negotiated in all 3 of the first round projects involves a waiver for the first 5 years of plant operation,¹²⁴ which will extend at least to 1965 since none of the plants will be in operation before 1960.¹²⁵ The values of the waiver, shown in column (5) reflect the interesting fact that interest on fuel inventory, an inconsequential item in conventional plants, looms large in nuclear plant costs. This is the combined result of the high value of the fuel per pound and the large critical mass needed for nuclear fission, as a result of which only one one-thousandth of the fuel in the reactor may be consumed daily.¹²⁶

Research and development, as envisaged in the first round included funds for reactor "fabrication and experimental operation."¹²⁷ This concept is highly specific for given reactor designs, and, in fact, was further extended to include, in the Consumer's Public Power project an AEC contribution of \$8 million to costs of operation (for "unusual maintenance"),¹²⁸ shown in column (3). AEC reactor construction and ownership was not considered at all in the first-round invitation, but has become a part of the Consumer's Public Power project, as shown in column (2).

AEC announced its second-round invitation September 21, 1955, with a deadline of February 1, 1956 for submission of proposals.¹²⁹ This round was limited to medium and small powerplants (in the range of 5,000 to 40,000 kilowatts capacity), suitable for rural and perhaps foreign applications.

Essentially the same kind of assistance was offered as in the first round, but with liberalizations and additions. Waiver of the fuel use charge was extended to 5 years after the start of plant operations, foreshadowing the de facto practice later to appear in the negotiation of first-round proposals. Postconstruction research and development assistance was more explicitly offered. And a new offer was made—that AEC would consider financing and retaining title to all or part of a reactor system.

The Commission set forth essentially the same criteria as in the first round, with two exceptions. Projects utilizing a low degree of enrichment of nuclear fuel were to be favored. And no mention was made of the necessity of the proposers giving assurances against abandonment. AEC was subsequently to be criticized by the Comptroller General for an absence of safeguards against abandonment in its (first round) contract with Yankee Atomic Electric Co.¹³⁰ Similarly, the

¹²² *Ibid.*

¹²³ *Ibid.*

¹²⁴ S. Rept. 791, *supra*, note 114, pp. 9-10.

¹²⁵ Paper prepared jointly by W. Kenneth Davis, Director, and Louis H. Roddis, Jr., Deputy Director, Division of Reactor Development, U. S. Atomic Energy Commission, for Presentation at 5th Atomic Energy Industry Conference of National Industrial Conference Board, Philadelphia, Pa., AEC release, March 14, 1957.

¹²⁶ D. M. Leppke, *The Facts of Atomic Power Development: Some Aspects of Nuclear Power Economics, Law and Contemporary Problems*, vol. 21 (winter 1956), p. 3.

¹²⁷ AEC Release No. 589, January 10, 1955.

¹²⁸ S. Rept. 791, *supra*, note 114, p. 10.

¹²⁹ AEC Release No. 695, September 21, 1955.

¹³⁰ Report on Review of Atomic Energy Commission Contract No. AT(30-3)-222 with Yankee Atomic Electric Co., November 1956, by the Comptroller General of the United States, p. 6.

Joint Committee on Atomic Energy has noted the lack of control by AEC under second-round projects in the absence of safeguards against abandonment.¹³¹

Seven second-round proposals were received, three of which AEC found unacceptable on the basis of announced criteria.¹³² The remaining four were accepted as a basis for negotiation, as shown in table 15. All of the proposals were made by public groups or cooperatives, apparently reflecting the special interest of these groups in small plants. The four acceptable proposals took advantage of the AEC offer to finance the reactor system and retain title to the reactor portion of the powerplants, thereby reducing greatly the ultimate cost of atomic electricity to consumers. Table 15, column (6) shows that although the second-round proposals are almost one-fifth to one-tenth the size of the other powerplants, they account for AEC assistance in roughly the same or higher amounts. This is probably the result of two facts: (1) the cost of power generation is high per kilowatt-hour in small plants; and (2) local consumers tend to participate in the ratemaking policies of municipalities and cooperatives, and would wish to shift a maximum of expenses to AEC.¹³³

AEC's third-round invitation, announced in January 1957 set no deadline on the receipt of proposals except that they should be for plants capable of completion by June 30, 1962, or June 30, 1963, depending upon their design.¹³⁴ No limits were set on the size of the powerplants to be considered, though the Commission indicated a preference for the aqueous fluid fuel systems and for natural (rather than enriched) uranium fuels in heavy water moderated reactors. A number of atomic energy experts have pointed out that natural uranium fuels might well be better suited for foreign reactors, primarily because this is a way of avoiding the large investment required for fuel enrichment facilities.¹³⁵ The effects upon total unit costs of power production remain to be seen.

AEC assistance was offered in the same way as for the second-round invitation, with two exceptions. First, the Commission offered the loan of heavy water on the same terms as nuclear fuel. Second, the offer of AEC to finance and retain title to parts of the reactor system was not repeated.

Table 15 describes the two proposals that had been made by the beginning of August 1957 in response to the third-round invitation. As of that time, AEC had not announced whether it would consider these as acceptable bases for negotiation.

The total financial value of AEC assistance in its demonstration program is only about one-quarter of that of research and development now underway (cf. table 14), but for the particular projects involved, it often amounts to a large part of total costs. The extent

¹³¹ S. Rept. 791, *supra*, note 114, p. 16.

¹³² AEC Release No. 777, February 7, 1956. The three rejected proposals were made by University of Florida; city of Orlando, Fla.; and city of Hoyaloke, Mass.

¹³³ The Atomic Energy Act of 1954 prohibits the Commission from engaging in the commercial sale of electricity (see sec. 44, 68 Stat. 954, 42 U. S. C. 2064, 1957 supplement), though it is not prevented from building experimental power reactors and selling the electricity which they produce. (See sec. 31 (a) (4), 68 Stat. 954, 42 U. S. C. 2051, 1957 supplement.) Consistent with these provisions, AEC regards the 5 power reactors which it will own—4 second-round projects plus Consumers Public Power District—as experimental facilities.

¹³⁴ AEC Release No. 953 and 1077, January 7 and June 10, 1957, respectively. The 1963 date was made available for fluid fuel aqueous solution reactors in order to permit more time for the development of research results by AEC on this type of reactor.

¹³⁵ See discussion of fuel enrichment plant costs, *supra*.

of public assistance may be gaged from the fact that AEC is planning to build 5 of the reactors, as shown in column (2), table 15. As benchmarks in judging the costs of the large reactors, we note that the Yankee plant is expected to cost \$34.5 million and the Power Reactor Development plant, \$47.3 million.¹³⁶

Preconstruction and postconstruction research and development is probably best viewed as design and operation assistance, respectively, with special reference to the novel problems introduced by nuclear technology. The fuel waiver is worth a little over 1 mill per kilowatt-hour generated in the case of Power Reactor Development Co. over the 5 years of the waiver, assuming an average load factor of 75 per cent, and a fraction of a mill for most of the other projects.¹³⁷

AEC charges and price supports

Until 1954, the Commission was the only authorized manufacturer of fissionable materials and continues today as their only legal owner. The long period of government proprietorship was the result of the importance of fissionables for national security and the primitive state of technology for commercial utilization. In consequence of both, AEC now finds itself the principal determiner of the price of many materials and services essential for reactor operation.

AEC charges for nuclear fuel are established in two parts: (1) The use charge, or interest on fuel inventory leased to reactor operators; and (2) the charge for consumption and loss of fissionable materials. We have seen that the use charge is set at 4 percent, but waived for the first 5 years of operation of demonstration program projects, where requested by the proposers. Firms not participating in the demonstration program pay the use charge.

Consumption and loss charges were publicly announced by AEC in November 1956,¹³⁸ superseding a previous schedule of prices in which fissionable materials were made available in another (more expensive) chemical form. Present AEC policy is to encourage private firms to undertake all chemical processing and fabrication of fissionable materials necessary to prepare them for the requirements of different reactors, though the Commission stands ready to do this part of the job to the extent that private industry does not provide the services.¹³⁹ Consumption and loss charges are designed to recover full AEC cost of production of the fissionable materials, following established accounting practices and including direct and indirect operating expenses, depreciation, prorated overhead, interest on government investment, special handling, and other intangible expenses.¹⁴⁰ The prices are not indefinitely guaranteed, but AEC intends to keep them as stable as possible, with changes due only to rather significant cost changes.¹⁴¹ Such stability as can be achieved is intended to implement private planning for reactor operation.

Other materials, including natural uranium, thorium and heavy water are purchased by the Commission at prices guaranteed for the

¹³⁶ Hearings, *supra*, note 103, p. 692.

¹³⁷ Calculated from data given in table 15.

¹³⁸ AEC Release No. 930, November 18, 1956.

¹³⁹ See hearings, *supra*, note 103, pp. 107-108, 681-685.

¹⁴⁰ *Ibid.*

¹⁴¹ *Ibid.*

7 years ending June 30, 1963.¹⁴² These materials that can be, and are being produced commercially. AEC is interested in building healthy industries for all of them, and in guaranteeing prices is at the same time providing cost benchmarks for reactor designers. The Commission cannot offer subsidies to private nuclear reactor operators by underpricing as long as it desires to have these materials produced by private industry, and, eventually, to depend upon free market processes for price determination.

AEC charges and price supports again affect reactor operators in reprocessing spent fuel elements. Charges for the services of separation of fission fragments, recoverable fuel, and new fissionable materials (either plutonium or uranium 233) follow the pattern of other AEC charges, discussed above, for full cost recovery.¹⁴³ Moreover, the Commission intends to discontinue offering its reprocessing services when private industry can furnish them at prices on the order of 15 percent or so above AEC prices,¹⁴⁴ thus throwing the market in the lap of private suppliers. Presumably the latter would then be expected to expand and reduce costs at least to the AEC level.

Special interest attaches to the prices for which AEC will buy back the fissionable materials, plutonium and uranium 233, produced in the course of reactor operation. Present commercial designs do not include any considerable consumption of these new fissionables as they are produced in a reactor, though they will support a controlled chain reaction and can be used in military weapons. Future technologies, now in the experimental stage, are expected to make possible the continuous recycling of plutonium and uranium 233, and hence their utilization as principal reactor fuels. Until that time, AEC purchases of these materials is a stockpiling operation.

The Commission's "buy back" policy for plutonium and uranium 233 has never been entirely clear. Classified prices were first made available to private operators at the time of announcement of the first round of the demonstration program.¹⁴⁵ These were to hold for the period from July 1, 1955, to June 30, 1962, in accordance with the statutory authorization permitting AEC to guarantee prices for not more than 7 years.¹⁴⁶ The Commission's statement of considerations explaining the determination of prices could be interpreted to have either one of two meanings: (1) Prices were intended to reflect the market values which plutonium and uranium 233 would ultimately have as fuels for power generation (and further creation of replacement fuels), as nearly as these could be estimated; or (2) prices reflected the values of these fissionable materials for military uses.¹⁴⁷

In November 1956, AEC announced unclassified "buy back" prices of \$12 a gram for plutonium and \$15 a gram for uranium 233 that it would pay during the single year July 1, 1962, to June 30, 1963.¹⁴⁸

¹⁴² *Ibid.*

¹⁴³ *Ibid.*

¹⁴⁴ See comments of Lewis L. Strauss, Chairman, Atomic Energy Commission, K. E. Fields, General Manager, and W. Kenneth Davis, Director, Division of Reactor Development, Atomic Energy Commission in AEC press conference, April 1, 1957, mimeographed release, pp. 27-28.

¹⁴⁵ AEC release No. 590, January 10, 1955.

¹⁴⁶ 68 Stat. 931, 42 U. S. C. A. par. 2076 (1957 supplement).

¹⁴⁷ See Tybout, *op. cit.*, *supra*, note 71, pp. 74-75.

¹⁴⁸ AEC release No. 930, November 18, 1956.

This action was taken so as to keep reactor operators informed of the guaranteed prices for a moving 7 years in advance. These prices, the Commission subsequently indicated, were based upon estimated fuel value for electric power generation and would result in revenues on the order of 1 mill per kilowatt-hour for typical reactors now being designed for electric power generation.¹⁴⁹ Nothing was said to clarify the basis for the (still classified) "buy back" prices applicable until June 30, 1962.

Then, on May 18, 1957, AEC announced that purchases between that date and June 30, 1962, would be made at \$30 to \$45 a gram of plutonium, depending upon fissionable materials content, and for the year July 1, 1962, to June 30, 1963, the guaranteed price of plutonium would be \$30 a gram.¹⁵⁰ These prices superseded all previous guaranteed prices of plutonium. Nothing further was said about the price of uranium 233 and, indeed, only a few of the reactors now contemplated will produce it, while the great majority will produce plutonium.

AEC did not directly explain its action, but indicated that in its future yearly extensions—

* * * the guaranteed fair price of plutonium will be reduced, as dictated by consideration of the value of the material for its intended use by the United States and giving such weight to the actual cost of producing it as the Commission finds to be equitable, to a level based upon the fuel value of plutonium in commercial power reactors.¹⁵¹

Military value may enter when plutonium is priced according to "its intended use by the United States," but ultimately AEC hopes to price it at the fuel value level.

It is not difficult to infer that AEC's action constitutes a subsidy of atomic power reactors. If \$12 a gram is the Commission's best estimate of the future fuel value of plutonium, then \$30 to \$45 a gram is almost 3 or 4 times this value. If \$12 a gram provides a revenue of 1 mill per kilowatt-hour, then \$30 to \$45 a gram will provide a revenue of 2.5 to 3.75 mills per kilowatt-hour for reactor operators.

Tax treatment of atomic powerplant expenditures

Atomic powerplant owners and operators, like business firms in other industries, will be able to take advantage of loss offsets (carry-forward and carry-back provisions) useful in reducing tax liabilities of new enterprises, corporate surtax exemptions important to small-growing businesses, insofar as these are involved, and other general provisions of the Internal Revenue Code. In addition, and especially relevant for the atomic-power industry, are provisions dealing with accelerated amortization and research and development expenses.

Defense Mobilization Order VII-6 summarized all categories of electric power related expansion goals as of April 23, 1955, showing goal No. 255 (power facilities for military, atomic energy, and defense-related needs) as well as goal No. 55 (electric power) to be open, entitling affected firms to accelerated amortization treatment.¹⁵²

¹⁴⁹ See hearings, *supra*, note 29, p. 108.

¹⁵⁰ AEC release No. 1060, May 18, 1957.

¹⁵¹ *Ibid.*

¹⁵² C. F. R., title 32A—National Defense, appendix (revised Dec. 31, 1956).

Goal No. 55 (electric power) was subsequently closed in January 1956¹⁵³ and had not been reopened as of the middle of August 1957. Goal No. 255 remained open, leaving atomic-power facilities in a preferred position as compared with conventional-power facilities.

Whereas accelerated amortization permits amortizing over a period of 5 years, it may be possible to reduce the amortization to an annual writeoff by charging atomic powerplants as research and development. W. K. Cisler, president of Power Reactor Development Co. has indicated that his atomic powerplant does not have a capital account, but that all contributions of the members are charged as research and development although they go for the construction of the physical plant.¹⁵⁴ Accordingly, Power Reactor Development Co. has applied for a ruling from the Bureau of Internal Revenue that would permit it to charge these contributions against income as current research and development expenses at the time of making the contributions.¹⁵⁵ This is permitted by the Internal Revenue Code if we are dealing with research and development.¹⁵⁶ The question is whether full-scale atomic powerplants should be classified as such. If so, there will be no reason why the precedent cannot be applied to other atomic powerplants.

There is some precedent for a ruling favorable to Power Reactor Development Co. AEC is classifying as experimental facilities the five reactors which it will own in its demonstration program.¹⁵⁷ We shall see, in future discussion of rate regulation, that a number of State commissions have approved the contributions by members of Power Reactor Development Co. as properly charged to research and development as operating expenditures for purposes of ratemaking. Finally, AEC has indicated that it considers private projects in the demonstration program to be research and development projects, at least in their initial stages of operation.¹⁵⁸

The net effect of either 5-year (rapid) amortization or annual write-off of contributions to plant costs will be to provide tax-free income to the atomic-plant owners (contributors), which they can use for investment in the earlier years. Income taxes normally payable are postponed to later years when depreciation allowances are correspondingly less and taxable income is increased. This amounts to an interest-free loan from the Treasury, which will be of no small importance in view of the magnitude of the capital investment required for atomic powerplants.

Government indemnification

Perhaps the most difficult problems for public policy are posed by the potential dangers of a runaway atomic power reactor. Damages,

¹⁵³ 21 F. R. 460, Jan. 21, 1956.

¹⁵⁴ Testimony in hearings before the Joint Committee on Atomic Energy on Government Indemnity, 84th Cong., 2d sess. (May 15, 16, 17, 18, 21, and June 14, 1956), p. 134. For contributions of members, see appendix C.

¹⁵⁵ *Ibid.*, p. 128. Although the application had been pending for well over a year, no ruling had been issued by July 31, 1957.

¹⁵⁶ Internal Revenue Code of 1954, 26 U. S. C. par. 174 (1957 supplement).

¹⁵⁷ See note 133, *supra*.

¹⁵⁸ Testimony of K. D. Nichols, General Manager, AEC, in hearings before the Joint Committee on Atomic Energy on Development, Growth, and State of the Atomic Energy Industry, 84th Cong., 1st sess. (January 31; February 1, 3, 4, 7, 8, 9, 10, 28; and March 1, 2, and 3, 1955), p. 155.

if and when they occur, would come principally from radioactive fission fragments injected into the atmosphere in various ways.¹⁵⁹ Comparing atomic power waste materials with bomb-test fallout, Representative Holifield, chairman of the Special Radiation Subcommittee investigating the latter, stated:

We are on the threshold of an era of nuclear power. This new power source, if it is to play any significant role in filling the energy needs of the world, will unleash amounts of radioactivity even more staggering than those involved in nuclear weaponry.¹⁶⁰

Experts have placed property damage (largely from contamination) in the range of half a million to seven billion dollars for a hypothetical large (approximately 150,000 kilowatts capacity) reactor in a characteristic location and after 180 days of operation, by which time essentially full fission fragment inventory would have been built up.¹⁶¹ These are lower and upper limits, respectively, for different kinds of accidents, the most serious of which would involve failure of various automatic control and retention devices.¹⁶² Personal damages from the same accidents would range from a lower limit of no deaths or injuries to an upper limit of 3,400 killed and 43,000 injured.¹⁶³

When faced with the question of estimating the probabilities of atomic powerplant accidents, some of the experts responsible for the above data were unwilling to quantify their valuations of the risks in view of the lack of experience with major accidents in AEC facilities. Others ventured their opinions, though recognizing the uncertainties. Their estimates ranged from 1 chance in 100,000 per year to 1 in a billion per year for a major accident for each single large reactor as previously described.¹⁶⁴

We cannot adequately represent in dollars the cost to human life and health, but can compare the above estimates with accident experiences elsewhere. Using the most pessimistic probability estimate and the most serious accident estimate, plus the additional assumption that there are 100 large nuclear power reactors in the United States, there would be 1 chance in 50 million of getting killed in any year in a reactor accident and 1 chance in 4 million of sustaining injury. For comparative purposes, we note that there is presently about 1 chance in 5,000 of getting killed in any year by a motor-vehicle accident and about 1 chance in 130 of incurring a disabling injury.¹⁶⁵

¹⁵⁹ The technological aspects of an atomic power reactor out of control are described by Dr. C. R. McCullough, Director for Reactor Safeguards, Atomic Energy Commission, in his testimony in hearings before the Joint Committee on Atomic Energy on Government Indemnity for Private Licenses and AEC Contractors Against Reactor Hazards, 84th Cong., 2d sess. (May 15, 16, 17, 18, 21, and June 14, 1956), pp. 46-50.

¹⁶⁰ Representative C. H. Holifield, *Who Should Judge the Atom*, *Saturday Review of Literature* (August 3, 1957), p. 37.

¹⁶¹ Excerpts from a report by a group of engineers and scientists to the Atomic Energy Commission, requested by the Congressional Joint Committee on Atomic Energy and read into the record by Lewis L. Strauss, Chairman, Atomic Energy Commission in hearings before the Joint Committee on Atomic Energy on Government Indemnity and Reactor Safety, 85th Cong., 1st sess. (March 25, 26, and 27, 1957), pp. 10-12.

¹⁶² Built-in safeguards in reactor design are discussed in Atomic Energy Commission, 21st semiannual report (January 1957), pp. 137-143.

¹⁶³ See note 161, *supra*.

¹⁶⁴ *Ibid*.

¹⁶⁵ Calculated from National Safety Council, *Accident Facts*. A disabling injury is one which causes total incapacity to engage in one's normal pursuits for at least 1 calendar day.

In view of the extent of possible third-party liability, private operators have been unable to get adequate insurance from private sources. The latter can make available about \$60 million for third-party liability and at least as much for property damage from a single major atomic powerplant disaster.¹⁶⁶ By recent legislation, Congress has therefore authorized AEC to extend the indemnification up to \$500 million damages, public and private.¹⁶⁷ AEC will require reactor operators to purchase different amounts of private insurance, depending upon reactor size, location, and other factors influencing risk, and will levy an annual charge of \$30 per thousand thermal kilowatts (approximately \$100 per thousand electric kilowatts, depending upon the efficiency with which thermal energy is converted to electrical energy in a particular plant) in commercial atomic powerplants, but may waive the charge where the plants are classed as research and development projects.¹⁶⁸

It is not clear whether the annual charge is intended to build up a reserve or merely to cover administration of the program. The Joint Committee on Atomic Energy report favorably recommending the bill merely notes the difficulties of foretelling what might be an adequate reserve, and expresses concern that insurance charges not be too high lest they add too much to the costs of atomic power.¹⁶⁹

The effect of insurance costs upon a specific atomic powerplant is shown in table 16. This is a pressurized water reactor of approximately the size used in previous discussion of reactor hazards and fully contained within an explosion chamber, as is now judged necessary for safety protection. The plant operates at 28 percent thermal efficiency. It is located, however, in a sparsely settled area rather than in a relatively populous agricultural area such as would characterize most of the reactors now in the process of design and construction. Nevertheless, it is the only reactor for which different insurance spokesmen have quoted comparable estimates of rates.

Table 16 shows costs attributable to each type of insurance. Conventional insurance refers to all insurance generally carried by conventional electric powerplants, including conventional fire damage, vandalism, extended coverage, auto insurance, workmen's compensation, and all other types of insurance except as applied to the special nuclear hazard. Some of the conventional insurance, for example, workmen's compensation, might be higher in nuclear powerplants, and for this reason the use of the average cost of conventional insurance may tend to understate even this part of the costs shown in table 16. Insurance for nuclear hazards is shown separately for property damage (to the reactor powerplant itself) and for third party liability.

¹⁶⁶ Third party liability insurance of as much as \$50 million can be made available through the pooled resources of stock companies and \$10 million more through the pooled resources of mutuals working in collaboration with the stock companies. See hearings, *supra*, note 161, testimony of C. J. Haugh, Nuclear Energy Liability Insurance Association, and H. W. Yount, Mutual Atomic Energy Reinsurance Pool and the American Mutual Insurance Alliance, pp. 91 and 129, respectively. Property damage insurance of approximately \$60 million can be made available by another stock company group and \$30 million can be written by another mutual group, but there is no evidence that these two are working in collaboration to make the sum total available. See testimony of K. E. Black, chairman, Governing Committee, Nuclear Energy Property Insurance Association, and A. Kelly, general counsel, Associated Factory Mutual Fire Insurance Cos., pp. 130 and 214, respectively.

¹⁶⁷ Public Law 256, 85th Cong., 1st sess., approved September 2, 1957.

¹⁶⁸ *Ibid.*

¹⁶⁹ H. Rept. 435, 85th Cong., 1st sess. (May 9, 1957), p. 9.

The latter is divided between private and public indemnification. Total insurance costs to the private operator are divided by an average annual lifetime rate of power production to show their effect upon power costs per kilowatt-hour, and, for the sake of comparison, the same calculation is made for conventional costs alone. The results show that insurance costs will be about 3½ times as high in the nuclear plant as compared with the conventional plant, but will not make much difference in total power costs in the range of 7 to 10 mills per kilowatt-hour.

TABLE 16.—*Annual insurance cost of a 134,000 electric kilowatt pressurized water reactor powerplant full contained*

[Assumed plant value, \$30 million]	
All conventional insurance (0.003×\$30,000,000).....	¹ \$90,000
Property damage from nuclear hazard, including radioactive containment (\$0.30 per \$100 of insurance).....	² 81,000
3d party liability:	
Private coverage of \$50,000,000.....	130,000
Public coverage of additional \$500,000,000 (\$108 per electrical kilowatt).....	³ 14,500
Total annual insurance cost.....	315,500
Total annual insurance cost per kilowatt-hour generated, assuming 50 percent load factor.....	mill 0.54
Annual insurance cost per kilowatt-hour generated for all conventional insurance alone, assuming 50 percent load factor.....	mill 0.15

¹ Assumes 0.3 percent on plant value for all conventional insurance charges in accordance with established Federal Power Commission practice for conventional steam plants.

² Assumes 90 percent insurable value of the \$30 million plant.

³ Assumes 28 percent thermal efficiency.

Source: Nuclear insurance charges are from hearings before the Joint Committee on Atomic Energy on Government Indemnity and Reactor Safety, 85th Cong., 1st sess. (March 25, 26, and 27, 1957). The property damage rate of \$0.30 per \$100 of insurance was provided by W. H. Berry, vice president, American Fire Insurance Group and chairman, executive committee, Nuclear Insurance Rating Bureau, p. 142. The annual premium for \$50 million of third party liability insurance was estimated by C. J. Haugh representing Nuclear Energy Liability Insurance Association, p. 88. The rate of \$108 per thousand electric kilowatts of installed capacity was derived from the statutory rate of \$30 per thousand thermal kilowatts of installed capacity and the assumed thermal efficiency of 28 percent for the plant here involved.

It is possible that the social costs of reactor hazards will be different from those charged the plant operators, depending upon whether AEC's annual charge for Government indemnification, plus private insurance premiums, provide adequate or inadequate reserves in the light of experience. If there is any bias in the charges, it would seem from the Joint Committee on Atomic Energy's concern for low insurance costs to reactor operators that public levies, at least, will not be too high. Moreover, we note that AEC has the option to reduce the insurance charges in "research and development" plants, which is interpreted by the Commission, we have noted, to include demonstration program plants.

A different kind of social cost may follow from the genetic consequences of radiation exposure. Traditional concepts of compensation are hardly relevant for this problem. One must make his choice between the welfare of succeeding generations and the costs of atomic power today, as affected by additional protection and safety devices.

The genetic effects of atomic powerplant accidents were not within the scope of AEC's team of experts for evaluation of atomic hazards, noted above, but expert opinion has been directed to the problem of radiation standards for atomic powerplant workers. The United

States National Academy of Sciences and the United Kingdom's Medical Research Council have both recommended, on genetic grounds, a schedule of lifetime maximum radiation dosages that could well be exceeded by private firms complying with present (August 1957) AEC regulations.¹⁷⁰ In its own facilities, AEC has maintained a margin of safety adequate to conform easily to the geneticists' recommendations.¹⁷¹ The Commission noted in January 1957 that it had these recommendations under consideration.¹⁷² If adopted for atomic powerplants, it would seem that the added safety could be largely handled by rotation of work force without any significant effect on costs.

Electric utility rate regulations

Previous discussion has shown that atomic power costs in the near future will exceed those of conventional power (cf. fig. 1). To some extent, the higher costs of atomic electricity will be offset by AEC demonstration program expenditures (cf. table 15), though these expenditures will not affect two atomic powerplants being constructed by private electric power companies outside the demonstration program: Consolidated Edison of New York, building a 236,000-kilowatt plant, 140,000 kilowatts of which will be nuclear; and Commonwealth Edison of Illinois, building a 180,000-kilowatt nuclear powerplant.¹⁷³ Probably more important as offsets to high-cost atomic power will be the subsidies in AEC buy-back prices for plutonium and thorium. These apply to all plants, whether or not in the demonstration program, and will probably continue further into the future than demonstration program assistance.

The combined effect of demonstration program assistance and buy-back subsidies will be to reduce the impact of higher atomic power costs for electric utility rate regulation. It is not likely that the other Federal aids, favorable tax treatment and Government indemnification, will have the same effect. In the absence of State commission regulation of net earnings in electric utilities, regulatory tax treatment need not lead to a reduction of power rates as a result of rapid amortization.¹⁷⁴ The present costs of Government indemnification to the atomic powerplant owners are very small, and were included in the Davis-Roddis estimates used in figure 1.

To envisage the possible burden remaining to be absorbed by electric power consumers (or electric utility stockholders), we note first that

¹⁷⁰ Atomic Energy Commission, 21st semiannual report (January 1957), p. 183. The National Academy of Sciences report is reprinted in *New York Times*, June 13, 1956, p. 1, col. 8.

Both groups recommended that tolerance (maximum exposure) levels for radiation be established at a cumulative total of 50 roentgens for the first 30 years of an individual's life, a total of 50 roentgens more between ages 30 and 40, and (presumably though not explicitly so stated) for each of the next 2 decades. Of these cumulative total exposures, at least part is received from nonatomic sources. The National Academy of Sciences estimated that background radiation, present everywhere in normal living, accounts for about 4.3 roentgens and X-radiation for another 3 roentgens on the average in a 30-year period. The X-radiation, of course, is received in very different amounts by different individuals.

Present AEC regulations applicable to atomic powerplant operators permit a maximum exposure of 15 roentgens per year to all persons regardless of age, except that they be older than 18 years. Code of Federal Regulations, title 10, pt. 20, Standards for Protection Against Radiation (January 25, 1957). See also AEC 21st semiannual report (January 1957), pp. 183, 252-254.

¹⁷¹ Cf., AEC 21st Semiannual Report (January 1957), p. 183.

¹⁷² *Ibid.*

¹⁷³ The Commonwealth Edison plant is being financed with the assistance of other electric utilities combined to form the nuclear power group, as shown in appendix C.

¹⁷⁴ A. J. G. Priest, *What Should Commissions Regulating Public Utilities Do About Accelerated Amortization*, *Virginia Law Review*, vol. 39 (June 1953).

the relevant nuclear costs are almost entirely those shown for years after 1960 in figure 1. Messrs. Davis and Roddis calculated large plant costs for installations that could have been designed to come into operation before 1960, but were not designed and will not come into operation except for the Shippingport plant, which we have noted is about 70 percent financed by AEC. Second, we shall imagine the Davis-Roddis curve in figure 1 to be dropped about 2 mills per kilowatt-hour to at least mid-1963, the latest date for which AEC has announced buy-back prices. Two mills represents approximately the amount of the AEC subsidy, as previously noted, over the expected fuel value of plutonium, and, in fact, will bring the lowest nuclear power costs down to the highest conventional power costs by 1962 or 1963.

The remaining burden is thus represented partly by differences in the technically possible lower costs of nuclear electricity (to the private electric utilities) and the upper costs of conventional power. It will undoubtedly also be affected by the fact that nuclear powerplants may not be installed where conventional costs are highest. For example, the Commonwealth Edison atomic powerplant is to be installed 44 miles southwest of Chicago and the Power Reactor Development Co. plant is being constructed in the Detroit area. The average cost of electricity generated in new conventional steam plants in Illinois of over 100,000 kilowatts capacity coming into operation in 1951 to 1955 inclusive was 7.20 mills per kilowatt-hour.¹⁷⁵ In Michigan, the figure is 6.25 mills per kilowatt-hour.¹⁷⁶ Compare the range of conventional costs shown in figure 1.

An approach to coverage of the higher costs of atomic power in electric utility rates is illustrated by certain electric utility members of Power Reactor Development Co., who have obtained specific approval of their respective State regulatory commissions for accounting treatment of their contributions as research and development expenses, and hence, as reimbursable from operating revenue obtained by the sale of electricity. These contributions, we recall, are to cover the costs of construction of Power Reactor Development Co.'s plant at Monroe, Mich.

The Detroit Edison Co., for example, obtained an accounting order from the Michigan Public Service Commission authorizing it to reflect a \$5 million contribution in the utility's account 801, "Miscellaneous general expenses."¹⁷⁷ This means that in the normal course of events, the \$5 million will be charged to the company's power cost pool, along with the cost of other electrical generation or power purchases and that the total amount in this pool will be spread over all consumers. In the hearing preceding the order, Detroit Edison made clear that the \$5 million, considered at a yearly rate of \$1¼ million and with allowances for income taxes, would not affect net revenue sufficiently in itself to bring an application for rate increases, but would, nevertheless, remain an element of value in general support

¹⁷⁵ Calculated from data reported in Federal Power Commission, Steam-Electric Plant Construction Costs and Annual Construction Expenses (annual supplements 1951 through 1955).

¹⁷⁶ *Ibid.*

¹⁷⁷ Michigan Public Service Commission Accounting Order D-1282A-55.1, March 23, 1955.

of future rate increases.¹⁷⁸ By an amendment, the Michigan Commission later extended the order to apply to Detroit Edison's present commitment of \$8.75 million.¹⁷⁹

This is not to be confused with the pricing of power that will actually be generated in the Power Reactor Development Co.'s plant, to be operated by Detroit Edison. Such power will be priced by a formula based on the costs of operation of a conventional steam plant and using as a criterion Detroit Edison's most efficient conventional plant.¹⁸⁰ The nuclear costs will not all be covered by a price so calculated, but by means of charging the plant costs to research and development, the sponsoring companies can pass on additional costs to consumers in their nonatomic power rates.

Other members of Power Reactor Development Co. have received similar orders for accounting treatment of research and development, as shown in table 17, based upon a mail survey conducted by the author. Column (3) indicates utilities that have received specific regulatory approval for charging their part of the plant costs to research and development by the word "approved." The word "allowable" means that State regulatory authorities have indicated that such contributions should be so charged, and in many cases, that they are being so charged. In 2 cases, information was not available and in 2 other cases, the proper State regulatory commission lacked jurisdiction over expense accounting for electric power.

In the course of correspondence with the author regarding the charging of the contributions to research and development, some regulatory bodies indicated that they would be disposed to question any large amount of such charges in support of rate increases. Others took for granted that if the charges were properly made, as we note they were in all cases where information could be obtained, they would be includible in support of rate increases.

¹⁷⁸ See testimony of C. R. Landrigan, vice president, Detroit Edison Co., in hearings before the Michigan Public Service Commission in the matter of the application of the Detroit Edison Co. for directions as to accounting treatment for disbursements made or expenses incurred in the design, construction, and operation of a developmental atomic power reactor (March 14, 1955), pp. 35, 39-42.

¹⁷⁹ Accounting order D-1282A-56.1, November 9, 1956.

¹⁸⁰ Steam agreement between the Detroit Edison Co. and Power Reactor Development Co., October 20, 1956.

TABLE 17.—*Regulatory accounting for contributions to power reactor development company*

Electric utility members (1)	Commitment (millions of dollars) (2)	Regulatory accounting for commitment as operating expense (3)
Alabama Power Co.....	\$0.800	Allowable.
Central Hudson Gas & Electric Co.....	.200	Do.
Cincinnati Gas & Electric Co.....	.250	Do.
Columbus & Southern Ohio Electric Co.....	.250	Do.
Consumers Power Co.....	2.500	Approved.
Delaware Power & Light Co.....	.300	Not allowable.
Detroit Edison Co.....	8.750	Approved.
Georgia Power Co.....	.800	Allowable.
Gulf Power Co.....	.200	Not allowable.
Iowa-Illinois Gas & Electric Co.....	.120	No jurisdiction.
Long Island Lighting Co.....	.620	Allowable.
Mississippi Power Co.....	.200	No jurisdiction.
Philadelphia Electric Co.....	2.500	Allowable.
Potomac Electric Power Co.....	.800	Approved.
Rochester Gas & Electric Co.....	.450	Allowable.
Toledo Edison Co.....	.500	Do.
Wisconsin Electric Co.....	.300	Do.
Total.....	19.540	
Nonutility members.....	4.000	
Total.....	23.540	

Source: Cols. (1) and (2) are from appendix C. Col. (3) shows orders approving charge to operating expenses:

Consumers Power Co.: Michigan Public Service Commission Accounting Order D-875-A-56.1, Nov. 14, 1956.

Detroit Edison Co.: Michigan Public Service Commission Accounting Order D-1282A-55.1, Mar. 23, 1955, as amended Nov. 9, 1956.

Potomac Electric Power Co.: Public Utilities Commission of the District of Columbia Order No. 4362, Mar. 19, 1957.

All other information was obtained by personal correspondence with State regulatory bodies in June and July 1957.

Essentially the same situation is found in the nuclear power group, where three Illinois electric power companies, Commonwealth Edison Co., Illinois Power Co., and Central Illinois Light Co. obtained an accounting order permitting them to charge their contributions to the Commonwealth Edison plant as research and development, a miscellaneous general operating expense.¹⁸¹

Manifestly, the practice of calling electric generating plant costs research and development is something of an extension of usual concepts. Yet, we have seen that the research and development concept is taken to include design and operating assistance in AEC's demonstration program, has been used as a basis for Power Reactor Development Co.'s application for special tax treatment, and is invoked to give AEC authority to waive charges for Government indemnification. The practice calls for more general discussion than is appropriate here; hence we shall postpone this matter for later evaluation, except to note that it seems to provide a means of reflecting the higher costs of atomic power in consumer rates.

To be sure, the burden is spread broadly in the Power Reactor Development Co. so that the effect upon electric-power rates of its utility members will be negligible. Nevertheless, if the practice should become widespread (despite criticism by some State bodies)

¹⁸¹ Illinois Commerce Commission Order No. 42638, July 19, 1955. The nuclear power group is a vehicle for financing \$15 million of the \$45 million price of the Dresden nuclear powerplant. The remaining \$30 million is being furnished by Commonwealth Edison Co. and will be capitalized by that organization. See appendix C.

throughout the precompetitive period of atomic power, it would not have negligible results.

A more direct method of handling atomic-power costs is simply to treat them as any other costs of electric-power generation. The public-utility concept, unless modified, will then lead to the necessary rate adjustments so that full costs of atomic power (including a return on the value of the powerplant) are paid by consumers. This appears to be the approach taken by Yankee Atomic Electric Co. for its plant in Rowe, Mass., and by Consolidated Edison Co. for its plant at Indian Point, N. Y., to serve the New York City area.

In Massachusetts, an electric utility does not have to come before the State department of public utilities to obtain a certificate of public convenience and necessity. The only requirement is for approval of its financing, and this is being received piecemeal in actions of the Massachusetts department.¹⁸²

The first formal order of the Massachusetts department reported that contracts for the pricing of electric power sold by Yankee to sponsoring companies (for delivery and resale to consumers) could not be worked out until more cost information was available.¹⁸³ The Federal Securities and Exchange Commission later indicated that in hearings relative to Yankee's holding company status, the applicant submitted estimates showing expected average charges for power to sponsoring companies of 7.8 mills per kilowatt-hour.¹⁸⁴ On this basis, Yankee representatives estimated that the company would lose possibly \$1.5 million during the first 5 years of operation, which is an annual average loss of about 2.1 percent on the \$14 million equity (see appendix C) and that they expected earnings thereafter ranging from 0 to 6 percent return on the equity.¹⁸⁵

These expectations are more optimistic than the Davis-Roddis estimates shown in figure 1, but are not out of line with the McKinney panel estimates issued in January 1956¹⁸⁶ a few months after the Securities and Exchange Commission hearing. The most authoritative estimate previous to the McKinney panel's showed atomic power costs approximately three times those of competitive conventional power,¹⁸⁷ and it was during 1954 and 1955, while this estimate prevailed, that most important actions were taken to organize the Yankee and other projects with which we are here concerned.¹⁸⁸

In New York, there is no preliminary action required of the Public Service Commission in approving the Consolidated Edison plant, since it is within the area already franchised to this company.

In Illinois, a certificate of convenience and necessity has been issued to the Commonwealth Edison Co. for construction of the Dresden nuclear power station.¹⁸⁹ Among its findings, the Illinois Commis-

¹⁸² The latest order, DPU 11957, November 26, 1956, approved an issue of \$500,000 common stock in addition to \$500,000 already approved. Sales of the securities were to sponsoring companies as shown in appendix A, where the total eventual financial arrangement is reported. Also approved was \$1 million of short-term borrowing from sponsoring companies.

¹⁸³ 8 PUR 3d 116 (1955).

¹⁸⁴ Securities and Exchange Commission, Holding Company Act Release No. 13048 (November 25, 1955). Calculated from data reported on pp. 8-9.

¹⁸⁵ *Ibid.*, p. 9.

¹⁸⁶ See Tybout, *op. cit.*, supra, note 64.

¹⁸⁷ See remarks prepared by W. Kenneth Davis, Deputy Director, Division of Reactor Development, AEC, for presentation at the National Industrial Conference Board, New York, N. Y., AEC release, October 13, 1954.

¹⁸⁸ See Tybout, *op. cit.*, supra, note 71, pp. 75-84.

¹⁸⁹ Illinois Commerce Commission Order No. 43336, September 24, 1956.

sion referred to its previous action authorizing certain Illinois utilities to contribute to the cost of the plant through the nuclear power group,¹⁹⁰ in taking which action (in 1955) the Illinois Commission had found that Commonwealth Edison—

* * * believes that the plant can produce electricity at a per kilowatt-hour cost reasonably competitive with present costs of power produced from conventional new generating facilities located in Edison's service area and using coal as a fuel.¹⁹¹

Traditional public-utility regulation hesitates to pass upon the merits of a technology embodied in a new investment. The matter is usually regarded as a proper concern of management alone. This approach has been supported by the popular assumption that new investments will follow least-cost techniques of production. Now we find the assumption fallacious.

In the face of uncertainty and official estimates of high costs of nuclear power, there was no sure mechanism for review and evaluation of the public interest in experimental electric-generating facilities, the power from which can be sold to the public at fully allocated costs.

EVALUATION

Energy consumption is correlated with economic growth over a thirty- to forty-fold range of per capita national income. Underdeveloped countries eager for improved standards of living, developing economies which have tasted the fruits of economic progress, and mature economies determined to preserve and enhance their material blessings are alike concerned with access to adequate energy supplies. The more important these become when account is taken of present and expected future rates of population growth.

We have drawn world energy need and resource balances for the second half of the 20th century. There are approximations on both sides of the data. Estimates of needs are based on ranges of rates of growth. Estimates of energy resources are taken from as many experts as appear to have made careful independent studies. The general pattern of the results is unmistakable.

The fossil fuels, coal, oil, and gas are distributed unevenly. Solid fuel reserves are best in North America, the Soviet Union, and China. These regions will not experience adjustments as a result of coal shortages in the 20th century. Western Europe, the world's historic coal-exporting region is facing increasing difficulties in keeping coal production abreast of needs.

Fluid fuel reserves are concentrated in the Americas, the Middle East, and the Soviet bloc. Western Europe is completely deficient and China is thought to have little fluid fuel. World reserves are unlikely to meet projected needs for the remainder of the 20th century. North America will be affected more than other regions because of its greater consumption of fluid fuels in relation to total energy, but economic adjustments will be ameliorated and postponed beyond the end of the century by the use of oil shales and coal hydrogenation.

¹⁹⁰ See *supra*, note 181.

¹⁹¹ *Ibid.*, pp. 7-8.

The underdeveloped regions of the world tend also to be the fossil fuel have-not regions. These are Asia, except for the Soviet Union, China, and the Middle East; Africa; South America (after exhaustion of oil reserves); and Oceania.

Replaceable energy resources, falling water, vegetable matter, solar energy, and others account for about 20 percent of world energy consumption today, but most of this is in the form of fuel wood and farm wastes. In the United States, they account for only 3 percent today, but this may be expanded to 10 percent or more by increased use of solar energy for space heating, and other developments, by year 2000. There are unexplored avenues of technological development which seem worth further study. Some contribution may be made by improvements (great improvements are required) on the carbon-fixing processes of nature, while improved collection and storage devices for solar energy could be important, especially to underdeveloped nations.

Atomic energy offers a new avenue for at least a partial solution of the world's energy needs. If we find that fissionable fuel regeneration can be economically achieved, world fuel reserves will be multiplied 10 or 20 times beyond present economically recoverable estimates of fossil fuels. This allows for the fact that uranium and thorium "ores" of such low grade that the uranium and thorium metal may cost 100 times present costs will not substantially affect the price of atomic energy, due to the high energy content per pound of metal.

Despite the high promise of these findings, it appears that atomic energy is destined to serve only large bulk energy consumers, except in military applications, where cost is not a deterrent. The most promising commercial applications are in electric power generation, particularly in large plants, in certain industrial process heating uses, and in central district space heating. None of these have costs as low as their conventionally fueled counterparts today, but are expected to become economic within the next decade or two. Mobile units, even as large as in merchant ships, appear to be hopelessly expensive in the foreseeable future. In small, independently driven vehicles such as the automobile, atomic energy is ruled out as a result of the massive shielding necessary to contain radiation, if for no other reason.

Taking into account the market for electricity, certain applications of industrial process heat, and central district space heating, it appears that nuclear power can satisfy only about a quarter of our energy needs without adjustment in consumption patterns. Such adjustment might take the form of more consolidated living in urban centers, where central district heating can be economically utilized, more reliance upon electrification for transportation, and perhaps other changes. These are not likely to be important within the 20th century.

The mature economies of Western Europe and Japan seem most likely to use nuclear power profitably within the next decade or two. These regions are already facing delivered fuel costs twice or more those of the United States. Certain developing economies like Brazil, and perhaps underdeveloped countries as well, facing high costs of conventional fuels due to their transportation over long distances may find economic applications of nuclear power, but these will be limited, especially in the underdeveloped countries, by the number of markets in which large or even moderately large outputs of power can be consumed.

The United States is the center for the development of civil atomic power technologies. A number of programs for training, dissemination of technological information and foreign aid in reactor development have been instituted as an integral part of United States foreign policy. These are backed by programs of research and development organized by the United States Atomic Energy Commission and cooperating industry groups.

AEC finances and directs basic programs of scientific research. These are important for both military and civil progress in the uses of atomic energy. At a more specific level, the Commission performs the same functions for particular reactor concepts holding promise for civil atomic power. Expenditures in this last area through fiscal year 1958, including some plant facilities to which AEC is committed but which may not be completed by the end of June 1958, are estimated at \$500 to \$600 million.

The next stage of development envisages the construction of full-scale atomic electric power generating stations. Two programs of financial assistance are available for these stations. In its power reactor demonstration program, \$159 million is currently available for AEC's share of cooperative public-private atomic power plant financing. Second, through supports in its "buy-back" prices for plutonium and uranium 233, not limited to demonstration program plants, AEC will cover about 3 mills of the per kilowatt-hour cost of atomic power generated to the middle of 1963, the most distant date for which prices have been announced. This is approximately 2 mills over the estimated fuel value of plutonium and uranium 233. The 2-mill subsidy will account for 10 to 25 percent of the cost of generating atomic electricity at the cost levels estimated for this period by AEC spokesmen.

Private investment in atomic power stations is also being aided by non-AEC policies. These include the award of rapid amortization tax treatment for atomic powerplants, public indemnification of reactor owners, and rate making policies for full recovery of atomic electric power costs, though higher than those of conventionally generated power.

We may wonder whether all of these aids are necessary. From a domestic standpoint, there is the basic question of energy needs. Granted the long-term importance of nuclear power, it will not solve the fluid fuels problem, and electricity generation from coal seems safe enough for the remainder of the present century. At least we could have taken a decade or several decades to perfect the commercial application of nuclear power from technologies already delineated as a result of military applications.

From the standpoint of foreign policy, different conclusions may follow. This aspect of atomic energy policy is beyond the scope of the present study, though we note that the peaceful atom is a powerful symbol and the United States technological leadership, a valuable national asset for its own sake.

Another aspect of the question of the necessity of public aids is whether in their specific form they seem conceptualized to provide a useful, natural division of labor between business and government and whether they are easily intergrated within existing American institutions.

Public policy in atomic energy seeks to cull from a defense technology such commercial and peaceful applications as hold reasonable promise of improving the standard of living. Apart from the desirability of supporting basic science, there are public advantages in doing this. In reactor development, an important part of the large public investment in plant facilities can be made to serve a commercial as well as a military purpose. Economies of scale are available in supporting facilities which would not accrue to a private-based atomic power industry until years after its establishment. It is likely that similar situations can be found elsewhere in our defense program, that other civil developments might gain from a base already established at public expense if similar public programs were undertaken by other defense agencies.

At the applied level of research, there are advantages in the cooperative business-government approach wherein research projects are conceived and conducted by the users of the results, as in the demonstration program. Continuous exchange of information between laboratory, pilot plant and production facility increases the potential utility of applied research (and indirectly the utility of the principles discovered in basic research). At the same time, it makes for improved production management insofar as operating officials are made more aware of the possibilities inherent in a given design or functional relationship.

Beyond this point, an appraisal of public assistance is affected by the priority (on foreign policy grounds) which we wish to give civil atomic power. In reviewing the demonstration program, we noted that electric power producers do not suffer from a lack of Federal assistance in a wide variety of financial arrangements, provided that their projects satisfy AEC's concept of technological promise. A high priority for atomic power might justify the present extent of demonstration program aid for the relatively small participating group. On the other hand, a gradual development of atomic power might look toward the training of a larger number of participating firms at less cost for each, and with more time to cultivate competitive relationships among powerplant designers and suppliers. Similarly, in AEC's own civil power research, a more leisurely approach, exploring one technological finding after another might lead to the same end results at lower total costs than the present multifront attack.

A similar interpretation is in order for rapid amortization and price supports for regenerated fissionable materials. Both will stimulate the group of the atomic power industry beyond the rate which it would experience in their absence. The price supports will have the additional effect of stimulating the technology of fuel regeneration, which will extend the utilization of uranium and thorium ores. Over the long run, however, the price supports will have to be removed or AEC will have to sell at a lower price to users of plutonium and uranium 233; otherwise uranium 235 will be used in preference to the regenerated fuels.

Special treatment of atomic-power-station expenses is accorded through their classification as research and development. This includes demonstration program assistance in design and operation, waiver of charges for Government indemnification at AEC discretion, possible tax advantages (over those already available), and a method of charging the higher costs of atomic power to consumers.

The operation of full-scale electric-generating facilities is not within the usual meaning given to research and development. It is doubtless true that valuable lessons will be learned in the operation of atomic-power stations, but in unregulated private businesses a new technology must lead to costs no higher than competing technologies before it can be introduced. Then, such advances as result from full-scale operation lead to further cost reductions for the unregulated firm. If an unregulated firm should introduce a high-cost technology before it was competitive, that firm would never attain the volume of sales necessary to permit economies to be realized from full-scale operation.

If we are to define research and development in terms of activities leading to cost reduction from plant operations in new fields of technology, there is no easy stopping point in what might be included. Merely by virtue of the growth of an industry, service and supply facilities become more specialized and lead to economies (external economies) which have nothing directly to do with the operation of plants in the industry, but nevertheless lead to cost reductions in those plants. The concept eventually devolves into the familiar "infant industry" case, wherein public aids are sought simply for the purpose of assisting an industry to grow, with the expectation that increased size will be accompanied by increased profitability.

Another problem presented by atomic power for rate regulation in the immediate future arises from the direct adoption of higher cost designs for electric generation. If public-utility regulation cannot assume that least cost technologies will be followed, the only obvious remedy is to suggest more extensive regulatory inquiry into production technologies as a preliminary to their adoption. Electric utilities are not organized for, nor are they intended to represent the public interest in the same way that regulatory commissions or the AEC are. If the public interest requires atomic-power generation financed through consumer rates as a means of reducing nuclear costs, this would best be decided through effective participation in the public agencies responsible for rate regulation.

APPENDIX A. COUNTRIES AND AREAS WITHIN WORLD REGIONS IN TABLE I

North America :

Canada
Greenland
Alaska
United States

Latin America :

Central America :

Bahama Islands
Barbados
Bermuda
British Honduras
Costa Rica
Cuba
Dominican Republic
El Salvador
Guadeloupe
Guatemala
Haiti
Honduras
Jamaica

Latin America—Continued :

Central America—Continued :

Martinique
Mexico
Netherlands Antilles
Nicaragua
Panama
Panama Canal Zone
Puerto Rico
Trinidad and Tobago
Virgin Islands

South America :

Argentina
Bolivia
Brazil
British Guiana
Chile
Colombia
Ecuador
French Guiana

Latin America—Continued :

South America—Continued :

Paraguay
Peru
Surinam
Uruguay
Venezuela

Western and Southern Europe :

Austria
Belgium-Luxembourg
Denmark
Finland
France and Saar
Germany, Western
Greece
Iceland
Ireland
Italy
Malta
Netherlands
Norway
Portugal
Spain
Sweden
Switzerland
United Kingdom
Yugoslavia

Africa :

Algeria
Anglo-Egyptian Sudan
Angola
Belgian Congo
British Somaliland
British Togoland
Canary Islands
Cape Verde Islands
Egypt
Ethiopia
French Cameroons
French Equatorial Africa
French Somaliland
French Togoland
French West Africa
Gambia
Gold Coast
Italian Somaliland
Kenya
Liberia
Libya
Madagascar
Mauritius
Morocco (French)
Mozambique
Nigeria
Northern Rhodesia
Nyasaland
Portuguese Guinea
Reunion
Ruanda-Urundi
St. Thomas and Prince Island
Seychelles
Sierra Leone
Southern Rhodesia

Africa—Continued :

Spanish North Africa
Tanganyika
Tunisia
Uganda
Union of South Africa
Zanzibar

Oceania :

Australia
British Solomon Islands
Fiji Islands
French Oceania
Hawaii
New Caledonia
New Guinea (Australia)
New Hebrides
New Zealand

Asia (except U. S. S. R., China)

Aden
Afghanistan
Bahrein
Brunei
Burma
Ceylon
China : Taiwan
Cyprus
Hong Kong
India
Indochina
Indonesia
Iran
Iraq
Israel
Japan
Jordan
Korea (South)
Kuwait
Malaya and Singapore
North Borneo
Pakistan
Philippines
Sarawak
Saudi Arabia
Syria and Lebanon
Thailand
Turkey

East Europe :

Bulgaria
Czechoslovakia
German Democratic Republic
Hungary
Poland
Rumania

Middle East (in table 5) :

Bahrein
Iran
Iraq
Kuwait
Qatar
Saudi Arabia
Neutral Zone
Turkey

APPENDIX B

Table B-1 shows the derivation of installed nuclear capacity in each year to 1975. In the period through year 1962, nuclear capacity is obtained by direct AEC estimates based on a knowledge of projects planned or underway. From 1963 through 1975, the estimates are derived by applying the McKenney growth rates of nuclear power to the kilowatts of capacity of total electric power installed in each year. Total electric-power capacity is assumed to grow at a 6-percent annual rate, as described in the text. The results appear in column (6).

Column (7) indicates load factors which could reasonably be expected to correspond to usage of the various yearly additions of nuclear capacity in 1975. The load factors are graduated evenly for an assumed plant life of 34 years. Outputs are shown in column (8). The total output is shown at 0.3159×10^{12} kilowatt-hours. Assuming a thermal efficiency of 30 percent or slightly over, we find a nuclear-energy input of approximately 1.0×10^{12} kilowatt-hours in 1975.

TABLE B-1.—Derivation of estimates of nuclear-electric power produced in 1975

[Cols. (1) through (6) in millions of kilowatts]

	Total capacity (1)	Net added (2)	Retired (3)	Gross added (2)+(3) (4)	Nuclear added		Load factor, percent (7)	Kilowatt-hours $\times 10^9$ 1975 (8)
					Percent of total (5)	Kilowatts (6)		
1955.....	116.3							
1956.....								
1957.....						0.08	40	0.3
1958.....								
1959.....						.05	45	.2
1960.....						.67	50	3.0
1961.....						.1	50	.4
1962.....						.4	55	1.9
1963.....	188.0	11	1.4	12.4	6	.7	55	3.4
1964.....	199.0	11	1.5	12.5	6½	.8	60	4.2
1965.....	211.0	12	1.6	13.6	7	1.0	60	5.2
1966.....	224.0	13	1.7	14.7	8	1.2	65	6.3
1967.....	238.0	14	1.8	15.8	9	1.4	65	8.0
1968.....	252.0	14	1.9	15.9	10	1.6	70	9.8
1969.....	267.0	15	2.0	17.0	12	2.0	70	12.3
1970.....	282.0	15	2.1	17.1	14	2.4	75	14.7
1971.....	299.0	17	2.2	19.2	20	3.8	75	25.0
1972.....	317.0	18	2.4	20.4	25	5.1	80	35.7
1973.....	336.0	19	2.5	21.5	30	6.4	80	44.8
1974.....	356.0	20	2.7	22.7	37	8.4	85	62.5
1975.....	377.0	21	2.8	23.8	44	10.5	85	78.2
Total.....								315.9

Source: Col. (1): Calculated on the basis of a 6-percent rate of growth compounded yearly, starting with observed capacity of class I systems in 1955 from Electrical World, Sept. 17, 1956. Col. (3): 1955-70 total, Electrical World. 1970 figure, Electrical World. Intervening years and extrapolation to 1975 by author. Col. (5): Growth rates forecasts by McKinney panel, supra, table 10, as extrapolated to 2000 A. D. by the author. Col. (6), 1955-62: Presently planned projects reported in paper prepared jointly by W. Kenneth Davis, Director, and Louis H. Roddis, Jr., Deputy Director, Division of Reactor Development, U. S. Atomic Energy Commission for presentation at 5th Atomic Energy in Industry Conference of National Industrial Conference Board, Philadelphia, Pa., AEC release, March 14, 1957. Cols. (2), (4), and (6) 1963-75: Derived from other columns.

APPENDIX C. ORGANIZATION OF PRIVATE ATOMIC POWER GROUPS

I. Financial structure of Yankee Atomic Electric Co.

Yankee sponsors and percentage of stockownership :	Percent
New England Power Co.....	30.0
Connecticut Light & Power Co.....	15.0
Boston Edison Co.....	9.5
Central Maine Power Co.....	9.5
Hartford Electric Light Co.....	9.0
Western Massachusetts Electric Co.....	7.0
Power Service Company of New Hampshire.....	7.0
Montaup Electric Co.....	4.5
Central Vermont Public Service Corp.....	3.5
New Bedford Gas & Edison Light Co.....	2.5
Cambridge Electric Light Co.....	2.0
Connecticut Power Co.....	.5
Total.....	100.0

Financial arrangements announced at hearings before Securities and Exchange Commission, concluded in November 1955:

	Million
Common stock of sponsors.....	\$14
Funded debt.....	19
Total.....	33

Total plant cost appearing in Yankee contract with the Atomic Energy Commission; June 1956.....33.4

Source: Report on Review of Atomic Energy Commission Contract No. AT (30-3)-222 With Yankee Atomic Electric Co., November 1956, by the Comptroller General of the United States.

II. Membership and contributions of members of Power Reactor Development Co. (nonprofit organization)

	Commitment
Alabama Power Co.....	\$800,000
Allis-Chalmers Manufacturing Co.....	500,000
The Babcock & Wilcox Co.....	1,000,000
Burrroughs Corp.....	250,000
Central Hudson Gas & Electric Corp.....	200,000
The Cincinnati Gas & Electric Co.....	250,000
Columbus & Southern Ohio Electric Co.....	250,000
Combustion Engineering, Inc.....	1,000,000
Consumers Power Co.....	2,500,000
Delaware Power & Light Co.....	300,000
The Detroit Edison Co.....	8,750,000
Georgia Power Co.....	800,000
Gulf Power Co.....	200,000
Holley Carburetor Co.....	250,000
Iowa-Illinois Gas & Electric Co.....	120,000
Long Island Lighting Co.....	620,000
Mississippi Power Co.....	200,000
Philadelphia Electric Co.....	2,500,000
Potomac Electric Power Co.....	800,000
Rochester Gas & Electric Corp.....	450,000
The Toledo Edison Co.....	500,000
Westinghouse Electric Corp.....	1,000,000
Wisconsin Electric Power Co.....	300,000
Total of contributions.....	23,540,000
Funded debt.....	15,000,000
Total.....	48,540,000
Total plant cost.....	47,300,000

Source: Personal communication, AEC, letter dated July 3, 1957.

*III. Membership and contributions of members of nuclear power group
(nonprofit organization)*

	<i>Commitment</i>
American Gas & Electric Service Corp.....	\$2, 833, 333
Bechtel Corp.....	1, 000, 000
Commonwealth Edison Co.....	2, 833, 334
Central Illinois Light Co.....	500, 000
Illinois Power Co.....	1, 500, 000
Kansas City Power & Light Co.....	1, 500, 000
Pacific Gas & Electric Co.....	2, 833, 333
Union Electric Co.....	2, 000, 000
Total.....	15, 000, 000

Commonwealth Edison Co., as an organization separate from the nuclear power group, will pay an additional \$30 million and will receive title to the plant. Total plant cost: \$45 million.

Source: Personal communication, AEC, letter dated July 24, 1957.

IV. Membership of Florida nuclear power group (financial structure not announced)

Florida Power Corp.
Florida Power & Light Co.
Tampa Electric Co.

Total estimated plant cost: \$40 million.

Source: AEC Release No. 1051, May 13, 1957.

V. Membership of Northern States Power Co. (nonprofit organization, contributions not announced)

Mississippi Valley Public Service Co.
Otter Tail Power Co.
Interstate Power Co.
Iowa Power & Light Co.
Iowa Southern Utilities Co.
Wisconsin Public Service Corp.
Madison Gas & Electric Co.
Northwestern Public Service Co.
St. Joseph Power & Light Co.
Central Electric & Gas Co.

Total estimated plant cost: \$21 million.

Source: AEC Release No. 1122, August 2, 1957.

XI. FEDERAL EXPENDITURES FOR REGIONAL
DEVELOPMENT

FEDERAL EXPENDITURES FOR REGIONAL DEVELOPMENT

AREA DEVELOPMENT EXPENDITURES AND ECONOMIC STABILITY IN LOCAL AREAS

DEPARTMENT OF COMMERCE

Statement submitted by Frederick H. Mueller, Acting Secretary
of Commerce

The Office of Area Development does not administer a public-works program or dispense funds for such purposes; accordingly, no comment is provided on item 1 of your memorandum.

With respect to items 2 and 3, it is worth noting that the root problem with a significant number of the local communities that seek the counsel of this Office is the presence, or the threat, of economic instability. In many of these cases, one important recommendation in any long-term remedial program is for a type of public-works program such as: (*a*) replacing or extending the water and sewerage system, (*b*) refurbishing or extending of street or highway system, (*c*) enlarging the water supply by addition of wells or storage reservoir, or (*d*) providing for improved transportation by dredging or straightening existing navigable watercourses.

All these measures are services required by industry and they are commonly critical plant-location factors. If they are not present and cannot be supplied by the community its chance of providing new business and job opportunities are negligible.

In addition to essential industrial location factors such as water or sewerage systems, an increasing number of cases come to the fore in which a community must spend money to enhance its appearance, to provide recreation outlets or similar kinds of improvements. In the face of intense intracity competition for industrial development, these seeming luxury improvements become necessities and take on a greater significance in the minds of industrial managers than they formerly had. It is recognized that these so-called marginal improvements can, and often are, provided by private sources, but if their need is revealed by a civic-minded group, in all probability the problem will become one for solution by public action, and a search for public-works funds at State and Federal levels will ensue. In fact in many quarters forthright action by community governments on matters of this kind is regarded as one of the primary earmarks of a good business climate.

While it is true that not all area-development programs require a public-works type of input in order to succeed, it is clear that industrial development and potential economic stability are extremely

forceful arguments to use in selling a local public-works program. A danger exists therefore of overselling public-works projects of marginal or questionable value, and the administrators of such programs should be aware of this possibility.

Two reports prepared by this office call attention indirectly to the close relationship between public-works activities and economic stability at the community level. These reports are Checklist for Community and Area Development Business Service Bulletin 145, and Federal Programs for Community Assistance, United States Department of Commerce Business and Defense Services Administration, Office of Area Development.

FEDERAL EXPENDITURES FOR REGIONAL DEVELOPMENT

Walter Isard, professor of economics, University of Pennsylvania

The topic of this panel is very closely related to the subjects of other panels; namely, to those on Federal expenditure for natural resource development, for economic growth, for urban redevelopment, for transportation, and for human resources. In the papers to be presented at these latter panels, much of the materials relating to our topic will be discussed. I, therefore, will limit this paper to a presentation of two important aspects which are not likely to come under consideration in these other discussions.

MODIFICATION OF FEDERAL EXPENDITURE PROGRAMS TO ACHIEVE REGIONAL EQUITY

When one considers the range of Federal programs designed to encourage and promote actively development of resources one is struck by the regional imbalances which result. Resources whose development logically require Federal participation are not evenly spread among the several regions of the United States. The eastern regions particularly have a low proportion of such resources; whereas the western regions have a high proportion. Thus, it is to be expected that a Federal policy geared to national growth and welfare will lead to an unequal distribution of Federal expenditures among the regions. But such a policy can be blind to important considerations. It can fail to recognize the fact that the health of the national economy in large part reflects the health of the several regions constituting the Nation. If from one region the Federal Government drains excessive financial resources for the support of projects in other regions so that the health of the first region is undermined, clearly this defeats the very purpose of the overall Federal policy. In fact, such policy can lead to large Federal expenditures on social-security and other welfare programs in the region adversely affected. An excessive drain of financial resources from a region may interfere with that region's normal process of growth, may chase away industry which normally might develop in the region, may lead to urban deterioration within the region, may make tenuous the fiscal balance of the region, and may even lead to the emergence of depressed industries and areas within such a region. Clearly such consequences should be avoided. Clearly policy on Federal expenditure for national-resource development, economic growth, transportation, and so forth, must take into account the regional dimension and must provide for a proper amount of inequality in taxation and expenditures among regions.

FEDERAL EXPENDITURES AND REGIONAL AND NATIONAL STABILITY

Starting with the premise that Federal expenditures to forestall recession and depression are desirable in general, one may inquire into the regional implications of such a policy. When one studies the historical record and notes the manner in which recessions and depressions spread, one clearly observes significant spatial aspects. It is true that regional cycles fairly closely resemble one another and the national cycle both as to timing, intensity, and duration. But clearly, national cycles tend to start at one or more sore spots within the national economy. Such sore spots have a definite geographic position. Such sore spots should be identified, and programs prepared to nip in the bud any spread of recession forces from these spots. This is not to deny that there are also industries whose growth is slow and which are very sensitive to recession. However, further investigation points up the fact that typically the sensitivity of such an industry differs among the several regions. For example, textiles in New England are much more sensitive to recession influences than textiles in the South. The coal-mining areas centering around Scranton, Pa., are much more sensitive to depression influences than the coal-mining areas in certain parts of the Ohio Valley. Therefore, if a prime purpose of Federal expenditure policy is to nip in the bud recession movements, and to forestall depression, then it would seem essential that this policy assume a regional orientation and be primed for attack upon particular areas of a nation which are sensitive to depression influences. Generally speaking, desirable policy would go even further. It would attempt to identify sore spots in the economy, and attempt in times such as these and through programs of diverse types to build up the cyclical resistance of such areas.

PROBLEMS IN EVALUATING FEDERAL EXPENDITURES FOR REGIONAL DEVELOPMENT

Robert A. Kavesh, business economist, the Chase Manhattan Bank

In assessing the role and impact of Federal expenditures for regional development there are really two phases of the problem that should be treated. First there is the administrative or political aspect, i. e., do these programs conflict with the essential characteristics of our "federal" form of government, does the spending run counter to the provisions of the Constitution? Secondly (and to a considerable extent almost an entirely separate question) the true economic effects of these outlays on the several regions are involved. This paper will be concerned with aspects of the economic portion of the discussion, but this is not to infer that the administrative problems are not of vital importance in their own right.

In point of fact, it should be clearly understood at the outset that the data pertaining to Federal expenditures for regional development are totally inadequate, and that a complex of methodological issues further serve to compound the problem. Nevertheless, this question is an important one and cannot be passed over in discussing economic growth and stability.

CONTRIBUTIONS OF THE COMMISSION ON INTERGOVERNMENTAL RELATIONS

During the past few years a great deal of thought and analysis has been given to the question of changing economic and functional relationships among the National and State Governments. Serving as a clearinghouse of ideas, the Commission on Intergovernmental Relations (Kestnbaum Commission), formed in 1953, undertook the first complete survey of this problem since the Constitutional Convention of 1787 established our federal form of government. The report of this Commission was transmitted in 1955 and ranged over a host of subjects. Since then this work has been carried forward by the Congress.

A careful study of the 16 volumes comprising the Commission's report might well serve as an indispensable preface to the analysis of what are called regional development programs. The traditional mental picture of the role of the Federal Government in regional development involves power projects, flood control, and reclamation. In many respects, however, the major contribution of the Commission was to indicate the manifold other functions of the Federal Government. Long and penetrating descriptions of the emergence of Federal activity in fields such as urban renewal, civil defense, agriculture, highways—and many others—serve to emphasize that what is meant by regional development is far from a universally agreed-upon concept. And this matter is clearly at the crux of the problem of

evaluating and criticizing the economic impact upon the various regions.

To press this point along somewhat different lines: Few would quarrel with the contention that expenditures for, say, the TVA program, constituted a clear-cut attempt to foster the growth of the economic base of a specific region. Still if we also consider that because of war and defense exigencies billions of dollars of Federal expenditures accrued to the aircraft industries of the west coast, we could also speak in terms of regional development. To be sure, one might take issue with this comparison and claim that the TVA represented a decision based upon considerations of political and economic philosophy, and that the latter case merely pointed up a simple case of industrial location. Nevertheless, in terms of economic impact, the two examples are comparable for analytical purposes.

ASSESSING THE TOTAL IMPACT OF FEDERAL OUTLAYS

Even if it were possible to assemble perfect data on Federal expenditures for regional development there would still be further problems in determining the secondary or indirect effects of these outlays. We know, for example, that when a housing development is constructed, many shops selling food, clothing, services somehow spring up. These ancillary industries and enterprises might be termed the secondary effects. In short, a certain multiplier response will stem from a given fixed expenditure level and the measurement of this factor is of unquestionable importance in determining the total economic impact.

In terms of regional analysis, payments may originally be made by the Federal Government to State or regional authorities, to businesses, or to individuals. But merely to sum these original outlays by region would, in a sense, be abstracting from the interdependent nature of our economic system. What is needed, then, is an approach geared to accounting for the diffusive effects of these various expenditure patterns. Nor, incidentally, can we assume that the reaction path of each region will be precisely that of every other region.

The application of input-output analysis

Although a complete analysis of the total (direct and indirect) effects of Federal outlays is beyond the scope of our current economic data, a method designed primarily to treat such problems—input-output—would seem to offer one of the most fruitful approaches.

Input-output, in brief, is essentially a process for extending the theoretical formulations of general equilibrium analysis to an empirical study of the economy. The economy is regarded as a group of industrial and locational sectors—and the interdependent relationships among them are described by a summary table of technical coefficients based upon actual interindustrial flows and absorptions. This, of course, implies a comprehensive study of the entire economy from the point of view of ascertaining these economic movements. By the use of mathematics it then becomes feasible to set up a table in which the ultimate effects of a given impact may be derived.

For the purposes at hand, let us assume that such a table exists, aggregated in such a way that the economic characteristics of each of the Nation's regions are carefully delineated. With this table it would

then make sense to discuss the full impact of regional development programs, for not only would the initial injection of funds be accounted for, but there would also be a second set of data describing the indirect movements throughout the various regions.

This foregoing economic model is familiar, in one of several variations, to students of input-output analysis. And, although the empirical testing of this regional approach still lacks for adequate data, preliminary studies have indicated that the leverage effect of equal expenditures would vary according to the basic structure of the regions involved.

The need for corrected Federal outlays

This phase of measuring the Federal role in regional development is, in fact, only one part of the total framework. Another side would, of necessity, involve the procedures by which these Federal funds were raised. What is needed is a locational sources and uses of funds table in which suitable modifying assumptions about the true locational incidence of various taxes are incorporated.

To summarize this section, a program to ascertain the actual impact of Federal spending on the several regions would call for two major statistical undertakings: The first would accurately depict the magnitude and locational distribution of Federal outlays. These data would be compared with statistics as to the correct source of these funds. For each region a corresponding receipts-outlay pattern could be derived for this specific set of transfers. Some regions would show a positive impact; others a drain. Then, these findings would be combined with the input-output approach to finally describe the ultimate selective impact of Federal expenditures by regions.

It must be clearly understood that this method is integrally dependent upon the many tables and assumptions that underlie it. As of today, paucity of data is holding up the development of this important set of tools.

RELATED PROBLEMS OF REGIONAL DEVELOPMENT

A major question that arises in connection with regional development is the source of financing. On one side are the advocates of decentralization, who urge that the Federal Government curtail many of its programs of regional and/or State aid, remitting at the same time certain taxes so that work could be done without an added financial burden. Others claim that this process of decentralization would merely result in inactivity by the States, that the setting up of regional agreements would be all but impossible, and that the fiscal flexibility of the States is more narrowly restricted than that of the Federal Government.

It is difficult to analyze this matter with complete objectivity. Purely political considerations mingle with those of an economic nature and in certain respects transcend them. But 1 or 2 points might be fairly made. First, there seems to be a growing awareness on the part of the American public that Federal aid, whether in the form of a major river basin project or as grants-in-aid is not free. This may seem perfectly obvious, but the general impression that Federal programs are, in total, net additions to regional or State income, and that the corresponding financing might not be partially or more than

an offset, is a belief that many people still hold—although the number of uninformed seems to be declining. A good deal of publicity has been directed to this problem with the result that a more questioning attitude has developed in many quarters.

Tendencies toward equalization of regional income

Associated with this question has been a striking change in certain key statistics, which further bear on the problem of selective regional aid. The figures of the Department of Commerce on personal income by State and region have demonstrated a definite tendency to average out more evenly in recent years. This puts a somewhat different perspective on Federal aid for regional development. If one of the main tenets of the principle of Federal assistance was the notion that funds were siphoned from the wealthier regions and disbursed to the needier (and this crops up in many evaluations), then this form of justification would seem to apply in lesser degree today. Just how and why this greater equalization of incomes was accomplished—whether because of or in spite of Federal aid (among other economic factors)—cannot be determined at this stage.

COUNTERCYCLICAL ASPECTS OF FEDERAL AID

Another basic point in the consideration of Federal aid for regional development concerns the framework of countercyclical policy. In line with economic theorizing of the past generation it was claimed that by centralizing a greater share of total government activity at the Federal level, it would be more feasible to use appropriate fiscal and monetary policies to promote maximum stability and growth. The theory went that Federal outlays would be kept to a minimum during periods of prosperity and increased during slack times to dampen inflationary and deflationary forces. Elastic-tax sources supplemented by budgetary surpluses or deficits were cited as being powerful anticyclical weapons. As for the State and local governments—it was claimed that their revenues and outlays could not be so sensitively adjusted to rapid changes in business activity.

In practice, however, the principles of countercyclical financing have seldom worked well in actual practice. Today, the budgetary problem at the Federal level revolves around the defense sector—in a sense partially independent of the behavior of the rest of the economy. Again, the backlog of need for public assets (theoretically to be undertaken during recessionary phases) has mounted so steadily because of wartime conditions and unprecedented prosperity, that outlays in this form cannot be geared exclusively to the swings of the cycle.

At the same time the States have slowly been changing their forms of taxation to more highly elastic types, although constitutional and other restrictions are still limiting factors. In part these newer forms of State taxation reflect changing attitudes, but to a considerable extent they reflect the need for enlarged bases because of the upsurge in spending at these levels (State and local government spending has risen in every year since 1944 and shows little indication of slowing down). And, in fact, these expenditures seem even less related to the cycle than those of the Federal Government, for they are related more closely to changing population patterns (schools, hospitals).

Adding up these diverse elements and problems at the Federal and the State-local levels it becomes clear that a system of priorities must always be kept in mind in considering intergovernmental transfers of funds. The question to be answered should concern itself not only with the merits of a particular program, but, more importantly, with the overall pattern of total governmental receipts and outlays and their combined impact upon the entire Nation.

ASPECTS OF REGIONAL ECONOMIC GROWTH

Robert E. Kuenne, assistant professor of economics, Princeton University

It is one of the indices of our lack of knowledge about the mechanism of economic growth that every introduction of a new dimension into our analysis raises new problems. After all, if we really knew what made our little Johnny grow from babyhood to maturity, we should be able to answer why brother Jimmy, brought up under broadly similar conditions, differed in certain respects. To the extent that we are still fumbling for hypotheses to account for the specifics of Johnny, the introduction of Jimmy can be peculiarly disturbing to our favorite theses.

This type of complication occurs when we remove the false homogeneity we confer upon the United States economy in studying its economic growth and turn to an explanation of differential growth within the whole. As replacements for all of the aggregative economic, sociological, psychological, and political imponderables forming both motive power and constraints in an analysis of the Nation's growth processes, the inclusion of space introduces immediately the need to explain differential growth within a society of somewhat less than perfect spatial homogeneity.

There exists a temptation for the regional economist to adopt what might be termed a "Ptolemaic" approach to these problems. This school of astronomers, in pre-Copernican days, devised a grand theory of the movement of heavenly bodies which it struggled to retain in the face of the theory's inability to predict the position of specific planets at specific times. To explain the deviant behavior of these bodies, the astronomers built into the grand theory a series of epicycles which seemed to explain, *ex post facto*, a particular planet's position.

It may well be that the regional economist has adopted the vision of the United States as a nation of phenomenal industrial growth, fitted the pattern to its regional components, and constructed epicyclical theories to account for abnormal departures of backward areas. It may also be that, quite understandably, the policymaker has adopted the grander vision as a regional norm, measured departures from it with a ruler calibrated in units of abnormal, and designed measures to correct such pathological lapses at the expense of more valid policy criteria.

This paper will deal with certain aspects of these problems in its presentation of a rather pessimistic outlook upon the role of feasible fiscal policy in regional economic development. It will ignore the quite different problems of natural-resource development programs by the Federal Government. The writer wishes to stress, however, his realization that these viewpoints are more intuitive than scientific, given the vastness of the processes and the crudity of analytical tools.

They must be labeled, therefore, quite frankly at the outset, as one economist's professional prejudices.

REGIONAL GROWTH DIFFERENTIALS

Among the myriad factors determining the economic growth rate, economists have fastened upon three of great importance. These are (1) the rate of capital formation, (2) the resource base of a region, and (3) the strength of and status afforded to the entrepreneurial class in a society. To concentrate upon these predominantly economic elements in the growth process is not, of course, to ignore or underestimate the role of factors more political, sociological, or ideological in nature: Our analysis must be recognized as of partial value only in the broad topic under discussion.

Let us assume boldly, for purposes of gaining some insight into growth, that the political, sociological, and cultural conditioning of individuals in the United States is similar in all areas in all respects that might affect economic growth; or, more realistically, that existing differences do not constitute important sources of differential growth experience in the various regions. Obviously, the assumption is not realistic—indeed, to the extent that we recognize feedbacks from the economic experience of a region to its political, sociological, and cultural outlooks, the position is untenable. However, it may well be true that differences in these attitudes that affect economic growth autonomously are lessening as our communications revolutions continue.

For purposes of analysis, then, we shall hold these factors constant at some identical level for all regions, thereby assuming away spatial barriers to the formation of a genuinely national ideology, and focus attention upon differential rates of capital formation, resource endowments, and availabilities of entrepreneurial talent to explain regional experience in the levels of per capita income attained and the rates of its growth.

To ascribe such differences to these sources implies all or part of the following:

1. The existence of immobilities within the national expanse which prevent effectively the attainment of an equal endowment of resources and entrepreneurial talent spatially; and/or,

2. The existence of indivisibilities in the production processes which militate against an evening out of production spatially;

3. In the absence of immobilities and indivisibilities of the type discussed in (1) and (2) above, new investment would tend to be spread evenly over regions, and differential rates of capital formation would tend to reflect the condition discussed in (4) below, unless immobilities exist in the movement of capital between regions;

4. To the extent that the growth process implies rates of growth that vary with stages of development—in a sense, with the existence of dynamic indivisibilities—differential regional growth rates may reflect differences in economic maturity.

To some extent, at any period of time in which we consider the differential levels of income between regions or its rate of growth for regions, the fourth type of factor must be borne in mind. That is, even if all factors were perfectly mobile in space, and each production

process were subject indefinitely to constant costs, it is quite possible that an early start would lead to very real advantages in costs. It is in the establishment of these types of economies within a nation that government policy has concerned itself with the protection of infant industries. Its application to regional economies raises some difficult policy questions.

For example, let us hypothesize that New England's early development of a merchant class, the successful mutation of that class into an industrial-merchant entrepreneurial stratum at the beginning of the Republic, and the acquisition and immobile nature of capital in this early period gave that region an initial impetus in textile manufacturing which, from the earliest times, overrode the penalties of distance from markets and raw materials.¹

Assume, further, that the economic development of the South had reached a level such that New England's advantages could be eliminated with some exercise of Federal Government pressure via its ordinary spending program. Should the National Government violate its economic criteria by purchasing in a more expensive market to attain the objective of raising the South's ability to compete at the price of accelerating the decline of New England? What calculus does the policymaker of a common, impartial government adopt to measure the losses of New England against the gains of the South? In this simplest of cases, the economic criterion seems quite clear: If the discounted value of prospective savings on the cheaper southern cloth exceeds the present value of the loss through purchase in the more expensive market, the policy should be adopted. But the more important questions are left unanswered: they become even more complicated when direct investment in regional development requires some benefit-cost calculation.

In our simple, but useful, model, however, these type 4 indivisibilities afford an economic basis for action, although the more difficult assignment of priorities must be made on other grounds. It seems to the present writer that the use of fiscal policy to overcome regional differences springing from immobilities and indivisibilities of the other sorts is less defensible if these are inherent economic characteristics of production processes as they exist in a period of time.

That type of friction leading to factor and goods immobility which is most germane to a discussion of regional development springs from the requirement that scarce resources be consumed in the movement of goods through space. A balance between the costs consequent upon overcoming these frictions and the savings often springing from the indivisible nature of certain production processes is struck so that economic criteria would lead to the location of production in region A rather than region B. To the extent that such decisions yield minimum cost solutions, it is difficult to see how the attempt of Government policy to locate a plant in region B can be justified on the

¹ Almost from the beginning of yarn spinning in New England, interior markets in the young West were important to the cotton-textile industry; indeed, the substitution of these markets for foreign markets with the imposition of the Embargo and Nonintercourse Acts was one of the more important economic developments for the region. From the viewpoint of access to these markets, New England was at a disadvantage compared with New York, Philadelphia, and Baltimore. Although she was peculiarly well-endowed with waterpower, the existence of a fall line along the Atlantic Coastal Plain was sufficient guaranty that she had no unique advantage in this respect. Besides, steam became competitive with waterpower about 1870, and New England's initial advantage in this regard became negative.

grounds of an epicyclical explanation that the latter region lags behinds either the Nation as a whole or region A in particular. Such decisions must be made upon the basis of noneconomic criteria. To the extent that they involve the establishment of production processes which could not exist in the absence of such policy, their implementation involves the need for a continuing subsidy via Government fiscal policy and a misdirection of investment whose positive contributions in the light of other-than-economic criteria must outweigh these costs. A classical case of this misdirection of the spatial economy is given by the history of location of steel capacity in Duluth at the instance of (State) governmental policy.²

But such cases are too clear cut to be realistic. Today, if we may believe certain preliminary indications, regional tendencies exist which seem to be a compound of several movements. First, an increasing mobility of labor between regions seems to have been born of wartime experience and a growing ease of communication. Capital, too, seems to have shared in this increasing ease of movement. Second, the differential positions on the scale of development as between regions seem to be less far apart, so that the advantages of more maturity seem less than in the prewar period. Third, the advantages of locations nearer to markets seem to be increasing relative to those obtained from the indivisibilities of production in large scale, from location near associated industries, or from location near raw materials. These movements seem to be giving a greater choice to the firm in its locational alternatives, allowing noneconomic considerations to play a greater role in the decision by exacting a smaller penalty for non-optimum location, or giving several optimal solutions.

The true strength of these tendencies has yet to be assessed. It is possible, for example, that the South experienced an inrush of plants oriented toward its growing markets after the war and will not attract much in the way of national production facilities. For example, most of the 11-State Southeast region's relative growth in per capita income seems to have occurred between 1932-34 and 1940-45. From 1945 to 1953 the area shared the national growth experience (a 44.7-percent growth in per capita income compared with 43.5 percent for the Nation).³ A study of the applications for certificates of necessity during the Korean war by several Standard Industrial Classification Code four-digit metal fabricating industries reveals that the proportion of the total value of proposed facilities in the States of Massachusetts, Connecticut, New York, Pennsylvania, Ohio, Indiana, Illinois, Wisconsin, Michigan, Missouri, and California was exactly equal to the proportion of wage earners in manufacturing in these States in 1939 (about 90 percent).⁴ These evidences are fragmentary and substantial studies must be undertaken before we can conclude that American industry is dispersing toward markets and/or away from

² L. White and G. Primmer, *The Iron and Steel Industry of Duluth: A Study in Locational Maladjustment*, Geographical Review, XXVII (1937), pp. 82-91.

³ See B. U. Ratchford in his comment on H. S. Perloff's paper in Conference on Research in Income and Wealth, Regional Income, Princeton, 1957, pp. 66-68. Ratchford uses this material to illustrate the importance of a base period in measuring a region's relative growth, and concludes: " * * * There is a tendency to allow the spectacular results of the war period to overshadow the more recent and perhaps more significant results of the post-war period. One must not only choose the base year with care but must also be alert for changes in trends, especially when a strong movement develops rapidly in a disturbed period, such as during a war or a severe depression" (p. 68).

⁴ Robert E. Kuenne, *Recent Locational Tendencies in United States Manufacturing*, unpublished.

older centers because of an increasing foot-looseness born of the factors discussed above.

Whether these movements are or are not afoot means a great deal, it seems to the author, to the Government policymaker facing up to the many dilemmas in this field. To the extent that immobilities and indivisibilities are disappearing or changing in the manner suggested above, the need for his action—given the adoption of greater equality of regional per capita income and its rate of growth as desirable—lessens at the same time that the opportunities for accomplishing the aims with least interference with economic efficiency increases. To the extent that they are not, the need for government action to achieve the end increases at the same time that the interferences with optimum economic allocation of resources is maximal. A good deal more research than now exists should be done on these basic movements through space of industry.

A last consideration of this paper is the often-urged use of government means to induce a dispersion of industry on the basis of defense policy. Enough experience has now accumulated to indicate that industry is reluctant to locate at nonoptimal cost points in the absence of a goad involving a continuing subsidy or substantial tax relief. From the viewpoint of economic criteria, it seems futile to expect our economy to operate in a viable fashion after a nuclear attack upon its major centers of production. Twenty-megaton thermonuclear bombs can wreak annihilation upon a 32-square-mile area before considering the effects of radiation. To expect a period of "broken backed" war after such an attack seems unrealistic.

However, even were our production facilities dispersed to a high degree at the cost of violating economic criteria, one set of considerations seems to negate the supposed reduction in our vulnerability: our transportation system is organized about a series of nodal points whose elimination is impossible. To the extent that production facilities were dispersed into regions whose communications were not meant to be used to the extent demanded, our productive mechanism would be subject to frequent breakdowns. Moreover, in the event of nuclear attack, destruction of the nodal points on our transport network would leave us as helpless as would destruction of the facilities themselves. Paying the price economically for a dispersion sufficiently great to offer some prospect of having production facilities survive thermonuclear attack would be too great, given the continuing and even enhanced vulnerability of a concentrated and overstrained transportation nexus.

SUMMARY

This short paper has refrained from discussing the regional development aspects of Federal expenditures for large-scale resource development in favor of remaining in the less ambitious policy realms concerned with year-to-year budgetary expenditures for Government needs. In such programs, other criteria than regional economic growth will be dominating, but the latter consideration may enter into the decisionmaking in a more-than-marginal manner. Such decisions may cumulate into substantial aid or disadvantage to one region or another. Under what conditions should other criteria be ignored to take action furthering one region's economy at the expense of another's?

The purpose of this paper is not, of course, to present a list of priorities for noneconomic goals which would take precedence over those we might call the economic criteria proper. Rather, we have chosen to find a simple mechanism giving insights into the existence of differentials between regions and to judge the feasibility of action by ordinary budget policy to overcome the barriers to regional equality. Our model has assumed a common ideology between regions, and focused upon economic immobilities and indivisibilities, of a static and dynamic character, tending to dictate economic inequality between regions.

On the whole, government policy seems best justified when it is shaped to boost a region whose disadvantage in a certain production is ascribable solely to a less mature stage of development, when that region can achieve a lower cost than presently obtained from a currently producing region. It is in this field of helping to overcome such dynamic indivisibilities of production that our most unambiguous case can be discerned.

On the other hand, the use of expenditures to overrule the spatial pattern of production when it is a reflection of inherent immobilities and indivisibilities of production processes is much more difficult to defend. To the extent that greater regional equality is desired at the expense of a continuing subsidy to the industries involved or a more rational allocation of investment in the economic sense, the costs should be so reckoned. These costs, however, may be cheapening if certain movements in industrial location are present.

Lastly, it is difficult to accept the argument of dispersion of industry for defense against thermonuclear attack, given our basic inability to disperse transportation facilities as well.

A REGIONAL FRAMEWORK FOR GOVERNMENT EXPENDITURES

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A decade has passed since the passage of the Employment Act of 1946. While there have been fluctuations in the level of income and employment, it is clear that there have been no major recessions. Indeed, with a substantial margin of safety, one may assert that the state of economic knowledge is such that we need not fear either a major recession or runaway inflation. At the same time, economists have come to recognize—in a more formal manner—the inherent difficulty in setting an optimal level of Federal Government goods and services when viewed as satisfying public wants in contrast to providing stability. Current budget struggles provide the real-life counterpart to the formal problem.

At the regional level a curious twist occurs. Here a body of knowledge with respect to the forces determining regional income is just beginning to emerge. The policy tools with which to promote regional stability and growth are practically nonexistent. At the level of providing the correct amount of goods and services the impasse found at the Federal level becomes less of a problem. With the volume of State and local expenditures amounting to almost half that of the Federal Government, one might expect half the noise and debate which has occurred at the Federal level. This does not seem to be the case. At the State and local level, the voter as a consumer may have a better mechanism to register his preferences.

Without considering the technical details, these, then, are the points I should like to cover in this paper: (1) The state of economic knowledge with respect to the forces determining regional income as a background for the role of government expenditures; and (2) the optimal level of State and local services when viewed as satisfying the public demand for goods. It is worth while, however, to note first why regional economics is of vital interest to all concerned—aside from its academic interest.

REGIONAL ECONOMIC ANALYSIS: BACKGROUND

On a priori grounds it is safe to state that during any week each Member of Congress is deluged with requests concerning some phase of economic activity in his political district. One need not look far for signs of promotional activity beckoning industry to some area. Newspapers, magazines, and other publications abound with such advertisements.

It is not necessary to go into details to point out the wide variations in economic activity among regions. Per capita income, for example, varied from \$2,858 in the highest State to \$964 in the lowest in the

year 1956. Per capita expenditures on government goods and services also exhibit wide regional variations. The occurrence of various E or disaster areas indicates that unemployment levels are by no means uniform throughout the Nation. Finally, studies have shown that different areas of the country are growing at different rates.¹ This is not only true in terms of population, but also true in terms of per capita income.

THE FORCES DETERMINING REGIONAL INCOME

In view of the wide variations in the level of regional economic activities, it is worth while to focus attention on the factors influencing the level of one key variable, regional income. In discussing regional income it is important to keep two sets of cases quite clear. One may consider short-run regional income, say over a business cycle. This is to be contrasted with a study of the factors behind long-run regional growth. A second difference notes the type of income change. The income of a region may rise simply because of increased population. It need not involve a change in per capita income. At the other extreme, it may be that the income of a region rises with population unchanged. This, of course, implies an increase in per capita income. The fact that reality contains a mixture of these two sources of income change should not distract attention from the importance of this distinction—the effect of which will be discussed below.

Short-run regional income

The factors which determine the level of short-run regional income have recently come in for a fair amount of study. In general, the same forces which determine the level of United States income determine the level of regional income. The major difference—as a matter of degree—is the dominant role of exports to other areas of the country. Clearly, the smaller the region under consideration, the more vital its exports to other areas.

One point, which will be important in policy considerations, should be noted. Multiplier analysis tells us the total amount of income change generated by a given change in some key magnitude. An increase in net investment in the private sector, for example, increases income above and beyond the amount of the original increase. This same sort of multiplier analysis holds true for regions.

For a region, however, the magnitude of the multiplier varies with the size of the region under consideration. In a small community the value is quite close to one. That is to say, the effect on income and employment in the community is largely limited to the value of the original injection. This may be illustrated by a simple example.

Suppose a recession hits an industrial area such as South Bend, Ind. As the level of manufacturing income falls, the income of employees in local industries such as retail trade also falls. In order to offset this decline, Government contracts are assumed to be placed with South Bend firms. Incomes in the area will rise (1) as a result of increased direct income to manufacturing employees and (2) as a result of these workers' spendings on local goods such as retail

¹ Gloria J. Hile and Wolfgang Stolper, *Regional Economic Development in the United States*, *Weltwirtschaftliches Archiv*, 69 (February 1952), 41–76.

trade, the incomes of the persons engaged in these activities will also rise. However, there will be a rise in income outside the area as dollars flow out of South Bend to purchase consumers' and manufacturers' goods.² The proportion of these dollar losses or leakages out of the community will determine the value of the multiplier effect on the region.

By way of contrast, consider a region defined as the Corn Belt. Here a farm policy to offset an income decline will have the same sort of effect. The increased income of the farmer creates increased income to retailers. Again, some leaks out of the area, but because of the size of the region the proportion is less than in a South Bend. This means a higher multiplier and more effect per dollar of Government expenditures.

Thus, policies which seek to boost the income of a region must recognize and allow for these different leakage values. If this is not done, the total impact on the region under consideration will be less than the desired impact.

Diversification myth

Another aspect of regional cyclical stability needs to be considered. This concerns what might be termed the "diversification myth."

It is common to hear various agencies concerned with regional economic matters put forth the call for industrial diversification. The common clichés are "broad base," "all the eggs in one basket," and so forth. Implicitly the assumption is that a region's economic stability will be insured if the area's activities are diversified. A 1-firm community or a 1-industry region is viewed with substantial misgivings. The closing of textile mills in some New England communities, coal mines shutting down, the cancellation of Government contracts, all provide examples of a real source for this fear.

There is another side to the issue of diversification which should be considered. A region which reaches the ultimate in diversification might be described as a miniature equivalent to the United States economy. In turn, its level of activity could be expected to fluctuate with the national average. Yet, it is questionable if this is a desirable goal. Those communities whose cyclical sensitivity is less than the national average may only introduce greater instability through diversification. Thus, a community whose sole product is baby food may find its income stable during business fluctuation. The introduction of a steel mill, although it will raise the income, probably will not add to the stability of such a community. Diversification for its own sake is not necessarily a desirable goal.

REGIONAL ECONOMIC GROWTH

Economic growth in general has recently received a good deal of attention among economists. Regional growth, here defined to encompass regions within the United States, has received less attention. At the present state of knowledge and especially with the bundle of available data, not as much can be said at the operational level concerning regional economic growth as one might like. It is, neverthe-

² This poses an awkward problem if other areas of the Nation are at full employment. It implies that to offset deflation in one region, you introduce inflation in another region. One might call this regional bottleneck inflation.

less, worth while to distinguish different sources and types of regional growth. Failure to recognize alternative sources and types of growth can lead to serious misjudgments at the policy level.

Two polar cases of regional growth involving population change may be distinguished. In one case population grows and, in a sense, attracts industry. In the latter case industry moves into a region and attracts the population. Recent growth in California may be cited as an example tending toward the former type. A Government atomic energy city provides an example of the latter. Reality, of course, shows a blending of the two poles in a simultaneous process.

Government, when allocating its expenditures on a regional basis, should take account of these alternative forms of growth. If two regions are alike in their growth potential, Government policy with respect to the location of, say, a dam, will give one region an advantage. Welfare will be enhanced if this region also happens to be a place in which people wish to live as opposed to a less desirable area. This is not to say that policies should only be aimed at developing areas where people wish to live. It merely suggests that this is a factor to be considered.

Perhaps the most important issue in regional growth analysis concerns itself with raising per capita income within regions. Regional per capita income grows as regions become more productive. Regions, however, do not become more productive at a uniform rate. Indeed, evidence indicates that there are important regional differences in growth rates.

A question involved at the policy level is, What growth rates should be considered optimal? Should all regions grow at the same rate? Should regional growth rates be determined by natural market forces with the Federal Government trying to play the difficult role of the neutral agent? Should Federal policy aim at providing growth rates such that lower per capita income regions tend to catch up with higher income areas? Clearly, other criteria along this line could be raised. It is a problem in the area of equity and fiscal federalism.³

Regardless of which policy is considered, it is important to look into (1) the factors behind regional income differences and (2) the conditions for regional growth. Fortunately, the work of Frank Hanna provides interesting insight into the first area.⁴ An earlier work of the author may be called upon in understanding the conditions for regional growth.⁵

In general, two factors account for differing per capita income in different regions: (1) Differences may reflect differences in regional industrial structures, one being more productive than the other or (2) differing wages may be paid for the same type of employment. Changes in the location of industry will bring about changes in the type of industrial structure. Mobility of labor and other forces which tend toward uniform wages for the same type of employment clearly influence the equality of regional per capita income.

³ See: James M. Buchanan, *Federalism and Fiscal Equity*, *American Economic Review*, XL (September 1950), 583-599.

⁴ Frank A. Hanna, *State Per Capita Income Components, 1910-51*, *Review of Economics and Statistics*, XXXVIII (November 1956), 449-464.

⁵ Charles M. Tiebout, *Exports and Regional Economic Growth*, *Journal of Political Economy*, LXIV (April 1956), 160-169.

As a matter of historical record, Hanna's investigation of the period 1919-51 notes:

The changes in the relative interstate dispersion of wages and salaries is more a result of selective wage-equalization shifts within industries than of the industrial composition of the States becoming more alike.⁶

The conditions responsible for changes in a region's industrial structure as an element in regional growth, are now considered. In essence, regions will grow if they can compete with other regions in the export market. This implies an ability to produce at lower cost. This may be illustrated by a simple example.

Suppose a new peninsula were formed off the New Jersey coast. Assume that a coal deposit is found some 200 miles out on the peninsula. Will it be mined to compete in the New York market with Pennsylvania coal? Make one further assumption about the region. Assume that the rest of the area is all sand and marshland. If workers are to mine this newly found deposit, they must eat, and hence there must be imports. If the cost of these imports is high enough, no coal will be mined, and no export base will develop.

Contrast this with a situation in which the peninsula is rolling, fertile countryside. Truck gardening and dairy farming can develop. Some imports will still flow in, but some local needs—vegetables and milk—will be supplied locally, that is, supplied by local activities. Under these conditions coal may be mined because of the lower cost of production, in this example, lower dollar wages.

A region will grow, then, if the endowments are favorable. Yet, it should be noted that the endowments are not all natural. In the past and in the future, government policies have and will continue to give regions advantages in ability to attract industries. This, of course, reverts back to the issue of the proper government policy for regional growth.

Before concluding the discussion of regional growth forecasting possibilities should be discussed. With the present resource tools and especially available data, it is extremely difficult to forecast regional growth pattern. What the impact of, say, the St. Lawrence seaway will be on the Midwest, is difficult to ascertain. Assuredly, income will rise, but how much is not easy to forecast. Policymakers should be wary of persons who come up with precise projections of regional growth.

STATE AND LOCAL EXPENDITURES AND CONSUMER PREFERENCES

Previous discussion has concerned itself with the analysis of short- and long-run regional income. The objective was to present the framework in which governmental policies could then be introduced to play a role in stabilizing regional income and promoting regional growth. Here it is assumed that this problem is solved. Now the question of the optimal level of State and local expenditures and taxation in terms of want satisfaction is considered.⁷

⁶ *Op. cit.*, p. 464.

⁷ Charles M. Tiebout, *A Pure Theory of Local Expenditures*, *Journal of Political Economy*, LXIV (October 1956), 416-424.

Governments, having undertaken to supply some goods and services to the public, must decide how much to supply. This brings into focus the mechanism, or lack of one, by which consumer-voters register their preferences. The consumer-voter is, in a sense, surrounded by a government whose objective it is to ascertain his wants for public goods and tax him accordingly. Recent research has shown there is no satisfactory mechanism to indicate these wants at the Federal level.

At the State and local level this is less of a problem. Here consumers do exercise some choice in the quantity and quality of public goods provided. This is done in a manner somewhat different from the usual market process. Choice is registered to some extent through the mobility of the population. Perhaps this is best illustrated by an example.

Consider for a moment the case of the city resident about to move to the suburbs. What variables will influence his choice of a municipality? If he has children, a high level of expenditures on schools may be important. Another person may prefer a community with a municipal golf course. The availability and quality of such facilities and services as beaches, parks, police protection, roads, and parking facilities will enter into the decision-making process. Of course, noneconomic variables will also be considered, but this is of no concern at this point.

The consumer-voter may be viewed as picking that community which best satisfies his preference pattern for public goods. This is a major difference between central and local provision of public goods. At the central level the preferences of the consumer-voter are given, and the government tries to adjust to the pattern of these preferences, whereas at the local level various governments have their revenue and expenditure patterns more or less set—here we assume they are fixed. Given these revenue and expenditure patterns, the consumer-voter moves to that community whose local government best satisfies his set of preferences. The greater the number of communities and the greater the variance among them, the closer the consumer may come to fully realizing his preference position.

There are two questions which arise immediately: (1) Do consumer-voters really bother to exercise choice in picking a community; and (2) are there enough different areas where consumers may move to register their preference? While no adequate study has been made concerning the variables people consider in choosing a residence, such studies as do exist indicate a surprising awareness. This is especially true with respect to the service public schools.

No doubt, there are not sufficient communities in which to live such that the consumer-voter finds just the right place. As a matter of degree this is especially true at the State level. However, when smaller suburban communities are considered greater choice is offered. And insofar as this process does give the consumer-voter a choice in the level of goods and services offered, it provides a case for a greater proportion of goods and service expenditures supplied by State and, especially, local governments.

An immediate, and often overlooked, qualification is in order. When considering the whole array of government goods and services two types may be distinguished: (1) Those where all consumers' preferences are accounted for and, insofar as possible, allowed free

rein. Consumers who want more parks get them and in turn pay appropriate taxes. Those who do not want parks go elsewhere and, in turn, do not pay for them. (2) Another set of goods are of a "sumptuary" nature. In this case, the majority of voters have decided that all shall use a good and, in turn, pay for the good. Public education is an example. A majority sumptuarily imposes its will on a minority on the grounds that it knows what is best.

This division of goods holds true at the Federal and non-Federal level. The question is who shall decide what goods are to be sumptuarily imposed, the governments concerned or higher levels of government? Experience with unemployment compensation, public education and so forth, indicate the areas where this sort of question is applicable. It is again a question of federalism.

XII. FEDERAL EXPENDITURES FOR HOUSING AND
URBAN REDEVELOPMENT

FEDERAL EXPENDITURES FOR HOUSING AND URBAN REDEVELOPMENT

CONSTRUCTION COSTS AND GOVERNMENT POLICY

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As we all know, our economy is in one of those peculiar and infrequent periods in which physical output is stable or declining while prices keep rising. Gross national product (seasonally adjusted and in constant prices) has remained virtually unchanged since the last quarter of 1956. The labor force has continued to grow and we have been experiencing record levels of employment. But the increase in the labor force has been larger than the increase in employment, so that the rate of unemployment, although by no means high, has been running above last year. Manufacturing employment (seasonally adjusted) is actually below its level of December 1956; the increase in total employment is to be found elsewhere, particularly in trade and government.

Total industrial production (seasonally adjusted) has declined 2 percent since last December, while durable-goods production has declined 3 percent. And inventories continued to rise in the second quarter of this year.

Despite all these signs of hesitation and doubt in the general economy, consumer prices continued to rise. After almost complete stability from mid-1953 to mid-1956, consumer prices rose 1.5 percent in the last half of 1956 and 2.4 percent in the first 7 months of 1957. Wholesale prices, which started to climb in mid-1955, appeared to have leveled off in the first half of 1957 but seem to have resumed their rise in July and August.

In the face of this continued rise in prices, the Federal Reserve Board has continued to maintain that the immediate danger to the economy stems from inflation and has continued to restrict the growth in the money supply. The very strong measures taken by the Federal Reserve and the impact of these measures on various segments of the economy, via changes in interest rates and in availability of funds, has resulted in considerable outcry against the tight-money policy of the Federal Reserve Board.

The more serious of these criticisms reflect a view that the present upward swing in prices is different from those experienced in the past, that the present inflationary swing is not caused by excessive demand and therefore cannot be halted by monetary measures. Some of these critics place the blame on administered prices; others, on union pressure for higher wages.

But more important than these criticisms of Federal Reserve policy is the possibility that the Federal Reserve Board may soon be faced with either of two kinds of situations that we do not quite know how to handle. One is a situation in which both prices and unemployment are rising. There is fairly wide agreement on monetary and fiscal remedies to be employed to offset either price increases or unemployment increases. But when both occur at once, there is no agreement, indeed little understanding of the underlying causes. The second type of situation is one in which a rise in prices could be halted by the Federal Reserve only by inducing substantial unemployment. Here, the problem is one of choosing between alternative but equally desirable objectives (price stability—full employment).

It may turn out in fact that the Federal Reserve is not actually faced with either of these difficulties. The economy has slowed down only slightly and the rise in prices, at least on the wholesale level, may be slowing down. Perhaps it will be possible for the Federal Reserve to terminate the rise in prices while still permitting constant or rising output and employment.

INCREASE IN RESIDENTIAL CONSTRUCTION COSTS

But this optimistic view is hardly possible in the field of housing, where prices continue to rise despite a substantial decline in output and employment. Since the middle of 1955 the annual rate of housing starts has fallen off by almost one-third, and the real volume of residential-construction work put in place has declined by almost 10 percent. Yet residential-construction costs¹ have risen almost 7 percent in the same period. At this rate it would only take about two decades for residential construction costs to double again.

Residential-construction costs, of course, have a long history of increasing more rapidly than other prices. In the six-decade period ending in 1945, the general price index rose only 160 percent, while the residential construction cost index rose about 340 percent, or more than twice as much.² Between the end of World War II (1945) and 1956, the general price level rose 54 percent, while the residential construction cost index rose 73 percent. Even in the last 2 years, when residential-construction activity fell off perceptibly, the consumer price index rose only 5.1 percent (June 1955 to June 1957) while residential-construction costs rose 6.4 percent. Indeed, there were only 2 years in the last decade when construction costs leveled off, and each was a recession year.

Residential-construction costs have risen relative to the general price level partly because building-wage rates and materials prices have increased faster than other wage rates and prices and partly because productivity in residential construction has probably increased less than elsewhere in the economy. Both of these factors have operated for many years.

¹ E. H. Broeckh & Associates' residential-construction cost index.

² Based on price indexes implicit in 9-year moving averages of gross national product and residential construction expenditures in current and constant prices. Leo Grebler, David M. Blank, and Louis Winnick, *Capital Formation in Residential Construction; Trends and Prospects*, Princeton University Press, 1956, p. 126.

BUILDING WAGES AND MATERIALS PRICES

Average hourly earnings in the building trades have increased slightly more than in all manufacturing industry since 1950, 45 percent for building employees and 41 percent for manufacturing employees.³ But, more importantly, the weight of wages in the total cost of construction is higher than for most other sectors of the economy. Therefore, the continuous increase in wage rates that we have been experiencing will tend to increase the costs and prices of construction by greater percentages than elsewhere. Thus, Leontieff, in his analysis of the effect of an increase in wages in each of 18 sectors of the economy (wages in all other sectors held constant), concluded that the construction industry would have the third largest increase in costs and prices.⁴ Prices of building materials have risen 19 percent since 1950, while the overall wholesale price index has increased only 14 percent. During the preceding six decades, building materials prices rose almost twice as much as the average wholesale price of all commodities.⁵

Despite this wage and price behavior, residential-construction costs might not have advanced relative to other prices if productivity in the residential-construction industry had grown faster than elsewhere in the economy. In fact, however, the available data indicate that productivity in construction has grown little and certainly far less than we have come to expect elsewhere in the economy.

PRODUCTIVITY

The measurement of productivity changes in any industry is a difficult one, and particularly so for residential construction. But perhaps we can draw some tentative conclusions based on several studies that deal with trends in total construction.

One such study was undertaken recently by Colean and Newcomb.⁶ In attempting to analyze changes in productivity in the building industry (including nonresidential building), they compared the movement of two indexes of building cost. One index was simply a weighted average of wage rates and materials prices, calculated by the *Engineering News-Record*; the other was an average of cost indexes of four well-known building contractors. The contractor indexes according to Colean and Newcomb, attempt to measure changes in building costs based on "actual estimates for building comparable structures." The authors state:

Since the *Engineering News-Record* index is a combination of wages and materials prices according to a fixed relationship, while the combined contractor index is based on estimates of the actual cost for erecting comparable structures, a comparison of the two should at least suggest the changes in cost that result from changes in efficiency.⁷

³ In the six decades ending in 1950, average hourly earnings in the building trades increased 851 percent; in manufacturing, earnings increased 769 percent. Grebler, Blank, and Winnick, *op. cit.*, p. 127.

⁴ Wassily Leontieff, *Wages, Profits, and Prices*, *Quarterly Journal of Economics*, November 1946, p. 33.

⁵ Grebler, Blank, and Winnick, *op. cit.*, p. 127.

⁶ Miles L. Colean and Robinson Newcomb, *Stabilizing Construction: The Record and Potential*, McGraw-Hill, 1952, pp. 69-74 and 247-248.

⁷ *Ibid.*, p. 71.

While there was some short-term difference in movement between the two series, the striking fact is that there was no pronounced long-term difference over the four decades being studied. With both indexes on a 1913 base, the ratio between the indexes was 101 in 1950 and 103 in 1951. At no time did the ratio fall below 90 and at no time in the 30 years prior to 1951 did it rise above 113.

To the extent that productivity increases in building construction were reflected in the contractor indexes, such increases cannot have been very great in total building construction.

Chawner made a similar analysis for all construction (including nonbuilding construction) for the two decades prior to the great depression.⁸ He found that heavy construction, railroad construction, and highway construction had experienced significant increases in productivity, but that building construction had not.

Clearly this is inadequate evidence from which to draw any firm conclusions but one might reasonably draw the inference that residential building, particularly the construction of single-family houses, has shared little in the rise in productivity so characteristic of other sectors of the economy. Indeed, Colean and Newcomb state that—

it now probably requires more man-years of work for the average worker to pay for the labor going into a house than it required in 1925 or 1915.

ROLE OF THE GOVERNMENT

In general, it is not the responsibility of the Federal Government to intervene in markets for particular commodities or services. It is widely held that the Federal Government should confine its influence on the economy to general measures of monetary or fiscal policy, to create the proper environment in which industries and individuals work out their individual problems. But housing, for better or worse, is not a commodity to be so treated. It has apparently been accepted by both political parties and by the last three administrations that the Federal Government has an obligation to help the public achieve higher housing standards than would have been possible without government aid. This commitment runs through numerous Federal programs—public housing, mortgage insurance or guaranty, direct-mortgage lending, purchase of FHA or VA mortgages, etc., and is found in legislation enacted over the last two decades.

The Federal Government has, in fact, played an important, perhaps dominant, role in the housing market in recent years and presumably will continue to do so. In view of this it is impossible for the Government to avoid facing at some time the question of what impact the various Federal-aid programs have upon the cost of building homes. In particular, the Joint Economic Committee, interested as it is in questions of stability and growth, cannot help but be concerned about this question.

The future is, of course, unclear, but we do not have long to wait before the pressure on the residential construction industry begins

⁸Lowell J. Chawner, *Construction Cost Indexes as Influenced by Technological Change and Other Factors*, *Journal of the American Statistical Association*, September 1935, pp. 561-576.

to get much heavier. Indeed, the evidence is that increases in the demand for housing are already probably outstripping the rate of housing starts of roughly 1 million or less that we have been experiencing for the last year. Net nonfarm household formation, which fell from 1,046,000 per year in 1950-53 to 878,000 per year in 1953-56, rose to 1,189,000 in the year ending in March 1957. National vacancy rates, according to the Census Bureau declined from their "peak" of 2.8 percent in the third quarter of 1956 to 2.5 percent in the fourth quarter and to 2.3 percent in the first quarter of 1957. Similarly, vacancies in apartments with FHA-insured mortgages have fallen to their lowest level since such data were first gathered in 1950.

But the really serious problem will arise a few years from now when the babies born during and after the war will be reaching marriageable age and when houses will need to be built at annual rates that will probably be 50 percent or more higher than currently. At that time, the pressure on land, labor, and materials is likely to be greater than we have experienced since the early postwar years.⁹

The tasks facing the Federal Government then are twofold. First, efforts must be made to increase the rate at which productivity rises in the housing industry. In view of the very large sums spent on or invested in housing by the Federal Government, the cost of such a program, to be supported by the Federal Government, would not appear to be very great.

However, if such a program is not undertaken or if it is not sufficiently effective, the Government must then begin to take into account the effect upon housing prices of any action it undertakes in the credit field. That is, any attempt to ease downpayments or carrying costs that successfully results in a considerably larger number of houses being built is likely to have substantial adverse effects in the form of higher prices. As a result, the gains offered to the house buyer by this easing of credit terms may be partly offset by the increased price that he will have to amortize and pay interest on over the length of the mortgage. Indeed, it is not hard to visualize a situation in which the benefits to the additional families enabled to purchase new homes are considerably more than offset by the harm done to the remaining families who would have purchased new homes in any case.

At any rate, it will be necessary at times to make a conscious and perhaps unpleasant choice between an expansion in housing production, with its associated price increases, and an avoidance of increasing housing production, with its associated retardation in the rise in housing standards in this country.

⁹ The influence of land prices on the rise in new house prices has not been discussed in this paper but is readily apparent.

FISCAL IMPLICATIONS OF FEDERAL HOUSING PROGRAMS

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As a Nation we are unquestionably and irrevocably committed to substantial programs of Federal assistance for housing and community development. This commitment is evident from the legislative history of the past 25 years, including legislation enacted during the term of the present administration. Housing and community development have become vested not only with public interest but specifically with Federal interest.

There are many economic and other reasons for this remarkable change within the life span of one generation. Some of the current Federal programs for assisting housing are creatures of the great depression. They have been continued and expanded as Federal aid came to be considered essential to a sustained high level of residential construction, more adequate financing of homeownership, and the provision of better housing for those unable to maintain certain minimum levels of living. The housing programs of the prewar period have been supplemented by aids to improved community development, such as the urban renewal program and public facility loans, as urban blight and inadequate community facilities were increasingly viewed as national as well as local problems. The proliferation of Federal activities in this field, apparent from the simple list in table 1, reflects the generally accepted view of our community that it is a necessary and proper function of the Federal Government to help our citizens achieve higher standards of housing and urban environment than would be possible otherwise.

¹ This paper expresses the author's personal views and does not necessarily represent any positions taken by the National Bureau of Economic Research.

TABLE 1.—Major Federal credit and grant programs for housing and community development

A. LOANS AND INVESTMENTS¹

Programs	Agency	Date established
Loans, mostly interim, for low-rent public housing.	Public Housing Administration (HHFA).	1937
Purchase of FHA and VA mortgages.....	Federal National Mortgage Association (HHFA).	1938
Loans, mostly interim, for urban renewal projects.	Urban Renewal Administration (HHFA).	1949
Long-term loans for college housing.....	Community Facilities Administration (HHFA).	1950
Long-term home loans for veterans in remote areas.	Veterans' Administration.....	1950
Public facility loans for small local governmental units.	Community Facilities Administration (HHFA).	1955

B. LOAN INSURANCE OR GUARANTY²

Insurance of residential repair and modernization loans.	Federal Housing Administration (HHFA).	1934
Insurance of residential mortgage loans.....	do.....	1934
Guaranty of veterans home loans.....	Veterans' Administration.....	1944

C. GRANTS

Annual contributions for low-rent public housing..	Public Housing Administration (HHFA).	1937
Capital grants for urban renewal projects.....	Urban Renewal Administration (HHFA).	1949

¹ Two additional programs involve statutory standby commitments for Treasury support. The Federal home-loan banks have authority to borrow from the Treasury up to \$1,000,000,000, and the Federal Savings and Loan Insurance Corporation has similar authority to borrow up to \$750,000,000.

² In addition, there are 2 programs involving an indirect guaranty of loans raised by local agencies. One is the low-rent public housing program. Here, the Federal Government undertakes an indirect guaranty of tax-exempt local housing authority bonds, by virtue of its contractual obligation to pay annual contributions designed to cover the debt service on the bonds. The other is the urban renewal program in which local agencies obtain loans from private sources by pledging a Federal loan commitment. A similar method is used by public housing authorities to obtain short-term financing.

It is fair to say that there is little difference today among most people about this principle. But the question of how far and how fast the Federal Government ought to go in applying the principle under particular circumstances and at a particular time is subject to considerable debate, as is the question of ways and means. Meanwhile, the objectives of better housing and community development have been reinforced by the objectives expressed in the Employment Act of 1946. A thriving home-building industry is widely held to be essential to long-term economic growth; and some of the Federal housing programs can be executed so as to aid in economic stabilization, although this point will require elucidation.

GROWTH OF PROGRAMS

The Federal aid programs in this sector of our economy have a substantial and growing impact on the Federal budget and on the demand for Treasury funds. Because they reflect deep-seated forces in our society, as well as strong pressures of powerful groups benefiting from them more directly, any realistic projection can only be in one direction—up.

The current and near-future position of housing and community development in Federal credit programs is indicated in table 2.

TABLE 2.—*Outstanding loans, guaranties, and insurance for housing and related programs, compared to total Federal loans, guaranties, and insurance*¹

[Millions of dollars]

End of fiscal year—	Direct loans and investments			Guaranties and insurance		
	Total	Housing	Housing as percent of total	Total	Housing ²	Housing as percent of total
1953.....	16,486	3,523	21	35,020	33,697	96
1954.....	15,352	3,094	20	40,460	37,625	93
1955.....	16,943	3,439	20	45,392	43,777	96
1956.....	17,116	3,672	21	51,097	49,901	98
1957 estimate.....	18,374	4,497	24	57,778	56,303	97
1958 estimate.....	19,567	4,987	25	65,471	63,765	97

¹ Special analysis F of the Federal budget. The estimates for 1957 and 1958 reflect the administration's budget for fiscal year 1958 and have been somewhat changed through legislation enacted during the 1957 session of Congress.

² Includes a relatively small amount of farm and business loans guaranteed or insured by the Veterans' Administration, as well as indirect Federal guaranties of local bonds referred to in footnote 2 of table I.

Direct Federal loans and investments outstanding in this sector in recent years were about \$3.5 billion, or one-fifth of the total of such loans and investments which include agricultural, business, and foreign loans and investments as well as those for housing. According to the 1958 budget estimate, they will reach about \$5 billion or 25 percent of the total at the end of the fiscal year 1958. As for guaranties and insurance which represent, of course, potential contingent liabilities rather than Federal outlays, the housing programs in recent years have accounted for 93 to 98 percent of the total. The amounts outstanding have increased from nearly \$34 billion at the end of the fiscal year 1953 to about \$50 billion in 1956 and are estimated to reach almost \$64 billion in 1958. About 45 percent of the home mortgage debt is now underwritten by the Federal Government, as against 23 percent in 1945 and 13 percent in 1940.

In addition, there are two major Federal grant programs in this field. One is the urban renewal program, with recent capital grant reservations at the rate of about \$250 million a year. The other is the public housing program, under which the Federal Government commits itself to annual subsidies usually for 40 years after completion of projects. These contributions now approximately \$100 million a year; the maximum annual contributions authorized under outstanding contracts will soon approximate \$200 million.

GROWTH POTENTIALS

Federal outlays in the form of loans or investments and grants are bound to increase markedly over the next few years. First, some of the programs are relatively new or were held back during the Korean hostilities and are just now beginning to hit their stride. In this class are urban renewal grants, first enacted in 1949, college housing loans, first enacted in 1950, public facility loans, first enacted in 1955, and mortgage purchases under the special-assistance program of the Federal National Mortgage Association, authorized in 1954 and later. While congressional authorizations over the past few years have reached sizable amounts, actual expenditures to date, be-

cause of the long lead times² characteristic of these programs, have been relatively small. But we are now reaching the stage where the increased authorizations of several years past begin to have their impact on the disbursement of Federal loans and grants. Long lead times create similar situations in some of the older programs, such as public housing. And this increase in spending is inevitable. Even if the Congress should decide to approve no additional authorizations, disbursements would still rise sharply over the next several years. Illustrations of the slow buildup of expenditures resulting from past authorizations are given in table 3.

TABLE 3.—*Status of selected Federal loan and grant programs at recent dates*

[Millions of dollars]

Program	Cumulative authorization ¹	Cumulative disbursements ²	Annual disbursements ³		
			1956	1957	1958
College housing loans.....	925	214	33	98	148
Public facility loans.....	100	(⁴)	—	(⁴)	15
FNMA special-assistance purchases.....	1,100	24	(⁴)	24	196
Urban renewal grants.....	\$ 1,250	96	14	30	50

¹ Inclusive of authorizations approved in the Housing Act of 1957.² As of June 30, 1957.³ As given in the 1958 budget for fiscal years; 1958 estimated.⁴ Less than \$1,000,000.⁵ Excludes \$100,000,000 available at Presidential discretion.

Another reason for expecting further increases in the fiscal impact of Federal aids to housing and community development is the historical tendency toward larger authorizations as programs initiated on a modest scale are expanded and liberalized. Thus, the authorization for Federal capital grants in the urban renewal program has been increased from an initial \$100 million a year to \$350 million. In 1956, relocation payments for residents and businesses displaced by urban renewal projects were enacted as an exclusive Federal responsibility, without local cost sharing. In 1957, the maximum Federal relocation payment per business firm was raised from \$2,000 to \$2,500. Strong demands are being made by local interests to increase the Federal share from two-thirds to three-fourths of the net project costs of urban renewal projects. The total authorization for college housing loans has been raised successively from \$300 million in 1950 to \$925 million. Educational service facilities such as cafeterias, dining halls, student unions, and infirmaries have been made eligible for such loans in addition to the faculty and student housing covered in the original law. And the Housing Act of 1957 provides for inclusion of housing facilities at nonprofit hospitals in this program. Mortgage purchases by the Federal National Mortgage Association (FNMA) under its special-assistance program, with funds coming from the Treasury, have been authorized for an increasing number of purposes, and the total amount authorized has now reached \$1.1 billion. The expansion of this program has resulted for the most part from the proliferation of FHA mortgage insurance provisions for special purposes, such as

² That is, the time lapse between the congressional authorization or administrative reservation of funds and the disbursement of funds. In the college housing program, common lead times seem to be 18 to 24 months. In the urban renewal program, lead times in many cases exceed 5 years.

housing for the elderly, relocation housing, cooperative housing, urban renewal housing, and military housing. All of these are being underpinned by access to FNMA, and that means the Treasury, for financing.

Third, the potentials of some of the programs in this field are spectacular if we are going to meet the underlying needs. With cumulative grant authorizations for urban renewal already exceeding \$1 billion, we have only begun to poke into slums. We could probably spend \$650 million a year in Federal grants alone without running out of slums within 25 years.³ The limiting factors here are the ability of localities to match the Federal grants, the current low rate of housing vacancies and the resulting difficulties of vast tenant relocations, the problem of finding sponsors for competitive projects,⁴ and the real danger of artificially raising slum land prices by a huge acquisition program. Nevertheless, annual capital grant disbursements of about \$250 million in 1961 and of as much as \$500 million in the mid-sixties are real possibilities. As for the college housing program, it does not take a great deal of imagination to visualize annual loan disbursements reaching \$300 million in the near future and total loans outstanding of \$4 billion within a decade.

In the case of the Federal National Mortgage Association, it is pertinent to note that its total mortgage portfolio has risen from \$2.5 billion at the end of the calendar year 1954 to more than \$3.7 billion despite the brave legislative effort of 1954 to restrain the use of this Government facility and despite its rather conservative administration during the past few years. This increase is due mainly to FNMA's support of the market for Government-underwritten home mortgages in 1956 and 1957 through its so-called secondary market operation, which has been largely financed by nonguaranteed debentures issued to private investors. The bulk of FNMA mortgage loan purchases resulting from the stepped-up special-assistance program and acquired with Treasury funds, which was mentioned earlier, is still to come. On the other hand, the Association has been unable to sell its pre-1954 portfolio of mainly 4-percent and 4¼-percent mortgages as was hoped at that time, and these holdings must be considered frozen except for the slow collection of principal from borrowers. Thus, the total FNMA portfolio may well approximate \$4 billion to \$5 billion in a few years, without any economic emergency such as the one that gave rise to the Home Owners' Loan Corporation which, with a portfolio of \$3 billion, was considered truly a gigantic Government operation.

SUGGESTED GUIDELINES

It is clear, then, that the demands for Treasury funds arising in the housing sector will be growing rapidly, certainly at a more rapid rate than the rate of increase in Federal revenues that can be projected under conditions of steady economic growth. This prospect, however,

³ The report of the President's Advisory Committee on Housing Policies and Programs of December 1953 includes an estimate of \$24 billion for the total cost of removing or rehabilitating slums. On this basis, an annual total of \$1 billion, involving \$666 million of Federal capital grants and \$334 million of local grants on the present matching formula, would do the job within 24 years. The cost has probably increased since the report was published.

⁴ In some cities such as New York there is already a notable tendency to devote urban renewal projects to noncompetitive land uses by nonprofit institutions.

should not be used as occasion for indiscriminate, across-the-board cuts of authorizations or expenditures in this sector. Without a high sustainable volume of residential construction in the long run, economic growth itself could be impeded. We must face the fact that home-building activity has to some extent become dependent on the Federal instrumentalities developed during the past generation, so that we may incur undue economic risks if major aids were withdrawn. Moreover, no fair-minded person can deny that the persistence of a vast acreage of slums in many cities is a blot on our current economic and social scene and that governmental aids are required to remove it; or that marginal families need assistance in obtaining sanitary homes. No fair-minded person can ignore the record of at least a century, which demonstrates clearly that the institutions of the private market in this sector have been less efficient in providing a decent minimum for all than is true for most, if not all, other essentials.

What the prospect of ever-increasing calls on Treasury funds requires is a more careful husbanding of Federal resources devoted to housing and community development and, beyond this particular sector, a comprehensive and more rational approach to the whole area of Federal credit and grant programs. To accomplish these objectives, the following points are suggested for consideration:

1. Concentrate the use of Federal funds for housing and community development, either loans or grants, on special high-priority programs. Conversely, avoid slipping into the use of Federal funds for sustaining general activity in this sector solely because interest rates are high or rising.

2. Discard the notion that a given or growing volume of residential building is necessary under all circumstances in the short run in order to achieve satisfactory economic growth.

3. Review the programs for housing and community development, some of which were designed in the great depression or in anticipation of a major postwar depression, as to their place and functions in a high-level economy.

4. Undertake a thorough appraisal of Federal credit and grant programs in all sectors so as to obtain a comprehensive view of their longer run economic and fiscal impact and to be in a better position for assigning priorities.

5. Minimize uncertainties of the hundreds of thousands of private and public decisionmaking units by reducing the frequency of omnibus housing legislation, which in the recent past has been on an annual basis.

The remainder of this paper will be devoted to an elaboration of these points.

The use of Treasury funds

In the past, Federal financing has been utilized basically under two sets of circumstances. It has been invoked for programs which could clearly not be executed without low-cost Treasury funds. In other cases, programs were partly diverted from private to public financing in order to shelter them from high or rising interest rates. Several times in the past, including the recent past, we have slipped into substantial use of Treasury funds in a misplaced and ineffectual attempt to insulate housing generally from the competition for savings. This

slippage usually has resulted from (a) unduly severe limitations on maximum interest rates on insured or guaranteed loans, which in periods of generally high costs of borrowing channel these loans to the Federal National Mortgage Association rather than to private lending institutions; (b) the statutory establishment of above-market prices for mortgages that FNMA must pay in its special-assistance purchases (which removes these loans from effective competition by private lending institutions); or (c) setting interest rates on direct loans at such low level that the hoped-for participation of private capital cannot possibly be forthcoming. The latter case applies clearly to college housing loans, for which interest rates since 1955 have been so low that practically all loan demands have been coming to the Federal counter.

These attempts to shelter certain programs from the effects of changes in the cost of funds are misplaced because public financing is not essential for carrying out the programs. Home building and home purchase generally depend more upon availability of mortgage funds at reasonably low downpayments and on reasonably long maturities than upon low rates of interest. Also, when the mortgage insurance and guaranty schemes were developed the Congress did not intend to force submarket rates of interest in exchange for Federal underwriting of risk. The quid pro quo was rather a loan with lower downpayment and longer maturity than would be extended without insurance.

The attempts to shelter housing in general from the competition for savings are also ineffectual. Even a generous allocation of public funds will not replace the private funds driven away from the housing programs because of noncompetitive interest rates. For example, FHA and VA loans made during the past 4 years by private lenders averaged nearly \$9 billion a year. It is difficult to visualize a situation under which even a quarter of this amount would be appropriated annually for this purpose, save another great depression. Because we can only go a small part of the way toward replacing private funds by public funds (quite apart from the question whether we should travel at all in this direction), insistence on submarket rates of interest has sometimes defeated the very purpose of home-financing legislation. Thus, after the Congress in 1956 extended the veterans home-loan program by 2 years, the Congress in 1957 wrote a premature finis on the program by maintaining a 4½ percent maximum interest rate. Failure to adjust the rate has, in fact, acted as an unintended but potent selective credit control in disfavor of home building, as well as of veterans.⁵

While logic may dictate completely flexible interest rates on insured loans, practical considerations of public policy in my view argue in favor of maintaining maximum rates. But these rates should be sufficiently high to allow flexibility through administrative action. This was the policy adopted in 1934, when the National Housing Act established a maximum interest rate of up to 6 percent for FHA-insured home loans, with administrative discretion to set lower rates.

⁵ According to testimony of an official of the Veterans' Administration, "It is abundantly clear that the direct [veterans' home] loan program cannot begin to fill the void that has been created due to the unattractiveness of the GI 4½-percent interest rate." (Hearings before the Subcommittee on Veterans Affairs of the Senate Committee on Labor and Public Works, June 3, 1957.)

The ceiling rate has never been invoked. The administrative discretion granted in 1934 could have been used with greater effectiveness in the postwar period if it had not been for the more restrictive interest ceilings on veterans' home loans and the difficulty of discriminating between FHA and VA loans.

In the case of college housing loans, there is real question whether other kinds of aid to colleges would not deserve greater priority. And if the national interest should be served most by housing assistance is it necessary or fair in the light of social priorities to place the entire burden of financing the full cost of construction on the Federal Government? An interest rate based on the current cost of funds to the Treasury plus administrative expenses would of itself deflect some of the loan demands to the private counter. Also, it may perhaps not be unfair to ask the colleges to contribute a modest proportion of the total construction costs through private loans or other private funds or in the case of State institutions, through State budgets.

In summary, it is suggested that the use of Federal funds be limited to carefully selected high-priority programs and that inhibitions to the fullest participation of private capital be removed.⁶

The role of housing in economic growth

The "slippage" into increased use of Federal funds is sometimes occasioned by the astonishingly widespread view that housing, year by year, must make a more or less fixed contribution to economic activity. Consequently, a decline in home building has come to be considered a national calamity, no matter what the circumstances are, and is used as an added reason for the employment of Treasury funds. There is just enough validity in the view that long-run prosperity would be difficult to maintain while home building was languishing to give this notion a degree of respectability. But if applied to the short run, the idea of an ever-normal housing sector does not stand up under scrutiny. In a growing economy some sectors will always surge forward while others are temporarily left behind. To give the latter artificial support would only increase the inflationary pressures on an economy operating at a high level, impede necessary adjustments of products or prices, and result in more severe instability at a later point.

Thus, stimulated by the easy-credit policies initiated in mid-1953, housing production expanded at a spectacular pace in 1954 and early 1955 while other economic sectors, notably business investment and Federal expenditures, were declining. The sharp increase in residential construction helped prevent the development of cumulative deflationary pressures that might have resulted from these downward movements and was an important factor in keeping the recession of 1953-54 within bounds. But an attempt to use Federal aids for maintaining the 1954 pace of home building later, when the whole economy was moving forward at a fast clip, would only have added to the threats of inflation. An economic policy that allows reasonable fluctuations in the housing sector does not use housing as the beneficent balance wheel of the economy but rather preserves the flexibility essential to steady economic growth without ruinous inflation.

⁶ These guidelines apply to the division between private and Federal funds. There may also be a question of the proper division between Federal and State responsibilities in some of the housing programs. This question is intimately related to the general problem of the fiscal and functional division of labor between the Federal and State Governments, which is now being examined by a Presidential commission.

Public understanding of the aims of economic stabilization policies is badly in need of clarification and improvement, for it is vital to the successful conduct of these policies. We must learn to understand that stabilization efforts cannot be oriented toward stability or proportionate growth in individual sectors or industries. Any attempt in this direction would be self-defeating. They should be directed so far as possible, however, toward preventing clearly unsustainable rates of growth in major sectors, and they must attempt to reconcile occasional conflicts between the Federal Government's commitment to advance housing and its commitment to help maintain economic stability.

While maintenance of a given level of residential construction is no sufficient reason for increasing use of Federal funds so long as the economy is growing, other policies may be called for in an altogether different setting when private funds are generally shying away from investment and resources are unemployed on a large scale. In such a situation, some of the housing programs could indeed be used advantageously for countercyclical purposes, as well as for accelerated advancement of program objectives. The FHA program of insurance of repair and modernization loans probably ranks high in this respect, in terms of speed and wide dispersion of expenditures that can be generated. Liberalization of downpayments and perhaps maturities under the FHA residential mortgage-insurance programs would at least help moderate a decline in home building, but they would do so only if the ammunition of easy terms was not already shot away during economic prosperity. In a serious general recession, increasing FNMA support would be called for and is, in fact, provided in existing legislation. Other programs, such as urban renewal, have such long lead times that they are in a more dubious category.⁷

Reexamination of programs

A reexamination of the place and functions of our housing programs in a high-level economy has been long overdue, and I believe this is true for social programs generally. Some of the housing programs were designed during the great depression on assumptions quite different from the realities of the postwar era, and need to be reconsidered in light of the national policy formulated in the Employment Act of 1946. The suggestion for reexamination does not argue for curtailment, nor does it necessarily promise a reduction of Federal expenditures. It does invite an effort at fresh thinking which should at least produce more effective spending of Federal funds.

This need is illustrated by the public low-rent housing program, though it is by no means limited to it. The public-housing program was originally designed to help solve the problem of families with insufficient incomes to command adequate housing. One-third of our families were said to be in this group, which implied that a large percentage of normal families with employed breadwinners, as well as others, would need subsidized housing for an indefinite time. And the solution was the rental housing project in public ownership, usually large and institutional, often of the skyscraper type in big metropolitan areas, visually and otherwise segregated from the rest

⁷For a more comprehensive discussion, see the writer's *Housing Policies to Combat Depression in Policies to Combat Depression* (National Bureau of Economic Research, universities program), Princeton University Press, 1956.

of the community, tightly regulated by a paternalistic management, and expensive to operate not because luxuries are provided but because rental housing requires services which in this country of high wages are costly.

In the postwar period, there has been a pronounced shift in the nature of the problem, at least in the larger cities. With the increase in real income, the proportion of "normal" families seeking public housing has declined, and the occupancy by what a recent issue of the *Journal of Housing* called troubled and troublesome families has risen. While average incomes of public-housing occupants have not kept pace with the general rise in incomes, operating costs of projects have been creeping up, with the result that the Federal Government's annual contribution, for many years below the maximum provided by contract with local agencies, is rapidly approaching the maximum in many cases. And even staunch advocates of public housing have come to question the solutions of yesteryear.⁸ Why not use rehabilitated old housing as well as new? Is public landlordism essential or desirable? Is the "project" approach socially sound? Should subsidies be applied to the family or the dwelling unit? Would subsidized home ownership be preferable to tenancy for at least some of the public-housing occupants? What portions of the population should a clearly subsidized low-rent housing program in a growing and high-level economy serve? Would problem families be helped more by intensified social services, with less emphasis on physical housing standards?

In my view, the need for some kind of housing subsidy to help those clearly unable to pay the economic cost of sanitary housing will continue even in a high-level economy. After 10 years of practically unbroken prosperity, millions of people are still living in slums for reasons of economic necessity. But it is equally clear that the current program is incapable of meeting this need. Instead of devising a better program and one meeting with more general acceptance, however, the public-housing issue has become hopelessly deadlocked in ideology. Instead of devoting ourselves to a reexamination of ends and means, we have continued the program of 1937 without comprehensive review of experience and have played the numbers game, that is, the ostensible issue nearly every year has been whether 35,000 public-housing units or some other number ought to be authorized.

Other housing programs are also overripe for overhaul. As was mentioned earlier, we have used the FHA mortgage insurance device excessively for all sorts of special purposes until by my latest count there are 11 different insurance funds, and because my count was made without the benefit of a battery of lawyers, it is by no means authoritative. There is great need of simplification. The abundance of special-purpose programs is in danger of "balkanizing" the FHA mortgage insurance system and of creating artificial housing submarkets with their own financing and price structure, depending on who occupies the dwellings or where the dwellings are located.

Overall review of credit and grant programs

In view of the rapid expansion of old and the initiation of many new programs in the postwar period, a thorough overall review of

⁸ See, for example, Catherine Bauer, *The Dreary Deadlock of Public Housing*, *Architectural Forum*, May 1957, and the symposium in response to her article in the June 1957 issue of *Architectural Forum*.

Federal credit and grant programs, comprising housing and other sectors, is badly needed. In the legislative process, every one of these programs is, of course, carefully gone over by the appropriate committees of the Congress. It is respectfully suggested, however, that this kind of review does not obviate the need for a more comprehensive across-the-board appraisal every few years. The Joint Economic Committee is perhaps in the best position to perform this service and make recommendations for consideration by the cognizant committees. Such a review should enable the Congress to have before it a comprehensive picture of Federal credit and grant commitments, and of their effects on current and future cash and administrative budgets as well as on the economy as a whole, when individual programs are considered. It would also help the Congress in assigning more deliberate priorities to programs or reassessing past priorities in the light of current and prospective conditions. It is not unfair to say, for example, that the terms of Federal loans in some cases are due to historical accident. They were established at a time when general credit conditions were quite different from those prevailing in recent years, and are now disproportionately liberal in relation to the terms for other programs which were enacted later under different circumstances.

The objective of the proposed review would not necessarily be to establish uniform conditions for Federal loans or grants but rather a pattern more consistent with the current congressional evaluation of the needs of various kinds of recipients.

Frequency of housing legislation

Finally, it is respectfully suggested that less frequent housing legislation may, in the words of the outline for this study of Federal expenditure policies, "minimize government interference in decisions by business and consumers about use of resources."

It has become the rule to adopt every year what has come to be known as an "omnibus" housing bill, that is, a bill dealing with a large variety of major programs, if not all programs, in this sector. Likewise, loan and grant authorizations are often made for 1 year. This procedure has created continuous discontinuity. It has added greatly to the uncertainties faced by the hundreds of thousands of consumers, builders, mortgage lenders, and local public agencies affected by housing legislation. It has unnecessarily complicated the work of administering agencies. It has made it extremely difficult for cities to maintain long-range planning operations in connection with urban renewal and public-housing programs. The rules of the game are changed too often with confusing and disruptive results. Sometimes, a program has barely been initiated before its provisions are revised. Yet, the operative results of an amendment or new program enacted during the summer in most cases cannot really be appraised the next spring when the strategically important work of congressional committees is performed. In some programs, money authorizations for several years, rather than a single year, and a degree of continuity are more important to good performance at the local and national level than are the amount of authorization or revisions of the basic statute.

There will always be need, of course, for relatively minor perfecting amendments for one program or another. There will also be less frequent occasion for initiating new programs. From time to time, comprehensive review and overhaul of existing legislation is called for, as was already indicated. But there is real question whether annual omnibus legislation is needed in a sector in which certain basic statutes have evolved over many years, and whether such legislation is not an unstabilizing influence. Moreover, because of the timelags in most of the housing programs, legislation based mainly on a temporary condition rather than on consideration of the longer run implications is in danger of being out of date when it becomes operative.

FEDERAL EXPENDITURES FOR HOUSING AND URBAN REDEVELOPMENT

Robinson Newcomb, economic consultant, Washington, D. C.

The other members of this panel are preeminently equipped to discuss the quantitative aspects of the subject at hand. While I have not seen their papers, I am sure they have discussed fully the causes for Federal intervention in the housing and urban fields, the extent and methods used in the intervention, and the effects of it. Their papers will be required reading for students of the subject for a long time to come.

May I, therefore, content myself with a more modest role, and discuss, not how much even, or how, but rather why, and why not?

It has been more than 25 years since the Federal Government moved vigorously into the housing field through the creation of the Home Loan Bank Board, and it may be pertinent to ask whether the reasons which caused the Congress to act as it did still warrant continuation of past policies. And it may be pertinent to ask whether the situations which have developed during these last 25 years would suggest further changes in the direction and extent of Federal intervention.

The private home-mortgage structure of the twenties supported a far greater volume of homebuilding in relation to the economy than have the federally aided systems devised during the thirties and forties. The private system of the twenties, however, failed over much of the United States during the early thirties. It failed in large part because of failures in short-term credit institutions, and because a large proportion of home mortgages were either callable on demand, or were made by institutions whose liabilities were subject to payment on short notice.

When banks began to get into trouble they started calling their mortgages. But home mortgages are essentially long term, not demand debt. That meant a failure of the system. When banks began to run into trouble, shareholders in savings and loan associations in many parts of the country demanded cash. But the assets of savings and loan associations were long-term debt, not demand debt. So trouble spread.

The Home Loan Bank System was created to: (1) Provide a central credit system for institutions which make mortgage loans, (2) improve mortgage techniques, (3) insure shareholders and depositors in member institutions, and (4) provide backstop protection through the credit of the United States Government.

It is obvious that a central credit system is badly needed. Home mortgage credit is much more readily available in much of New England than in much of California, for instance. But the Home Loan Bank Board has not lived up to the responsibility of equalizing credit between districts. It has relied upon short-term borrowing in the money markets and short-term loans to members. It has helped to

even out season demands, but it has not faced up to regional or even to cyclical needs.

A step in the direction of a better regional plan has been taken recently in permitting savings and loans to buy an interest in mortgages made by other savings and loans. But this still limits the financing of savings and loan home mortgages basically to savings secured through savings and loan institutions. It does not permit the use of new savings mediums, such as pension funds. The Home Loan Bank Board is acting basically as it did 20 years ago. Its entire philosophy should be reviewed to see whether it should not become, or permit member institutions to form, an active and effective institution for the tapping of long-term funds for distribution to institutions making long-term home mortgages. Twenty-five years is a long time to wait for this.

It is very possible that savings and loans could form a better institution for themselves privately than the Home Loan Bank System could form for them. But whether it is done privately or by an instrument of the Federal Government, I believe a thorough basic overhaul of the present system of providing credit to savings and loans is in order.

The second duty of the Home Loan Board System, to improve mortgage techniques, has been accomplished in part, and ignored in part. The amortized loan is now accepted, and operating procedures, appraisal practices, and so forth, are being improved. But more basic matters are being allowed to drift. For instance, in the early days of the System extensive studies were made of foreclosure laws. These laws were drawn in many States so as to protect equities from the effects of the economic and financial collapse of 1930-32. But they add to the cost and the risk of mortgage lending, so result in higher interest rates during prosperous times. Much was done also on the subject of closing costs. Closing costs may exceed downpayment requirements in some instances. Steps taken by Federal institutions such as the FHA and VA to cut downpayments may be nullified, in part at least, by increases in closing costs. Work on this subject appears to have been suspended.

Another omission is the failure to adjust mortgage terms so that savings and loans can compete with FHA mortgages. Competition can be healthy. The FHA and the VA have shown that most homeowners are as honest when they make 90-percent loans as when they make 75-percent loans. Studies I made for the President's Committee on Home Building and Home Ownership in 1931 indicated that for the area studied most 75-percent savings and loan mortgages made during the twenties had been followed by seconds. The practice of financing with 90-percent loans did not originate with the FHA. It is an old custom. But by holding savings and loans to 75-percent mortgages the system forces savings and loans either to deal with families who can put up an equity of 25 percent or to loan to families who are making second mortgages.

Little has been done to take advantage of what the FHA and VA experience has taught us. The probability of loss on a well-built, located, and priced house bought by a healthy family able to afford the monthly costs are so slight as to warrant a question as to whether or not modification of laws and rules so that conventional as well as

federally aided financing can take care of the needs of these families may not be in order. Having the legal right to make higher loans would not mean that all conventional lenders would have to make such loans. But it would enable those able and willing to do so to enter the market. The resulting competition would be good for the FHA, the conventional lenders, and for borrowers.

Another basic shortcoming in mortgage lending operations lies in the failure to develop and promote the use of techniques for market analysis. A great deal was done in this field in the late twenties and early thirties. The HOLC did a moderate amount of work on the subject, and the FHA for a time did good work in this area. But the war, and the postwar boom made such analysis seem less necessary. Now that the sellers market has gone the subject of market analyses should hold high priority in any institution concerned with home mortgage financing. This is as true of the FHA as the Home Loan Bank Board.

The third responsibility assumed by the Home Loan Bank is the insurance of depositors and shareholders. This has been adequately done, though the price charged may be excessive. But it has not been done imaginatively. The purpose of insurance is the encouragement of the flow of savings to home lending institutions and the discouragement of unplanned or panic withdrawals. Now that savings are flowing more and more to pension funds, it should be made possible for these pension funds to put the savings now flowing through them back into the home-investment field with ease and with security. The simplest way to do this is through long-term loans, amortized or not as the needs of the institutions require to savings and loans. These loans, being senior to the rights of depositors or stockholders, would have to be paid off in case an insured saving and loan ran into trouble. Therefore such a loan would have excellent protection. It would have the equivalent of insurance by an instrumentality of the United States Government. Its protection would be at least equal to the protection offered those buying public-housing bonds backed by the United States Government.

But the Home Loan Bank Board has asked the Congress to withdraw the protection such loans would now have. The very fact that the Board has asked that this protection be withdrawn means that pension funds and others will hesitate to make long-term loans to savings and loans for home-mortgage purposes.

If savings and loans are to keep abreast of the times they must adjust to new savings trends, including the growth of pension funds. The Board does not act as though it recognizes this and has offered no method for adjusting to this new development. It has even tried to destroy one existing method that would make this adjustment possible.

One of the greatest dangers this country faces is the lack of competition for governmental agencies. They tend to ossify the moment they are created. They are created because of a given set of situations at a given time, and they tend to continue to prepare to meet those same situations for ever after. The problems are so complex that voters can do nothing about them and they are so technical that the Congress may be almost helpless, as for instance on what can be done to help direct the flow of pension funds to mortgage institutions. Industry has learned how to discourage and to get rid of ossified

institutions by means of competition. Some similar device is needed for governmental institutions. At times competition itself can be used, as for instance to some degree the FHA was in competition with the VA. That helped keep both institutions on their toes. The encouragement of a private Home Loan Board system, the setting of mortgage limits for savings and loans which more nearly match those of the FHA, the creation of citizens advisory groups (which in effect is what this panel is) to recommend changes to the Congress and the Home Loan Bank, might help keep the Board more sensitive to the changing needs of changing times.

This problem is not unique with the Home Loan Bank Board and no slur is meant upon the Board or its members. Unwillingness, or hesitancy to accept the need for changing with the times, is an occupational hazard for any group of dedicated men who take an important office for a short period. How can they learn in a few months or years that both basic and superficial changes are needed? In the case of the Home Loan Bank Board, I believe basic changes in policy are needed.

The fourth function of the System, that of providing backstop protection, is of psychological importance. As long as this protection is available it probably will not be needed. The protection should be kept as hazard insurance.

The Home Loan Bank System developed into a system serving largely savings and loan associations. This was unfortunate. But in view of the fact that commercial banks and insurance companies particularly were not willing or able to use the system, it was felt advisable to set up a system which they could and would use. The FHA was the result.

This in effect was an insurance system which for a fee protected approved purchasers of mortgages underwritten by the FHA against significant loss. It was also a system for encouraging minimum standards of structural and community design and construction. The system was a lifesaver in the midthirties. It helped make mortgage investments a form of liquid assets. It made them safe and reputable. It encouraged the flow of funds back to home mortgage financing. And it, like the Home Loan Bank System, encouraged the use of amortized mortgages. With the passage of time it encouraged smaller and smaller downpayments and demonstrated that such payments need not be a hazard to the borrower or lender.

Times have changed greatly in the twenty-odd years since the FHA was created. Possibly the changed times warrant changes in the approach of the FHA.

The lack of competition, or its equivalent, is just as great a threat to the FHA as it is to the Home Loan Bank System. In the early days any standards were apt to be better than none, and the FHA aided the home-building industry greatly by setting standards. But once the standards are set, they tend to stay set. But the world does not. It is possible that the FHA should be encouraged to underwrite a good deal of research in structural architecture, engineering, and community design. The Building Research Advisory Board of the National Academy of Sciences could be used effectively for this purpose. This would help the FHA keep abreast of changes, rather than resist them, as it has tended to do from time to time. The very success of the FHA in making its mortgages respectable has discouraged

progress. Why should a bank or insurance company investigate insured mortgages? They are insured, aren't they? So private initiative in improving standards has been discouraged. The builder's job is to build to FHA standards—no better, no worse. Why should he try to make improvements? He can't get a bigger price or mortgage.

There are at least three possible ways of helping this situation. One has been mentioned—make the Home Loan Bank System more competitive. If a builder had the option of using the savings and loan system or the FHA system, the FHA staff would have more reason to stay alert.

A second method might be the creation of a private competitive insurance system. But this would require State legislation which would permit financial institutions to buy private as well as publicly insured small-downpayment mortgages. The advent of the FHA system was a signal for stopping progress on State mortgage legislation. Progress was made at the Federal, more than at the State level. Why bother with 48 States, just shift to the FHA and save trouble. Any significant private insurance system would have to get wide State acceptance or come under the Federal umbrella. The first alternative would be difficult.

A third approach would involve a shift in the nature of FHA insurance. If instead of guaranteeing the entire mortgage, the FHA were to require the mortgagees to share part of the loss, the mortgagees might have an incentive for making good loans on their own responsibility. The \$100 deductible automobile policy is a well-known type of insurance. A 5-percent loss deductible mortgage insurance policy might encourage lenders to be alert to improve their practices.

Other methods might work better. But the problem of how not to discourage initiative while maintaining the principle of insurance, is with us.

The stimulation of home building was the major responsibility of the FHA at the beginning. Insurance of mortgages on existing structures was of minor moment. But now that about \$2 of mortgage debt is incurred on old houses for each \$1 on new houses, the financing of old houses is at least as important as the financing of new ones. Two old houses change hands each year for each new one purchased. The new market cannot be maintained if the old one is not well handled. This problem is acknowledged. Its solution may require both changes in legislation, and increased interest on the part of the FHA staff. It may well be that the FHA should become as interested in urban rehabilitation as in urban growth. The problem here in 1957 is not the problem it was in 1937.

Another basic change in home-building practices has occurred in the last 2 or 3 decades, which needs to be matched by a change in FHA tactics. In the early years the FHA pushed new building in the suburbs of the big cities. But home building is moving to the smaller towns, and even to rural areas. The FHA staff system is not adapted to this wide scattering. Operating methods more akin to those used by the VA may be needed to solve this problem. This need too is recognized by the FHA. It is trying out solutions. It should be encouraged, or possibly pushed to experiment vigorously to the end that FHA facilities may be more generally available.

In the early days of FHA the interest rates it would accept were set high enough to encourage home financing. Now they are set

low enough to discourage financing. They are set so low as to offer little, if any, inducement for money to go to the sections of the country with above average rates—the West, the Mountain and Southern States, for instance. The result is a tendency for FHA financing to be emphasized in the lower interest areas. It was originally hoped the FHA would encourage the flow of funds to areas needing it most. This cannot happen unless the rate is attractive. Control over home mortgage interest rates cannot be achieved by limiting rates on FHA. The money will go where it will bring the best return. It will go where the free market is most rewarding. If that means A. T. & T. stock, or Fairfax County School bonds, that is where the money will go. If all interest rates were controlled, controlling FHA might not penalize housing. But when FHA rates are singled out, the result is a restriction on home mortgages.

When the free financing of new construction is hindered, this results in reducing new construction and thereby supporting the price of old housing. If enough new housing is not available, families must turn to the existing stock. Curtailing new construction means also that the fewer new homes can command higher prices. And as about two old houses are bought for each new one sold, forcing up the price of existing property means that the larger number of buyers of these houses also have their costs raised. Consequently an increasing percentage of the available credit goes to finance old, a decreasing percentage of a smaller quantity is available for new.

This point does not seem to have been recognized by the administration. Uptown tends to speak as though holding down new house building is deflationary. Most housing costs are but little affected by moderate increases in the volume of home building. Other markets set the price for building components and for labor.¹ Cutting home building may actually increase the cost to the buyers, whether it cuts costs to builders or not. So cutting the volume of new construction can add to new house prices, as well as push up the price of old houses.

If money which went to bid up the price of equipment in late 1956, for instance, had gone to support more home building, the price of equipment might not have risen as much and the price of houses might have risen less. What was termed deflationary action—holding down mortgage funds—may have freed money for really inflationary effects.

Many other questions could be raised. For instance, the FHA should promote local market analysis. Some of the questions not raised here may be even more significant than the questions listed. But I hope that enough have been raised to suggest that a thorough rethinking of the position of the FHA in the housing economy, and in the Federal system, may be in order.

This leaves the most basic question to last, urban growth and urban renewal. New housing must fit in to the growth of cities. In order to grow properly, a city must provide well-integrated efficiently designed and located water, sewer, telephone, power, streets, police, schools, utilities, and services. The factories and commercial establishments and housing areas must complement each other effectively.

¹ An adequate supply of houses makes it more difficult to charge high prices.

Housing must fit in to facilities planned and built by private and public groups over which the home builders have no control and about which they may have all too little knowledge. It is as though a department manager in a factory had to guess what materials would reach him from time to time, whether or not he would have power or water, and what the owners of the factory would expect him to turn out. There is all too often no effective overall planning or synthesis in city growth. Consequently houses may be built without adequate utilities, a sound industrial base, or adequate schools despite the best efforts of the subdivider. Conversely, in some communities houses may be built by men indifferent to the planning that is going on, and without much if any reference to it. In either event housing suffers.

The Federal Government began to move into this general field of urban growth and rehabilitation in the early days of the PWA and the Public Housing Division of the Department of the Interior. Public work was considered a hopeful device to stimulate economic activity and reduce unemployment. Public housing was one of the types of construction which it was believed the Federal Government could initiate within cities. Urban redevelopment got into the picture because slum clearance was tied to the public housing program from the first. Demolition of existing substandard slum units was required as a premise for aid in building new public housing.

Public housing had the triple objective at the start of (1) creating employment; (2) creating good housing for families who happened be living in slums because they were unable to pay rents which would command minimum acceptable housing; and (3) eliminating slums almost as a byproduct. Provision of decent housing and of employment were considered more important than getting rid of slums. Even at the outset it was not made mandatory to replace demolished slum houses with new housing on the same site. But it was not found politically expedient at the start to use cleared slums for other than housing for displaced families. Families were to be rehoused and employment generated with slum elimination as an incidental but important byproduct.

The method on which the greatest hopes were focused was the creation of a Public Housing Authority. Local housing authorities were made eligible for subsidies to build and operate housing of at least specified minimum standards as early as 1934. Occupancy of such houses was to be limited to families with defined substandard incomes. Public housing was a major innovation of the thirties along with social security, pensions, control of the stock exchange, insurance of bank and of savings and loan deposits, and insurance of high ratio debt to value and amortized home mortgages. But it is one of the few major institutional innovations of the thirties which did not catch on.

A confusion of aims helped prevent housing from becoming an important activity in most communities. Slum elimination in itself is very expensive. It became obvious at the start that rehousing could be provided much more favorably by selecting new building land in outlying sections than by buying heavily used land in the center of cities. But the program never faced up to the fact that housing was but one aspect of urban life, and that land cleared of slum structures might be much better used for other than housing purposes. Public

housing was kept tied to slum clearance, but slum clearance was not made an integral part of city planning and development. The program became an expensive piecemeal operation. It was an operation which even when aided with large Federal subsidies applied to housing for underprivileged families could not deal with the many factors causing general urban blight nor the factors causing economic distress and congestion in most American cities.

Public housing did not clear slums, nor did it provide neighborhoods that met American standards. It tended to provide ghetto communities for low to middle income groups and increasingly for minority groups. And it tended to provide high density, high rise apartments with little or no private outdoor space. Projects tended to be large, standardized, monotonous and institutional. They were designed as islands which turned their backs to surrounding neighborhoods, thus adding to their institutional appearance and nature and emphasizing the stigma attached to the charity that was being given the occupants.

Another factor, the return of high employment, also helped because public housing to fail as a housing operation. The pressure of unemployment that made public housing seem imperative in the early thirties lost some of its potency with a return of generally high income. In 1935 there were nearly 25 million households with annual incomes below \$4,000 (in 1955 dollars). By 1955 the number had shrunk to about 21 million households and by 1960 it is expected to be below 20 million. The number with incomes under \$3,000 (1955 dollars) dropped from about 20 million in 1935 to 13 million in 1957. These 13 million are primarily farm families and old nonfarm families, young families just getting started, and families having difficulties, a good proportion of which are temporary, such as temporary sicknesses or temporary unemployment, and families of minority races. The number of families of low income who would be basically aided by public housing as such is becoming smaller and smaller, except for those of the minority races.

This generalization that the number needing housing and is declining definitely does not apply to families of minority races—Puerto Ricans, Negroes, Mexicans, and others. The families of these races often are not able to get adequate housing in the private market and must rely heavily on public housing.

These failures of public housing were augmented by the method set up for encouraging slum clearance and public housing—the creation of public housing authorities dependent on Federal assistance. Final power remained centralized in Washington. Local initiative was not encouraged, and adaptation to local problems, or the development of novel methods which would satisfy conditions peculiar to individual communities, was made difficult. In addition, as the law is written, the greater the cost or the greater the loss in any project, the greater amount subscribed or underwritten by the Federal Government. This can encourage expensive projects rather than the most useful ones or those which would make the greatest use of total resources available. It puts a premium on the ability of local officials to live within the rules and yet get the most from Washington year by year, and to stretch out the operation so as to get funds over as many years as possible.

Public housing and slum clearance failed, also, because little was done to get at the roots of the problem. New slums were created as fast or often faster than old ones were demolished because conditions encouraging slums were not removed. The programs did not attack the conditions particularly likely to encourage slums such as the growth or migration of transportation and of business. If traffic, for instance, grows to the point where it makes properties undesirable for good residential uses or for other purposes for which it had been used, or if business conditions encroach on residential neighborhoods, there may not be enough incentive to maintain properties, and neighborhoods may decay during this transitional period. Effective metropolitanwide planning for any handling of transportation is, therefore, one of the many things necessary to any checking of the growth of slums.

But effective metropolitanwide or even citywide planning and execution of plans to fight blight is difficult to achieve, among other reasons, because urban political organizations encourage decay of cities. Cities must operate economically as a regional entity, but politically they tend to be broken into center cities and peripheral cities, with overlapping jurisdictions within and overlapping responsibilities between the cities. Even if groups within one city were able to organize so as to create a more efficient milieu for urban rehabilitation, they would find almost insuperable handicaps in getting other jurisdictions to cooperate with them.

With such an amorphous, yet complicated, situation, it takes tremendous forces to change the status quo. For instance, land values and prices tend to be based on current and anticipated income. Almost universally poor enforcement of housing and other codes makes high-density occupancy possible. This density creates high incomes even though these incomes are based on illegal use. Assessments are based to some extent on these high incomes. Any effort to buy these properties through a slum elimination program must be matched by great sums of money. The worse the slum, the higher the price may be.

This is symbolical. Bad meat is condemned and no price is offered for it. Bad housing tends not to be condemned but to demand a high price.

Social, business, and political organizations will not be changed overnight. In order to improve the situation, however, it must become profitable to eliminate both the blight and its causes, and resources for this must be available. Included in the factors to be attacked are the following: poor city government, overlapping political jurisdictions, lack of resources and power on the part of cities, lack of regional planning authority, lack of uniform regional building codes, poor traffic and parking planning and facilities, failure to integrate zoning, planning, and traffic engineering, inflated land values, high real estate taxes, dispersed ownership and liens, racial prejudices, air pollution, and lack of enforcement of minimum standards of structures and of occupancy.

This list of handicaps to a healthy city growth, and to slum clearance, could be expended readily. However, it is already long enough to indicate how difficult it is to strengthen urban health, and to attack the basic causes of blight, and of slums.

The fact that cities are creatures of States, and that most States are rural minded contributes further to the difficulties. Unless and

until city governments are given adequate authority by State governments, most city problems will remain insolvable. It is because of conflict of interest between States and cities that cities are turning to the Federal Government. The vacuum must be filled.

Public housing failed in general because it did not get at the cause of the difficulties it was designed to help. It failed in part because of the way the program was set up, and in part because of the basic weakness in municipal governmental organization.

But in one important respect public housing has been helpful—that of aiding minorities. Even here public housing does not get at the reasons why minorities need aid. Public housing officials may be almost helpless to get at the reasons which make it impossible for many minority groups to get decent housing, and so forces them to substandard properties. Municipal officials may want to enforce housing occupancy and building code ordinances and regulations but find themselves frustrated by an inability to find decent housing for those living in quarters they would like to condemn. Or municipal officials may find themselves prevented from condemning substandard properties or getting them raised to minimum standards by the political power of those earning high monetary returns from slum quarters. If minorities had free access to decent housing, slum properties would be much less attractive to them and the return on slum properties would be much less attractive to owners.

Public housing therefore can alleviate, but not solve the housing problems of minorities. It has not reduced slums and may not be able to unless and until the conditions which drive people to the slum and which make slum ownership attractive are reduced and possibly eliminated. It is a palliative, but one which must be kept until all groups of the population, both racial and income, can have access to suitable quarters, particularly if it is to serve a high employment economy.

Because public housing was not solving the problem, and because States and localities were not solving the problems, the Federal Government moved into the broader field of urban renewal. It is unfortunate that this had to occur but it may be an inevitable development. If States cannot give their cities a fair opportunity to grow, these communities will turn to the Federal Government. This is not a matter of party politics. The Vermont farmer outvotes a city worker just as effectively in Montpelier as does the farmer in Georgia when the ballots are counted in Atlanta. This is an economic matter. Rural counties and townships do not want to give up any rights and powers they have in the East or West or North or South. So metropolitan communities are left with mazes of jurisdictions—sometimes literally over a thousand jurisdictions to a metropolitan area. With all the maze of jurisdictions there is not enough power. But there is too much confusion.

The HHFA is moving into the vacuum, as something must. It is giving help for the development of long-range plans. This gives some hope that the help will not simply go down the drain. It is aiding in a metropolitan fashion, as distinguished from supporting would-be independent local jurisdictions.

This is a tremendously important problem. If the Federal Government moves in effectively, State progress may be checked, as was the case in mortgage legislation when the FHA got going. If the

Federal Government does not move in, the cities may become almost hopelessly clogged and confused quagmires. Of the two alternatives, Federal intervention may offer the fewer evils and the more hope.

This is not basically a matter of fiscal relations. The problem goes much deeper. It is a matter of adapting basic governmental organizations to the growing urban nature of our economy. No matter how well we may build our houses, if our cities become quagmires, progress in housing becomes mythical.

The most important housing problem before the Federal Government, I submit, is what guidance it can give, and what it can do to encourage States and local governments to accept their responsibilities, and then, what residual responsibility the Federal Government should take. To the extent States and localities cannot move, and quickly, the Federal Government will be forced to move to fill the void. For the future of this country is largely an urban and suburban future.

FEDERAL EXPENDITURES FOR HOUSING AND URBAN REDEVELOPMENT

Boris Shishkin, secretary, Housing Committee, American Federation of Labor and Congress of Industrial Organizations

Federal policy in the field of housing and urban redevelopment is off the track. It is off the track because the officials responsible for housing policy have ignored the basic objectives set forth in the two most relevant laws—the Employment Act of 1946 and the Housing Act of 1949.

At first glance, these two laws may seem to have little in common. But closer examination reveals that they have established as basic national policy two sets of objectives which are complementary and mutually reinforcing. The goals of the Employment Act of 1946 are “maximum employment, production, and purchasing power.” The objective of the Housing Act of 1949 is “the realization as soon as feasible of the goal of a decent home and a suitable living environment for every American family” which, the Congress said, would contribute to “the advancement of the growth, wealth, and security of the Nation.” Both laws, therefore, have as their fundamental aim the betterment of the welfare of all Americans.

The goals of these two acts are mutually reinforcing because the achievement of each would contribute to the other. Maximum employment, production, and purchasing power will provide the wherewithal needed for people to obtain good housing. For every American family to have the opportunity to obtain a decent home will require a high level of residential construction which in turn would be a major element in permitting a high level of total economic activity.

It is not too harsh to say that we have in America today a badly misdirected policy and program in the field of housing and urban redevelopment. I use the term “misdirected” in two ways. They are misdirected in the sense that they are not aimed at the proper objective. They are also misdirected because housing programs and policies have been formulated and are being administered without regard to the basic housing needs of the American people.

The officials responsible for housing policy have forgotten that housing is first and foremost for the people who live in the houses. Of course, it provides a livelihood to the craftsmen who build the houses and incomes to builders, financial institutions, real-estate firms, producers and suppliers of building materials and others who derive their incomes directly or indirectly from residential construction. Certainly, this important economic aspect of the housing industry as a provider of employment and income cannot be ignored. But above all, consideration must be given to the direct satisfactions American families derive from the homes in which they live.

It is almost unbelievable, but true nonetheless, that the Federal Housing and Home Administrator has said not once but on numerous occasions that it is not the responsibility of the Housing and Home Finance Agency to try to determine the housing needs of the American people. Despite the clearly stated objective of the Housing Act of 1949, the Administrator has adamantly maintained that housing needs are not his concern. Apparently he neither knows nor wants to know how many houses must be built each year in order to assure every family the decent home which is the objective laid down by the Congress in the 1949 act. Since he does not know and refuses to attempt to find out how many houses are required, the Administrator cannot properly determine what kind of houses are most needed, in what price range, in which communities, or provide the answers to the other key questions needed for an effective housing policy.

This can only mean therefore that housing programs and policies are adopted without regard to housing needs. Of course, if the Administrator's purpose is to ignore housing needs in the development of housing policy, it is very convenient for him not to know what the housing needs are. On the other hand, recognition that housing policy must be geared to housing needs requires, first, analysis of the extent of housing needs.

HOUSING NEEDS

Whether judged by the test of past performance or by the criterion of future needs, there can be no doubt that the current rate of residential construction falls woefully short of meeting even minimum requirements. It is estimated that in 1957 there will perhaps be 950,000 housing starts. This is far less than in any postwar year since 1949. As compared with peak postwar years, it is 32 percent less than the 1,396,000 units started in 1950 and 28 percent less than the 1,329,000 units started in 1955.

As a matter of fact, it is only slightly more than the 937,000 units started in 1925 when United States population was only 116 million as against 171 million in 1957. On a per capita basis, the current rate is only about three-fifths of the 1925 rate.

Historical performance is an important, but by no means the sole, test of the adequacy of current housing activity. Even more significant is a comparison of current housing starts with known future needs.

Unfortunately, the latest available figures on the condition of the housing supply are now some 7 years old, but there is no reason to believe that there are less than the 15 million substandard dwelling units the census takers found in 1950. On the contrary, the relatively low level of housing construction since 1950 gives good reason to believe that by now we have even more than the 15 million substandard units we had in 1950.

In 1955, Prof. William L. C. Wheaton, of the University of Pennsylvania, made a careful study of future housing needs which has gained widespread acceptance among housing experts. Professor Wheaton estimated that, if during the years 1955-60 housing construction were at a rate of about 2 million units a year, from 1960 to 1965 at an annual rate of approximately 2.3 million units, and thereafter until 1970 at a rate of 2.4 million units a year, 5 million of the

15 million substandard units in use in 1955 would still be occupied in 1970. On the other hand, if the 1955-60 rate were only 1.2 million units and the 1960-70 rate 1.4 million units, 17 million families would be living in substandard units in 1970, 2 million more than in 1955.

The actual average annual rate of housing starts thus far for the period 1955-57 is probably about 1.1 million units. Current predictions for 1958 indicate no marked pickup from present low levels. Thus, there is little reason to anticipate that housing construction will greatly exceed an average annual rate of 1.1 million units for the 5-year period 1955-59. If this judgment is borne out by the actual record it would mean that even with some increase in residential construction activity during the decade 1960-70, in excess of 17 million substandard units would still be occupied in 1970.

As a matter of fact, housing experts generally agree that only a housing construction rate of 2 million units a year or more will significantly reduce the number of substandard units in use. If housing construction were maintained at that rate from 1955-65¹ and 2.4 million units from 1965-70, then the number of substandard units in use in 1970 would be about 5 million. This is still a sizable number but some 10 million less than the current volume of occupied substandard housing.

There can be no doubt that the economy can easily support annual construction of 2 million houses. In 1925, residential expenditures amounted to about 6.5 percent of gross national product. Current residential construction expenditures are at an annual rate of about \$15 billion. With construction of 2 million units a year, this amount would be approximately doubled. The \$30 billion annual rate of residential construction expenditures would be about 6 percent of a \$500 billion gross national product. With gross national product now at an annual rate of \$434 billion, certainly the average annual gross national product between now and 1965 should be well over \$500 billion. Thus, an annual housing construction rate of 2 million units between now and 1965 would by no means result in a distortion of the economy.

I have devoted this much attention to consideration of the overall volume of housing requirements to emphasize the fact that the current rate of housing construction will have to be about doubled during the next 10 to 15 years if we are going to effect a sizable improvement in the living conditions of millions of families now living in substandard housing.

I have devoted this much attention to consideration of the overall volume of housing requirements to emphasize the fact that the current rate of housing construction will have to be about doubled during the next 10 to 15 years if we are going to effect a sizable improvement in the living conditions of millions of families now living in substandard housing.

There is not the slightest possibility that the housing construction rate can be expanded to anything like 2 million units a year under the housing programs currently in effect. This is because a doubled rate of housing construction can be achieved only if a large volume of the houses built are within the financial reach of low- and middle-income

¹ Since the 1955-57 rate has been far below this level, about 2.4 million units a year would have to be built during 1958-65 to bring the average for the decade up to 2 million.

families. Instead, as a staff report of the Senate Subcommittee on Housing has aptly described the current situation, "the housing industry [has reached] a point where it is serving primarily the upper income groups."²

For many years organized labor and others who have urged an expanded and improved housing program have recommended legislation which would provide the tools needed to meet the housing needs of low- and middle-income families now unable to obtain homes within their means. In testimony before congressional committees considering proposals for new housing legislation, we have pointed out again and again that virtually no houses are being built that low-income families can afford and that while some middle-income families have purchased new houses, they have had to assume far higher charges than they could meet without curtailing other essential family expenditures. For example, consider the terms currently in effect, having been set during the first session of this Congress in connection with the modified downpayments for FHA-insured houses. Under these terms, the total monthly charges (including taxes, maintenance, and utilities) the homeowner must pay for a \$15,000 house (the current average price of new houses) is \$133.³ This requires an annual income of about \$8,000. This is higher than the incomes of more than 80 percent of all families in 1956. In other words, only 20 percent of all American families have incomes big enough to afford to buy the average house supplied on the market today.

This is not the appropriate occasion to set forth in detail the recommendations of the AFL-CIO, for housing legislation. As the foregoing analysis indicates, however, these recommendations have focused on programs which would fill the gap in current housing programs and particularly provide the opportunity for low- and middle-income families to obtain homes within their means. The major features of such a program are:

1. A large-scale, low-rent public housing program for low-income families.
2. Low-cost loans for cooperative, sales, and nonprofit rental housing for middle-income families.
3. A comprehensive slum clearance and urban redevelopment program to wipe out urban blight and facilitate general city rebuilding.

Despite contentions to the contrary, this kind of a program directed toward meeting the Nation's total housing requirements would involve only a very modest direct outlay by the Federal Government.

FEDERAL EXPENDITURES REQUIRED FOR HOUSING REDEVELOPMENT

Unlike many of its expenditures for other programs, the Federal Government's direct outlay for housing and related programs is quite small and nowhere near as large as the figures shown in the Federal budget for expenditure authorizations for housing programs. For example, the new spending authority in the budget for fiscal 1958

² Staff report to the Subcommittee on Housing of the Senate Committee on Banking and Currency, January 24, 1957, p. 5.

³ This assumes an effective 5¾ percent interest rate (5¼ percent plus ½ percent FHA mortgage insurance premium) and 25-year amortization period.

for the Housing and Home Finance Agency and its constituents (Federal Housing Administration, Public Housing Administration, Urban Renewal Administration, Federal National Mortgage Association, etc.) is \$1.2 billion. Even this is by no means an excessive amount. Actually, it is only 1.7 percent of the total Federal budget.

However, in terms of actual permanent outlays by the Federal Government, the amount is far less. In fact, the only items of any consequence in the fiscal 1958 budget for housing programs involving permanent Federal outlays are only two. One represents about \$50 million in grants for slum clearance and urban renewal to cover the writedown of the cost of slum sites to be cleared for rebuilding. The other represents \$95 million in grants to cover the difference between economic rents in low-rent public housing and the amounts the low-income families living in public housing can afford to pay. As compared with these small permanent outlays, there are such items in the budget as the \$600 million for mortgage purchases by FNMA, \$388 million for short-term public housing construction loans, \$289 million for college housing loans, and \$297 million for urban renewal loans. These items required expenditure authorizations and appeared as such in the budget.⁴ These expenditures, however, are reimbursable. They represent reimbursable interest-bearing loans. In the long run they mean revenue rather than outlay to the Federal Government.

Thus far, I have been discussing expenditures for current programs. However, as I have indicated, we are urging the necessity of doubling the current rate of residential construction. What implications would this have for Federal expenditures?

Again, we must distinguish between appropriations which may be for reimbursable revenue-producing loans and actual permanent Federal outlays. Assuming that the major features of the housing program we have recommended were adopted, Federal expenditures for housing and urban redevelopment would still not loom very large either as a percent of the total Federal expenditures, or certainly as a percent of gross national product. Let me indicate some figures which are intended to be illustrative rather than a precise forecast of the future cost of housing programs.

The three main features of the housing program we have recommended are low-rent public housing, low-cost loans for middle-income housing, and urban redevelopment and slum clearance. Let me take these up in order.

If beginning in 1958 and for the next decade we were to build 200,000 low-rent public housing units a year, the average annual expenditure (exclusive of reimbursable expenditures) of the Federal Government required would be less than \$500 million. It would range from about \$115 million to \$120 million in 1958 to about \$900 million in 1957.

A program of low-cost loans for middle-income housing with the interest rate covering the cost of money to the Government plus the cost of administering the program would involve no nonreimbursable expenditure by the Government. Therefore, even assuming that such a program were to operate entirely on a Federal direct-loan basis, the actual cost to the Federal Government would be zero.

⁴ Since some of these funds were authorized in earlier years, only part of them represent new expenditure authorizations in fiscal 1958.

The present authorization for urban renewal capital grants to cover the writedown cost of slum sites to be redeveloped is \$250 million a year. The President's Advisory Committee on Government Housing Policies and Programs has estimated that the total cost of clearing the 5 million units requiring demolition would be about \$15 billion. If the Federal Government were to meet two-thirds of this cost, its share would be \$10 billion. Assuming the job were to be completed in 20 years, certainly a very modest goal, the Federal Government would have to spend \$500 million a year for this purpose.

Thus, the comprehensive housing and urban redevelopment program we have recommended would cost something like \$1 billion a year on the average during the next 10 or 15 years. The amounts would be somewhat smaller during the earlier part of this period and somewhat larger later on. This is certainly not too high a price to pay to assure American families the opportunity to obtain decent homes in well-planned cities and towns in which we could all be proud to live and work.

The suggested amount of \$1 billion a year compares with the \$3.6 billion a year the Federal Government will be spending under the new highway program. Another way of appraising Federal expenditures of \$1 billion a year for housing redevelopment programs is to compare this amount with total Federal expenditures. If Federal expenditures keep pace with the growth of the economy, the estimated average gross national products during the next 10 years of at least \$500 billion would require average annual Federal expenditures of some \$80 billion to \$85 billion. Federal expenditures for housing averaging \$1 billion a year during this period would represent a maximum of $1\frac{1}{4}$ percent of Federal expenditures.

Thus, by any relevant test, there can be no doubt that we can well afford the housing and urban redevelopment program America needs. The frantic cries of inevitable mammoth Federal expenditures which are always raised when proposals are made for comprehensive housing and urban redevelopment programs must be recognized as irrelevant and diversionary. Housing and redevelopment programs should be considered on their merits. There can be no doubt that we can afford to launch—indeed we cannot afford not to go forward with—the programs which will meet the Nation's housing needs. For by meeting our housing and redevelopment requirements, we will also strengthen our economy and improve the living conditions of all Americans.

XIII. FEDERAL EXPENDITURES FOR DEVELOPMENT OF
HUMAN RESOURCES, INCLUDING HEALTH,
EDUCATION, AND SOCIAL SECURITY

FEDERAL EXPENDITURES FOR DEVELOPMENT OF HUMAN RESOURCES, INCLUDING HEALTH, EDUCATION, AND SOCIAL SECURITY

RELATIONSHIP OF HEALTH, EDUCATION, AND SOCIAL SECURITY PROGRAMS ADMINISTERED BY THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE TO ECONOMIC GROWTH AND STABILITY

Statement submitted by Marion B. Folsom, Secretary of Health, Education, and Welfare

We welcome the interest which is shown in the economic significance of health, education, and social security by your letter of August 2, 1957. Because the goals of the Department of Health, Education, and Welfare, and of associated non-Federal organizations are expressed primarily in terms of human well-being and social progress, there is inadequate understanding of the fact that their economic values are of major import. A detailed staff analysis has been prepared of the relationships of health, education, and welfare problems and programs to the subjects of economic growth, stability, and standards stated in your request. The statement discusses the interdependence of economic and social development at national, State, and local levels.

This Department is participating in the examination by the joint Federal-State Action Committee of the distribution between the States and the Federal Government of tax resources and of program responsibilities (including health, education, and welfare). We are reviewing the final report of the President's Committee on Education Beyond the High School and have initiated a long-range study by outside consultants of our medical research programs. In addition, this is the season when the President's new budget and legislative program is still being formulated. Consequently, the attached staff analysis has been confined, with a few identified exceptions, to the significance of current programs under existing intergovernmental relationships.

INTRODUCTION

The objectives of the Department of Health, Education, and Welfare and associated non-Federal organizations are primarily humanitarian: the furtherance of education, improvement of health, strengthening of the economic security of individuals and families, prevention and alleviation of distress, rehabilitation of the disabled, and promotion of consumer safety. The agencies which make up this Department: the Public Health Service, Social Security Administration, Office of Education, Food and Drug Administration, Office of Vocational Rehabilitation, and St. Elizabeths Hospital were created to serve social goals. The most fundamental tests of the value and the effectiveness of the programs of this Department are, therefore, in terms of human welfare.

The economic values of health, education, and welfare programs are also of major significance and, in fact, complement their social objectives. This Department, therefore, welcomes the opportunity afforded by the request of the Subcommittee on Fiscal Policy of the Joint Economic Committee to describe the economic significance of major programs administered by the Department of Health, Education, and Welfare (DHEW) (and inferentially by associated State and local public and nongovernmental organizations).

This statement intends to demonstrate the complementary relationships between economic progress and health, education, and social security by discussing:

(a) Public expenditures for health, education, and welfare as constructive investments in the protection and development of human resources rather than as gross burdens on the national economy and on taxpayers;

(b) Savings in manpower and money which can be realized by prevention and prompt treatment, in contrast to the naive assumption that cuts in such services are "savings" to the community, and the savings through rehabilitation as contrasted to relief—the "handup" rather than the "handout";

(c) Floors under the incomes of individuals as stabilizing elements in national purchasing power;

(d) Contributions to productivity, consumption, and economic growth of advances in health;

(e) Education as one of the major sources of the creativity and growth of modern American capitalism and as a means of enabling each individual to develop his potentialities as a citizen, producer, and consumer.

The above themes of social and economic development are presented within a framework of political principles which are not a part of the economic analysis as such but which are stated explicitly here for purposes of perspective.

(a) Two broad principles should guide health, education, and welfare activities at all levels of government. First, government should serve as a mechanism through which the people can achieve goals which cannot be reached through individual effort or voluntary, informal cooperation. Second, public programs should be designed to encourage individual self-reliance, initia-

tive, and creative enterprise—reserving direct maintenance for those who are necessarily dependent.

(b) The relationships between this Department and the non-Federal public agencies should be guided by three basic principles:

(1) Generally, the primary public responsibilities for health, education, and welfare should be carried out by State and local governments with the Federal Government in a role of stimulation and technical assistance.

(2) Federal financial assistance for continuing support of State and local government programs should be invoked only when it is demonstrated that such aid is necessary to foster and maintain adequate programs in areas of national interest or that Federal support is essential to relieve an unreasonable and unequal burden on State and local fiscal capacity, particularly in the lower income States.

(3) Temporary Federal aid may be required to overcome a large backlog of current needs in situations which are associated with national emergencies.

(c) Directly operated Federal programs should be undertaken

(1) in areas which are recognized from a constitutional and historical standpoint as ones of direct Federal responsibility such as the safeguarding of foods and drugs in interstate commerce, and (2) in areas in which there are compelling reasons for public action but which could not be effectively and economically dealt with on a State or local basis—as in the case of insurance against loss of income in old age.

This statement will now take up the economic themes under the major headings contained in the letter of August 2, 1957, from the subcommittee chairman to the Secretary of Health, Education, and Welfare.

SIGNIFICANCE OF HEALTH, EDUCATION, AND SOCIAL SECURITY PROGRAMS TO ECONOMIC GROWTH

The analysis in this part of the statement is in response to the subcommittee's question concerning the relationship of the Federal Government's health, education, and social-security expenditures and programs to the processes of economic growth in the private sectors of the economy. The discussion also covers State and local governments and nongovernmental organizations. Manpower and womanpower, personal income, and capital outlay are the broad economic categories under which programs are described.

Relationship to manpower and womanpower

Contributions of education to creativity and diversity of dynamic economy.—An outstanding characteristic of American society is that it places a premium on innovation and adaptability and on a restless search for ways of doing still better what is merely "good enough." Economic aspects of this characteristic include a fast rate of obsolescence, high mobility of labor among occupations and industries, rapid growth of new industries, and a widespread readiness to experiment with new methods and organization in distribution and services as well as with new equipment and processes in manufacturing.

A foundation education available to all is essential to continuously replenishing the supply of the enterprising, the creative thinkers, and the experimenters. This task of strengthening education at all levels is the more important because of one serious lack which has been exhibited by American science and industry. Generally speaking, America has not given the same prestige and support to basic research and to the theoreticians in science as to applied science, engineering, and business. This lack of balance has been obscured by the fact that through American history brilliant scholars have come to this country as immigrants and refugees. Their contributions to the development of atomic energy, to mention but one example, are immeasurable.

The schools also have the mission of helping children develop into mature men and women who are self-reliant with regard to their own responsibilities, oriented toward enlightened self-interest in making a living; knowledgeable in methods of voluntary action in nongovernmental community agencies, and equipped to make sound decisions as citizens on questions of governmental actions in economic matters.

Intangible though these values are, they are essential to the continued vitality of free enterprise and to responsible capitalism. School systems which are even partially successful in these respects will make a major, though indirect, contribution toward reducing poverty, disease, and economic failures, and will facilitate the recovery of individuals and communities from such economic distress as is not prevented.

Numerous studies, including several on low-income families which have been published by the Joint Economic Committee, have demonstrated that there is a high positive correlation between levels of educational achievement and levels of income. This association has been illustrated both by comparison between individuals and by contrasts between the average per capita income of communities in which there are differences in the average number of years of school completed by residents. Education—An Investment in People, which was published by the United States Chamber of Commerce, contains the following three illustrations:

Census Bureau figures show that men in this country with a college or high-school education have 82 percent of all the incomes of \$10,000 a year or more. Those with an eighth-grade education or less have 77 percent of all the incomes below \$500 a year.

High school or college trained farmers operate 57 percent of the farms in the Nation which produce \$10,000 a year or more, whereas in contrast, farm operators with an eighth-grade education or less operate 84 percent of the farms producing less than \$1,200 annually.

Recent surveys show that within large metropolitan areas the highest per capita retail sales (20 percent above the average) are made to groups with the highest average adult education levels (11 to 12 years of schooling).

It has also been shown that the short schooling-low income pattern in many poor families tends to pass from generation to generation unless the cycle is broken by vigorous community action.

It is impossible to foresee many of the new industries and occupations that will arise during the working lives of today's schoolchildren. Millions of today's adults have had to make drastic adjustments in

their jobs and ways of living as a result of such changes as the farm-to-city migration, wars, and shifts in relative importance of different industries. The foundation in education which the schools should provide should not, therefore, be overspecialized, but should enable men and women to adapt themselves to new occupational and social requirements.

Long-range investments in tomorrow's manpower and womanpower.—It is with respect to the education of tomorrow's producers and consumers that one of the major investments is needed. Even though the school buildings of the United States represent roughly \$30 billion of public and private outlay, while \$16 billion a year are spent on operations, the educational system is not adequate, either in plant or personnel. No intelligent corporate management would expect business to thrive without investing in research, in expanding and modernizing plants, and in personnel development. Yet one of the biggest and most important businesses in the United States—the education of children—is being shortchanged. Meanwhile, wholly inadequate amounts are being spent on research to help improve the efficiency of the system.

The discussions of education and training which follow will concentrate on responsibilities of the Department of Health, Education, and Welfare with respect to current manpower shortages that are expected to persist for the foreseeable future. However, specialized and professional education should be kept in perspective by bearing in mind the fundamental importance of general education.

Education, public and private, is challenged by the fact that the proportion of unskilled jobs is steadily diminishing while the demand for semiskilled and skilled workers grows steadily. In fact, the shortages of professional personnel are aggravated by the shortages of sub-professional assistants. One of the major objectives of vocational and technical education should be to respond to long-run shortages in critical occupations. The Federal interest in stimulating such a response is illustrated by the fact that the preparation of practical nurses has recently been added to the categories for which portions of the Federal grants have been earmarked by law under the current program of Federal technical and financial assistance to vocational education.

The increasing complexity of the economy requires an ever-higher proportion of the labor force to be in occupations that call for education beyond the high school. For example, a recent study indicates that one-half million more teachers will be needed in 1965. Enrollments in technical institutes, colleges, graduate schools, and professional schools are increasing, but valuable manpower is being lost in the form of youth who should complete higher education but who either do not enter college or who drop out before they are through. Studies have indicated that, of the top one-fourth of the high-school graduates, about one-third fail to go to college.

The above are among the several reasons which prompted the establishment of the President's Committee on Education Beyond the High School. The reports of that Commission are under study in the executive branch.

Children and youth need a fair start in life from the standpoint of health and of family security as well as of education. Significant investments in the Nation's future productivity are also represented,

therefore, by programs to advance general maternal and child health and by programs designed to meet the special needs and potentialities of crippled children, retarded or other mentally handicapped children, or other exceptional children.

In 1949 and 1955 studies made by subcommittees on low income of the Joint Economic Committee demonstrated that a large proportion of the low-income families are in broken homes and that the converse is true. It may be of interest to your committee, therefore, that the DHEW is assisting State and voluntary agencies in family protection and rehabilitation programs, particularly through the child-welfare and aid-to-dependent-children programs of the Social Security Administration. In addition, the survivors' benefits under the old-age and survivors insurance program are a major source of income to many families who have lost the wage earner through death.

Medical research is one of the areas of social investment in which there has been dramatic progress in recent years. For example, Federal appropriations for programs administered through the National Institutes of Health, Public Health Service, have increased from less than \$1 million in 1940 to \$183 million in fiscal year 1957. These amounts include research and training grants, direct research and related activities, but exclude money for construction of Federal and federally aided research facilities. There have been very substantial increases in non-Federal expenditures also, but in view of the problems which are still to be solved and the gains to be realized, additional efforts should be made by non-Federal organizations. This Department, with the help of leading consultants, is engaged in a long-range study of medical research which includes among its objectives the determination of how critical resources of scientists, money, and facilities can be utilized still more effectively and economically.

Increasing productivity and mobility (occupational and geographical) of current labor force.—Even among those adults who have received an adequate education and who remain in the same occupation throughout their working lives there will be many who will need to take additional courses in order to keep up with technological developments. At the secondary and higher levels, the schools of this country now provide various forms of continuation, refresher, and retraining courses. One of the major missions which is developing for the community colleges is the affording of opportunities to adult workers to improve their subject knowledge and skills within their present jobs and to equip themselves for upgrading. The necessity for returning to school from time to time throughout one's working life has long been observed, of course, by teachers and is just as essential for other professionals because of the increasing tempo of advances in science and related fields. This is another of the subjects being covered in the current review of the report of the President's Committee on Education Beyond the High School.

The large employers of manpower which is in short supply have a responsibility to support measures to replenish the supply of such skills and to improve their utilization. The DHEW aids professional level formal educational programs in the fields of public health, medical research, vocational rehabilitation, and social work. In addition, this Department is engaged in a wide variety of cooperative programs with State and local governmental agencies and voluntary

organizations to furnish short term courses and on-the-job training to their employees.

Technical assistance services of the DHEW include consultation to States and localities, on request, with regard to the most efficient and economical methods of organizing and administering schools, hospitals, and welfare agencies and with regard to the proper utilization of scarce personnel, such as nurses. Since most grants-in-aid include provision for part of the administrative expenses of State agencies, such promotion of efficiency is in the immediate interest of the Federal Government.

Even if there were a balance between the total demand and the total supply for the whole labor force and for each occupation, there would still be localities with labor surpluses and others with shortages. The Joint Economic Committee has given a great deal of attention to the chronically distressed areas and to the problems of workers, especially older workers in declining industries who have been thrown out of work because of the closing of individual plants. There are hundreds of thousands who each year have to make difficult readjustments or who lose out altogether. Continual development of retraining and other adult education programs is needed at State and local levels and is one of the subjects of DHEW interest in its consultative role. With regard to localities which need to attract additional firms, representatives of labor, management, and government, and experts from universities and private foundations have asserted that one of the major factors which is considered by firms in making decisions as to where to locate new plants is the adequacy of schools, water supplies, and other community resources. The technical assistance programs of the DHEW include both facilities and services in these areas.

Some types of private pension plans tend to cause workers who could advance themselves elsewhere or whose skill and education could be better utilized in another firm to remain in their existing employment because they do not want to lose their pension credits. The old-age, survivors', and disability insurance program offers a ground floor to which industry and labor can and should add more protection and supplementary benefits under nongovernmental plans. There appears to be a tendency on the part of progressive firms to develop pension plans which vest rights in individuals which they will have even after leaving. This Department has urged such developments so that the rapid growth of privately financed health and welfare plans will not cause undesirable rigidities in the labor force.

Significance of public-health programs to protection and expansion of labor force.—The American labor force is larger today, more healthy, and more productive than ever before due in part to the victories won over infectious diseases and other killers and cripples. One measure of this improvement is the fact that life expectancy at birth is now nearly 70 years compared with 47 years in 1900.

Improved health status reflected in lowered mortality has enabled the manpower potential of our population to keep pace with the growth of the economy. A part of the reduction in mortality is due to environmental health programs including the control of diseases associated with impure water and milk supplies and with inadequate disposal of wastes. In part the reduced mortality is attributable to the wonder drugs developed by medical research. Infant and maternal deaths have been cut dramatically. The burden of premature death

of wage earners and others due to pneumonia and influenza, tuberculosis, and acute rheumatic fever has been lessened greatly; in the past 10 years, the death rate has dropped 30 percent for pneumonia and influenza, 71 percent for tuberculosis, and 76 percent for acute rheumatic fever. As a consequence of these gains, the average male worker participates an average of 10 years more in the work force today than he did in 1900, despite later entrance into the labor force and earlier retirement.

Despite the great strides in health, illness is still taking a major toll through the premature death of workers, particularly from heart disease and cancer, while millions of other workers lose in efficiency while on the job and are kept at home through illnesses which might be prevented. Accidents now constitute the leading cause of death from ages 1 to 35 in the United States, and are a major cause of disability. Some estimates place the nationwide loss from accidents at over \$10 billion. Injuries of workers off the job cause even more time to be lost to industry than do injuries on the job. It is for these reasons that the Department of Health, Education, and Welfare is giving increasing emphasis to accident prevention and occupational health programs. The efforts of public and private labor, health, and educational agencies and management cut industrial accident rates about in half between 1937 and 1954. It is believed that additional major reductions in lost time can be achieved through cooperative programs directed toward prevention of nonindustrial accidents.

The communicable diseases are another major cause of absence and of low efficiency while on the job. For example, the Asian flu poses a threat to industry and to essential community services which makes it essential from an economic standpoint that public agencies act vigorously to accomplish vaccinations on a priority basis. In the field of research, discovery of a vaccine against the common cold would be one of the largest single contributions which could be made to productivity and to reduction of lost time.

Contributions of rehabilitation to productivity and to reduction of dependency on public assistance.—Adequate treatment and prompt recovery of disabled workers is a double contribution to economic health because it restores to duty members of the labor force and it cuts down financial burdens on families. Those burdens are frequently passed on to private charity, to taxpayers through public assistance, or to social insurance funds in the form of increased disbursements for benefits. Even when families are able to absorb costs of medical treatment the loss of earnings reduces purchasing power. The value of advances in medical research and practice to prompt recovery is so generally recognized that this statement concentrates on the less generally known programs of vocational and social rehabilitation.

Each year an estimated 250,000 persons disabled by disease, accidents, or congenital conditions, come to need vocational rehabilitation in order to work. The total number of people in the United States today who need such services is about 2 million. Because of prolonged disability of the family breadwinner, around 1 million people (including 400,000 children) are receiving annually a half billion dollars of local, State, and Federal funds. Every taxpayer shares this cost, which is only one segment of the total expense which chronic disability imposes upon us.

One of the social programs which can be most readily demonstrated as an economic investment is that of vocational rehabilitation. In 1957 about 71,000 people were rehabilitated under this program, a new record. Most of them were unemployed at the time rehabilitation began. The earnings of the others total only \$18,900,000 annually. After rehabilitation their earnings were increased to an estimated rate of \$137,600,000 a year. Of the taxes which they will now be able to pay, the income taxes alone are expected to return to the Federal Treasury within a few years the total cost of the rehabilitation program in 1957. Furthermore, about 14,000 of these people were receiving public assistance before they were rehabilitated. The cost of maintaining them on public assistance for 1 year alone would approximate the cost of their rehabilitation. The Social Security Administration, the Office of Vocational Rehabilitation, and State welfare and State vocational rehabilitation agencies are placing increasing emphasis on the rehabilitation of disabled recipients of public assistance. Also, the Office of Vocational Rehabilitation and the Social Security Administration have adopted policies looking to a thorough rehabilitation assessment by State vocational rehabilitation agencies of every applicant for disability benefits or for freezing of wage credits through periods of disability under the old-age and survivors and disability insurance system. Further improvements in vocational rehabilitation are being made as the result of a cooperative research program which includes special research, demonstration, and improvement projects.

A large proportion of the recipients of public assistance, particularly families aided under the aid-to-dependent-children program, do not, however, need vocational rehabilitation as such, but rather the counseling services of trained social workers. Public and private expenditures for maintenance of needy persons and for related services now amount to about \$5 billion a year. How much of this is unavoidable is not known, but a rather modest investment of Federal, State, and local funds in the additional training of social workers and in the extension of welfare services to rehabilitate needy workers can yield dramatic returns. In Allegheny County, Pa., for example, a demonstration program concentrated on families which had received public assistance for as long as 10 years. One supervisor and four trained caseworkers whose salaries amounted to \$16,000 comprised the staff of the project. The reduction in public-assistance expenditures within that year was \$28,000. The Department of Health, Education, and Welfare has requested funds for research to advance understanding of the causes of dependency and evaluation of methods of reducing it.

Relationship to personal income

Improving security of personal income, savings and purchasing power.—This section concentrates on income maintenance but it should be remembered that the programs which contribute to the manpower supply and to productivity are also significant to personal income, national income, and taxpaying ability.

When the original Social Security Act was passed widespread fears were expressed that social insurance would undermine individual thrift. In fact, however, cash savings, life insurance policies, home ownership and other forms of personal savings have grown in step with overall economic trends and concurrently with the old age and

survivors' insurance program. During calendar year 1956 disbursements under the OASI program totaled \$5,847 million and constituted 1.8 percent of personal income during that year. In fiscal year 1957 payments from the OASI trust fund were \$6,665 million and the assets of the fund on June 30, 1957, were \$23.0 billion. Although the fund may decline slightly in 1958 or 1959 the increase in contribution rates which will take place in 1960 plus the continuing income from interest will cause the fund to resume its growth. According to present intermediate cost estimates, the fund will reach \$31 billion by 1965, at which time it is estimated benefits payments will consist of \$10.5 billion to around 15 million beneficiaries.

A basic objective of the Social Security Act was to establish OASI as a self-sustaining contributory system of insurance against the economic risks of old age and death. The system was intended to replace relief as the primary income maintenance floor for the retired and dependent survivors of workers. A landmark in progress toward that goal was reached in 1951 when OASI disbursements passed the Federal aid to categorical public-assistance programs. Public assistance is assuming its subsidiary role as a complement to social insurance, reaching those who cannot be insured or in a minority of cases supplementing the benefits of those whose essential living expenses are too high to be met by social insurance benefits and by their own resources. However, the nearly \$3 billion spent annually by Federal, State and local governments on categorical and general assistance reflect the fact that much still remains to be done to reduce poverty, ill health, and ignorance in our economy. That cost is one of the reasons, as indicated, why the Department of Health, Education, and Welfare and associated agencies are placing increasing emphasis on preventing dependency and expediting rehabilitation.

To keep in perspective the \$1½ billion of Federal aid for categorical assistance (which was 2.2 percent of the fiscal year 1957 budget), it is well to recall that in 1939 the Federal Government spent \$2.6 billion on general and work relief activities from which it has now withdrawn entirely. It is significant also that as a result of the increase in such developmental programs as public health, the proportion of the DHEW budget which is for grants for public assistance has also dropped.

The Social Security Administration encourages thrift, intelligent use of credit, and protects savings through guidance and examination of more than 8,000 federally chartered credit unions with assets of over \$1½ billion. A substantial proportion of the loans are for medical expenses.

The costs of medical care continue to be one of the major economic and social challenges of this Nation. This is true even though patients receive increasingly effective and extensive care and the steady climb of indexes of prices of services, medicines, and facilities is offset in whole or in part by improvements in the results per dollar expended.

Despite the rapid progress that has been made, there are still large and important areas for improvement. Private expenditures for medical care approximate \$11 billion per year. Even though 116 million Americans are now included in some type of prepayment plan for hospital care, there are still over 50 million Americans without hospitalization insurance of any kind. About 65 million peo-

ple—about 40 percent of the population—have no surgical insurance protection. And 3 out of 5 people—about 100 million altogether—lack insurance against general medical expenses. There are special problems in providing health-insurance protection for certain large groups in the population. For example, about half of the people aged 65 or over, over half of the farm population, and about two-thirds of those in families with incomes under \$2,000 a year have no insurance against medical care costs.

While the problems that must be overcome in expanding and improving voluntary health insurance should not be minimized, it appears certain that the next several years will see many advances. There are many bright areas to warrant such confidence. About 25 percent of the private medical care bill of the American people is covered by health insurance. This is a remarkable climb from less than 9 percent in 1948.

This rise in coverage is all the more remarkable when we consider the fact that the costs of medical care have increased sharply during this period. Between 1948 and the middle of 1957 the BLS index of hospital rates rose by 85 percent. The rapid increase in hospitalization insurance has helped many people meet these costs through prepayment and through spreading the risk.

Perhaps the most venturesome and important new development in the voluntary health-insurance field is the rapid evolution of major medical expense coverage. Nonexistent a decade ago, this new form of coverage today provides about 11 million Americans with insurance protection against the costs of severe or long-term illness.

Temporary disability causes loss to income which has been estimated at \$6.5 billion during 1955. Protection is provided through legislation for temporary disability insurance by four States—California, New Jersey, New York, and Rhode Island. It is believed that this is primarily an area of State responsibility and it is hoped that additional States will take action. The present administration has proposed legislation to establish a program for the District of Columbia.

The role of the Federal Government should be to encourage in every sound way the further growth of voluntary insurance. This administration believes that health insurance can advance most effectively through voluntary action. While some legislation may be needed to stimulate growth in certain areas and for certain groups, it is hoped that substantial gains will be made by the creative effort of private enterprise. As a step toward broader and improved coverage, the administration has sought legislation to permit smaller insurance firms or nonprofit associations to pool their resources in order to improve and expand their services.

The administration has also recommended action to improve the health-insurance coverage of Federal employees and their families. Although a considerable portion of industry has already undertaken to protect its employees against the costs of unforeseen illness, the Federal Government has not yet done so for its employees.

Protection of consumers from economic cheats and from hazards to health.—The Food and Drug Administration is charged with protecting consumers against situations involving danger to health, filth, and insanitation, and economic cheats which might arise in the regu-

lated industries. A basic aim is to insure the integrity of composition and labeling of foods, drugs, and cosmetics. One fourth to one third of the family budget goes into these products for which \$65 billion is spent annually. The same programs protect the honest businessman from unfair competition from the unscrupulous minority among the 800,000 manufacturers, distributors, and retailers of foods, drugs, and cosmetics.

Relationship to capital outlay

Capital outlay for education.—Capital outlay for public elementary and secondary schools was approximately \$2.5 billion during 1955–56. While some 63,000 new classrooms were built, it should be noted that 35,000 of these were needed to meet new enrollment alone, and 20,000 for normal replacements, leaving only 8,000 to be applied to the deficit of 159,000 classrooms. In dollar terms there was an immediate need for an investment of \$6.4 billion just to catch up with basic requirements. In order to help the State and local authorities eliminate the backlog and provide accommodations for record increases in enrollment, the administration proposed an emergency Federal program to aid borrowing by State and local school agencies and to provide grants over a 4-year period.

The DHEW now administers a program of payments to federally affected school districts for the construction of schools. From 1951 through 1957, Federal appropriations of \$765 million have aided the building of about 35,000 classrooms.

This Department collaborates with the Housing and Home Finance Agency in its administration of a program of loans to colleges for housing and related facilities for students and faculty. In view of the increasing pressure on the physical facilities of colleges and universities, it is significant that the number of projects under construction under this program will be almost tripled between fiscal year 1956 and the end of the current fiscal year.

Capital outlay for medical care, research, and training.—Programs of grants-in-aid and technical assistance to State and local governments and nonprofit organizations were established by the Hospital Survey and Construction Act, as amended, and the Medical Facilities Survey and Construction Act.

In view of the obvious economics of prevention and of early diagnosis and treatment, it is significant that 610 health centers and 131 diagnostic facilities have been built or approved for construction under programs through June 30, 1957. The 62 medical rehabilitation facilities will contribute to the more timely return of family and paid workers to activity. Eighty nursing homes and 114 chronic disease hospitals will afford facilities for the care of long-term patients which are more appropriate for such patients and less expensive than are the general hospitals. Reductions have been made in the deficits of beds for general use as a result of the building and the approval for building of 2,321 general hospitals (including both new facilities and additions). Another measure of progress is the fact that when the hospital-aid program began there were about 10 million people who lived in areas without acceptable hospital facilities. Today that number has been cut to less than 3 million. To date these projects represent an investment of nearly \$2.9 billion of which more than two-thirds was supplied by State and local governments and nonprofit organizations.

The Health Research Facilities Act of 1956 established a 3-year program of grants for the construction of health-research facilities on a matching basis. An authorization of \$30 million was provided for each year beginning in 1957. Through September 30, 1957, a total of 122 research institutions in the Nation have received grants under this program; 48 of these institutions are medical schools. Federal funds for these grants total \$56.5 million; matching amounts are provided by the institutions.

The medical schools have been so hard pressed by rising operating costs that they have had to defer much-needed expansion and many improvement projects. It takes 6 to 8 years to plan, build, and staff a new medical facility and to graduate the first class of students. It is estimated that by 1965, the gross ratio of physician to population will be lower than in 1950. The annual number of medical-school graduates will have increased from 6,900 to 7,400. However, over 8,000 graduates a year would be required to keep up with population growth alone, making no allowance for future needs. In view of these facts, Congress has been requested to expand the health-research facilities program to include help in the construction of medical-teaching facilities and to increase the length of the program from 3 to 5 years. The expanded legislation would authorize \$225 million of Federal funds, which, together with an equal amount of matching funds from institutions, would constitute a temporary program of needed resources for medical research and teaching.

Donations of surplus property to health and educational institutions.—The surplus-property program makes available to health and educational institutions real and personal property which is no longer needed by the Federal Government but which can be utilized by such institutions. Not only does such a program constitute a considerable aid-in-kind to health and education at the local levels, but it also salvages much property which otherwise would be lost to public use. Property with an acquisition value of \$225 million (\$15 million for real property) was transferred during fiscal year 1957.

Protection and development of natural resources.—Clean water is essential to both economic growth and to protection of the public health and well-being. Water pollution damages use of water for public water supplies, propagation of fish and aquatic life and wildlife, recreational purposes, and agricultural, industrial, and other uses. The Public Health Service has long-standing programs of research, public information, and technical assistance to the States, other public bodies, private industry and organizations, and individuals. These activities have been supplemented by programs of grants to States and interstate agencies to assist in the establishment and maintenance of pollution-abatement programs and of grants to aid localities in the construction of facilities to treat urban sewage and other wastes which are a public responsibility. Industrial wastes account for a major segment of the pollution load and the costs for treatment of such wastes should be met by private enterprise.

The known adverse effects of air pollution are of serious national concern. These include its contribution to civic and economic blight, the corrosion of industrial facilities and domestic houses, reduction in visibility with consequent hazards to transportation, damage to agricultural products, and severe human discomfort. The Public Health

Service is therefore, assisting States, communities, and private organizations through research, surveys, and consultation.

Among the factors which are increasing the complexity of waste treatment and materials handling, as well as of environmental sanitation generally, is the emergence of atomic energy and the use of its many byproducts. The Public Health Service is working with other Federal agencies, States, private industry, and other non-Federal organizations in research programs and applications of safety measures.

FACTORS IN THE DETERMINATION OF THE KIND AND SIZE OF PROGRAMS

The discussion in this part is in response to the subcommittee's question as to the standards employed by the Department of Health, Education, and Welfare in determining the kind and size of programs of the Department.

Framework within which the Department of Health, Education, and Welfare programs are developed and evaluated

Evaluations of need according to specific health, education, and welfare criteria must be related by this Department, as part of the executive branch, to overall Federal policies, including legislative and budgetary programs. Defense requirements—to cite but one example—now claim most of the Federal budget and the size of other programs, however important, are strongly influenced by this inescapable requirement of national security.

The most basic factor in a democracy and one of the most intangible is the popular demand for initiation, expansion, or contraction of programs. Such a demand has been expressed from time to time in the enactment of legislation for the aid of specifically defined categories of people; e. g., the needy blind.

One consideration is that of whether or not a serious problem falls within an area which under the Constitution and historical precedent is an area of direct Federal responsibility. The safeguarding of foods, drugs, and cosmetics in interstate commerce is an example.

Another historical fact to which the Department of Health, Education, and Welfare gives considerable weight is the respect for and the utilization of the resources of voluntary organizations and of civic and professional leaders from outside the Government. In both its direct operations and in its cooperative programs, therefore, the Department of Health, Education, and Welfare makes extensive use of the advice, studies, and technical resources of nongovernmental groups. Of necessity, there are many intangible facets of health, education, and welfare which are not susceptible to precise measurements and which must be evaluated through informed judgments.

The basic role which American history and law has assigned to States and to communities in health, education, and welfare is one of the foremost considerations which shapes the Department of Health, Education, and Welfare's approach to social problems. It is a fundamental cause of the fact that usually a determination that Federal action is needed in these areas is linked with a determination that the action should be in cooperation with the States and communities.

Throughout this statement, leading quantitative criteria are identified in relationship to the appropriate programs but this must be

kept in perspective by bearing in mind considerations of economy, legislative processes and public policy.

Summary of characteristics of the Department of Health, Education, and Welfare grants-in-aid

Most of the programs of the Department of Health, Education, and Welfare are carried out through technical and financial assistance to States and localities and to nonprofit institutions. Although the Department is responsible for technical assistance to grantees, overall program review, and for insuring observance of certain safeguards of Federal funds and Federal interests, the primary responsibility for planning and executing programs is in the participating States, localities, and institutions. To a major extent the initial analysis of needs and of sizes of programs desirable to meet those needs begins at the local and State levels. There is considerable variation, therefore, from one jurisdiction to another and from one program to another in the standards which are employed and in the manner of their application.

On the other hand, a large number of methods and criteria have been developed cooperatively by the Department of Health, Education, and Welfare and associated agencies to analyze needs and costs and to evaluate the effectiveness of grant-in-aid programs. This statement is supplemented by the study *Grants-in-Aid Administered by the United States Department of Health, Education, and Welfare, May 1957*. That study includes for each program factors which are specified by law and administrative directives as significant, among other considerations, in determining the size of established programs and the allocation of available moneys among grantees. The study also refers to some of the major considerations which are a part of the social background and legislative history of the origin of these programs. In view of the wide diversity of conditions contained in the substantive laws and appropriations which govern grants-in-aid, generalizations must be used with caution. However, the grants-in-aid programs fall into three broad categories which are summarized here for the convenience of the subcommittee:

(a) *The largest single category of grants administered by the Department of Health, Education, and Welfare is in the field of public assistance.*

Federally aided public assistance payments are made by the States; to needy aged and blind persons, to needy persons with permanent and total disabilities, and in behalf of needy dependent children, to supplement other income or resources these needy people may have. In the public assistance field, each State is responsible for defining need and for determining the extent to which the State program will meet it. As a result, the average amount of payments and the part of the population aided under public-assistance programs vary considerably among States because of difference among States in definitions of need, in fiscal ability to meet need, and in amount and kinds of other income and resources available to low-income families and individuals.

The Federal Government has undertaken to share with each State a given proportion of expenditures for public assistance—within specified limits. Federal funds are available for money payments directly to needy individuals, for related services and ad-

ministrative expenses, and for expenditures for medical care in behalf of needy persons paid to physicians, druggists, hospitals, and other providers of medical care and related services.

The formula for Federal sharing in money payments to needy persons provides a larger Federal share of smaller payments than of larger payments. Since States with relatively low per capita income generally make relatively small monthly payments, the Federal share for these States generally represents a larger share of total expenditures than in the higher income States where individual payments tend to be larger. Thus, while the allotment procedures based on need and fiscal resources of States referred to under the discussion of formulas below, do not apply in the public assistance programs, existing arrangements result to some extent in giving relatively more Federal aid to States with limited resources and greatest need.

Another distinguishing characteristic of the public assistance grants is that the enabling substantive legislation places no limit on the total amount of Federal funds which may be appropriated for any given period. Each year, Congress appropriates a total amount estimated to be sufficient to cover the Federal share of public assistance expenditures. In years when the Federal estimate has been short of the amount required to share in actual State expenditures within the specified limits, Congress has provided additional funds beyond the original appropriation.

(b) Another important type of grants consists of those in which funds are allotted among the States in accordance with specified measures of need.

These measures are customarily incorporated in a formula that is contained in the governing legislation. Funds allotted by formula are especially important in such fields as control of specified categories of diseases, hospital construction, water pollution control, vocational education, library services, and vocational rehabilitation. In these programs it is normally provided that no State shall receive less than a specified minimum amount, with the remainder of the appropriated funds allotted according to the formula stated in the law.

There is in the Department of Health, Education, and Welfare a common approach to grant formulas: (1) in the design of grants so as to foster activity where the need for aid is greatest and (2) to reflect differences in the capacities of the several States. One usual measure of need is the population to be served—either the total population or a special segment of the population, such as children. A second element included in many formulas is State financial capacity—a frequently used measure of which is per capita income.

The total amount that the Federal Government can distribute under each formula is determined in advance by specific congressional appropriations. Congress annually appropriates a sum for each program that does not exceed an amount authorized in the governing legislation. Also related to the operation of the formulas is a frequent provision for the "matching" of Federal funds by State funds. In many cases the States are required to match Federal funds dollar for dollar or in some other ratio provided in the law.

(c) *Of growing importance in recent years are grants to individuals and institutions in support of research, training, and other stated purposes.*

In these programs the distribution of funds is determined in accordance with guidelines provided by law and by administrative regulation. The objectives of these programs are to support activities in needed research areas and to provide for the training of individuals in fields in which personnel shortages exist. Among the grants of this type are the research project, research fellowship, and training and traineeship programs administered by the National Institutes of Health of the Public Health Service. Also of this type are the grants for special vocational rehabilitation projects and for the advanced training of public health personnel and professional nurses.

Old-age, survivors, and disability insurance

The old-age, survivors, and disability insurance program is quite different from the grants-in-aid programs. It is a contributory social insurance program providing benefits to the insured and to their families when earned income is cut off by disability or death. Its financial operations do not form a part of the regular Federal budget and are not derived from general taxes. Instead, employees, employers, and self-employed who are covered pay contributions into two special trust funds, an old-age and survivors insurance trust fund and a disability insurance trust fund, and benefits are paid from those funds, not from the general funds of the Treasury. The amount of annual disbursements for benefits from these trust funds is not determined in effect by the usual process of budgetary recommendations and congressional appropriation nor by State or local standards and programs. Instead, the basic elements are the acquisition and claiming of rights by eligible workers or their survivors under the benefit provisions of the program. The major amendments to the original legislation have expanded coverage to 9 out of 10 workers, including self-employed, and the amendments have also increased benefit levels from time to time, partially in response to rising earnings and prices.

Consideration of available quantitative factors and continuing search for improvements

In the context of the preceding discussion, it should be pointed out that the Department of Health, Education, and Welfare makes the optimum use of quantitative data and criteria which are relevant. This is done in the formulation of recommendations by this Department for and against the initiation of programs, in the evaluation of the effectiveness and economy of existing programs (including the use being made of Federal aid by grantees), and in the development of estimates and budgetary review with respect to the amounts of Federal moneys which should be appropriated within the limits set by law and overall Federal policies. Furthermore, the Department of Health, Education, and Welfare, in collaboration with associated agencies and outside consultants, is continually engaged in the review of existing criteria and in the development of better methods of measuring need for programs, indicators for their optimum size, and guides to redistribution of responsibilities. The list which follows is only illustrative of major considerations:

(a) In the health and rehabilitation fields:

- (1) Numbers and types of communities not reached at all by public health agencies or only by agencies not having a minimum staff and other resources;
- (2) Numbers and types of communities without a minimum standard number of hospital beds or other health facilities of designated classes per 1,000 population;
- (3) Categories of population requiring special medical facilities, e. g., chronically ill;
- (4) Problems identified and measured through special studies and through continuous survey activities such as the national health survey;
- (5) Proportions of population in defined groups, e. g., public assistance recipients, crippled children, disabled workers unable to afford appropriate medical and rehabilitation services;
- (6) Deaths from preventable diseases;
- (7) Numbers, and financial needs of institutions training in the health professions;
- (8) Numbers of public health personnel needed by State and local agencies.

(b) In the area of education and specialized training:

- (1) Plant requirements in relation to projected enrollments;
- (2) Shortages in selected categories of manpower, e. g., scientists;
- (3) Impact on enrollments in individual school districts of immigration of workers in Federal activities.

(c) In the area of income maintenance:

- (1) Relative severity of selected economic risks involving income loss;
- (2) Numbers and income status of persons subject to selected economic risks;
- (3) Income maintenance levels in relation to minimum budget requirements, and to standards of living;
- (4) Opportunities for employment of selected categories of individuals, e. g., aged, blind, disabled.

Intergovernment relationships

It is a basic responsibility of the Department of Health, Education, and Welfare to reexamine from time to time progress toward program goals and the willingness and ability of State and local governments, nongovernmental organizations, and individuals to assume more or all of the costs now being met by Federal aid. Such reexamination includes consideration of the conditions under which Federal participation may be withdrawn. Such determinations must be made through our democratic political processes and, as is the case of the initiation of programs, this Department, generally speaking, can terminate programs only pursuant to the conditions established in substantive and appropriation legislation.

At present this Department is actively assisting the Joint Federal-State Action Committee in an intensive review of program and fiscal relationships between the Federal Government and the States. That review includes the major financial factors which have been considered in the past in the evaluation of grant-in-aid programs including such problems as the variations in fiscal capacities among the several States.

CONTRIBUTIONS TO EQUILIBRIUM IN A CHANGING ECONOMY

The analysis in this part is in response to the subcommittee's question as to the usefulness or limitation of health, education, and social-security programs for stabilization.

General interrelationships of programs and economic stabilization

Because health, education, and welfare programs must be oriented toward basic human needs and geared primarily to long-range social trends, this statement has discussed the factors which govern programs in normal times before analyzing the potential adjustments to recessions and booms.

Certain needs are so urgent that they must be given priority over policies to compensate for fluctuations in private expenditures. School construction, for example, should be accelerated in spite of the fact that privately financed construction and employment in the building trades are at record levels for peacetime. The child who is ready to enter school should start now—he cannot be put on a shelf until a depression comes and supplies the impetus of an economic emergency to the building of more new schools. A similar principle holds for those who need medical care facilities.

Although there is somewhat more flexibility in the timing of construction of environmental health facilities (mainly waterworks and waste treatment plants), the pressure on supplies of clean water is becoming so severe and wastes have so far outrun treatment in many areas that many States, localities, and private industries need to build facilities as rapidly as possible.

Another reason why construction of truly essential public facilities should not be deferred is that no one can predict if or when there will be a serious recession in the private sectors of the economy. For the same reason, service and income maintenance programs cannot be governed primarily by the expectation of declines. Finally, it is more in accord with American tradition and temperament to set as goals the prevention rather than the alleviation of depressions.

However, secondary adjustments have been made and will continue to be made in the financing, scope, and timing of some programs either to avoid feeding inflation or to help offset declines in employment and income. An outstanding example of deferment in the interests of national defense and of economic stability is that of the restraints placed on building of community facilities during wars—which is one of the causes of current backlogs of public works. Some programs have built-in stabilizing effects. The compensating characteristics of the major ones are summarized below.

Effects of current income maintenance programs

Generally speaking, the beneficiaries of old-age and survivors' and disability insurance who are not working at all and the recipients of public assistance spend their social-security payments on necessities. In the absence of the social-security programs their income—and their purchases—would be lower and would fluctuate according to the changing resources and policies of private agencies and of local "poor relief" authorities. Both the old-age and survivors' and disability insurance and the public-assistance programs, therefore, are long-range sustaining factors in consumer purchasing power and in the markets for subsistence and essential services such as medical care.

At the same time, the contributions which workers pay to the old-age and survivors' and disability insurance fund form a type of savings against the day when they or their survivors will need support for a basic standard of living. Such savings are being made when the contributors can best afford them and have a margin of income above subsistence. This program, therefore, is a stabilizing element over a period of years for individuals and their families as well as a steady-ing influence on national income.

In addition, old-age and survivors' and disability insurance benefit payments to some degree vary inversely with the level of business activity, as a result of the fact that benefits are payable to eligible beneficiaries under age 72 only so long as they are not earning more than specified amounts in employment. Thus, in good times when employment opportunities are plentiful, many persons otherwise eligible for benefits will choose to work and to forego their benefits. In times of declining activity when employment is tighter, however, older persons and perhaps many widows may be among the first to lose their jobs, and they will then decide to exercise their benefit rights. On the other hand, as old-age and survivors' disability insurance contributions are computed as a percentage of wages, their total volume automatically swells as payrolls and earnings of the self-employed rise in good times, and declines as the latter shrink in bad times.

As regards public-assistance payments which are related directly to current need, the number of needy persons naturally can be expected to vary more or less inversely with the general level of economic activity.

Anti-inflationary effects of other HEW programs

One of the most serious types of inflation is that in which the production of goods and services is far below the demand of consumers or of public requirements (as in war). The contributions of health and education to productivity and the size of the labor force which have been previously outlined are therefore indirect but important counterweights against the danger of too many dollars bidding up the prices of limited resources.

Another element of inflation is the piling up of debts by individuals beyond their future ability to pay. The education of future consumers and homemakers and such special programs as those of credit unions contribute to a higher quality of personal credit management. Poor health, disability, and premature aging are among the major causes of poor credit risks and bad debts. Such causes are attacked directly by improved medical care, public health, and rehabilitation programs.

Potential acceleration of capital outlay for health and education in event of a recession

According to information and estimates developed by State and local authorities, the backlogs of needs for public school construction, water pollution control, hospitals and medical facilities total approximately \$22 billion. It is clear, therefore, that if it were necessary for the Nation to undertake an emergency expansion of public works there would be no occasion for "make work" projects.

The backlog of equipment, needs for new buildings and the reequipping of existing buildings cannot be estimated with any degree of

precision but is believed to be very substantial. To a limited extent the DHEW does participate in meeting the costs of equipment as an integral part of a number of current grants programs, e. g., for research facilities. No recommendations are being made here for large, separate reequipment programs. However, this subject is commended to the attention of your committee for study because: (a) it should be possible to accelerate reequipment and related modernization much more rapidly than new construction; (b) localities which do not need additional structures might benefit from modernization programs; (c) direct employment effects would be felt in plants not directly reached by changes in construction; (d) private expenditures for equipment are subject to serious cyclical fluctuations; and (e) the potentialities in this field have not received as much attention as has been given compensatory public works proposals.

Problems of financing income maintenance, services, and capital outlay during recession

Additional studies should be made of the impact of recessions on the revenues of the Federal Government, States, and localities. From this Department's standpoint similar studies are needed of the effects on the finances of nonprofit organizations and on industries with waste disposal problems.

Under conditions of severe recession the relative inflexibility of State and local tax sources and the disparities between the fiscal capacities of the several States could become serious handicaps to effective nationwide action. Many communities and some States probably could not increase their revenues enough to enable grant-in-aid income maintenance, service, and capital outlay programs to be expanded in the areas of greatest need. Other jurisdictions might participate only by increasing regressive taxes to such an extent as to adversely affect purchasing power, e. g., through increased sales taxes, thereby negating much of the stimulus of the expenditure programs. Those problems were recognized as major ones by the recent Commission on Intergovernmental Relations. They deserve further study by public agencies and by private research organizations and by scholars.

Conclusions are difficult to reach on this infinitely complicated subject. It has been neglected in contrast to the attention which has been given to the theoretical possibilities of changing the sizes of programs, particularly public works.

Other areas of inadequate knowledge are:

(a) Direct and indirect effects of specific programs on reemployment;

(b) Immediate and indirect effects on purchasing power and markets;

(c) Immediate and indirect effects, industry by industry. It is interesting in this connection to note that under some circumstances a drastic expansion of public works could cause inflation in construction without immediately facilitating reemployment in depressed industries; and

(d) Effects on the localities in which the program expansion takes place and the indirect effects on other localities.

(e) Legal, administrative, and technical preparations which must be made at all levels by government and which could cause serious delays between the time decision was made to expand programs and

the time at which the effects began to show in distressed areas. Some studies have indicated that if antirecessionary action included a decision to expand Federal grants for public works, it would take more than a year before such action would be reflected in a substantial amount of new construction.

CONCLUSION

Need for wider understanding of relationships between economic development and social programs

Public officials are interested in the economic as well as the humanitarian benefits of programs in the fields of health, education, and welfare, and they have been able in many instances to demonstrate the relationship between these programs and the Nation's economic development. The illustrations which have been given here could be augmented by many public and private agencies. Expenditures in health, education, social security, and rehabilitation have been analyzed and described as investments by individual scholars and by far-sighted leaders of business, labor, and professional groups. Pioneering studies have been made by private research organizations, including the National Planning Association and the Committee for Economic Development. Reports on the subject include several which have been published by the Joint Economic Committee.

Generally speaking, however, the potentialities of social development have been seriously neglected in economic analysis. In striking contrast are the countless volumes which are written, the support which is given to special courses in universities, and the research projects which are financed to cover such already well-worked fields as transportation, public finance, banking and credit, commodities, agriculture, etc. Meanwhile, capital outlays for new factories and equipment are classified as "investments" but capital outlays for the education and training of the men and women who will staff those plants are still generally treated as being only "expenditures" and "tax burdens." Too often still the maintenance of machines is appraised more highly in conventional economic terms than is the maintenance of manpower and womanpower.

Your committee would be rendering a service to American economic thought and to education of the public by commending this lack of balance to the attention of universities and research organizations.

Restatement of basic economic philosophy of the Department of Health, Education, and Welfare

The burdens of disease, disability, ignorance, and insecurity cannot be escaped by underinvestment in health, education, and welfare. Such conditions will have a costly impact on private charities, the budgets of governments, the efficiency of industry, and the purchasing power of consumers. Therefore, National, State, and local public and private agencies should lay still more emphasis on prevention, control, and rehabilitation. The Nation's continued economic growth can be assured over the long run only by adequate and prudent investments in America's basic resources—the human resources.

THE FEDERAL GOVERNMENT'S LABOR AND MANPOWER PROGRAMS

DEPARTMENT OF LABOR

Statement submitted by James P. Mitchell, Secretary of Labor

The enclosed material is submitted in response to the subcommittee's request of August 2. It is organized in terms of the three questions addressed to us and includes a separate statement for each major program of the Department of Labor.

I should like to call particular attention to the statements of standards employed by the Department in determining its programs. The standards set forth are those which are regularly employed in the Department, and which were arrived at after a careful review of operating activities in 1953 and 1954 and approved by the policy officials of the Department. They are now regularly employed by the particular policy and administrative officials of the Department responsible for the different areas of the Department's work. The Department regularly reviews existing and proposed programs in the light of these standards.

The standards set forth reflect and carry into administrative practice the various statutes under which the Department operates. Some of these statutes, such as the organic act of the Department, establish broad standards and responsibilities, while other statutes, such as the Fair Labor Standards Act, provide specific legislative direction. The statutory obligations of the Department, of course, go beyond questions of economic growth and stability.

PROGRAM ON APPRENTICESHIP AND TRAINING

Relationship of this program to the processes of economic growth in the private sector of the economy

Encouragement of the development of training standards and the use of the most effective methods of training in order to assist the private sector in planning training for the apprentices and skilled labor required for economic growth.

Usefulness or limitations of this program for purposes of the stabilization of the economy

Better training of apprentices, and continuous skill-improvement training for all workers, helps develop a versatile labor force capable of making a transition to other types of work, when changes in the economy make such shifts necessary, thus tending to reduce frictional and cyclical unemployment.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Help achieve, through cooperative effort, an adequate skilled and versatile work force and the training of apprentices in apprenticable occupations to meet current needs for skilled workmen and the needs of future economic conditions, technological developments, and national security, and to increase the job opportunities, earning ability, and security of the apprentices; and

Stimulate those responsible for training to provide equal opportunities for all qualified individuals to acquire skills without regard to race, creed, sex, age, or physical handicaps.

PROGRAM ON FEDERAL GOVERNMENT WORKMEN'S COMPENSATION

Relationship of this program to the processes of economic growth in the private sector of the economy

Recovery, and where possible, rehabilitation, of injured Federal workers and covered private employees provides a positive contribution to economic growth. Thus, while the objectives of the program are primarily humanitarian, the economic effects are also beneficial.

Usefulness or limitations of this program for purposes of the stabilization of the economy

This program contributes to the stabilization of the economy by helping to maintain the purchasing power of Federal workers and private employees covered by Federal compensation laws who are disabled on the job, or of their surviving families in case of their death. In addition, it provides for the medical and rehabilitation services necessary to restore them as useful members of the labor force as quickly as possible, and thus lessens the Federal, local government, and private expenditures which would otherwise have to be paid.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A program is tested as to whether it will aid in accident prevention and provide to persons who are covered by the Federal employee and workmen's compensation laws and who are victims of occupational injury and diseases:

All medical care needed as a result of the injury;

Monetary benefits sufficient to support themselves and their families without recourse to public aid;

Prompt and reasonable compensation for the support of dependents when death results from such injury or disease;

Suitable rehabilitation service where needed to aid permanently disabled employees to return to remunerative employment; and

A simple expeditious procedure for the processing and adjudication of claims and for review of final decisions of the adjudicating agency.

PROGRAM ON FEDERAL LABOR STANDARDS

Relationship of this program to the processes of economic growth in the private sector of the economy

Administration of legislation setting labor standards which are consistent with developments in productivity and with economic

growth in the private sector of the economy, and conducive to the regularization of the labor market and improvement of demand in low-income groups.

Usefulness or limitations of this program for purposes of the stabilization of the economy

This program, by securing and maintaining compliance with the minimum labor standards established in legislation enacted by the Congress, prevents the use of the channels of interstate commerce to spread wages and working conditions below the statutory standards among the several States, and prevents the use of such below-standard labor conditions as a competitive advantage among competitors for contracts with the Federal Government. This helps to stabilize the labor market and prevents labor conditions that the Congress has declared to be substandard from adversely affecting the structure of wages; protects the health, efficiency, and general well-being of the workers to whom the laws apply, and helps to maintain consumer demand by securing to such workers at the low end of the wage scale a share in long-run technological improvement and in the growth of the economy.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Contribute to the achievement of fair-labor standards by providing through Federal legislation minimum standards and providing through voluntary methods standards that are consistent with the best possible practices.

PROGRAM ON FEDERAL-STATE EMPLOYMENT SECURITY

Relationship of this program to the processes of economic growth in the private sector of the economy

Promotion of the effective utilization of the Nation's manpower resources, present and future, agricultural and nonagricultural, and provision of basic purchasing power for the insured unemployed.

Usefulness or limitations of this program for purposes of the stabilization of the economy

The Federal-State system of public employment offices minimizes the duration of unemployment and facilitates production by aiding in bringing jobs and workers together; it assists in better utilization of the labor force by counseling and testing of applicants for jobs, particularly youth, older workers, and the handicapped, by providing labor-market information to workers, employers and communities, and by providing a clearance system for jobs that cannot be filled locally.

Unemployment insurance assists in maintaining the purchasing power of the unemployed for goods and services and thus helps to stabilize the economy. The effectiveness of the unemployment insurance program has been increased in recent years through extension of coverage so that about 80 percent of workers subject to the risk of unemployment are covered, and through substantial increases in the amount and duration of benefits.

However, its effectiveness is limited by exceptions from coverage in the State laws, by a lag between rises in wages and increases in the maximum amount of benefits in many States, and by too short a duration of benefits in some States.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Aid, through an effective employment-service system, in getting the best possible job for the worker and the best possible worker for the job;

Provide adequate income insurance for unemployed workers when suitable jobs are not available, and through this system help maintain purchasing power;

Assist in the improvement and optimum utilization of the Nation's manpower resources, including the promotion of employment opportunities;

Assist in maintaining and improving our manpower readiness for defense mobilization; and

Develop and disseminate employment, unemployment, and labor-market information in order to assist in achieving economic stabilization and growth, and to meet the informational needs of labor, management, and the public.

PROGRAM OF INTERNATIONAL LABOR

Relationship of this program to the processes of economic growth in the private sector of the economy

Cooperation with United States private organizations (labor and management) in demonstrating to opposite numbers in other countries how economic growth is achieved in this Nation, and how its fruits are shared among the different factors of production. Economic growth throughout the free world aids economic growth in the United States.

Usefulness or limitations of this program for purposes of the stabilization of the economy

This program is a part of the great effort which is being carried on by government, business, and labor in this country and in other parts of the free world to increase international understanding, and develop economic policies, within a democratic framework, which will promote peace, without which stabilization of the economy is impossible.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Help make and carry out United States foreign policies and programs which will promote the national interests in the foreign labor field and improved labor conditions, peaceful cooperation, and resistance as to totalitarian inroads throughout the world.

PROGRAM ON MOBILIZATION PLANNING

Relationship of this program to the processes of economic growth in the private sector of the economy

Preparation for emergency situations in which it must be assumed that the normal aims and functioning of the private economy would either be seriously impaired or destroyed.

Usefulness or limitations of this program for purposes of the stabilization of the economy

None as far as cyclical fluctuations in the normal peacetime operation of the economy are concerned.

The program is designed to develop for the establishment and administration of facilities to effect the efficient allocation of manpower resources among production needs generated in emergency situations, income maintenance for disaster unemployed, and for emergency workers for the stabilization of wages and salaries.

Such actions include the development of material related to the manpower aspects of adequacy of a mobilization base in peacetime.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Aid State and local employment offices in applying methods and techniques which will bring about a balancing of labor supply and requirements and which will channel labor supply to essential work in the numbers needed in any labor market area under conditions which will exist during (a) the civil-defense emergency period, (b) the rehabilitation period, and (c) the production period;

Result in the provision of information on (a) current employment and requirements (National, State, and local) in defense industries and in civilian supporting industries, (b) status of the military manpower pool, (c) occupational data sufficient to determine lists of critical occupations, (d) the available supply of labor by occupation and by geographic area (regional, State, and local) to meet production schedules; and

Result in the provision of types of information which will be needed to establish national policies to maintain the proper balance between military production and civilian requirements, to schedule production in such a way as to maximize the Nation's productive capacity, and to establish manpower policies which will bring about the maximum effective use of the Nation's labor supply.

PROGRAM ON OLDER WORKER

Relationship of this program to the processes of economic growth in the private sector of the economy

Foster economic growth in the private sector of the economy by utilizing effectively the skills and abilities of the increasing number of older workers in the labor force.

Usefulness or limitations of this program for purposes of the stabilization of the economy

This program promotes economic stabilization by increasing employment opportunities for older persons able and willing to work,

by providing counseling and placement services through the facilities of State employment security agencies and other public and private services, and encourages older persons to enter or reenter shortage fields to the extent that they can qualify directly or after training for the opportunities available.

The program is in part limited in its effectiveness by the unwillingness on the part of many employers to hire older workers because of the erroneous assumptions that older workers are more accident prone, have poorer attendance records, increase company pension costs, have lower productivity than other workers; the services provided to older persons by State employment-security agencies and by other public and private agencies are limited because of the additional time and effort required; and certain social-security provisions limit the amount retired persons can earn.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Improve the employment and earnings opportunities for older men and women, consistent with their abilities and willingness to work, to increase their contributions to the economy as a whole;

Assist labor, management, governmental agencies, private organizations, and the general public in developing and carrying out broad educational and informational programs designed to overcome the prejudices against older workers and to increase the acceptance in employment of qualified older men and women;

Extend and improve the direct services such as job counseling, placement, and individualized job development through the facilities of the affiliated State employment-security agencies and other private and public services, to enhance the employability of older men and women able and willing to work;

Contribute to the achievement of a coordinated Federal Government program to provide a comprehensive approach to the problems of aging and the aged; and

Help to alleviate occupational shortages by encouraging the employment of unused or underutilized skills and abilities of qualified older men and women in the shortage occupations.

PROGRAM ON RESEARCH AND STATISTICS

Relationship of this program to the processes of economic growth in the private sector of the economy

Provision to business, labor unions, Government, and the general public of reliable information relating to the labor and manpower situation, needed by people making decisions in our decentralized private-enterprise economy. These data assist in planning for future economic growth on the basis of knowledge of the past and present labor and manpower situation, and probable future trends.

Usefulness or limitations of this program for purposes of the stabilization of the economy

The increasing size and complexity of our economy make it more and more necessary to have factual information and analytical studies which will—

(a) Make it possible to appraise the adequacy of existing stabilization programs;

(b) Contribute to the maximum effectiveness of private action by enhancing the functioning of both public and private labor-market institutions;

(c) Provide material to the Council of Economic Advisers for reports to the President and Congress as required by the Employment Act of 1946, as amended, and by other statutory provisions; and

(d) Inform those concerned of any evidence of instability which may be developing in the economy. Analyses of deficiencies and gaps in research and statistics programs related to labor and manpower were prepared by the Bureaus of Labor Statistics and Employment Security of the Labor Department in the spring of 1954 and sent to the Joint Economic Committee by the Office of Statistical Standards, Bureau of the Budget. Some of the gaps and deficiencies then reported have now been remedied; others remain. Recently, the Labor Department, at the request of the Bureau of the Budget, has sent to that agency a statement of long-range programs for the development of statistics in this field.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Provide factual information and analyses on economic and social conditions and problems affecting the welfare of workers—for an informed public opinion, for improving labor-management relations and facilitating collective bargaining, for other private or public action or policy purposes, and for carrying out the administrative and enforcement responsibilities of the Department in promoting the welfare of workers;

Provide general economic and statistical information for the Government and the public, or the basis for reports to the Congress on conduct of statutory functions, or answers to legislative or other inquiries; and

Assist in the determination of departmental positions with respect to legislative proposals or administrative actions of other agencies on economic and social issues outside the immediate responsibility of the Department, but impinging on the interests of labor in matters such as social security, foreign trade, taxation, housing, health, education, welfare, military manpower policy, depressed areas, and general economic policy.

PROGRAM ON VETERANS' REEMPLOYMENT RIGHTS

Relationship of this program to the processes of economic growth in the private sector of the economy

Assistance to veterans in obtaining reemployment to the jobs, salaries, and seniority status to which they are entitled by law.

Usefulness or limitations of this program for purposes of the stabilization of the economy

By facilitating the rapid reemployment of veterans and by assisting veterans already employed to regain their former salaries and

status, this program improves the incomes of such persons. Thus it helps to stabilize the economy both by increasing the number of persons who return to occupations in which they are trained and can be usefully engaged in the production of goods and services and by increasing the purchasing power needed to buy goods and services. At the same time it tends to decrease Government expenditures by reducing payments for veterans' unemployment insurance.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Insure reemployment and seniority protection for men and women who interrupt their civilian careers for training or service in the Armed Forces of the United States;

Aid all persons covered by the veterans' reemployment statutes in obtaining the reemployment rights and benefits to which they are entitled; and

Assist employers, labor organizations and other interested parties in resolving problems arising under reemployment rights statutes.

PROGRAM ON WOMEN'S AFFAIRS

Relationship of this program to the processes of economic growth in the private sector of the economy

Promotion of employment opportunities and standards to increase the contribution of women in the labor force to the growth of the Nation's economy.

Usefulness or limitations of this program for purposes of the stabilization of the economy

This Federal program aims to alleviate occupational shortages by encouraging women to enter shortage occupations and by encouraging establishment and use of appropriate training facilities to enable women to fill such occupations under standards which help to maintain stability and purchasing power.

The continued existence of some customs and practices which tend to restrict women's opportunities for training or advancement to higher level positions somewhat limit the effectiveness of this program which has as one of its objectives the removal of discrimination in employment based on sex.

Standards employed by the Department of Labor in determining the kind and size of programs requested in this field

A proposed program is tested as to whether it will—

Advance the status of women in the work force and as citizens, increase their contribution to the economy;

Aid, through an effective informational program, in providing women with increased employment opportunities;

Alleviate substantial occupational shortages which can appropriately be filled by women;

Improve international understanding of the position of women as a means of improving their status and their contribution to economic and social progress.

PROGRAM ON WORKING CONDITIONS THROUGH STATE ACTION

Relationship of this program to the processes of economic growth in the private sectors of the economy

Maintenance and increase in the purchasing power of workers through noninflationary measures; encouragement and assistance to States in the establishment of such standards as minimum wages, safety conditions, compensation for work-incurred injuries, and employment of women and children.

Usefulness of limitations of this program for purposes of the stabilization of the economy

The State systems seek to provide income to injured workers, reduce the number and frequency of occupational injuries, establish standards to prevent the exploitation of all types of labor, and eliminate unfair competition based upon substandard wages.

The programs are limited in effectiveness because the States differ in the development and application of these standards. Not all have complete programs in the labor standards field and in some existing programs have failed to advance as rapidly as the economic development of the State would warrant.

Standards employed by the Department of Labor in determining the kind and size of the programs requested in this field

A proposed program is tested as to whether it will—

Aid States in developing labor laws, administrative practices, and voluntary programs which promote the welfare of the workers, sound labor-management relations, and improved employment opportunities; and

Enable the Federal Government to encourage and assist through development of standards and through advisory and technical assistance, and to supplement in the occupational safety field by Federal grants-in-aid.

EDUCATION AND ECONOMIC GROWTH

Howard R. Bowen, president, and John C. Dawson, assistant professor of economics, Grinnell College

We shall discuss Federal expenditures for education with special reference to the role of education in economic growth. Limitations of both space and competence prevent us from dealing with education at all levels. So we have chosen to limit our subject chiefly to higher education. We do not imply thereby that elementary and secondary education are less urgent or less important than higher education.

EDUCATION AND ECONOMIC GROWTH

Economic growth can be defined as increasing the provision of goods and services to be enjoyed by our people. Through the development of our economy, we expect the various categories of consumption—including both private consumption and collective services—to grow with the economy. One important category of consumption is education. It is a part of our standard of living, and increasing the supply and quality of education is one of the end products of economic growth. But education is not only an end product of growth; it is also a cause of economic growth.

The ability of a country to produce is determined by the quantity and quality of its land, capital, and labor and by the degree of efficiency in the use of these productive resources. Of these resources, labor is ultimately the most important. But it takes more than living bodies to constitute a productive labor force. The millions of people in India or China do not make up a highly productive labor force. And great population increases in such countries do not initiate rapid growth in ability to produce. High productivity requires that a population be physically healthy and well educated. Economic growth derives primarily from improvements in health and education—and health itself is largely a product of education. No country has ever been able to achieve high economic status without high educational status. The importance of education is readily seen when one compares the productivity of countries with similar natural resources but with differing human characteristics; for example, Norway and Chile, Israel and Syria, Turkey and Egypt, and the United States and China.

It is no accident that the United States, which has led the world in education, should also have led the world in economic productivity. And it is no accident that the rapid economic growth of the U. S. S. R. has followed closely upon its new and growing emphasis upon education. Indeed, progress in Soviet productivity began with their new educational program and has proceeded about in proportion to their educational achievement.

Evidence that education—even in small amounts—has the effect of increasing productivity is found in statistics on the annual income of persons with varying amounts of education. (See table 1.) According to these statistics, persons with an eighth-grade education earn income (and presumably produce) more than double the amount earned by those with no formal education, and high-school graduates receive almost three times as much as those with no schooling. Paul C. Glick and Herman P. Miller, of the Bureau of the Census, have estimated that a college education adds on the average \$91,000 to the lifetime earnings of individuals over the average earnings of high-school graduates. It should be added that this return is the result of an initial investment of perhaps \$16,000.

From the economic point of view, education is an important kind of capital investment. The investment takes the form of human characteristics instead of bricks, mortar, and machinery. The effect on production, however, is the same. For this reason the education our people have received may properly be regarded as one of our greatest national assets. And the process of educating the young may be regarded as our most potent form of capital investment.

TABLE 1.—Median income in 1949, for males 14 years old and over, by years of school completed

Years of school completed :	Median income	Years of school completed—con.	Median income
0.....	\$1, 108	9 to 11.....	\$2, 917
1 to 4.....	1, 365	12.....	3, 285
5 to 7.....	2, 035	13 to 15.....	3, 522
8.....	2, 533	16 or more.....	4, 407

Source : See technical notes.

The mere abilities to read, write, and calculate are of great importance for those who are to enter industrial employment or to conduct modern agriculture. To be able to read signs, or to comprehend written instructions, or to carry out simple calculations are obvious requisities to almost any kind of skill. A rudimentary knowledge of science has innumerable applications in everyday life. Training in manual arts, household management, agriculture, and other skills have of course a direct bearing on productivity.

But education is perhaps as important in its effects upon people's aspirations and motives as upon their skills. Knowledge of the world about them tends to enlarge their perspectives and to raise their aspirations. By presenting the new and the different, education frees people from dependence on custom and thus opens the way to changing methods of production. By teaching them about the nature of the world, it emancipates them from superstition and permits them to utilize the benefits of scientific knowledge. By showing that progress for the individual is possible, it leads to the desire to get ahead and thus to the willingness to work. Education helps people become interested in distant goals, to plan ahead, to prepare for the future, and to save. It also helps them to develop self-discipline and responsibility. And it makes people more intelligent, imaginative, and adaptable. All of these results of education have the most profound significance for economic growth.

We conclude that economic growth cannot be maintained in the long run unless there is also an increase in both the number of persons

receiving education and in the amount of education they receive. And it is probable that to achieve economic growth of any given amount requires a proportionate increase in both the extent and depth of education. If the educational requirements of growth are not met, then the growth must eventually come to an end simply because there is a limit to the economic productivity of people of a given level of education. In this sense, investment in people is fully as necessary as investment in things if economic growth is to be achieved.

HIGHER EDUCATION AND ECONOMIC GROWTH

In an advancing industrial economy, there is a steadily expanding need for persons of great skill and ability. That is why higher education, not only at the college level but at the postgraduate and professional levels, is in rapidly growing demand.

There are several reasons for the rapidly increasing demand for highly educated persons.

First, the increasing use of automatic machinery steadily eliminates unskilled jobs and requires that more people be engaged in designing, manufacturing, and repairing machines and in supervising their operation. In effect we are steadily transforming the jobs of our country from direct manual labor with simple tools to indirect labor at technical, supervisory, and organizational levels. This trend can be seen most clearly in agriculture where the man behind the plow has become a combination engineer and businessman. The trend is also clearly visible in the statistics on occupations. The percentage of unskilled workers in the labor force declined from about 35 percent in 1910 to 22 percent in 1950. During the same period, the percentage of professional and managerial persons increased from about 11 percent to 17 percent. The number of persons in the latter group increased from about 4 million to nearly 10 million.¹

Second, the increasing degree of specialization and division of labor in an advancing economy requires ever more activities relating to communication among the parts of the economy. Examples are the activities of middlemen, brokers, advertising men, salesmen, agents, purchasing agents, organized markets, journalists, the banking and monetary system, and the communications industries. Each of these activities requires thousands of educated and knowledgeable persons. Without them an advanced economy would break down because it could not function as an articulated whole.

Third, the development of large business firms, involving the coordination and teamwork of thousands of persons, requires great numbers of managers, supervisors, lawyers, foremen, accountants, personnel workers, public relations officials, clerks, and secretaries all of whom must be well educated.

Fourth, the increased scope of government, itself largely a result of the growth and increasing complexity of the economy, adds to the need for administrators, lawyers, economists, scientists, accountants, skilled military personnel, clerks, secretaries, etc.

Fifth, scientific research and development which is an integral part of economic growth requires enormous numbers of scientists, en-

¹ Available data are not strictly comparable throughout the entire period; hence these percentages are approximations. See technical notes for sources.

gineers, technicians, and their aids—all of whom must have substantial amounts of education.

Sixth, as a country grows richer, people are able to afford increased quantities of goods and services which can be produced only by educated people. Examples are medical and dental care, entertainment, art objects, music, books, high-style clothing, interior decoration, repair and maintenance of cars and appliances, air travel, etc. Also as a country grows richer, it can afford more education, and the need for teachers of all kinds increases.

Finally, seventh, the growth of knowledge itself results in greater need for education if people are to be able to function in a society where this knowledge is in general currency. The explosive increase in the number of words currently used in the English language is a symptom of the increasing educational demands placed upon the individual in our society.²

THE FINANCIAL PROBLEM OF HIGHER EDUCATION

The United States faces an acute crisis in higher education. The crisis will be precipitated by three factors: (1) the high birthrate starting in the 1940's; (2) the increasing proportion of young people who would like to go to college; and (3) the increasing, or changing, educational needs of our country. Each of these factors operates in the direction of enlarging the demand for higher education. There are few corresponding factors working in the direction of increasing the supply of teachers, buildings, and equipment. Indeed, the continuous rise in educational costs works in the opposite direction. These signs point to intolerable congestion and serious deterioration of educational standards.

The facts on the rising population of college age are well known. The number of young people of ages 18 to 21, about 8,700,000 in 1957, will reach about 14 million by 1970 or a little after. This will be an increase in numbers of about 61 percent. But the ratio of college enrollments to numbers in the population of college age has also increased steadily and persistently, as shown by the figures in table 2.

TABLE 2.—College enrollments as a percent of persons of ages 18 to 21

Academic year:	Percent	Academic year—Continued	Percent
1909-10-----	4.8	1939-40-----	15.3
1919-20-----	8.1	1949-50-----	30.2
1929-30-----	12.2	1953-54-----	29.6

Source: See technical notes.

Most observers expect that the long-term upward trend in the percentage attending will continue to rise. Indeed, this must happen if we are to have continued economic growth. In our judgment, the number of young people willing and able to attend college in 1970 will be 40 percent of all those 18 to 21 years of age. This estimate is lower than many other projections. Our conservatism is based on the opinion that as the proportion of young people attending college increases, further increases will become more difficult because there will be progressively fewer persons out of college who are capable of doing

² Since the Norman conquest, the English vocabulary is said to have increased from 100,000 to 1 million words, much of the increase having occurred in the past century.

college work, interested in college, and financially able to attend. Moreover, we believe that the recent great expansion of college enrollment has been due in part to special factors whose effect has been largely spent, namely, the GI bill and the unprecedented prosperity of the past 15 years.

Forty percent of the estimated 14 million in the 18 to 21 age group gives a projected total college enrollment in 1970 of about 5,600,000 students. This compares with the present enrollment in 1957-58 of about 3 million.

The financial requirements will also be affected by changing costs. Our analysis of the prospective cost per student is based upon two assumptions: (1) that the general level of prices remains constant at the 1957 level and (2) that the average quality of higher education offered is to remain at the 1957 level.

There are several persistent forces tending to raise the cost per student in higher education.

First, in the country as a whole (even with stable prices) wages and salaries tend to rise by 2 to 3 percent per year reflecting improvements in productivity per worker. If colleges and universities are to compete with the rest of the economy for faculty and staff, they also must raise their salaries and wages correspondingly. Moreover, because faculty salaries have been allowed to fall behind other salaries, and in view of the coming keen demand for teachers, faculty salaries must increase by much more than 2 or 3 percent a year during the next decade.

Second, with the growth of knowledge, especially in the sciences, the cost of educational equipment has been rising rapidly and will continue to rise. Electronic computers cost more than slide rules and cyclotrons more than test tubes.

Third, the increasing standards of living for the population as a whole are reflected in rising standards of campus living. Facilities for student dining, housing, recreation, and parking are steadily becoming more expensive simply because young people have been taught to demand facilities which were considered unnecessary by their parents. While it is easy to say that standards should not rise, it is difficult for individual institutions to set themselves against a persistent nationwide trend.

As against these forces leading to increasing costs, there may be possible economies. First, it is possible to use educational buildings and equipment more intensively. Many institutions operate only for a portion of the year, and use their facilities for only a fraction of each schoolday. By changing the daily and annual rhythm of college life it would be quite possible to use existing facilities more intensively. Second, on most campuses, some facilities have capacity beyond present enrollments and could be used more intensively even without changing schedules. Third, the costs of housing and feeding of students could be reduced if more students could live at home while attending college. Fourth, economies in the use of teachers might be achieved by increasing the size of classes, substituting TV for live teaching, and using more teacher aids.

But genuine economies must be distinguished from spurious ones. There are few so-called economies that can be achieved without lowering educational quality. Every college has, of course, the obligation to step up its efficiency, but not at the expense of quality. The ex-

cellence of American higher education is not now good enough, and it should be better to meet the requirements of our society in the years that lie ahead.

It is easy for bystanders to point to apparent inefficiencies in higher education. These inefficiencies seem so obvious. But the job of educational institutions is not merely to train technicians. It is to create an environment favorable to the best development of young human beings. The rhythms of college life, the give and take of classroom discussion, the unhurried atmosphere of a campus, the break with home ties, the concern for architectural beauty, and the social and extracurricular activities are all significant parts of college experience. To apply to colleges the attitudes toward efficiency that are appropriate to a feed lot or an assembly line would in fact be inefficient in relation to the long-run goals of education. We reject the idea that our colleges are operating wastefully or that they have adopted a level of luxury that the Nation cannot afford.

In our considered opinion, costs cannot be reduced substantially except at the expense of quality. We believe that the capital requirements and operating costs per student involved in maintaining the present average quality of higher education will be higher in the future than at present, even assuming that the general level of prices remains constant. This judgment is reinforced by past experience. The operating expenditures per student of all institutions of higher education have increased steadily since 1929, as indicated by the figures in table 3.

TABLE 3.—*Educational and general expenditures per student by all United States institutions of higher education*

Year	In current dollars	In constant dollars
1929-30.....	\$343	\$480
1939-40.....	349	583
1949-50.....	642	625
1953-54.....	910	796

Source: See technical notes.

We have estimated the financial needs of higher education up to 1970 assuming no increase in operating costs and capital requirements per student. We have based these calculations on the year 1953-54 which is the latest one for which complete data are available.

Educational and general expenditures in 1953-54 were \$910 per student. Assuming the same unit cost in 1970, when the estimated enrollment will be 5,600,000 students, total annual educational and general expenditures would be above \$5.1 billion.

We estimate the replacement value of the physical plant and equipment of our colleges and universities in 1953-54 at \$19.2 billion or \$7,650 per student. At this rate, to accommodate 5,600,000 students in 1970, we shall need altogether about \$43.1 billion worth of plant and equipment. To build up to this level will require average capital expenditure of about \$1.5 billion per year.

The endowments of our colleges and universities in 1953-54 totaled \$3.3 billion at book value. At market value, they were worth at least \$5 billion. If endowments are to occupy the same relative

position in educational finance in 1970 as they have in the past, they must grow to more than \$9 billion. This would require additions to endowments over the period to 1970 of about \$250 million a year. If endowments do not grow to this extent, student tuitions in private institutions must necessarily become relatively larger with the result that the public institutions will be called upon to bear a larger share of the total educational load.

TABLE 4.—*Financial requirements for higher education*

	1953-54	1957-58	1969-70
Educational and general expenditures.....	2, 288	1 2, 700	1 5, 100
Expenditures for plant and equipment.....	533	750	1 1, 500
Additions to endowment.....	100	150	1 250
Total.....	2, 921	3, 600	6, 850

1 Projected.

2 Average requirement for 1954-70 period. See text.

Source: See technical notes.

The prospective financial requirements for all higher education are summarized in table 4. It presents a comparison of expenditures and additions to endowment in 1953-54 and 1957-58 as compared with the amount needed in 1970-71. As the figures show, the total needed in 1970-71 will be nearly twice that actually available in 1957-58. But the 1970-71 estimate is undoubtedly understated because it is based upon the assumption that cost per student will be the same as in 1953-54. We believe it likely that costs will rise, and we are strongly of the conviction that they ought to rise if the quality of higher education is to advance as it should. We would judge that expenditures should be considerably more than doubled over the next 13 years. In this respect we are in agreement with President Eisenhower's Committee on Education Beyond the High School which suggests that expenditures should be nearly trebled by 1970.³

As higher education is now organized, the required funds must come primarily from State and municipal governments and from private philanthropy. The present financial position of our States and municipalities suggests that the support from them is likely to be inadequate, or at best, uneven. Private institutions are striving feverishly to make ends meet even at present enrollments and it is difficult to see how they can get much more money from their traditional sources. Even the recent welcome support by business corporations is not likely to solve the problem. The choice to be faced by many private colleges is either to limit enrollment or to allow quality to deteriorate. Few will wish to choose to lower quality and many will choose to limit numbers. As a result, students will be shunted to public institutions, and States and municipalities will be forced to bear a greatly increased share of the financial load. If they are unable to do so, the quality of their educational offering will deteriorate.

HIGHER EDUCATION AND THE NATIONAL INTEREST

Higher education is the source of our political and industrial leadership, it is the center from which the great new ideas in sciences and

³ Second Report to the President, p. 4.

arts emanate, and it is the place where our technical personnel are trained. We are so closely dependent upon higher education for the future growth and development of our country, both culturally and economically, that the advancement of our colleges and universities is a matter of the greatest national urgency. Without a vigorous and growing system of higher education, our military strength would decline, our national policies would become narrow and shortsighted, and our economy would atrophy. As President Eisenhower's Committee on Education beyond the High School so clearly stated, higher education is a matter of grave national concern, a matter to be thought about in national terms, a subject for national policies.

This by no means implies, however, that higher education should become the exclusive province of the Federal Government, or that it should be subjected to control by the Federal Government.

The obvious source of revenue to meet the problem is the Federal Government. It is in the best position to raise the new money required for higher education. But Federal support presents this dilemma: How can higher education be financed by the Federal Government without imposing centralized Federal control and without threatening the traditional autonomy, diversity, and freedom of higher education? To understand this dilemma clearly we must consider the nature of our educational system and the way it has developed.

To meet our needs in higher education we have a diverse system consisting of about 1,800 colleges, universities, technical schools, art institutes, music conservatories, teachers colleges, and junior colleges. Some are operated by States or municipalities, and some are private. Of the private colleges some are related to churches in various ways and some have no church affiliation. These institutions are financed from public appropriations, from church appropriations, from philanthropic gifts and from students' fees. These many institutions vary greatly in objectives, in standards, in the abilities of the students they attract, in tradition, and in prestige.

Such a diversity is the natural outcome of a free system of education under which anyone, or any group, can establish a college. Under such a free system some colossal sins have been, and are, committed in the name of higher education. But in general this diversity has had the virtue of giving freedom of expression to all educational ideals and theories, of providing facilities for all areas and all cultural levels, and of encouraging experimentation.

In a sense, we have adapted to higher education the principles of free private enterprise. The great majority of our colleges and universities—whether under private, State, or municipal control—possess substantial autonomy. They are mostly controlled by boards of trustees whose functions are analogous to those of boards of directors in business corporations. Colleges and universities operate according to their traditional objective, which is to promote education and growth of knowledge in an atmosphere of freedom of thought; business corporations operate according to their traditional objective which is to make profit. Colleges and universities compete with each other for students, faculty, and for financial support. Similarly corporations compete for workers, materials, and markets. Each college and university is impelled to improve its teaching and research and to increase its public acceptance; each business must improve its product

and gain good will. The successful innovations of any one college or university must be quickly adopted by others if they are not to fall behind in the competitive race; similarly, new ideas in business must be taken up by individual companies if they expect to remain solvent. In short, the incentives and pressures that make for productivity and economic progress in private business are also working for educational excellence and greater public service in higher education. If we were to organize our colleges and universities into a national system with Federal finance and control, we would risk losing the experimental attitude, the competitive spirit, and the drive to succeed that now vitalizes higher education.

An advantage of our diverse free-enterprise system of higher education, even more important than its educational vitality, is that it is a bulwark of our essential freedom. Colleges and universities are the citadels of free speech and thought. Research and inquiry, so important to national economic development, can prosper only in an atmosphere of freedom in which men decide for themselves what is worthy of inquiry, carry out their investigations in their own ways, and are free to publish and teach the results. Also, learning of students can flourish only in a free environment without controls and taboos. The spirit of higher education in a democracy is related to the search for the truth regardless of the vested interests or governmental programs that may be affected thereby. So long as there is free enterprise and reasonable autonomy in colleges and universities, so long as these institutions receive their support from a variety of sources, they can be free. Extension of centralized bureaucratic control over them would jeopardize the freedom essential to effective inquiry and teaching and would endanger both our basic civil liberties and our economic advancement.

The impending crisis in higher education arises precisely because education is a matter of vital national interest and concern yet at the same time is an activity that cannot wisely be placed under Federal jurisdiction and responsibility. The problem is primarily financial. The funds could be most readily raised by Federal Government, yet we dare not solve the problem by making our colleges and universities dependent upon central authority.

SOME PRINCIPLES

We are strongly committed to our present free system of higher education and we oppose centralized control over it. The national importance of higher education and the magnitude of the financial problem are such, however, that realistically Federal help may be needed. Our point is that there are various ways of giving Federal aid, of which some are likely to involve greater control than others. We believe that if and when the time comes to increase such aid, careful attention should be given to selecting those forms of aid that will not undermine the autonomy and freedom of our colleges and universities. In proportion as institutions become dependent upon the Federal Treasury for their annual operating funds, they lose their autonomy. In proportion, as aid is administered directly by Federal bureaus, they lose their independence. In proportion, as the conditions of receiving aid are specific and detailed, they lose their freedom. The problem is to select those objects and adopt those procedures that will give financial help without smothering institutional independence.

Among possible programs that would seem to meet the requirement are: Federal scholarships on the plan of the successful National Merit Scholarship program, employment at Federal expense of needy students in the services of their colleges or universities as recommended by the President's committee, long-term Federal loans for student dormitories and dining facilities, and grants for the construction of academic facilities to accommodate increasing enrollments. We do not necessarily advocate these proposals, but cite them as examples of Federal aid that would result in little or no infringement of institutional independence or freedom.

In general, we believe that the following principles would provide a useful guide if and when Federal aid to higher education is increased. The intent of these principles is to keep the relationships between the Federal Government and the colleges and universities at arm's length.

1. Federal assistance should not be granted directly to colleges and universities and their students, but should be granted through intermediaries. Nonprofit corporations controlled by boards of trustees composed of distinguished citizens and educators could serve usefully as intermediaries. The corporations should have considerable discretionary power within the framework of general policy laid down by Congress. The National Science Foundation or the National Merit Scholarship organization may be prototypes of this kind of corporation.

2. In programs of assistance to higher education, no distinction should be made between State, municipal, and private institutions, but all three classes of institutions should be eligible under identical conditions. With this policy, the influence of the Federal Government would be neutral in its effect on the relative growth of the three types of institutions.

3. The Federal Government, in apportioning aid, should not discriminate among academic fields. Except in emergencies, it should not single out particular fields such as science or engineering or agriculture, but should leave to the free choice of institutions and students the fields they wish to teach and study. The free market is vastly superior to Government bureaus in allocating our manpower to various occupations. Moreover, any plan to subsidize certain fields would almost surely lead to political pressure for support of particular fields and would put all non-technical and nonvocational fields at a serious disadvantage.

4. Loans and grants should be available to bona fide new institutions as well as to established ones.

5. The amount of loans and grants should be based on bare minimal standards of cost, allowing each institution to raise funds needed for exceeding minimal standards. Private philanthropy and State funds should finance the expenditures above the bare minimum. Institutions should still be encouraged to vie with one another for quality and excellence.

6. The grants should carry a minimum of conditions regarding the internal operations of the institutional recipients.

CONCLUSION

It is of the utmost importance to the Nation's economic development that higher education grow and improve. Yet the United States faces

an acute crisis in higher education. Unless immediate and drastic action is taken, our magnificent system of higher education will deteriorate through inadequate support in the face of numbers. In the national interest this must not be allowed to happen. We are opposed to centralized control over our colleges and universities, and for that reason we are reluctant to suggest greater Federal aid to higher education. But the dangers to our economy and our country are infinitely greater if higher education stagnates through neglect than if the Federal Government contributes financially through mechanisms involving arm's-length relationships with the colleges and universities.

This country can well afford a better system of higher education. Our present expenditures for this purpose are a mere three-fourths of 1 percent of the gross national product. The contribution of higher education to the lives and welfare of our people as well as to the economic growth of our Nation demands that we not fail to support it in its coming hour of great need. The long-run effect of what we do may be decisive not only for the rate of our economic growth, but also for our military security. The most rewarding investment that we can make is to cultivate the talents of our people.

TECHNICAL NOTES

Data for table 1 and related text discussion are from the Statistical Abstract for 1957, tables 130 and 258, and from the United States Department of Commerce, Historical Statistics, series D77-89.

Data for college-age population and college enrollment for table 2 are from United States Office of Education, Biennial Survey of Education in the United States, 1952-54, chapter 1, table 33. Projected college-age population through 1970 from Ronald B. Thomson, College-Age Population Trends, was spliced to the Biennial Survey, college-age population, benchmark series, to obtain the projected college-age population used here. This projected college-age population series was used to project college enrollments, assuming the proportion of college age who would attend to rise to 35 percent in 1960 and 40 percent in 1970. The 1957-58 estimated enrollment figure of 3 million mentioned in the text is the projected figure in this series.

Educational and general expenditure data are taken from the Biennial Survey, 1952-54, chapter 4, section II, table II, and the above enrollment data are used to compute the first column of table 3. The Consumer Price Index (1955 Statistical Abstract, table 376) was used as a deflator. Projected educational and general expenditures represent the 1953-54 expenditure per student applied to the projected college enrollments.

The replacement value of the 1954 plant (Biennial Survey, 1952-54, ch. 4, sec. II, table II) was estimated as follows: Postwar plant expenditures were estimated by interpolating the data in the Biennial Survey, 1952-54, chapter 4, section II, table II. These were cumulated to provide estimated postwar plant at cost. Its replacement value was assumed to be 150 percent of the total, the percentage being based on the Engineering News Record construction cost index. The remainder of the 1954 plant was assumed to be prewar plant. This figure was tripled to estimate its replacement value, the factor again being based on the construction cost index.

The 1954 endowment figure is also from the Biennial Survey, 1952-54, chapter 4, section II, table II. Its replacement value is arbitrary.

Table 4 data for 1953-54 are from the Biennial Survey, 1952-54, chapter 4, section II, table II. Data for other years are from the projected educational and general expenditures series and the text, except for the 1957-58 plant and equipment expenditure figure which is obtained from the President's Committee on Education Beyond the High School, Second Report to the President, page 81, and the 1957-58 endowment figure which is an extrapolation of the Biennial Survey data.

FEDERAL EXPENDITURE POLICY FOR HEALTH, EDUCATION, AND SOCIAL SECURITY

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Government social-welfare expenditures have grown rapidly during recent decades. They are officially estimated at \$7.9 billion in fiscal year 1935, \$9.1 billion in fiscal 1940, \$23.8 billion in fiscal 1950, \$32.5 billion in fiscal 1955 and \$34.5 billion in fiscal 1956. Federal funds supplied \$14.6 billion or 42 percent of the 1956 total. The remaining 58 percent of the total, \$19.9 billion, came from State and local funds. Given the large current increase in OASI benefit payments and the continuing rapid growth in State and local expenditures for public education, government social-welfare expenditures will undoubtedly total some \$40 billion in fiscal year 1958.

The largest Federal welfare outlays are for the social-insurance programs which totaled \$7.5 billion in fiscal 1956, with \$5.5 billion going for OASI benefits alone. Veterans' programs accounted for \$4.5 billion and the various Federal grant-in-aid public-assistance programs totaled \$1.5 billion. Other Federal welfare expenditures in fiscal 1956 included \$350 million for health and medical services, \$235 million for education, \$90 million for public housing and \$318 million for other welfare programs which include such activities as school lunches and vocational rehabilitation.

However, it would appear from the scattered data available that despite the great growth in tax-supported welfare outlays, private voluntary welfare expenditures have also grown tremendously. Unfortunately, in the words of a recent Social Security Bulletin "information on private spending for social welfare purposes is scattered and incomplete." It is to be hoped that the Research and Statistics Division of the Social Security Administration which for years has done such an extensive job of collecting and analyzing data on compulsory welfare expenditures will turn more of its massive fact gathering facilities toward the collection and dissemination of information on voluntary welfare outlays.

¹ This paper reflects the views of the author, not necessarily those of the American Enterprise Association.

Welfare expenditures, fiscal 1956

[In billions of dollars]

	Public	Private
Social insurance; death benefits and pensions ¹	10.6	3.1
Paid sick leave and cash sickness insurance payments.....		2.8
Health and medical services.....	3.2	11.6
Education.....	11.8	3.8
Assistance, rehabilitation, institutional care, school lunch, etc.....	4.1	5.8
Veterans.....	4.6	
Housing.....	.1	

¹ Payments by private insurance carriers and self-insurers required under State disability laws are included in the "Public" total of \$10.6 billion.

² Calendar year 1955.

³ Contributions for all philanthropic and religious welfare purposes in 1956.

Source: U. S. Department of Health, Education, and Welfare, Research and Statistics Notes, No. 29, 1957, Sept. 3, 1957.

A recent research and statistics note of the Department of Health, Education, and Welfare estimates private welfare expenditures in fields comparable to those covered by the definition of public-welfare outlays at amounts which totaled about \$25 billion in fiscal year 1956 as compared with the public-welfare expenditure figure of \$34.5 billion. However, even this \$25 billion figure gives an incomplete picture of the impact and potential of private provision for what are commonly designated as welfare functions. For example, although public-housing subsidies are included under the Social Security Bulletin definition of public social-welfare expenditures, the many billions expended voluntarily every year by individuals for housing are not classified as private welfare outlays.

RELATIVE MAGNITUDES OF VOLUNTARY AS COMPARED WITH COMPULSORY PROVISION FOR OLD-AGE AND SURVIVORS BENEFITS

Of particular importance is the fact that many private welfare programs are currently undergoing very rapid growth and thus the figures for current benefit payments do not begin to indicate their future importance. For example, employer contributions to private pension and welfare funds totaled \$5.7 billion in 1956 as against only \$0.3 billion in 1940 and \$1.2 billion as late as 1946. Employee contributions average about half the amount contributed by employers. Thus, total employer-employee contributions to private pension and welfare plans must have equaled at least \$8.5 billion in 1956. These programs continue to grow at a rapid rate.

Private pension plans covered only 3.7 million persons in 1940 whereas 13.3 million were covered in 1955 and 15 million are currently covered. Reserves of private pension plans are growing at a rate of \$2.5 to \$3 billion a year and probably total \$30 billion at the present time. In the 1955 New York State hearings on welfare and pension funds, Dr. A. A. Berle estimated that private pension reserves would total \$80 billion by 1975. This is a sum which is almost four times the present size of the OASI trust fund. When one considers that OASI expenditures exceeded OASI tax revenues during the 1957 fiscal year and that the situation is not likely to improve much in this respect in the next decade or two, this comparison takes on added significance.

Private pension plans paid out some \$725 million in fiscal 1956 as compared to \$5.5 billion under OASI. However, from the above facts it is clear that by 1975 private pension benefit payments should be several multiples of their present level and will undoubtedly be a substantially larger percentage of OASI benefit payments than they are at the present time, even after allowance is made for the fact that total OASI benefits will at least double between now and 1975.

Similarly, whereas death-benefit payments under all types of life-insurance policies totaled some \$2.4 billion in 1956, life-insurance premium payments amounted to \$9.4 billion and income from investments of life-insurance companies equaled \$3.1 billion. This latter figure is significant because the major portion of insurance-company reserves are held to assure fulfillment of life-insurance policy contracts. Thus it is clearly obvious that future life-insurance death benefits will be much higher than their present amounts. Life insurance death-benefit payments increased almost 150 percent between 1940 and 1956. It would seem not unreasonable to estimate that they will increase by another 150 percent in the next 16-year period. Under this assumption life insurance death benefits will equal \$6 billion by 1972.

Matured endowment policies paid \$653 million to policyholders in 1956. Again, this is an increase of almost 150 percent over the amount paid in 1940. Assuming another increase of 150 percent in the next 16 years matured endowments will total more than \$1.5 billion by 1972.

From the above it seems clear that in 15 to 20 years' time, benefits paid under private programs corresponding to those paid under the Federal old-age and survivors insurance system will, unless present trends are interfered with, play a relatively much more important role than they do at the present time. This is a development which is thoroughly in accord with American traditions of individualism and self-reliance and should be encouraged. This development will be facilitated and perhaps accelerated if Federal expenditures, including welfare outlays, are kept to a minimum so that taxes can be reduced and individuals will be able to keep and voluntarily dispose of more of the income they have earned. They can then set aside voluntarily an even larger percentage of their income than they do at present to provide for retirement and for the needs of survivors.

One way to encourage this desirable trend would be congressional action allowing self-employed individuals to deduct from taxable income amounts set aside for retirement purposes within reasonable limits.

HEALTH INSURANCE

Voluntary health insurance has had a phenomenal growth since World War II. From fiscal year 1949 to fiscal 1956, private health insurance benefit payments increased from 7.4 to 18.9 percent of total personal health care costs whereas during the same period governmental expenditures for health and medical services increased only from 19.4 to 21.4 percent of the total. In fiscal 1956 private insurance benefits covered 24.1 percent of the total private medical bill.

Effective development of hospital expense protection began about 1934. The comparable date for surgical expense protection is 1939 and for regular medical expense protection, 1944. Practically all the

growth in major medical expense coverage has taken place during the past 5 years. Even as recently as the end of 1951, relatively few persons were covered by this type of health insurance. From the table it can clearly be seen that the older the program, the more extensive the coverage. Also as one would expect, the newer the program, the greater is the current rate of growth.

Voluntary health insurance coverage

[Millions of persons protected]

	January 1941 ¹	Dec. 31, 1953	Dec. 31, 1955	Percentage Increase, 1953-55
Hospital expense.....	12.3	97.3	107.7	10.7
Surgical expense.....	5.4	81.0	91.9	13.5
Regular medical expense.....	3.0	42.7	55.5	30.0
Major medical expense.....	0	1.2	5.2	333.3

¹ *Ibid.*, p. 10.

Source: Health Insurance Council, *The Extent of Voluntary Health Insurance Coverage in the United States as of Dec. 31, 1955*, p. 23.

Nearly 108 million Americans, or almost two-thirds of the 166 million population of the United States had voluntary hospital expense protection at the end of 1955. A significant proportion of the 58 million persons without hospital insurance as of this date—such as members of the Armed Forces and persons in prisons, sanitariums, and other public institutions for whom needed hospital and medical care is provided by the Government—do not need it. Further, it is worthy of note that hospital expense coverage, the oldest form of voluntary health insurance, continued to grow at a rate considerably in excess of the population growth rate. All the other newer forms of voluntary health insurance grew at even faster rates. Thus the gaps in the Nation's health insurance coverage continued to diminish. The rate of increase in hospital expense coverage during 1955 was 6.1 percent whereas the civilian population of the United States increased only 1.9 percent.

The voluntary health insurance record becomes all the more significant when it is remembered that up to very recently many persons who either had no confidence in or did not wish the voluntary approach to the problem of providing adequate health services to succeed, were asserting that two-thirds of the population could not afford private health insurance. Another view frequently expressed is that perhaps voluntary insurance will be able to do a tolerably acceptable job of protecting most of the population against the costs of the more usual type of noncatastrophic hospitalization and surgical expense but that because of the cost factor and for other reasons it will not be equal to the task of providing protection against unusually costly illnesses and injuries. The extremely rapid recent growth of major medical expense policies seems effectively to be disposing of this fear.

Currently concern seems to be centering more on the special medical problems of the aged. It is, of course, well known that medical care costs are higher for the older persons in society. It is also a fact that voluntary health insurance coverage is much less extensive for persons over 65 than under 65. Health Information Foundation data

for 1953 showed that whereas more than 60 percent of the population was covered by some form of medical insurance, only 30 percent of those aged 65 or over had such protection.

The principal explanation for this situation is that until recently so many health-insurance plans limited coverage to persons below a certain age because of the cost factor. However, this situation is rapidly changing and more and more plans offer continuation of coverage regardless of age. Blue Cross Blue Shield plans typically allow retiring persons to convert their group coverage to an individual "left employ" contract. For obvious cost reasons an older person frequently has to pay a higher premium rate and/or is eligible for fewer benefits than a younger person.

There are good reasons for feeling that the problem of limited health insurance coverage of older persons is largely a temporary one. With few exceptions the vast majority of the working population is now covered by health insurance, particularly by hospital and surgical insurance. Now that it is becoming more and more the practice to allow continuation of coverage regardless of age, it would seem that in another decade or two, when in terms of the current labor force the voluntary health insurance programs should have fully matured, most aged people will also have health insurance protection. Experimental health insurance policies open only to individuals already 65 years and over are also currently being pioneered by some midwestern insurance companies.

Another promising approach to the problem of insuring people against the higher medical costs of old age is more extensive use of the funding principle. By this means the cost of old-age medical care is spread over the entire productive life of an individual by accumulating through regular contributions in earlier years part or all of the sum necessary to meet costs in later years. This eliminates the necessity either to raise the premium rates or limit the benefits for older people. In fact, if a sufficient reserve is accumulated, no premium payments would be required after a certain age.

IMPLICATIONS FOR FEDERAL LEGISLATIVE POLICY IN THE FIELDS OF HEALTH AND SOCIAL SECURITY

The necessarily brief preceding review of welfare activities points up at least one very pertinent fact in terms of legislative policy implications. This is the remarkable growth pattern of private welfare activities and expenditures during the last decade and the tangible evidence indicating the continuation and, more likely, the acceleration of the upward trend in the private sector.

Given this fact, it becomes highly pertinent to question seriously the desirability or the necessity at the present time either to increase the benefit levels under the old-age and survivors and disability insurance system or to increase the taxable wage base.

In the field of providing health services for elderly persons, encouraging progress is being made via the voluntary route. Congress should give the insurance industry and the medical profession a chance to work this problem out through traditional methods rather than institute a costly compulsory system with all its attendant damage to the effective practice of medicine.

OASI expenditures currently equal or exceed OASI tax revenues. In short, the program is on a pay-as-you-go basis and it gives every indication of remaining in this status for some time to come. Thus, it is now clear that basically our social security system is one under which today's working population pays taxes in order to provide benefits to retired persons and survivor beneficiaries. No longer is it possible to increase existing social security benefits or to add to benefits without raising the tax rates imposed on the working population. Every increase in the social security tax makes it that much more difficult for a working person to provide for his own and his family's health and retirement needs.

Under one well-known proposal to increase social security expenditures, benefits paid to current beneficiaries would be increased some 10 percent, benefits paid future beneficiaries would be increased more than this as a result of increasing the earnings base from \$350 to \$500 a month and hospital, nursing home and surgical benefits would be provided to OASI beneficiaries. To finance this program the taxable wage base would be increased from \$350 to \$500 a month (from \$4,200 to \$6,000 annually) and the social security tax rate would be increased by $\frac{1}{2}$ percent for both employer and employee and by $\frac{3}{4}$ percent for the self-employed.

At present the maximum social security tax for an employee is \$94.50 and is paid by a person with an income of \$4,200 a year and above. Under this proposal the \$4,200 individual would pay \$21 a year more in social security tax. A worker making \$6,000 a year would pay a total of \$165 or \$70.50 additional in social security tax. These tax increases would not be paid by a small number of people. Given the current level of wages in the United States, many, many millions of wage earners would have their social security taxes increased somewhere between \$21 and \$70.50 a year. Even a comparatively low paid worker making \$3,000 a year would have his social security tax increased by \$15 a year. Let us compare this with the amount that a married person with two children would save in income taxes if the Federal income tax should be cut by 10 percent. This, of course, is on the assumption that Federal expenditures can be reduced sufficiently so that an income tax cut is justified. A \$3,000 a year man with a wife and two children currently pays \$65 in Federal income tax. A \$4,200 a year man pays \$281 and a \$6,000 a year man pays \$600. A 10 percent cut in the Federal income tax would mean a tax reduction of \$6.50, \$28.10 and \$60.00 respectively. In each case this would be approximately equal to the proposed increase in social security tax and thus the income tax reduction would be nullified.

Now that OASI coverage is virtually universal the time has arrived when at least a start should be made toward getting the Federal Government out of the old-age assistance field. When the Social Security Act was under consideration in 1935, President Roosevelt recommended in connection with old-age assistance that "the Federal Government assume one-half the cost of the old-age pension plan, which ought ultimately to be supplanted by self-supporting annuity plans." It must, of course, be assumed that by "self-supporting annuity plans" the President had clearly in mind the extension of the OASI system to near universality of coverage. His definition of "self-supporting" must have had reference to the concept of a retire-

ment benefit system supported entirely through the levy of earmarked taxes on employer, employee, and the self-employed. While it is true that at present many elderly people are not eligible for OASI benefits, virtually every working person currently reaching retirement age is eligible.

Congress should eliminate Federal old-age assistance to States for individuals who are also receiving Federal OASI benefits. As of December 1956, 560,000 OASI beneficiaries also received old-age assistance. Under this approach Federal old-age assistance grants would continue to be made to States for individuals not receiving Federal OASI benefits.

The Federal Government fulfills its responsibilities to the aged by the provision of OASI benefits. Public assistance is traditionally a State and local function. Whatever extra resources over and above OASI benefits and personal savings an elderly individual needs can be provided by States and localities.

If Congress feels that it does not wish to eliminate Federal grants to the States for individuals who are currently receiving both OASI and OAA, at the very least it should adopt a policy of not making Federal old-age assistance grants available to new double beneficiaries. In either case the result would be to make the Federal old-age assistance program in fact as it is already in theory a temporary one which would gradually disappear.

EDUCATION

A larger percentage of our population is going through formalized education for a greater number of years than ever before in our history or than in any other country in the world. One-fourth of the population is enrolled in schools. More than four-fifths of our youth attend high school; about one-third enter college. In most European countries only 10 to 15 percent of the youth attend secondary schools and barely 5 percent go to college. The World Survey of Education by the United Nations in 1955 showed no country with a lower illiteracy rate than the United States.

Percentage of school enrollment in selected age groups in 1956

Age group:	Percent enrolled in school	Age group—Continued	Percent enrolled in school
5 -----	58.9	14 to 17 -----	88.2
6 -----	97.0	18 to 19 -----	35.4
7 to 13 -----	99.3	20 to 24 -----	12.8

Source: U. S. Bureau of the Census, Current Population Reports, series P-20, No. 74.

Enrollment in public educational institutions has barely kept up with the population increase over the past half century, but enrollment in nonpublic schools has grown more rapidly. As a result, the ratio of public school enrollment to nonpublic school enrollment was cut in half between 1900 and 1956—from a ratio in excess of 10 to 1 to a ratio of less than 5 to 1.

Population and school enrollment, 1900 and 1956

Year	Popula- tion resid- ing in United States (thous- ands)	Enrollment in public education		Enrollment in non- public education		Total enrollment	
		Thou- sands	Percent of popu- lation	Thou- sands	Percent of popu- lation	Thou- sands	Percent of popu- lation
1900.....	76, 094	15, 700	20. 6	1, 499	2. 0	17, 199	22. 6
1956.....	167, 091	34, 338	20. 5	7, 028	4. 2	41, 366	24. 7
Increase in percent.....	120	119	-----	369	-----	141	-----

NOTE.—The U. S. Bureau of the Census showed school enrollment in October 1956 at 39,353,000 (Current Population Reports, series 20, No. 74). Office of Education data relate to enrollment during the entire school year.

Source: Population: U. S. Bureau of the Census, Statistical Abstract of the United States, 1957. Enrollment, 1900: U. S. Office of Education, Biennial Survey of Education, 1953-54; 1956: U. S. Office of Education, Releases Mar. 25 and Aug. 17, 1957.

Next to national defense, education is by far the largest item of public expenditure in the United States. The cost of education is growing rapidly. In fact, the increase in education expenditures during the past 4 years has exceeded half the total increase in all governmental expenditures in the United States.

Almost all of the costs of public education are borne by the State and local governments. Most of the Federal contributions to education were initiated or are made primarily for other purposes, for example, veterans educational benefits, payments to local governments in federally affected areas in lieu of payment of property taxes, school lunch and milk programs, education of Indians on tribal reservations, and training for the Federal service or of children of Federal employees in areas where public schools are not available. Other educational expenditures arise from the Federal responsibility for the District of Columbia and the Territories, a small contribution originated in 1862 to promote the establishment of colleges for the agriculture and mechanic arts and grants-in-aid to the States for vocational education, started during World War I.

Proposals for broad Federal support of public education have been introduced in Congress at various times over the past 85 years. However, in keeping with the intent of the Constitution and the strong tradition of State and local responsibility for and control of education, no such proposal has ever been enacted.

The school-financing record of States and localities

Education has fared well under State and local responsibility. Enrollment in public institutions has multiplied 2.2 times since the turn of the century; but expenditures for public education have multiplied 17 times in constant dollars. In terms of the national income, expenditures for public education have risen from 1.5 percent in 1902 to 4.4 percent in 1956. Since, contrary to common belief, the percentage of the population enrolled in public education has remained stable, the increase in the percentage of national income for education reflects a broadening and enrichment of the programs and a growing recognition of the importance and needs of education by the American people.

Expenditures for education in the United States (selected years 1902 to 1956)

[In millions of dollars]

	Public elementary and secondary schools	All public education	Private education	All education
Fiscal year ending—				
1902.....	238	255	(¹)	(¹)
1927.....	2,017	2,235	(¹)	(¹)
1952.....	6,877	9,598	2,319	11,917
1956.....	11,199	14,161	3,565	17,726

¹ Not available.

NOTE.—There is some overlapping between the data for public and private expenditures, also some gaps. They probably offset each other sufficiently to make any possible variance insignificant.

Sources: Expenditures for public education: U. S. Bureau of the Census, Historical Statistics of State and Local Government Finances 1902-53. U. S. Bureau of the Census, Summary of Governmental Finances in 1956. Expenditures for private education: U. S. Department of Commerce, Bureau of Business Economics, National Income 1954, Survey of Current Business, July 1957.

For the past 15 years the ability of State and local governments to channel larger funds into education has been adversely affected by the vast Federal tax and debt burden. Much of the increase in Federal taxation was brought about by the necessity of devoting a large part of our national income—presently about one-sixth—to war-connected purposes. Thus, it could be argued that a fair appraisal of the national effort for education probably requires that educational expenditures be measured in relation to national income adjusted for war-connected expenditures. In these terms, the public and private educational effort rose from about 1.7 percent in 1902 to 6.6 percent in 1956.

Expenditures for education in the United States as a percentage of national income

[Selected years 1902-56]

	Public education		All education	
	National income	National income minus war-connected expenditures	National income	National income minus war-connected expenditures
Fiscal year ending—				
1902.....	1.47	1.50	(¹)	(¹)
1927.....	2.69	2.76	(¹)	(¹)
1952.....	3.46	4.39	4.30	5.45
1956.....	4.37	5.24	5.46	6.56

¹ Not available.

NOTE.—Definition of war-connected expenditures: major national security, foreign aid, veterans' services and benefits (budget and trust), interest on war-created debt.

Sources: See preceding table.

It can be estimated that in the current year, covering the school and fiscal year 1958, public and private expenditures for education are running at a rate of close to \$20 billion annually. Public expenditures for education in the United States equaled, in 1956, \$84.20 per capita, or 4.4 percent of the national income. Total public and private expenditures for education equaled \$105 per capita, or 5.5 percent of the national income. This record compares favorably with other countries.

UNESCO has published the following data for other major countries (mostly for 1953) :

Educational expenditures in selected countries

	Per capita	Percent of national income
Canada.....	\$28.73	2.55
Great Britain.....	24.31	2.96
France.....	15.74	2.25
West Germany.....	16.10	3.50
Switzerland.....	22.87	2.56
Australia.....	15.66	1.74

Source: UNESCO: Financing of Education, 1955.

Educational expenditures of the Soviet Union are listed by UNESCO at \$91.06 per capita, converting the ruble at the highly artificial exchange rate of \$0.25. However, the true value of the ruble is actually less than 10 cents and per capita expenditures thus equal less than \$36.42. It is not known what part of the education item in the Soviet budget is used for political education and propaganda. Nor can a reliable percentage of national income figure be established.

In most countries the major part of the cost of education is borne by the national government. Private education, which absorbs 1 percent of the national income in the United States, is relatively insignificant in each of the other countries mentioned above.

It can be assumed that educational expenditures, measured per capita or as percent of national income, have risen in those countries since 1953. Even so, it is evident that education receives considerably more support, both in per capita terms and as percent of national income, in the United States than in countries where financial responsibility for education rests upon the national government.

In the United States education has been doing much better—financially and staff-wise—under State and local responsibility than most of the other public services, many of which receive Federal subsidies. The particulars are shown in the following table.

School enrollment, State and local expenditures, and State and local employees, 1940 and 1956

Year	Enrollment in public schools, colleges and universities	Expenditures (millions)		Employees (thousands)	
		For education	For all other purposes	School	Non-school
1940.....	26,394,000	\$2,638	\$6,591	1,320	2,026
1940 in 1956 dollars ¹		6,371	15,917		
1956.....	34,312,000	13,220	23,491	2,283	2,992
Percent increase.....	30	108	48	73	48

¹ Adjusted by "implicit price deflator" for State and local government purchases of goods and services, U. S. Department of Commerce, Office of Business Economics.

Source: U. S. Bureau of the Census: Historical Review of State and Local Government Finances, 1902-53; State Distribution of Public Employment in 1956; Summary of Governmental Finances in 1956. Enrollment: U. S. Office of Education, Biennial Survey of Education, and 1957 releases.

It appears that the staff-student ratio in public educational institutions declined from 1:20 to 1:15 between 1940 and 1956.

The foregoing tables show that education has done relatively better than other public services in the United States and is doing better than education in other countries of the world.

However, it is known that certain educational shortcomings exist, particularly in the public-school system, which usually are being blamed on lack of adequate financing.

Are there shortages of teachers and classrooms?

In recent years attention has centered on the supply of teachers and of classrooms. Attempts to measure the extent of shortages throughout the Nation are made difficult by the lack of standards which could be uniformly applied. It is even more difficult to compare shortages in the public schools with shortages in other services and facilities, both public and private. We can, however, measure the progress that is being made in adding to the number of teachers and classrooms—as compared with the increase in enrollment.

Public-school enrollment and classroom teachers

School year	Enrollment	Teachers ¹	Ratio
1900.....	15,503,000	423,000	1:36.6
1930.....	25,678,000	843,000	1:30.5
1940.....	25,434,000	875,000	1:29.1
1956.....	31,528,000	1,197,000	1:26.3
Increase in percent:			
1930-56.....	23	42	-----
1900-1956.....	103	183	-----

¹ Not including principals and supervisors.

Source: U. S. Office of Education, Data for 1900, 1930, and 1940 Biennial Statistics of Education, 1953-54. Data for 1956 Circular No. 490, January 1957.

The number of teachers in 1956 includes 89,000 who were certificated for less than their full teaching load or held only emergency certificates. No comparable figures are available for 1930 or 1940. Nor would they be meaningful because certification standards have been raised substantially during the past quarter century and still are being raised, year after year. Comparisons of the number of fully certificated teachers can be made back to 1950—but it must be remembered that many teachers who would have met requirements in 1950 are today classified “substandard.”

The next table shows that the number of teachers, and particularly of fully certificated teachers, has been rising much more rapidly than the labor force. Claims that teaching is becoming less attractive than other occupations do not seem to be borne out by these figures.

Labor force, and school employees, 1940, 1950, and 1956

Year	Civilian labor force	State and local Government school employees	Teachers in public schools ¹	Certificated teachers in public schools ¹
1940.....	55,640,000	1,320,000	875,000	(²)
1950.....	63,099,000	1,729,000	914,000	810,000
1956.....	67,530,000	2,283,000	1,197,000	1,108,000
Increase in percent:				
1940-56.....	21	73	37	(²)
1950-56.....	7	32	31	37

¹ Not including principals, supervisors, etc.

² Not available.

Sources: Labor Force, U. S. Department of Labor; State and Local School Employees, U. S. Bureau of the Census; State Distribution of Public Employment, 1956; Teachers in Public Schools 1940 and 1950, U. S. Office of Education, Biennial Survey of Education, 1953-54; Certificated Teachers in 1950, National Education Association. Advance Estimates of Public, Elementary, and Secondary Schools, 1950-51; teachers and certificated teachers in 1956, U. S. Office of Education, Circular 490, January 1957.

Many shortages are due to such factors as wasteful use of available teachers, resistance to introduction of teacher timesaving techniques, a proliferation of curriculum subjects, failure to consolidate many tiny districts and school units, etc. Considering the generally "tight" market for college graduates the increase in the number of qualified teachers is striking. Whether estimates of teacher shortages will be reduced as the number of teachers increases, is another question. The desire to reduce class sizes continues; it probably will push up standards—as it always has in the past.

Wide public attention has been devoted to the classroom problem in recent years. But the real situation is far from clear. A school facilities survey which cost over \$5 million in Federal, State, and local funds has served only to compound the existing confusion. Estimates of classroom shortages have ranged from 159,000 to 476,000; these estimates have been little other than the assertions of the claimants who seemed to feel that a sufficiently high figure would influence Congress into appropriating Federal funds. Actually, school construction has outpaced other civil public-works construction; and in this connection it should be remembered that much of the nonschool public construction is wholly or partly financed from Federal funds.

New educational and other civil public works construction, 1930-56

[Annual averages in millions of 1947-49 dollars]

Years	Public educational construction	Other public civil construction
1930-1939.....	\$707	\$4,411
1940-49.....	314	3,236
1950-56.....	1,773	7,020
Increase 1930-39 to 1950-56 (percent).....	151	59

Source: U. S. Departments of Commerce and Labor, Construction Review, various issues.

In each recent year more classrooms were constructed than needed to accommodate the increase in enrollment. According to the United States Office of Education public-school enrollment increased 4,600,000 over the past 4 years, a period during which 247,000 classrooms were built. At a rate of 30 pupils per classroom, the added pupils

would have needed 153,000 classrooms; 93,700 classrooms were available to reduce class size or to replace older buildings.

It can be estimated that presently about 42 percent of all children are attending school in classrooms built since the end of World War II. If construction continues for the next 10 years to increase at only half the rate it has been increasing for the past 5 years, more than three-fourths of all children will be going to school in postwar buildings. The question may be raised—and is being argued in many communities—whether we can afford to retire a large part of our existing school plants at a time of unprecedented increase in enrollment.

Some States and communities are making rapid progress in meeting existing shortages. Others are lagging behind. A number of factors have been and are delaying school construction:

1. The excessive burden of Federal taxes, which makes it difficult for State and local governments to boost their own taxes and debts at a more rapid rate;
2. The promise of Federal school aid, held out year after year, which has caused some communities to postpone building plans in the hope of being able to get their school for 50 cents on the dollar;
3. The fear of being forced to integrate newly built schools, which has caused some southern communities to delay construction plans.

Methods by which the Federal Government can advance school construction include:

1. A reduction in Federal expenditures and taxes, which will enable State and local governments to boost their own levies.
2. A clear statement that further waiting for Federal school aid is futile and will injure the children in those communities which have been holding out for some of the promised "free" money.

Implications for Federal legislative policy

Further pursuit of proposals for Federal school aid are likely to work to the detriment of education. Amounts of \$300 million to \$400 million a year, as suggested in recent legislation, are insignificant in the field of public-school education in which State and local governments are spending \$13 billion a year and increasing their contribution at the rate of about \$1 billion a year. But such an aid program, whether enacted or merely considered each year, induces numerous communities to delay their building programs.

If Federal aid were raised to several billion dollars a year, as has been suggested by many people, Federal control of education would inevitably follow, sooner or later.

A number of existing Federal grant-in-aid programs for educational purposes could be gradually reduced and eliminated. This applies particularly to the nondefense part of vocational education, to the cash part of the school lunch and milk programs, and to aid for the colleges for the agriculture and mechanic arts. There is also a strong case for replacing the program of payments to school districts in federally affected areas with a system of payments in lieu of taxes to local governments where property has been removed from local tax rolls and where special burdens are being imposed on communities.

HEALTH, EDUCATION, AND WELFARE POLICIES AND EXPENDITURES FOR ECONOMIC GROWTH AND THE GENERAL WELFARE

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HEALTH, EDUCATION, AND WELFARE, EXPENDITURES IN RELATION TO GROSS NATIONAL PRODUCT

Total expenditures, public and private, for health, education, and welfare in the United States will probably exceed \$55 billion for the fiscal year 1957.

This is an impressive and significant measure of the importance which the United States places upon human values. Too frequently, the goals and objectives of our economic, political, and social institutions have been evaluated or advertised solely in terms of materialistic accomplishments. The goals of maximum employment, production, and purchasing power are but means to a larger and more important end—the promotion of the general welfare.

Although expenditures for health, education, and welfare services may seem, at first blush, large in amount, they do not represent a large portion of the total volume of the Nation's goods and services. They do not represent one-half, one-third, one-quarter, or even one-fifth of the Nation's total production. In the fiscal year 1957, health education, and welfare expenditures represented about 13 percent of the gross national product, or about 16 percent of the national income—roughly about one-sixth of the national income.¹

As our national productivity and income increase, the minimum subsistence needs of families are more widely met. Hence, a greater share of our national resources can and might well be allocated to health, education, and welfare. This, however, does not seem to be the case in the last 7 years. Total health, education, and welfare expenditures for 1957 appear to be relatively about the same or even a little less than those of 1950. This observation seems borne out by a review of the public portion of the Nation's health, education, and

¹ For definitions and classifications of these expenditures, see J. Frederic Dewhurst & Associates, *America's Needs and Resources: A New Survey*, the Twentieth Century Fund, 1955, chs. 10, 12, and 14; and Ida C. Merriam, *Social Welfare in the United States 1934-54*, Social Security Bulletin, October 1955, *Social Welfare Expenditures in the United States, 1954-55*, *ibid.*, October 1956, and the forthcoming article on 1955-56 expenditures, *ibid.*, October 1957. The Dewhurst estimates for the calendar year 1950 were \$12.3 billion for health, \$10.5 billion for education, and \$16.9 billion for welfare—a total of \$39.7 billion. My 1957 estimates differ somewhat from Dewhurst's classification for 1950, the most important being that I have included payments for private life insurance and annuities. The 1957 estimates are preliminary and subject to revision. Mrs. Merriam's estimates deal only with the public civilian programs and differ somewhat from the Dewhurst definitions. For the fiscal year 1950, she estimates the public share at \$23.8 billion, which was equal to 9 percent of the gross national product. By the fiscal year 1956, the amount had increased to \$34.5 billion, but this was equal to only 8.6 percent of the gross national product.

welfare expenditures. Public expenditures for these programs in the fiscal year 1955 were a smaller proportion of the gross national product than in 1950, or during any of the 6 peacetime years, 1935-40.² Preliminary figures for 1956 show an increase in public expenditures of over \$2 billion from 1955 but, nevertheless, total expenditures as a proportion of gross national product remained the same.³

However, it should be noted that the gross receipts for health, education, and welfare purposes were several billion dollars greater than expenditures, primarily because contributions for both private and social insurance, plus the interest on reserves, exceeded expenditures for these programs.⁴ These contributions are likely to increase substantially in the future. The excess of receipts over expenditures undoubtedly will also increase as private insurance plans and policies grow and because contributions for social insurance already levied for the future under the social-security program are scheduled to increase. Hence, expenditures for health and welfare will grow in the future and, undoubtedly, increase as a proportion of gross national product.

The postwar emphasis on material production (including housing, automobiles, and other durable goods), the taxes necessary to finance the defense program, and the controversial social-policy issues involved in expanding health, education, and welfare services—all of these have played a part in inhibiting the faster growth in recent years of services in these fields. Yet these factors are only part of the entire story. In some areas, progress has been faster than others. What are the reasons for the expansion, the uneven growth of the health, education, and welfare services, and the implications of substantial increases for the future?

FACTORS INFLUENCING EXPENDITURE GROWTH FOR HEALTH, EDUCATION, AND WELFARE SERVICES

Several factors may be noted at the outset as evidencing the major reasons why expenditures for social-welfare purposes have been increasing:

1. The increase in total population—roughly 3 million a year at the present time—necessitating more services because of more people.

2. The increase in the number of children. In 1900, there were over 30 million children under age 18; in 1920, 40 million; by 1950, there were nearly 50 million. Today, there are about 60 million—one-third of the entire population of the country. And, by 1965, it is estimated there will be 67 million.

3. The increase in the number and proportion of the aged. Every day there is a net increase of 1,000 persons 65 years of age and over—

² Merriam, *op. cit.*, table 2 in both articles.

³ Merriam, *Social Welfare Expenditures, 1955-56*, Research and Statistics Note No. 29-1957, Division of Program Research, Social Security Administration, Department of Health, Education, and Welfare.

⁴ For instance, in 1954, employer and employee contributions under private welfare funds were \$3.3 billion, but benefits paid were only about \$500 million. See welfare and pension plans investigation, final report submitted by Senator Douglas to the Committee on Labor and Public Welfare, 1956, p. 84, and *Employer and Employee Contributions to Private Retirement Plans, 1954 and 1955*, Research and Statistics Note No. 36-1955, Social Security Administration, Department of Health, Education, and Welfare. In addition, about 32 percent of all of the income of United States life-insurance companies in 1956 was used as additions to reserves. Total income of these companies was \$17.9 billion in 1956. Life-insurance-company assets increased \$3.6 billion in 1956. *Life Insurance Fact Book, 1957*, Institute of Life Insurance, pp. 52 and 60.

a million every 3 years. Whereas the proportion of the population 65 years and over was 4 percent in 1900, it is 8.5 percent today, and this percentage will continue to grow for probably at least three decades.

4. The increase in the number of births and the decline in mortality rates. Over 4 million babies have been born in each of the last 3 years and, despite an increase in population of 30 million persons in the last 10 years, the number of deaths last year was less than that of a decade ago.

5. The tremendous mobility of our population. In 1954, 10 million persons moved across State or county lines—3½ million of them children. Many persons are moving from East to West and from South to North, creating new community needs.

6. The further growth of urban and suburban areas, placing a heavy burden on real-estate taxes for community facilities (schools and teachers, sewage-disposal plants, police and fire departments, hospitals, and other governmental services).

7. The growing recognition of community responsibility for dealing with such social problems as divorce, alcoholism, juvenile delinquency, mental health, unmarried mothers, disorganized families, illiteracy, and chronic disability.

8. The special difficulties faced by individuals with low incomes, marginal skills, low education, and fixed incomes as a result of inflation.

9. The longtime decrease in the hours of work, the increase in the number of married women at work, the decline in the number of young children and older persons at work, and the demand for professional and skilled manpower.

10. New and costly drugs, vaccines, medical, hospital, and rehabilitation services.

11. The demand on both private and public agencies for more services, the spread and acceptance of the insurance principle, as applied to a wide range of risks, the increased emphasis on health and education as incomes and educational levels rise, the desire to provide income during periods of adversity, and the wider acceptance of the idea that a good life for all is within reach of everyone.

Fifty years ago—even 35 years ago—poverty was still accepted as a necessary element in our economy. To some it was not a necessary evil—it was a spur to progress. As a result of the depression, the two World Wars, the political revolutions of recent years in many countries, the increased productivity of the economy, the emphasis on full employment and maximum production, a change in attitude has occurred toward poverty. It is best expressed in the words of the present able Secretary of Health, Education, and Welfare, Marion B. Folsom:

With these further increases in productivity will come an even broader base for economic security. In the years ahead, therefore, the prevention of poverty among our people will become less and less a question of economic capacity. It will be more and more a matter of planning and organizing to do the job.

As our ability to meet human need greatly increases, we will be increasingly ashamed of poverty in our society because it will become more and more unnecessary.⁵

PUBLIC SHARE OF EXPENDITURES

The public share of all health, education, and welfare expenditures in 1957 was approximately two-thirds of the total, the remaining one-third was private (including consumer expenditures and expenditures by private agencies). The public share was highest for education and welfare (about 75 to 80 percent); and lowest for health (about 30 to 33 $\frac{1}{3}$ percent).⁶

Public expenditures for health services have tended to increase over the past 25 years. Whereas the public share of all health expenditures represented 20 to 25 percent in the early thirties, it is now about 30 to 33 $\frac{1}{3}$ percent.

Public expenditures for education have tended to remain relatively at the same level for a number of years—slightly less than 3 percent of the gross national product.

Public expenditures for social insurance and public assistance combined have more or less equaled public expenditures for education in 1950 and the succeeding 3 years. Since 1954, they have exceeded public educational expenditures.

Public expenditures for social insurance and related income maintenance programs are likely to increase as a percentage of national income in the future.⁷

In summary, it may be observed from these trends that the major reason for the relative stability of health, education, and welfare expenditures (measured as a percentage of gross national product or national income) is the fact that educational expenditures have tended to grow more slowly than those for health and welfare. We shall touch on some of the reasons for this in the discussion of education.

FUTURE NEEDS

Various attempts have been made to estimate the needed level of our health, education, and welfare services for the present and the future.⁸ In order to fill existing needs and to meet the explosive population growth ahead, a substantial increase in health, education, and welfare expenditures will be required. Some of the needed funds will come from private consumer sources and others from public sources. My own studies indicate that needed annual expenditures (public and private) by 1965 (at present prices) may be in the neighborhood of \$75 billion to \$85 billion. This would require an increase of \$20 billion to \$30 billion annually above the level of existing expenditures. With a \$575 billion gross national product in 1965, such ex-

⁵ An address, *Advances in Social Security*, June 6, 1957, pp. 10-11.

⁶ Since these estimates are very tentative, they may require revision. It would be desirable for the Division of Program Research, Social Security Administration, to have sufficient funds to prepare annual estimates of private Health, Education, and Welfare expenditures as part of its annual series on public expenditures.

⁷ *Veterans' Benefits in the United States, Findings and Recommendations of the President's Commission on Veterans' Pensions (the Bradley Commission)*, April 1956, pp. 117-126. The Bradley report contains projections of public income maintenance expenditures to 1985. Under one set of assumptions, expenditures for 1985, measured as a percent of national income, are nearly twice those of 1955.

⁸ See, for instance, Dewhurst, *op. cit.*, pp. 343-345, 412-413, 624, and 467-468.

penditures would amount to 13 to 15 percent of gross national product—a realistic and practical level—perhaps even on the low side.

Assuming that this is an attainable objective from an economic point of view, the major policy question is how can we proceed to develop the necessary fiscal policies and modifications of existing arrangements which might make it possible to reach this objective in an evolutionary manner consistent with other national goals and values.

Competitive expenditures

In discussing the growth and gaps in expenditures for health, education, and welfare, and ways and means of increasing expenditures for these purposes, the inevitable question always arises as to why there is a problem raising funds for these programs when expenditures for alcoholic beverages, tobacco, cosmetic and beauty services, jewelry, gadgets, and recreation are growing so fast and taking such a big portion of the consumer's dollar.

The American family spends more of its income for recreation than for medical care, and still more for alcoholic beverages and tobacco. Private automobile purchase and maintenance costs much more than the total cost of education in the United States.

Fiscal policy, governmental policy, social policy—all have a part to play in encouraging, discouraging, or stabilizing ways in which the Nation spends its resources.

A broad view is needed to chart the goals for the future so as to achieve socially desirable objectives with a minimum of controls on how the individual can spend its income.

Recreational expenditures and programs are not included in the analysis in this paper. But, from the point of view of competing pressures on public, private, and consumer funds, recreation might appropriately have been included. Consumer expenditures, as defined by the Department of Commerce in its national income studies, were \$13 billion in 1955. Public expenditures were \$715 million.⁹ A annual figure of \$40 billion can be supported if a broad definition is used.¹⁰

Increasingly, attention will have to be given to the relationship between policies and expenditures for recreation and those for health, education, and welfare. The need for recreation facilities in educational settings, the question of recreational programs in relation to juvenile delinquency, and the role of public and voluntary agency responsibilities in recreation, all indicate the many social policy questions involved.¹¹

Policies for the future

The prospect of reduced hours and more leisure for the American worker and his family raises many questions in which recreational expenditures are an important component. The more basic question, however, is how fast can we go toward our goal of meeting all our basic

⁹ Thomas Karter, *The Development of Organized Recreation in the United States*, Social Security Bulletin, May 1957, p. 14.

¹⁰ Dewhurst, *op. cit.*, p. 343.

¹¹ To indicate the importance of recreation in the fabric of community services, Bradley Buell has classified community planning for human services into four types of human problems toward which community services are directed; dependency, ill health, maladjustment, and recreational needs. *Community Planning for Human Services*, 1952, pp. 10-11.

health, education, and welfare needs and reduce hours of work at the same time.

In the past, we have shared our increased productivity between an increased material standard of living and more leisure (or more accurately, shorter hours of work). Some compromise will no doubt be worked out in the pragmatic manner in which we have solved most of our big economic questions in industrial relations. We shall have shorter hours and more leisure—probably not as fast as some labor organizations want. We shall have a higher national income, and more health, education and welfare services, but perhaps not as much as we might have if we did not reduce our hours of work.¹²

Can we meet the \$85 billion objective (which I mentioned earlier, or some other objective) without reducing expenditures for other purposes? Must we curtail the possible reduction in hours of work? Must we decrease national defense expenditures to obtain an increase in social expenditures? Must we, by taxation, interest rates or credit policy, divert potential increases in some kinds of consumer expenditures to other more social necessary kinds?

Prof. Alvin H. Hansen has stated his views on this question:

We are living in a period in which it should be clear as crystal that the marginal tax dollar has greater social utility than the marginal pay-envelope dollar. We need to divert resources not only to an adequate volume of "high powered" investment; we need, also, to divert resources to schools, hospitals, low-cost public housing, etc. Extravagant consumer credit and unrestrained use of the modern mechanical mediums of mass education for advertising purposes are driving us farther and farther down the road of unwise use of resources.¹³

Another possible line of action is that we can allocate a substantial proportion of our growing national productivity to needed social purposes. With the possible relative stability or decline of defense expenditures, we can plan ahead for an accelerated increase in social expenditures.

Perhaps we will find some blending of all these various methods. In any case, it is important that we make every reasonable effort to stimulate private and public expenditures for socially desirable objectives as part of our effort to assure continued economic growth.

General trends and problems

In evaluating possible future lines of action, we should first take note of several broad forces, trends, or problems which become apparent from studies of past and present expenditures for HEW services.

The major factors, as I see them, are as follows:

1. There is a recognized underconsumption and underproduction of services in each of these three broad areas.
2. There is a recognized shortage of skilled manpower and womanpower in each of these three areas.

¹² Interview with William Haber, *Shorter Hours, More Pay, Doubled Output Foreseen in the Michigan Journalist*, June 12, 1957, pp. 1-4.

¹³ A High and Rising Rate of Interest, *The Review of Economics and Statistics*, August 1957, p. 345.

3. There is a growing demand-push for these services which has resulted in an increase in such expenditures, and this demand-push most likely will be a major factor in further increasing expenditures in the future.

4. A large share of the needed additional expenditures will have to go for salaries, thus also contributing to wage-push influences on certain sectors of economy where there is competition for such services.

5. Rapid and uneven population increases among the States, and the mobility of population across State lines, make it necessary for the Federal Government to take an important financial role in equalizing opportunities in health, education, and welfare services throughout the United States.

6. The States would have a very difficult time meeting their health, education, and welfare responsibilities without financial aid from the Federal Government and without the coordinating, planning, stimulative research and leadership functions of the Federal Government.

7. There is ample room for expansion of private programs and expenditures in health, education, and welfare.

8. To achieve the needed level of health, education, and welfare services consistent with the national interest, the supply and demand in competitive market places must be supplemented with the impetus coming from national goals, priorities, and incentives. Tax and budget policies must be consciously oriented to meet national social needs.

Broad policy questions

In attempting to meet the fiscal problems presented by needed expenditure growth in health, education, and welfare, certain institutional problems must be considered.

In primary and secondary education, the basic problem is that the major financial source is real-estate taxation. This inhibits the growth of needed expenditures and raises the basic question of more progressive and expansible tax sources. How can this be achieved?

In higher education, the question arises whether we can depend upon the increased funds necessary to come largely from the families and from business. If feasible, is it desirable in the national interest?

In health, expenditures have increased sharply in recent years. Both the share from public funds and from insurance have increased. Health expenditures appear to be rising more rapidly than education. The use of the insurance principle seems to make increased expenditures for the future more likely. The Federal Government's expenditures for health have also increased and are likely to continue to increase. The major question is, shall the increased expenditures needed for the future come largely from consumer sources (i. e., out-of-pocket), through insurance, or from general revenue sources? Can the high-cost, low-income risks be covered by private insurance, or is some public stimulus necessary? Can we depend upon the individual practice of medicine to provide medical care at a cost the American people are willing to pay or will it be necessary and desirable to stimulate the growth of the group practice of medicine?

In welfare, the major issues revolve around the degree to which payroll taxes can be increased for needed improvements in social insurance programs, the extent to which additional expenditures should be financed by the Federal and State governments for assistance and related welfare services, and the extent to which private sources can

take a larger share of the increased expenditures needed through increased employment of the aged and handicapped, increased sale of private insurance and annuities, and the more widespread distribution of other forms of savings.

A general question which pertains to all three programs is how can the great variation in services, incomes, and fiscal resources among the States be reduced so that the national interest can be advanced consistent with our pluralistic society, interdependent economy, and Federal-State governmental structure.

HEALTH EXPENDITURES

Total medical-care expenditures have quadrupled during the past 25 years, the per capita expenditures have trebled, the proportion of the total spent from public funds has more than doubled, and a larger percentage—5 percent, instead of 4 percent—of our national income goes for medical purposes.

Total medical expenditures average about \$100 per year for every man, woman, and child in the Nation. The total medical bill is thus over \$17 billion for the country as a whole.¹⁴ The consumer's share in these costs—while increasing in absolute amounts—has been decreasing relatively as the share from public sources increases. Philanthropy and business provide a small but slowly increasing share of the total.

With a growing and aging population, and the demand for more and better medical services, these expenditures will continue to increase. Assuming an annual average increase in national income in the future slightly in excess of \$10 billion annually, and medical expenditures of about 4 percent of national income, the estimated average increase is approximately one-half billion dollars annually. It will not be many years, at the present rate, until medical expenditures exceed \$25 billion annually.

Insuring the costs of medical care has tended to increase expenditures for two reasons: (1) By eliminating the financial barrier to medical care and (2) by adding the overhead costs of providing the voluntary insurance protection. As voluntary insurance coverage continues to increase, these two factors will continue to operate unless there are economic or social changes in the provision of medical care which are not now visible.

Twenty-five years ago, the use of the insurance method was a controversial issue in medical care. This is no longer true. Today, the medical profession and the public wholeheartedly accept the insurance principle. Every effort is being made to extend it on a voluntary basis and to expand it to cover a larger proportion of people and a larger proportion of medical costs. Nevertheless, a substantial proportion of low-income persons and high-cost services are still excluded from insurance coverage. It is doubtful whether voluntary arrangements can or should cover these areas completely.

Congress has recognized that the cost of providing medical care to the 6 million needy public-assistance recipients is a public responsi-

¹⁴ Herbert E. Klarman (associate director, Hospital Council of Greater New York), *Changing Costs of Medical Care and Voluntary Health Insurance*, extended version of paper delivered before American Economic Association and American Association of University Teachers of Insurance, December 28, 1956, p. 6.

bility. The Social Security Amendments of 1956 increased Federal financial aid for this group. Federal expenditures under this program will increase as the States make medical services more generally available to the needy. Further changes are needed in the present Federal provision. These will be discussed later in connection with other changes in the public-assistance provisions of the Social Security Act.

The 1956 medical assistance amendment was adopted with bipartisan support in Congress. The original Hill-Burton Act, and the 1954 amendments to it, received bipartisan support. Federal appropriations for medical research have been increased under the leadership of Secretary Folsom, Senator Hill, and Representative Fogarty. These are important milestones which recognize the growing Federal interest in more adequate health care and the possibilities of non-partisan cooperation in health legislation. Further consideration should be given to broadening the provisions of the Hill-Burton Act, expanding the provisions of the Health Research Facilities Act of 1956 to provide Federal grants for the construction of medical school facilities, the establishment of loans for hospital construction, and the organization of group practice clinics, increases in existing grants to the States for maternal and child health and crippled children's services, expanding existing public health grants to strengthen local health units, and helping to finance more adequate school-health services in cooperation with educational authorities.

An important piece of legislation which I trust Congress will enact in 1958 is the proposal for the Federal Government to contribute toward a comprehensive health insurance program for Federal employees and their families. By this means, the Federal Government, as an employer, can assure that Federal employees and their families will receive more adequate medical service. The Federal Government should set a standard for the guidance of voluntary plans, employers, and the States. The Federal contribution should equal one-half of total costs and be predicated on the assumption of comprehensive medical service for the entire family and free choice of type of plan. The Federal Government should contribute part of the cost of continuing coverage when the person has retired. State and local governments should be encouraged to follow the same general policy for their employees and families.

Methods to reduce the growing cost of medical care are widely discussed by the medical profession, hospital administrators, and public-health experts. Yet the costs keep mounting. The one device which might help keep costs in reasonable balance and, at the same time, provide more and better medical care—group practice—is neglected in official circles in both medicine and Government. Congress might well explore how to aid in eliminating some of the barriers to group practice. This may involve a consideration of the State laws which impede it; tax policies which might encourage it; the views and experience of the medical profession, government, and consumers; and methods by which existing and proposed Federal legislation could deal with the matter more effectively. I urge serious consideration to this important, long-run question.

One other important aspect of health legislation—hospitalization and nursing-home coverage for social-security beneficiaries will be discussed later in connection with changes in social security.

EDUCATION

The significant contrast between education and health expenditures is how expenditures for health are increasing so much faster for health than for education, and how rapidly Federal funds for health have expanded in the past 10 years.

The fear of Federal control in medical care has been as live an issue as the fear of Federal control in education. The interesting fact is that in education this fear has not been germinated by the profession whereas in medical care this fear is a very meaningful issue to the medical profession. Yet it is significant that the Federal Government is now providing substantial funds for both education and health without any charge of Federal control or interference in either.

Federal aid for education is not a new policy. The Federal Government now subsidizes education in many ways. And, although there may be heated controversy over current proposals, it seems necessary and very likely that both State and Federal expenditures for education should increase if we are to meet the growing demands for educational services.

The major problem we are faced with is the reliance upon real estate and sales taxes for such a large share of the cost of education.¹⁵ If the health and welfare programs of this country depended upon real-estate taxes, they too would be held down. But, since health expenditures come so largely directly from the consumer, and since welfare expenditures come so largely from payroll contributions, they more closely and immediately respond to the demand for services and price increases.

As important as Federal aid for education is as an immediate legislative objective, the longer run question is how to minimize the importance of the real-estate tax in education and other essential public services. How can we achieve a broader tax base and one that is more responsive to the needs of the growing demand for all kinds of community services? States should be encouraged to provide State sources of revenue to assist in financing local education. Equalization measures should be encouraged in State legislation so as to aid the school districts with less adequate fiscal resources.

We already have a Federal-State program in education which should be strengthened. Rather than repealing Federal grants for paying teachers' salaries for vocational education (as has been proposed for consideration by the joint group of governors and Federal Cabinet officers) this program should be broadened and made more flexible. Existing legislation should be modified so that the States could use Federal funds for the payment of teachers salaries for any and all types of vocational education, especially in areas where there are scarce skills.

Moreover, Congress should give consideration to adding to this legislation Federal funds for teaching handicapped children. Here is an area of heavy cost and a need for special skills which requires additional support. The Federal Government is already providing

¹⁵A study by the Office of Education, Department of Health, Education, and Welfare, shows that 58 percent of the income (excluding receipts from loans and bond issues) for public elementary and secondary education is obtained from local property taxes. State taxes on incomes, sales, and other business activities provide 38 percent. The Federal Government contributes 4 percent. Press release, Department of Health, Education, and Welfare, August 17, 1957.

some funds for the mentally retarded child. If it is proper to aid in educating the mentally retarded child, then it is equally proper in principle to do so for all handicapped children.

Another area of Federal concern is in the development of a program which will eliminate illiteracy in the United States. This is a feasible objective and one which has both economic and social utility. A small additional investment of Federal funds for a 10-year period could eradicate this blight from our Nation.

The Federal Congress provides very substantial funds for medical research but is neither as generous or as farsighted as far as funds for educational research is concerned. The Office of Education should have additional funds for research into more effective educational methods, as well as for the collection and analysis of economic and financial aspects of education, by States, and for making projections as to future teacher and school needs and financing arrangements. Secretary Folsom has given increased emphasis to this matter, and it is hoped Congress will provide additional funds so that intelligent policy decisions in the education field can be made with full, accurate, and more current information.

WELFARE

The field of welfare includes not only social security, public assistance, veterans' benefits, and public-pension programs, but also private life insurance, private annuities, private welfare and pension plans, and private philanthropy.¹⁶

This is a field which has been growing rapidly in recent years and which will continue to grow.

Although the longer run aspects of the program should be the decisive element in policy formulation in this area, it should be recognized that there is a good deal of room here for an increase in consumption expenditures.

Most of the 10 million retired aged, all of the 3½ million nonaged on the assistance rolls, many of the children in large families, and many of the families in surplus labor market areas, all are consuming below desirable American standards. Sumner Slichter believes that "the No. 1 economic problem of the country is not inflation—it is the problem of restoring expansion to the economy by persuading individuals to increase their spending, thereby creating markets for a larger volume of production."¹⁷ To the extent that it is wise social and economic policy to increase consumption expenditures now and in the years ahead, social security offers a sound vehicle for carrying this policy into practical effect.

Old-age benefits

Both old-age insurance and old-age assistance payments are inadequate in many respects and will need to be increased both immediately and in the long run.

The average money income from all sources (public and private) of the nonworking aged person was probably around \$1,300 in 1954.

¹⁶ It should be noted that various other types of saving, homeownership, and investments are designed to provide income for old age, unemployment, sickness, disability, or death. Social policy in this field requires consideration of the interrelationship between all types of such programs and expenditures.

¹⁷ New York Times, August 8, 1957.

I suggest, as an objective, a 25-percent increase in their average total income (public and private) by 1960 and a 50-percent increase by 1965.¹⁸ This would involve increased income from savings, private pension plans, and social security. As an immediate step, an increase in 1958 of approximately 10 percent in old-age, survivors, and disability benefits and a roughly comparable increase in the Federal matching maximum in old-age assistance from \$60 to \$66 is suggested.

Before considering these proposals in detail, some general considerations about the aged are necessary before defining policy with respect to particular issues or programs.

Are the aged a homogenous group?

In considering the implications and alternatives involved in raising the income level of the aged, six major groups among the aged may be identified although there is some overlap and some omissions in any such simplified classification:

(1) The group working full-time or drawing substantial income from self-employment, investments, or executive or professional services. Their income is, on the whole, reasonably adequate and they enjoy a double income-tax exemption, and some retirement income exemption from income tax; they may have savings, insurance, and own their own homes, or have substantial equities in their own homes. This group comprises perhaps half of the total of 5 million aged persons who work during the course of a year (this number includes their wives). The average income of this group is high and most likely will rise with increased incomes of the general population.

(2) The group of aged persons who could work somewhat more and earn somewhat more if the opportunities were available.¹⁹ This is not as large a group as is commonly believed, because of the health status of the present aged.

(3) The group of retired persons with social security and a private pension and frequently with some minor employment and other investment income.

(4) The sick or disabled aged with modest incomes inadequate to meet their heavy medical costs in addition to their regular maintenance costs.

(5) The elderly widow who has very little income—some receiving insurance, others assistance, and still others living with their children, many of whom have no regular retirement or pension income.

(6) The 2 million persons on old-age assistance who are not drawing old-age, survivors, and disability insurance. (About 500,000 additional draw both benefits.)

Although several other groups among the aged could be identified for various purposes such as the institutionalized aged, or single men, or the aged living with relatives or on farms, the above classi-

¹⁸ Average benefits and average increases are used here only as a simple and convenient method of dealing with a complex problem involving income distribution. It should also be noted that there will be some increase in average income due to the broader coverage and increased benefits provided by the 1954 and 1956 amendments to the old age and survivors insurance program.

¹⁹ During 1955, 1,835,000 persons aged 65 and over worked part-time or intermittently during the year, out of the 4,301,000 who worked during the course of the year. The proportion working part-time or intermittently was 36.8 percent of all men, and 57.9 percent of all women, 65 and over with work experience in 1955. Work Experience of the Population in 1955. Current Population Reports, Labor Force, Series P-50, No. 68, June 1956, Bureau of the Census, Department of Commerce.

fication aims to give some insight into the priorities which should be considered with respect to improving the income of the aged. Thus, as will be pointed out later, proposals to repeal or greatly liberalize the retirement test would only aid those who were employed, primarily the minority of the aged consisting of those in groups 1, 2, and 3. The increased cost would not result in any increased income for any of the other groups.

On the other hand, increasing the cash-benefit payments a modest amount will not meet the heavy medical costs of those in groups 4 or 6.

Our major policy question is, Can we tailor-make our policies so that we will give priority to those groups among the aged who require attention most urgently?

A program for 1958

Improving the old-age, survivors, and disability insurance program should have the highest priority in any legislative program for social security in 1958. It would be possible to improve the benefit structure and finance the costs through the contributory insurance system.

The following elements are suggested for such a program:

1. Increasing the benefit level about 10 percent by increasing the benefit formula. Benefits would be increased for the 10 million beneficiaries as well as for persons coming on the rolls in the future.

2. Increasing the maximum taxable wage base from \$4,200 annually to at least \$6,600.

3. Providing for hospitalization and nursing home insurance coverage for old-age, survivors, and disability insurance beneficiaries.

4. Providing for the payment of rehabilitation costs from the insurance system.

5. Financing the additional costs by increased payroll contributions of one-half of 1 percent on the employees, an equal amount on the employers, and three-quarters of 1 percent on the self-employed.

Such a program would be financially and actuarially sound and would aid, in the long run, in minimizing the need for additional Federal, State, and local expenditures.

Increased social security benefits

The general level of the insurance benefits has not been increased since 1954. The cost of living has increased since then and is likely to continue to rise. But the important fact is that benefit levels for most persons were not adequate, even with the 1954 amendments.

An increase in benefits averaging about 10 percent can be put into effect next year. Along with an increase in the maximum taxable wage base, this would increase the overall costs of the system about one-half of 1 percent of taxable payrolls on a level-premium basis.

The increased primary benefits proposed are shown by table 1. Table 2 shows the proposed changes in benefits for an aged couple and a widow with one child.

TABLE 1.—*Illustrative monthly old-age, survivors, and disability insurance benefit amounts under the present law and as proposed*

EARNINGS LEVELS AFFECTED BY NEW MINIMUM

Average monthly earnings	Primary insurance amount		Proposed insurance amount as percent of average monthly earnings
	Present	Proposed	
\$50.....	\$30.00	\$35.00	70.0

EARNINGS LEVELS AFFECTED BY NEW BENEFIT FORMULA

\$100.....	\$55.00	\$60.00	60.0
\$200.....	78.50	85.80	42.9
\$300.....	98.50	107.80	35.9
\$350.....	108.50	118.80	33.9

EARNINGS LEVELS ABOVE PRESENT CEILING

\$400.....	\$108.50	\$129.80	32.5
\$450.....	108.50	140.80	31.3
\$500.....	108.50	151.80	30.4
\$550.....	108.50	162.80	29.6

TABLE 2.—*Illustrative monthly old-age, survivors, and disability insurance benefit amounts for aged couples, 65 years and over, or for widow and 1 child, present law and proposed*

Average monthly earnings	Present insurance benefit	Proposed insurance benefit	Average monthly earnings	Present insurance benefit	Proposed insurance benefit
\$50.....	\$45.00	\$52.50	\$400.....	\$162.80	\$194.70
\$100.....	82.60	90.00	\$450.....	162.80	211.20
\$200.....	117.80	128.70	\$500.....	162.80	227.70
\$300.....	147.80	161.70	\$550.....	162.80	244.20
\$350.....	162.80	178.20			

Hospitalization for old-age, survivors, and disability insurance beneficiaries

Increasing old-age-insurance and old-age-assistance payments by themselves will not meet one of the most pressing needs of old people—medical care. Many old people need more hospital care and nursing-home care than they now receive. Many are not eligible for insurance. Others have incomes too low to purchase insurance or continue their insurance. The flat-rate premiums under voluntary insurance are not related to the older person's income and are regressive.

The most recent statistics indicate that about 6 out of every 10 aged persons do not have any hospitalization insurance—and for all practical purposes none of the aged has any insurance for nursing home costs. These are insurable risks.

Since a large proportion of the aged with hospitalization insurance are employed, most of the retired aged do not have such insurance.

It would be possible to finance the cost of limited hospitalization insurance benefits and nursing-home costs to all aged, survivor, and disabled beneficiaries (and all such persons with insured status who could receive such benefits if they applied) for about one-half of 1 percent of taxable payrolls. This amount is the level-premium cost over a

long period of time. In the early years, the costs, measured in current expenditures, would be somewhat less, and a small reserve would be built up to meet somewhat higher costs in the future.

Arrangements could be made for utilizing the experience of the Blue Cross plans, the American Hospital Association, and other voluntary nonprofit group practice prepayment plans in the program.

Raising the maximum wage base above \$4,200

In old-age, survivors, and disability insurance, a major controversial issue is the maximum wage on which contributions and benefits are based. In 1939, the original \$3,000 maximum set on annual earnings covered the total earnings of 97 percent of all workers covered by the program and of 95 percent of the workers with earnings in all 4 quarters of the year. This percentage has shrunk steadily over the years, even though the maximum earnings base has been increased twice since 1939. At present, the \$4,200 maximum earnings base in the law covers the total earnings of only about 72 percent of covered workers.

When Congress increased the earnings base to \$3,600 in 1951, the increased base did not restore the situation that had existed in 1939; the new base covered the total earnings of only 64 percent of men regularly employed in 1951. The 1954 amendment, increasing the base to \$4,200, covered the total earnings of only 58 percent of men who worked in all 4 quarters of 1954. By 1959, the earliest date any increase in the wage base could be effective, only about 40 percent of men who work in all 4 quarters will have all their earnings covered by the \$4,200 maximum. Even if the earnings base were raised to \$4,800 for 1959, this would not restore the situation existing in 1954, since the \$4,800 base probably would cover total earnings of less than 55 percent of men working in all 4 quarters in 1959.

To restore the 1939 situation, under which benefits could be related to total earnings for nearly all covered workers, would require a maximum earnings base of \$8,400.

Increasing the wage base in the old-age, survivors, and disability insurance program would have two important results:

1. It increases benefits for the middle and higher income earners and thus maintains their financial and psychological interest in a contributory, wage-related system.

2. It reduces the cost of the system measured as a percentage of payroll and thus would permit the improvement in other types of benefits, particularly those which broaden the social objectives of the program.

Increased benefits for widows

The number of aged widows is already substantial. Since the life expectancy at the upper ages is longer for women than for men, the proportion of widows among the aged is expected to increase.

Available studies by Epstein, Steiner, and Dorfman and the Census show that widows have the lowest average incomes among the aged. In old-age, survivors, and disability insurance widows receive three-fourths of a primary benefit. It is desirable, as a longer run objective, to consider paying widows the full benefit. Because the cost of this change would approximate four-tenths to one-half of 1 percent of taxable payrolls, this change might have to be approached in steps by increasing the amount from 75 percent to 85 percent and then, at

another time, to 100 percent, along with such other changes as would keep the system financially in balance.

Making payments to children until age 21 or 22

Consideration should be given to paying a child's benefit until age 21 or 22, instead of until 18 as at present. The cost would not be large and the social policy would be in the national interest.

The Federal income tax defines a child for the purpose of deductions as a child who has not attained age 19 or is a student. The same definition and regulations might be considered for old-age, survivors, and disability insurance purposes.

A flexible retirement program

In enacting the 1956 amendments to the social-security program, Congress injected a degree of flexibility into the system which was very essential. This policy should be further extended to the extent financially possible.

A delayed retirement credit should be included in the law which would give each individual who postponed retirement past 65 a small increase in his benefit.²⁰ This approach is to be preferred over the repeal or substantial liberalization of the \$1,200 retirement test at this time. To repeal the retirement test would cost an additional \$1.6 billion annually.²¹ Rather than repeal the entire retirement test, consideration should be given to increasing the exempt amount of \$80 a month to \$100, and lowering the age when the test is no longer applied from 72 to 70.

Another method of making the program more flexible would be to delete the age 50 requirement for total disability benefits. This proposal should have high priority.

Study might also be given to paying benefits at age 62 for men on an actuarially reduced basis. This would enable persons who are not well but who are not totally disabled (according to the present definition) to obtain some income without distorting the disability provisions or paying costly full benefits for persons prior to age 65. There are some problems and objections to paying actuarially reduced benefits at an earlier age and these should be carefully explored before arriving at a decision. If it is thought that it is undesirable to reduce the age on an actuarially reduced basis, consideration might be given to providing total disability benefits at age 60 to disabled persons unable to engage in their "regular" occupation. The present law requires that the individual be unable to engage in any substantially gainful occupation.

Greater equity in the old-age, survivors, and disability insurance

Many important and essential improvements in the social-security program have been made since 1939 in the social aspects of the program. Some of the equity aspects have been diminished. As long as the contribution rates were low, and contributions were collected for only a relatively short period of time, this was not a problem. But, if a contributory wage-related program is to be maintained at rela-

²⁰ For insured men who became entitled to old-age, survivors, and insurance benefits in 1955, 60 percent drew their benefits after age 65; 25 percent were age 70 or over. Source: Bureau of Old-Age and Survivors Insurance, Social Security Administration, Department of Health, Education, and Welfare.

²¹ For various proposed changes in the retirement test and their costs see Wilbur J. Cohen, *Retirement Policies Under Social Security*, 1957, ch. VI.

tively higher contribution levels in the future, then more attention should be given to including some additional equity elements in the system.

This means there should be a wider variation in benefit payments.

It means increasing the maximum taxable wage base above the present \$4,200.

It means introducing a delayed retirement credit.

It may mean introducing an additional element of variation among persons with the same wage level who have contributed for varying lengths of time similar to the "increment" which was repealed in 1950.

It may mean providing women with their benefit earned in their own right, plus part of their wives' benefit which is one-half of their husband's benefit.

Old-age assistance

Under the original 1935 law, Congress offered to pay each State one-half of the cost of providing old-age assistance to needy persons provided that the Federal cost did not exceed \$15 per needy aged. Congress increased the \$15 to \$20 in 1939. In 1946, 1948, 1952, and 1956 Congress increased the Federal share and the Federal maximum payment. The present Federal law provides for paying four-fifths of the first \$30 plus one-half of the next \$30. The maximum Federal payment for any individual is, therefore, \$39. Congress enacted this provision for the 2-year period which expires June 30, 1959.

In order to receive the full \$39 at present, a State must contribute \$21, making a total of \$60 going to the needy aged person. If a State pays \$75 to the aged, it must contribute \$36 to the Federal Government's \$39. If a State pays \$35 to its aged, then the Federal Government contributes \$26.50 and the State \$8.50.

In addition to increasing the maximum in old-age assistance (as well as in aid to the disabled and the blind) some additional Federal aid is needed to assist the low-income States such as Mississippi and Arkansas to more effectively raise their assistance standards.

Two suggestions should be explored. The present two-step Federal matching formula of 80 percent on the first \$30 and 50 percent on the next \$30 could be modified so that the second step would vary in accordance with the per capita income of the State. This principle of relating the Federal share to the per capita income of the State was first adopted by Congress in the School Lunch Act and then incorporated in the Hill-Burton Hospital Construction Act, the medical facilities amendments to that act in 1954, and in the vocational rehabilitation program in 1954.

Another suggestion is the use of a three-step formula such as 80 percent of the first \$30, 60 percent (or some other percent) of the next \$30, and 40 percent (or some other percentage) of the remainder. This type of formula, known as the Mills formula, was sponsored by Representative Mills in 1949 and included in the social-security amendments of that year as passed by the House of Representatives. Due to the Korean war, the amendment was not included in the 1950 amendments.

Medical care for public assistance recipients

The 1956 social-security amendments provided for Federal matching of one-half of medical care costs for assistance recipients up to

\$6 per adult and \$3 per child per month on the entire caseload. The \$6-\$3 averages were established by research studies of 1946 and were recommended in 1948 by the Senate Advisory Council on Social Security. Ten years later they are still in use and overall medical costs have risen 40 percent and hospital costs 80 percent. The averages for adults need to be increased to reflect more recent medical cost experience.

A simplified and more adequate method of dealing with the problem would be to increase the maximum Federal matching amount from an individual \$60 basis to an average \$66 basis and permit vendor payments to be included in the total. This would simplify bookkeeping and give the States the greatest flexibility in meeting both the maintenance and medical care needs of assistance recipients.

Other public welfare proposals

A number of other changes are necessary and desirable in order to strengthen our Federal-State system of public welfare.

Among those which should receive early consideration by the Congress are the following:

1. The category of aid to the permanently and totally disabled should be broadened through eliminating the restriction requiring a disability to be permanent and total and through eliminating the age requirement.
2. The aid to dependent children program should be strengthened by providing Federal aid to the States for any needy child living with any relative.
3. Federal assistance should be made available to the States in programs for the prevention and treatment of juvenile delinquency.
4. Federal aid for public welfare should be on the same basis for Puerto Rico and the Virgin Islands as for other jurisdictions.
5. The amount authorized for child welfare services should be increased from \$12 million to at least \$25 million a year.
6. Federal grants should be authorized to assist in the development and operation of demonstration projects to aid older persons, to provide research and training in the field of aging.

In this connection, it is important to point out that two recent attempts by the Congress to modify the basic Social Security Act through appropriation bills by reducing Federal grants for the administration of State public-assistance programs have resulted in a great deal of misunderstanding among State and Federal administrators and legislators. Public welfare staffs are now generally underpaid and overworked. Curtailment of staff and services is unsound. No further action should be taken on this proposal until the legislative committees of the Congress have a full opportunity to review experience and alternative proposals. Premature action could adversely affect the welfare of millions of persons on the welfare rolls.

Unemployment insurance

Unemployment insurance benefits are inadequate, on the whole, in the United States. Both President Truman and President Eisenhower have so stated, as have their Chairmen of the Council of Economic Advisers and their Secretaries of Labor. The major difference of opinion and the major controversy does not resolve about the recognized inadequacy of benefits but the means to accomplish this goal.

The nationwide unemployment insurance program was established, is maintained and preserved by virtue of a Federal tax on employers and a Federal grant-in-aid to the States of 100 percent of the cost of State administration. It is a unique program from a tax, grant-in-aid, or social insurance point of view. Federal money makes the system what it is but the Federal Government has very little real authority, and no responsibility, for specific benefit levels.

More than 20 years ago, when Federal legislation for unemployment insurance was being considered, Senator Paul Douglas made the suggestion that our unemployment insurance system should be operated on a grant-in-aid type basis instead of the credit-offset system now used.²²

A majority of the 1934 Advisory Council on Economic Security also recommended a grant-in-aid type plan.²³ Marion B. Folsom, now Secretary of the Department of Health, Education, and Welfare, also endorsed the grant-in-aid approach for unemployment insurance.²⁴ There is still merit in this suggestion, and the joint committee might well look into it in more detail.

Our present unemployment insurance program is a collection of anomalies in both our Federal-State cooperative system and in our social insurance structure. While the program has operated reasonably well—having paid out over \$16 billion in benefits since it began—and, at the same time, contribution rates on employers have remained low—this is largely due to the favorable economic conditions in the last 17 years.²⁵ The \$8.5 billion unemployment insurance trust fund is very largely a sterile reserve. A very large portion of this amount will never be used even if a relatively serious recession occurs.²⁶ Contributions, moreover, will tend to increase if employment conditions decline for any period of time.

The system discriminates against women workers who are needed, if we wish to consider the broader aspects of labor market expansion for economic growth. Large numbers of marginal workers, like farm workers and employees in small firms, are still excluded. A host of other failures have been cataloged by various councils, agencies, and experts.²⁷ But since economic conditions have been relatively good for a long period of time, changes and progress in the program have been slow, and some backward changes have occurred in disqualification and financing arrangements.

But, it must be recognized that important improvements have been made in both the benefit and financing provisions of our unemployment-insurance system under the pleadings from the Federal Government and the pressures, first for federalization of the program and then for Federal benefit standards. But a Federal grant-in-aid program—with or without benefit standards—in my opinion would serve to accelerate the progress of State legislation. A reinsurance fund, instead

²² Hearings before the Senate Committee on Finance on S. 1130, 74th Cong., 1st sess., 1935, pp. 892-896.

²³ *Ibid.*, pp. 335-336.

²⁴ *Ibid.*, p. 582.

²⁵ The average State employer contribution rate in 1956 was 1.3 percent. This varied from 0.5 percent in Colorado to 2.7 percent in Rhode Island and Alaska. The Labor Market and Employment Security, U. S. Department of Labor, July 1957, pp. 28-29.

²⁶ At the end of 1956, funds available in the following States exceeded 10 percent of taxable wages: Connecticut, New Jersey, Kentucky, Wisconsin, Iowa, Montana, New Mexico, Arizona, Idaho, and Washington. *Ibid.*

²⁷ See, for instance, the recommendations of the 1948 Advisory Council on Social Security, S. Doc. 208, 80th Cong., 2d sess., 1949. The deficiencies in the present program are summarized on pp. 138-139 and the recommendations on pp. 139-142.

of the present loan fund, also would help to accelerate State progress. Should these measures be unacceptable, then minimum Federal benefit standards may be necessary.

The Federal interest in unemployment insurance can be simply stated: If any substantial unemployment does occur in the future and the present system does not adequately carry out the maximum role it can play in preserving the level of purchasing power and family morale, the Federal Government will have to play a more important role than it now does. The present unemployment insurance program would restore less than 20 to 25 percent of the wage loss occurring in a serious recession. Unemployment insurance cannot carry the whole load of any serious dip but it can and should do a better job than it is now likely to do.

Another concern of the Federal Government is that the present State by State contribution rates are conducive to interstate competition. The same industry, with the same employment and unemployment experience, may pay a 3- or even possibly a 4-percent rate in 1 State and zero in another. There is no adequate solution of this vexing problem except for an outright national contribution rate. But the variation could be minimized by a grant-in-aid approach or reinsurance program, or both. These are matters worth exploring.

Congress should also give consideration to modifying the existing Federal law to permit States to reduce employer contributions on a flat-rate basis in addition to reducing them on an individual experience rating basis. This is a controversial question which should be explored.²⁸

Although it would take much additional space to consider the pros and cons of specific changes in State and Federal²⁹ laws, one proposal is worthy of this subcommittee's attention. This is the proposal adopted in a few States, endorsed by the Department of Labor, and advocated by several Republican legislators in New York for the repeal of a fixed dollar maximum benefit and the establishment of the maximum benefit each year as a proportion of a specified average wage. The legislature would set the proportion and define the average wage to be used. The administrative agency would make an annual determination which would apply for the period specified in the law. This provision has a great deal to commend it, since it permits the program to adjust reasonably rapidly to the changing wage structure and economic conditions.

Workmen's compensation

State workmen's compensation programs are the oldest and most antiquated social insurance programs we have in the United States. Modeled along 1910 lines, they are inadequate and inefficient. The concepts and administrative devices used encourage litigation, delay in payment, heavy administrative costs, and prevention of rehabilitation and reemployment. Compared with the Federal Employees Compensation Act for Federal civilian employees, the various State acts are grossly inequitable, inadequate, and cumbersome.

²⁸ The pros and cons on this question will be found in the Commission on Intergovernmental Relations, A Report to the President for Transmittal to the Congress, June 1955, pp. 208-209, and A Study Committee Report (to the Commission) on Unemployment Compensation and Employment Service, June 1955.

²⁹ See the comments and suggestions of my colleague, Prof. William Haber, The Present Status of Unemployment Insurance in the United States, Annual Proceedings, Industrial Relations Research Association, 1955.

I hope it will be possible for the Congress to provide the Department of Labor with increased staff to assist in improving the State laws. Consideration should be given to establishing Federal standards for State programs. In many cases today, effective State administration of such programs is thwarted by inadequate staff, facilities, and funds.

From an administrative point of view, State workmen's compensation programs are the most expensive form of social insurance in the United States. Moreover, the costs and benefits tend to vary more widely than in unemployment insurance, and administrative arrangements are more complex and diverse. In general, workmen's compensation is not administered as efficiently as old-age, survivors, and disability insurance or unemployment insurance. The program does not cover the proportion of wage loss intended by the sponsors of the original program. A thoroughgoing investigation and overhaul of the existing arrangements is long overdue.³⁰

INTERRELATIONSHIPS BETWEEN FISCAL POLICY AND SOCIAL POLICY

There are a number of important issues involving longer run fiscal and social policies. They cannot all be dealt with in this paper. Even those selected for attention cannot be adequately analyzed in the limited space available. Those which are mentioned are included primarily with the idea that the joint committee may wish to explore them more intensively.

Strengthening the Federal-State cooperative program

In this paper, a number of suggestions have been made for broadening and expanding the existing Federal-State programs of health, education, and welfare. Since proposals have also been made by other persons and groups for returning some of these programs and some Federal excise taxes to the States, it is necessary at the present time to raise the question in which direction it is desirable to go. Should we curtail the Federal-State cooperative system in these fields and limit the Federal Government's concern to only certain areas? Should we parcel out specific taxes to the States? Will this strengthen State responsibility and weaken the national interest?

There is no question in my mind, from my experience, that Federal grants-in-aid to the States have strengthened the States and preserved the Federal-State system in this country. I do not believe we can meet the rapidly changing and expanding social needs of our Nation without building upon the Federal-State system. Various criticisms and defects of the Federal-State system can be made. But it is important to recognize that, in the national interest, we must seek and we must find ways to accomplish national objectives with decentralized administrative responsibility.

Meyer Kestnbaum, the President's adviser on Federal-State relations, has compressed the complex issues involved in this question into an understandable statement. In testifying before the Subcommittee on Governmental Operations in the House, he stated:

People find they can do better coming to Washington than they can going to their State governments for help. They

³⁰ See the excellent evaluation of the program, and recommendations for changes, in Herman M. Somers and Anne R. Somers, *Workmen's Compensation: Prevention, Insurance, and Rehabilitation of Occupational Disability*, 1954.

find they get a better hearing from their Congressman, a more sympathetic understanding, a better attitude and a broader outlook.³¹

The many issues involved in Federal grants-in-aid to the States are complex. These issues have been studied by the first Hoover Commission on Federal-State relations and by the Kestnbaum Commission on Intergovernmental Relations. The reports of both Commissions recognized the contribution of Federal grants-in-aid in accomplishing national objectives. At the present time, a House committee is giving further study to the operation of Federal-State programs. At an appropriate time, the joint committee might wish to review the economic and fiscal implications of existing grant-in-aid programs. It would be desirable to strengthen the equalizing effect of Federal aid by giving greater emphasis to the expansion of programs and services in the low-income States. A report of the New Jersey Taxpayers' Association concludes that the proportion of Federal aid which equalized financial resources represented 23 percent of the \$3.3 billion of Federal aid distributed in 1956.³²

The total amount of Federal aid equalized was \$800 million. Thirty-four States received more in aid than the taxpayers of these States paid in taxes. Mississippi and Arkansas received three times as much as their taxpayers contributed. Missouri received about half as much as its taxpayers contributed.

An objective appraisal of the validity of these estimates, and a reappraisal of the equalizing objectives and accomplishments of Federal aid, would be desirable.

However, it should be recognized that equalization of the general fiscal capacities of the States is not the sole objective of Federal grant policy. The Kestnbaum Commission concluded that such equalization is not "by itself a proper objective of national policy."³³ The Commission's arguments on this point are not very persuasive from an economic point of view. The very fact that the Commission recommended the incorporation of equalizing features in specific grants as "desirable whenever reasonably necessary for the achievement of specific program objectives"³⁴ is evidence of the inescapable importance of equalization in Federal grants. In any case, it must be noted that overriding national interests may necessitate the use of Federal grants-in-aid to effectuate a coordinated and nationwide program independent of fiscal considerations.

Fiscal policy and social security

The social-security program involves large and important fiscal and economic questions. Public social-security payments were being disbursed in July 1957 at a rate in excess of \$18 billion a year. Old-age, survivors, and disability insurance is already the largest constellation in the social-security firmament, involving \$7 billion of disbursements annually. Moreover, total benefit disbursements under the existing old-age, survivors, and disability insurance program will more than triple by the end of the century.

³¹ New York Times, July 30, 1957.

³² Federal Aid—Quick Money or Quicksand, February 1957.

³³ The Commission on Intergovernmental Relations, a report to the President for transmittal to the Congress, June 1955, pp. 110-113, 135-136.

³⁴ *Ibid.*

Before exploring some of the fiscal questions raised by the old-age, survivors, and disability insurance program, it may be well to summarize very briefly the major characteristics of the program as it stands today.

Major characteristics of the old-age, survivors, and disability insurance program

Two basic features of the old-age insurance program have remained unchanged since the system was established in 1935. They are that the benefits are wage-related as contrasted to being uniform in character; and the system is contributory with payroll contributions from employers, employees, as contrasted to general revenue financing.

These two basic features, along with a number of other important elements, affect decisions as to the level of benefits, the methods of financing, and other provisions of the program. The main characteristics of the system today are as follows:

1. The system is contributory with contributions from employers and employees and, since 1951, from the self-employed.

2. The program is financed on a self-supporting basis without a general subsidy from the Federal Government.

3. Contributions from employers and employees are equal.

4. Contributions from the self-employed are three-quarters of the combined contributions payable with respect to employees.

5. The contribution rates paid by individuals at the present time are less than what individuals would have to pay for the same protection from a private insurance company.

6. Contributions are compulsory except for a few groups where, because of compelling public policy, voluntary contributions are permitted under very limited circumstances.

7. Benefits are paid as a matter of statutory right to or on behalf of insured persons without a needs test.

8. All persons in occupations covered by the program are included in the system irrespective of the amount of their earnings, although for higher income persons part of their earnings are not counted for either contribution or benefit purposes (at the present time, the cutoff is \$4,200 a year).

9. Benefits are related to the wages of the insured contributor within specified dollar minimums and maximums and are a higher proportion of the wages for lower income persons than for persons with higher income.

10. Benefits are related to presumptive family needs—that is, the basic benefits of an insured contributor are increased where the contributor has a wife 62 and over or dependent children under the age of 18, and in certain other cases.

11. Benefits are paid to certain insured survivors of the contributor, such as the widow, dependent children under the age of 18, dependent parents, and dependent widowers.

12. Benefits to insured working women and wives are actuarially reduced if they begin to draw them between ages 62 and 65.

13. Benefits to insured persons between the ages of 62 for women and 65 for men and 72 are payable to individuals upon "retirement" as defined by law.

14. Benefits are paid to insured aged persons 72 or over, irrespective of retirement.

15. Benefits are paid to certain insured totally disabled persons age 50 and over.

16. Benefit rights are preserved for certain insured totally disabled persons, irrespective of age.

17. Disabled individuals are referred to State vocational rehabilitation agencies for rehabilitation.

18. A small lump-sum death benefit is payable upon the death of an insured individual.

19. There is no refund of contributions to the estate of any contributor when benefits paid in respect to his earnings do not equal the contributions he paid to the system during his lifetime.

20. Contributions are deposited with the United States Treasury; the Treasury utilizes any excess of contributions over amounts needed for benefits and the cost of administration by issuing or by buying United States Government bonds to the trust fund; the bonds and the interest on such bonds are held in the trust fund for the benefit of the beneficiaries of the system.

21. The Board of Trustees, composed of the Secretaries of the Treasury, Labor, and Health, Education, and Welfare, have the responsibility of making an annual report to the Congress giving the facts as to the financial and actuarial status of the program, and making any recommendations if the fund is too high or too low.

22. For each scheduled stepup in the contribution rate, an advisory council is to be appointed to study and report on the financing of the program.

Criteria for benefit adequacy

Major increases have been made in the benefit structure of the old-age and survivors insurance program in recent years and, undoubtedly, additional improvements will be made next year and in future years. Yet, there is no precise definition of the benefit objectives of the system.

The underlying concept of the program has been described by the House Committee on Ways and Means most recently (1954) as the "goal of providing an adequate floor of protection." The Senate Committee on Finance spoke of a basic program of contributory insurance being important to the economic security of American families (1954).

The Secretary of Health, Education, and Welfare, Marion B. Folsom, has stated that a "fundamental principle is that social-security payments are intended to provide a base of protection upon which workers and employers may build additional security through private effort and individual thrift" (1957).

Sometimes the objective of the program has been expressed as the payment of benefits which will provide "minimum protection." This ambiguous phrase has meant different things to different people. To some people it has meant a flat payment of \$50 or \$60 a month to everyone; to others, a relatively high-minimum payment of \$50 to \$75 with a narrow range between the minimum and a relatively low maximum. In other words, it has meant the floor in the basement of the social-security edifice to some, the first floor to others, and an escalator running from the basement to the fifth floor to still others.

It would be desirable to clarify this concept. With the growth of private pension plans, it becomes more urgent.

Under the 1954 amendments, benefits vary from 60 percent for an average monthly wage of \$50 to 31 percent for an average monthly wage of \$350. An individual with an average monthly wage of \$120 receives a benefit of approximately 50 percent.

In the civil service retirement system the benefit for an individual with an average wage of \$350 represents 57 percent of the wage. In the railroad retirement program the proportion is 59 percent. What should be the proportion of wages compensated by the OASDI program at various levels?

By attempting to state the desirable benefit levels of the old-age, survivors, and disability insurance program in more specific mathematical terms, it would be possible to consider more objectively long-run costs, priorities, and interrelationships between the insurance program, assistance, and private pension plans. Thus, the amount of the minimum benefit might be expressed as a specific percent of average earnings; the maximum taxable earnings base as an amount which would cover all the earnings of a given proportion of covered persons; the maximum family benefit as a specific multiple of the primary benefit amount. Finally, the benefit formula could be expressed as one which would produce a benefit of a specific percent of earnings for the person receiving the average earnings in a year and with a specified higher percentage for the individual earning one-half that amount, and a specified lower percentage for the individual earning the maximum taxable amount. Average earnings in a year would have to be defined as, for instance, the median earnings (rounded to the closest multiple of \$100) for male earners working all 4 quarters in insured employments.

The formulation of objective criteria along these lines is suggested for inclusion in a declaration of congressional intent in the law.

Countercyclical effects

From time to time, consideration has been given to various methods of modifying the provisions of the social-security system so that the program will have an even more important anticyclical effect than it might have under the present provisions of the law. For instance, suggestions have been made for reducing the contribution rates during periods of low-business activity and increasing them during periods of full employment and, as contributions increase, this may become an issue worthy of exploration. Likewise, it would be possible to write a provision into the law which would modify the retirement test in terms of the level of economic activity. For instance, to illustrate the general principle, the law could be written so that when business activity or employment dropped a given percentage, the retirement test would drop from \$1,200 to say, \$900. Conversely, when business activity or employment increased a given percentage over a norm, the retirement test would be increased to say, \$1,500, or \$2,000. The mathematical factors involved in the amount and timing of any such provision, of course, could be varied to fit varying approaches.

Several practical problems arise in the consideration of the desirability and workability of these automatic proposals. Based on past experience, the Congress has not been very favorable to the insertion of automatic escalator clauses into the statutes. The effect of any such provision is to delegate the lawmaking power to some administrative agency to determine the occurrence of specific events

which affect the rights of individuals and the condition of the economy. While the discretion of the administrative agency might be almost none whatsoever, nevertheless, the effect of any such proposal might be considered a serious abrogation of the legislative authority.

While it could be argued that there would be no real abrogation of Congress' legislative authority under any such proposal since Congress could change the law at any time, it is probable that the precedent-making effect of any such proposal would result in Congress hesitating before enacting any such proposal. Although various escalator clauses have been considered from time to time in terms of increases in veterans' benefit and other fixed statutory payments to individuals, Congress has always indicated its unwillingness to adopt any such proposals since it is pointed out that they are in session every year and can make the necessary adjustments in any legislation in the light of what Congress determines are all of the relevant facts at the time.

Adjustments to prices and wages

Tying the level of social-insurance benefits automatically to changes in the Consumer Price Index, in my opinion, is at the present time undesirable and unrealistic for the OASDI program. It is not likely to be acceptable as a solution to the adequacy of benefit problem. In the first place, such a proposal assumes that the benefits are adequate and only need adjustment to the price level. Moreover, it provides for dealing with the benefit side of the program without simultaneously adjusting the cost side. It should be recognized, moreover, that proposals for automatic adjustment of benefits to prices or wages would be opposed on the grounds that either might act as an incentive to inflation or at least affirmatively would not encourage price or wage stability. However, the same objection could be made to the escalator clause in the collective-bargaining contracts which now cover several million persons.

An adjustment formula relating wages solely to maximum benefits in unemployment insurance should be distinguished, however, from adjusting all benefits in relation to prices. These proposals differ in costs, effects, and principles. In any case, it seems to me, all these proposals to adjust our social-insurance program more promptly to a dynamic economy might well be explored. The recent German legislation and the British Labor Party proposals in this regard should be carefully studied.

Short-run and long-run costs

Before discussing certain current aspects involved in financing the insurance program, it is essential to describe the relationship between short-run and long-run costs. There were at one time and probably still are some people who say that the trust fund (now over \$23 billion) or the illusory situation produced by the apparent excess of receipts over expenditures made Congress willing to liberalize the insurance benefits in the past, or has made Members of Congress propose liberalizations of benefits which are or may be unwise. I do not propose to go into the merits of the specific proposals of the past or the proposals adopted by the Congress. But I do say that the evidence from the congressional deliberations is overwhelming that the Congress has never come to their conclusions as to the changes in

the benefits on the size of the reserve fund or on the basis of the short-run costs. They have consistently kept in mind the long-run costs. They have conscientiously tried to take into account prospective income and outgo over a long period of time. It is gratifying that our Representatives in Congress have taken this position, and I see no reason to doubt their ability to continue to do so.

What I have just said in explanation of the financing of the insurance program should not be taken to mean that the present method of financing the program is the only sound method of financing the program. Various financial changes have been proposed which have been and should continue to be given careful consideration. But I do not believe there is evidence to support the contention for any basic changes in the present law on the ground that Congress has unwisely liberalized benefits because of a failure to recognize the increasing character of the benefit disbursements.

The financing of the program

My next comment is intended to clarify the issues surrounding some of the misunderstandings which cloud the controversy between reserve and pay-as-you-go financing. The present program has sometimes been referred to as being financed on a full-reserve basis, or on a pay-as-you-go basis, depending upon the emphasis given to certain factors. Neither of these characterizations is correct. Congress is financing the program over a long time, on what I would call a partial-reserve basis, as distinguished from either a full-reserve basis, a contingency-reserve basis, or a pay-as-you-go basis.

There are three of the general principles previously discussed which the Congress adopted in relation to the financing of the present program which are pertinent here:

1. *The self-supporting principle.*—The system should be self-supporting without any subsidy from the Government.
2. *The equity principle.*—The contribution rate paid by employees, as far as possible, should not be more than what they would have to pay for the same protection from a private insurance company.
3. *The equal-sharing principle.*—Contributions should be shared equally between employers and employees.

From these three general principles, it then follows that the Congress had to establish a system of collecting contributions in excess of benefits in the early years in order to build up a reserve fund which would earn enough interest which, when added to the contributions, would yield enough income to pay the benefits in all future years (1) without asking the Government for a subsidy, (2) without increasing contributions on employees above what was equitable, or (3) without increasing contributions on employers more than on employees and thereby disturbing the equal sharing of costs. Thus, under the present program, it is contemplated that in a year, if and when benefit disbursements reached 10 percent of payrolls, 8½ percent would be coming from contributions on employers and employees and an amount equivalent to 1½ percent of payrolls from interest on the reserve fund.

This is not the only way in which this cost could be financed. Congress could have chosen to go on a pay-as-you-go basis. It could have planned to finance the 10 percent future cost by collecting 5 percent from employers and 5 percent from employees and 7½ percent from the self-employed. But this might violate the equity principle and

would result in giving persons in the early years very substantial benefits at very much less contributions. It could have financed the cost by 4 percent from employees and 6 percent from the employers, but this would have violated the equal sharing principle. It could have planned to meet the 1½ percent differential from a Government subsidy, but this would have violated the self-supporting principle.

It could have tried to make various adaptations, such as 3 percent from employees, 5 percent from employers (the extra 2 percent being rationalized as a payment toward the accrued liability), 1 percent from the Government, which might be justified as the net savings from a reduction in costs of public assistance or as a payment of part of the costs of some of the benefits for older or low-income persons, and 1 percent from interest earnings on a contingency reserve.

I could give other possible combinations of sharing the cost. But Congress did not embody any of these variations in the present law.

The late Senator Vandenberg, an eminent and outstanding student of social security, became convinced some years ago that the system should be placed on a pay-as-you-go financing basis. He also came to the conclusion that the loss to the system of the interest from a reserve fund should be met from an outright Government subsidy. He agreed to an amendment to the law, adopted in 1943, which recognized this principle. But Congress, on its own motion, eliminated this provision in 1950.

Is the old-age, survivors, and disability insurance trust fund sound?

Recently, various economic, business, and insurance journals and writers have made current issue out of an old controversy which is again confusing social security contributors and the general public and is, unfortunately, acting as a weapon to cast doubt on the financial integrity of a governmentally run insurance program. Three arguments are made:

1. The social-security fund is currently in the red, in that outgo is exceeding contribution income;
2. Social security is, therefore, inflationary;
3. The trust fund has an accumulated liability of \$323 billion and assets of \$23 billion and, hence, has a "shortage of \$300 billion and it is increasing year after year."

Before making a reply to these three points, it is important to point out that, to the extent that these statements are believed by their proponents, the answer to them is the advocacy of an increase in the contribution rates. Yet, the groups making these arguments usually have been the leading opponents of increases in the contribution rates, both during the early period of the contribution freezes of the war years and in 1956. In general, those who earnestly advocate these arguments are in favor of curtailment of government responsibility for social security, the limitation on any further benefit increases, or for outright repeal or basic modification of the program to eliminate the equity and wage-related aspects of the contributory program. In this latter point of view they have been joined by many pension consultants throughout the United States who have advised their clients and principals of the "actuarially unsound" financial status of the social-security program.

I should like to say, before I proceed to deal with the three points being raised in current discussions, that, in my opinion, from the 22

years of close association I have had with the congressional committees handling social-security legislation, the financial integrity of the program has always received the most careful consideration of the House Committee on Ways and Means and the Senate Committee on Finance, irrespective of the party in power. Whether the chairman of the Committee on Finance was Pat Harrison, Walter George, Eugene Millikin, or Harry Byrd; or whether the chairman of the Committee on Ways and Means was Bob Doughton, Dan Reed, or Jere Cooper—or whatever the composition of the committees or the conference committees—and I am sure Mr. Mills will bear me out on this point—each administration proposal and committee change in benefits in 1935, 1939, 1950, 1952, 1954, and 1956 was accompanied by the most careful presentation of the best actuarial estimates available, and an impartial attempt to keep the system in actuarial balance within the knowledge then available.

This is not to say that there is complete agreement on the way to finance a governmental program of this character. There are a number of alternatives for changing the sources and proportions of the revenues borne by the various parties. But each time Congress has approached these complex questions it has returned to the principle of financing the program directly from the contributors without any subsidies from general revenues and by a graduated step-up rather than a level-premium basis. The graduated step-up permits a gradual adjustment by employees, employers, and the self-employed to the increased levy without a too sharp impact on costs, prices, or take-home pay.

Recognizing the complex financial issues and the imponderables involved in any policy—the present one or any of a number of alternatives—the Congress, in 1956, wrote into the law a provision for the establishment of an Advisory Council on Social Security Financing to be established each time the contribution rate is to be increased. Under the present law, the contribution rate is automatically increased in 1960, 1965, 1970, and 1975. The councils are to report before each rate increase, and are specifically directed by Congress to review the status of the trust funds in relation to the long-term commitments of the old-age, survivors, and disability insurance program.

With respect to the three questions raised earlier, it is essential first to say that Congress clearly recognized that sometime before 1960 the old-age survivors insurance benefit outgo would exceed contribution income. Hence, there is nothing unforeseen about the current situation in which old-age survivors insurance benefit disbursements approximate contributions. While this situation might occur earlier than thought in 1954 or 1956, the current interest earnings and the \$23 billion trust fund are available to handle any temporary imbalance which occurs before the 1960 stepup.

Morover, the separate disability trust account will be developing a relatively large balance. This fact must be taken into account in appraising both the current deficit and the inflationary criticisms. Should the critics or Congress believe that the program should be more deflationary, then I suggest consideration be given to increasing the rate one-quarter of 1 percent on employers and employees each (and three-quarters of 1 percent on the self-employed) effective

January 1, 1958. Of one point I am convinced: the majority of the employee contributors to the program will accept a reasonable and justified increase in contributions if it is explained to them. As I have already pointed out, I think the employee contributors are willing to pay an increased contribution of one-half of 1 percent at the present time for increased benefits. Since the full effect of the benefit increases I have proposed for the immediate future would be less than the contribution yield, the proposal would be deflationary on the whole. When coupled with the contribution increases already scheduled for 1960, the deflationary effects would continue into the early sixties.

I do not propose the changes I have suggested on the grounds that it is desirable that they be deflationary. I would prefer that any changes, at the present time, have a null or inconsequential effect on the balance as to income and outgo. But this is not feasible from the standpoint of public opinion, in my judgment, or from the point of view of fixing contribution rates in convenient percentage multiples. In any case, considering all the aspects, I believe it desirable to provide immediately for the contributions to cover the level-premium cost of any new benefits provided. This was the policy adopted in principle by Congress in 1950, 1954 and 1956, and I believe it would be best to continue this principle for the present unless special circumstances warrant its partial or temporary modification.

The third criticism, that there is an actuarial deficit in the present program, is one which, while frequently made, is not intended to produce a constructive answer for rate increases. Representatives of insurance companies and actuaries, and two advisory councils, have testified that in a system handled by the Government and assumed to operate in perpetuity, it is not necessary or desirable to operate on a full-funded reserve basis as a legal reserve insurance company does. Private insurance neither has the advantage of the taxing power nor the advantage of assuming perpetual operation. Hence, a governmental program need not follow private insurance reserve financing or precepts of actuarial soundness used in private plans.

The trustees of the Federal old-age and survivors insurance trust fund, in their report to Congress dated March 1, 1957 state that the old age and survivors insurance system is in actuarial balance. That is, based upon present information, for the long-range future the system will have sufficient income from contributions, based on the tax schedule now, in the law, and from interest earned on investments to meet all future payments for benefits and administrative expenses. Disbursements will grow, but so, too, will contribution and interest income.

To recapitulate, the present social-security system is financed on a sound long-run basis; it has an orderly and responsible method for assuring a periodic reexamination of the financial soundness of the program, the actuarial estimates, and the scheduled contribution increases; it need not and should not be judged as to its actuarial soundness by private insurance standards; and, while the program should be modified by making benefit and contribution changes at an early date, these changes should not alter the basic financial principles underlying the program at the present time.

Contractual insurance versus social insurance

Before concluding a review of some of the fiscal issues in social security, it is essential to recognize the values and limitations of private and public programs. Private life insurance, annuities, and disability payments are important, essential, and need to be increased. There are a number of areas in which improvements are warranted and should be encouraged by private and congressional action. But, in numerous publications of the critics of social security in recent years there is an unwillingness to recognize openly and directly the concrete value of social security in protecting a free-enterprise economy, in making it possible for individuals to purchase supplementary private insurance, and for companies to establish supplementary private plans.

I do not expect to find paeans of praise for social security from these sources such as once were made in advertisements selling life insurance. These occurred in the days when the public was just becoming aware of the life-insurance element in survivors benefits and the relatively small old-age benefits payable to higher income earners.

But, today, there is a clear advantage which social insurance has over most contractual private insurance, namely, that social-insurance benefits can be increased as wages and prices increase. This is not a theory looking for an event to prove its historical accuracy. In 1950, 1952, and 1954, Congress increased the old-age and survivors insurance benefits as a result of rising wages, prices, or standards of living. And Congress, in my opinion, should, and undoubtedly will, do this again. Except for the few and limited variable annuity plans, contractual private old age benefit plans or policies do not offer the built-in dynamism which contributory social insurance offers as income increases.

Inflation is—and remains—a terrible calamity for persons on fixed incomes, such as retirement annuitants, widows and orphans, and the disabled. But, if and when, inflation occurs, a social-insurance system is presently better equipped to deal with the problem than the conventional contractual fixed-benefit payments of private insurance, at the present time.

Similarly, as productivity and levels of living rise—assuming there is no inflation—social insurance can reflect these improvements, not only for future beneficiaries, but for beneficiaries already on the rolls. This conventional contractual private insurance does not do. In several foreign countries such an “improvement factor” is already incorporated in the social insurance legislation, or is proposed. It would be desirable for the Joint Committee or the Advisory Council on Social Security Financing to explore these features in the plans and proposals of other countries. They indicate the superiority of publicly managed social-insurance plans to private plans in an expanding, growing, dynamic economy. It would be desirable for the Joint Committee to explore the respective values and limitations of each type of insurance and the desirable relationship to be worked out among various types of insurance for each type of benefit. While competition between both types of programs is desirable for the economy as a whole, it is my opinion that social insurance still labors under the handicap of organized adverse criticism from certain groups. This is not fair to our governmental processes, nor is it socially responsible. Perhaps a

complete examination of both programs is a proper function of the Joint Committee. Such an examination would consider tax exemptions, amount and character of reserves, administrative costs, State and Federal regulation, and the recognition of variable annuity plans by Federal statute.

The Jenkins-Keogh bill

The Congress, on several occasions, has considered the principles embodied in the so-called Jenkins-Keogh bill to exclude from taxable income some amounts contributed by self-employed persons to certain types of funds for personal insurance protection. The tax loss involved has been a major factor in persuading the Congress and the administration to defer action on this proposal. Moreso, as long as doctors are not covered by old-age, survivors, and disability insurance, it has been pointed out that they should not have the advantages of any special new legislation when they are unwilling to accept or share in the privileges and responsibilities that all other professional groups now enjoy. However, the dubious "special privilege" enjoyed by doctors (which includes the privilege of leaving some of their widows and orphans without adequate income for the future) will probably soon be eliminated by the Congress—or, in any case, should be eliminated. Every indication is that a growing proportion of doctors want to be covered by old-age, survivors, and disability insurance, and when the doctors are given all the facts by any impartial source—free from ideological overtones related to "socialized medicine," a majority vote in any correctly and fairly worded referendum in favor of old-age, survivors, and disability insurance coverage.

When the doctors finally come in to old-age, survivors, and disability insurance coverage, consideration might then be given to allowing self-employed persons a limited amount to be excludable from taxable income as, for example, an amount equal to twice their social-security contribution in a year. This would create an automatic relationship between the two approaches which would serve to maintain the identity and integrity of each.

Deduction of all employee contributions from taxable income

There is no doubt, however, that allowing any such exclusion for the self-employed raises several larger issues which have very wide ramifications. Among these are: whether other forms of "savings" should be excludable and how to draw any reasonable line defining this concept, and whether to permit employees to exclude part or all of their employee contributions toward plans in which employers now may make deductions from their gross income for all of their employer contributions.

It must be recognized that our present policy of taxing as "income" amounts deducted from employees and not actually received but deferred as old age, survivors, or disability payments does not quite accord with the much extolled policy of encouraging thrift. By taxing when incomes are high, and allowing exemptions when incomes are low, we discourage saving, or at least it can be said we do not encourage it as affirmatively as we might.

A more appropriate policy would be to allow a deduction for employee contributions to all types of recognized plans and then tax the benefits when they were received. The plan would have to operate

within certain stated limitations and definitions. There are obvious difficulties in changing over to any such system. But it warrants continued careful study along with the proposals already outlined.

Double tax exemption by the aged

One further tax matter requires future consideration, namely, the double exemption for the aged. While it may be pointed out that there is very little justification from a standpoint of equity or social policy to this feature in our tax law, the major point to be made is that the tax loss from this provision will continue to increase and the same amount of tax funds placed elsewhere would do a lot more good. As incomes of the aged increase, and as the possibility of increasing the exemption reappears, it might be desirable to consider reducing this loss from the higher income aged and utilizing all or a part of such funds for the very low-income aged. This may not be something which can be repealed but, at least as tax changes occur in the future, the tax loss should not be increased from this provision.

Area redevelopment program

In a growing and expanding economy there, unfortunately, will be pockets of unemployment and declining opportunities which require the concerted mobilization of available private and public resources and skills. An effective program is necessary to alleviate conditions of substantial and persistent unemployment and underemployment in economically depressed areas. Congress should enact appropriate legislation for this purpose. Of special interest are the establishment of apprenticeship, journeyman, and other vocational training facilities and services in a redevelopment area, and weekly subsistence retraining payments to unemployed individuals in such areas who are not entitled to unemployment insurance and who are undergoing training for new jobs.

In this regard, I wish to urge continued support and appropriations for the rural redevelopment program now under way through the Department of Agriculture. As experience emerges, it may prove desirable for the Congress to expand the programs. Redevelopment programs are underway in only some 50 counties and 8 areas in 24 States. This program should be expanded as soon as it is feasible.

In considering improvements in the social-security program, it should be kept in mind that most farmers and many farmhands are now covered under the system. Increased social-security benefits and broadened types of protection will enhance the security of persons in rural areas and increase the income available to them.

On many different fronts we must continue to move toward expanding the program which will bring depressed rural and urban areas into the mainstream of economic progress. As President Eisenhower has said, "We must open wider the doors of opportunity—for the good of our country and all our people."

Disclosure of private welfare funds

Federal legislation providing for registration and disclosure of the essential financial and administrative operations of private welfare funds is desirable. The potential growth of the reserve funds, income, and expenditures makes it necessary for the Federal Government to disseminate accurate and full information on these quasi-public operations. From the standpoint of public policy, the method

of financing or administration is irrelevant to the question of disclosure. In order that the disclosure legislation will be administered as a service-oriented program, rather than a regulatory or management-labor program, it would be appropriate to consider having the program at the Federal level administered by the Secretary of Health, Education, and Welfare.

Since contributions to these plans involve Federal tax deductions, and will be more closely interrelated as time goes on with major fiscal and economic policies, there is sound ground for exercise of congressional responsibility in this field.

I believe that reports to all participants and beneficiaries should be mandatory and there should be a detailed listing of all investments.

SOCIAL POLICY AND RESEARCH

The broad questions of policy discussed in this paper are ultimately decided by consumers and legislatures in specific settings. General principles must be adapted to different programs and objectives. Where incentive and disincentive elements for adults can play a very significant role, as in unemployment insurance, the form of taxation and benefits may differ from the methods of providing education to children. The relatively nondiscretionary role of the Federal Government in the administration of a wage-related, contributory insurance program may differ from the role it plays or might play in providing or financing educational or health services. These illustrations could be multiplied, but are sufficient to indicate that fiscal policy cannot be considered apart from economic and social policy.

A major weakness in most recent fiscal policy discussions is that fiscal policy is frequently viewed as being independent of social policy. This is not true and, moreover, is undesirable. Any mechanistic solution to fiscal problems, whether it involves income distribution, taxes, the budget, interest rates, or monetary policy which does not adequately take into account the impact on individual, family and national welfare, is not a sound national policy.

Social policy should not be viewed as something which only comes into play when fiscal and economic policies do not work out as planned. Nor should social policy be introduced only as a secondary factor to make long-run fiscal and economic policies workable in the short run. Social objectives must be woven into economic and fiscal policy in a democratic society at the initial stage of their formation and administration. To accomplish this, much more emphasis must be given to factfinding, statistical analysis, research, and demonstration projects in socioeconomic policies and programs.

The increasing complexity of economic, fiscal, and social policy issues, the great increases in population and its geographical and social mobility, and the controversial character of many issues facing lawmakers (Federal, State, and local) and the citizenry, all argue for our obtaining some perspective on our current and future problems and resources. The Congress affects policy and programs quite apart from the passage of laws, the making of treaties, acting on nominations, and making appropriations. By its staff studies and reports, committee investigations, and cross-examinations of Government and public witnesses, it influences policy. Sometimes the declarations of public policy and statements of congressional intent in legislation

come to have an effect more pervasive and influential than the substance of the legislation. The declaration may be understood by millions; the substantive provisions only by a few experts.

Statements of agreements and disagreements are often of value. Recognition of facts are frequently of some importance. Exchange of ideas can modify conduct and policy.

Commission on current and future social policies and trends

It is suggested, therefore, that the Congress enact legislation authorizing the appropriation of funds to conduct a nationwide survey of broad current and future social trends. The funds should be appropriated to a special nonpartisan Commission which would use the facilities of Government, universities, and other private resources. At least 3 years should be allowed for the completion of the report which should be comprehensive.

Such a report would enable the Congress and the American people to have some benchmark to evaluate the programs and policies necessary for the 1960's. Economic and fiscal policies can then be reviewed, criticized, and modified in the light of social needs and the social problems of an expanding economy.

Social research

Increased research funds are needed in the social, economic, and administrative aspects of health, education, and welfare. Congress has, in recent years, increased appropriations along this line for education, vocational rehabilitation, and public health. In 1956, legislation was enacted authorizing appropriations for research and demonstration projects in social security but, as a result of the economy drive this year, appropriations, unfortunately, were not made in 1957 to carry out this new legislation. Both the House and Senate appropriation subcommittees recommended an initial appropriation to carry out the program. It is recommended that Congress provide the necessary funds to implement this 1956 legislation.³⁵

Federal funds for research in many aspects of health have increased significantly in recent years. The Congress has been generous and farsighted in this area. In the economic and financial areas Congress has provided for research and statistics in the Bureau of Labor Statistics, the Department of Commerce, and the Treasury, which has resulted in the supply of information generally unavailable 30 years ago. But, in educational and social matters, the Congress has been hesitant and doubtful, perhaps because of the social issues involved in these areas. Nevertheless, in the past 3 years the Congress has recognized that it is possible, desirable, and productive to encourage research in these areas.

Expenditures in the field of research in social security and welfare in the United States are microscopic when it is recalled that in 1954 over \$5 billion was spent in the Nation for all research and development performed by private industry, educational institutions, foundations, Government and all other organizations. Of this amount, the Federal Government financed 40 percent of the cost. Over one-third of

³⁵ For a summary of the legislative background and research potentialities of this legislation, see Wilbur J. Cohen, *New Opportunities in Social Security Research*, Social Work, April 1957.

the research and development work conducted by private industry was paid for by the Federal Government.³⁶

This same formula can and should be used to accelerate social and economic research in health, education, and welfare. Increased Federal financing for these purposes, with the actual research decentralized to private organizations, universities, research institutes, foundations would be a sound investment. The vast social problems we are encountering in our dynamic society require a larger investment in social research. The joint committee might well make an intensive study of the needs and resources in this area with the assistance of the Department of Health, Education, and Welfare, the National Science Foundation, and the private philanthropic foundations making grants in these fields.

Further study of low incomes needed

There should be continued the study of the extent of low incomes in our economy and the changing causes and the effectiveness of programs dealing with them.

The studies, hearings, and reports of the Subcommittee on Low Income Families (1950 and 1955-56) under the chairmanship of Senator Sparkman, have aided in focusing nationwide attention on low incomes in our economy. New information and programs have been developed since the subcommittee made its last study (1955) and report (1956). It would be desirable to continue the work of this subcommittee, particularly in planning for the preparation and analysis of relevant data in the 1960 census.

No one government agency is specifically authorized or directed to bring together all of the data bearing on low incomes in our society. We need much more intensive information on the interrelationship between educational status, poor health, and dependency, in interpreting the causes of low incomes and the methods necessary to minimize and prevent dependency, and raise the productivity of low-income earners. The responsibility for coordinating, synthesizing, and eliminating the gaps in our knowledge should be given to one agency. The Bureau of the Census, the Departments of Labor and Health, Education, and Welfare all have a significant role to play in this matter. It is suggested that Congress enact a statute directing the executive branch to prepare material in this field, and creating an interdepartmental committee by law to institute the necessary arrangements to see that the material is developed by the regular agencies. The material should be available so that in 1960 and again in 1965 the Subcommittee on Low Incomes could reinvestigate the situation with more adequate information than what was available in 1949 or 1955 or what is available today.

It is also suggested that the joint committee take the necessary steps, if it has not already done so, to request the report on low incomes recommended by the Subcommittee on Low Income Families to be submitted by the executive branch to the joint committee during the 85th Congress.³⁷

³⁶ Expenditures for Research Relating to Welfare, Research and Statistics Note No. 28, 1956, Division of Program Research, Social Security Administration, Department of Health, Education, and Welfare.

³⁷ A Program for the Low-Income Population at Substandard Levels of Living, S. Rept. No. 1311, January 5, 1956, p. 14.

As national productivity and incomes rises, some of our methods and programs dealing with low-income problems may require substantial modification. To prepare for this challenge, we must lay the plans now for the information and analysis needed in the decade ahead.

THE IMPORTANCE OF FEDERAL EXPENDITURES FOR DEVELOPMENT OF HUMAN RESOURCES THROUGH EDUCATION

Arthur F. Corey, State executive secretary, California Teachers Association

The subtle relationships between the educational level of a people and their general welfare have long been recognized by statesmen, economists and sociologists. These interacting factors are not easily measured, and cause and effect are difficult to establish. Nevertheless some of them are logical enough to deserve brief delineation.

EDUCATION AND NATIONAL DEFENSE

One significant impact of education on the national welfare is in connection with national defense. Modern armies depend heavily for their effectiveness upon the quality of their men and officers and upon the arms produced by the skilled workers and scientists who back them up. Even the lowest ranks need an educational background higher than that enjoyed by many of our people.

Armed Forces rejections

During World War II the Armed Forces first rejected and later developed special training units to take care of men whose education was below the minimum. More than 300,000 men were assigned to these units. Not only were they not available until completion of the special training needed to make them functionally literate, but they required the services of a great number of other personnel as teachers. The services of more than a third of a million men were diverted from the direct war effort because of the lack of educational opportunities.

At the present time reports indicate a rejection rate of about 12 percent on the basis of failure to pass the Armed Forces qualification test. This is somewhat lower than the 16.4 percent reported for the first year of the Korean conflict, but it still constitutes a deplorable threat to our defense potential.

Relation of rejections and educational expenditures

The effects of lack of education during World War II have been studied carefully in the research project on the conservation of human resources carried on by the Graduate School of Business of Columbia University.¹ Reporting the results of the study, Ginzberg and Bray point out in *The Uneducated* that the rejection rate for selectees from the 12 States spending the least amount per student on education was 7 times the rate for the 12 States spending the highest amount. A study of rejection rates during the Korean conflict has been made by

¹ Eli Ginzberg and Douglas W. Bray, *The Uneducated*, New York, Columbia University Press, 1953, p. 55.

the research division of the National Education Association.² It gives a similar result. All 15 of the States having a rejection rate above the national average spend less than the national average per child on education.

Education and technical leadership

The direct impact of education on national defense which is illustrated by the effect of illiteracy, is dramatic. However, it may well be less serious in the total picture than are the indirect effects. Lack of educational opportunity so severe as to result in illiteracy in adulthood, is an extreme situation. Much less restriction of opportunity is needed to produce other serious effects. Wolfe in *America's Resources of Specialized Talent*³ has pointed out that probably fewer than one-quarter of our bright students actually complete an education that would permit them to fill the technical and scientific posts important to national defense.

Education and citizenship

Although loyalty is no problem with the overwhelming majority of Americans, it must also be pointed out that the development of intelligent understanding of what America stands for is an educational job. Good citizenship does not just happen. Internal as well as external security is dependent upon education.

ECONOMIC WELFARE

It has long been recognized that education is directly related to productivity. In 1914, Edwin R. A. Seligman, writing in *Principles of Economics*⁴ stated that—

In the commercial warfare that is being waged between nations today, education is recognized as a potent weapon * * *. The finer the tool, the greater will be the product; when the tool consists of human energy, we have not only a great product, but a greater capacity in the human being to utilize the product.

Forty years later the United States Chamber of Commerce called attention to the fact that the median educational attainment of those earning \$10,000 or more per year was 13.5 years of schooling; while those earning less than \$1,000 had a median attainment of only 7.5 years. Although income is not the same as productivity it is directly related to it.

Education and technical replacement

Economic welfare in a highly developed industrial society is unusually dependent upon education. The educational policies commission of the National Education Association has pointed out that—

Continuous education for replacement of economic knowledge and skill is of supreme importance in a technological

² Implications of Armed Forces Qualification Test Results for Education in the United States, compiled by the research division, National Education Association, October 1952 (mimeo.), p. 1.

³ Dael Wolfe, *America's Resources of Specialized Talent*, New York, Harper & Bros., c. 1954, p. 8.

⁴ Edwin R. A. Seligman, *Principles of Economics*, 6th edition, New York, Longmans, Green & Co., 1914, p. 292.

society. The length of the period of training and the brief span of a man's working years testify to this fact. Education has an enormous job to perform in merely maintaining the present accumulated capital of economic knowledge and skill. Every death of a professionally or technically trained worker reduces the capital unless it is currently replaced.⁵

Economic welfare is affected by education in many ways. Increased productivity on the job is only one of the benefits derived from schooling. At least equally important is the increased economic stability that results from an increase in economic literacy. Wild speculations, senseless panics, crackpot economic panaceas, all are less likely seriously to affect the economy of an educated people.

Education stimulates consumption

The overall impact of education on the economy is abundantly illustrated by a study of the relationship of per capita retail sales to the number of years of schooling completed by the inhabitants of some of our metropolitan areas.⁶ For example, it was found in 11 cities where the school years completed averaged between 8 and 9, annual retail sales averaged \$917 per capita. In 19 cities where the average schooling was between 11 and 12 years, the per capita sales averaged \$1,100 per year. These cities were of comparable size and were located throughout the country.

Education and social dislocation

Even as education produces wealth, so the lack of it produces poverty and ignorance with their attendant social dislocation. A group under the leadership of Dr. Bradley Buell made a detailed case-by-case study of the costs of correcting social and economic dislocation in the area of St. Paul. They discovered that one-half of all these services were required to deal with only 6 percent of the families. One family in sixteen costs society as much for these services as do the other 15 combined. The cost of social dislocation is highly concentrated in a small segment of our population. Although more research is needed on this problem, there is indication that this expensive segment of our population may be characterized as educational derelicts. Social dislocation seems to be essentially an educational problem.

EDUCATION IS A NATIONAL ENTERPRISE

California has an average of 1,400 residents each day who were not there yesterday. These are not newborn citizens. They were American citizens yesterday and the day before; but they did not live in California. In most cases these citizens cannot be fully educated by the State of California. Some of them are adults who must earn a living; others are teen-age youth who can receive at most a year or two of schooling in our State. Only the young children will be fully affected by the schools of California. Everybody else will have to rely on other States for all or part of his education.

⁵ Educational policies commission, National Education Association, *Education and Economic Well-Being in American Democracy*, Washington, D. C., the association, c. 1940, p. 18.

⁶ Chamber of Commerce of the United States, *Education—An Investment in People*, Washington, D. C., the chamber, 1954, p. 9, chart No. 4.

Population mobility

Mobility is not a problem peculiar to California. From March 1955 through March 1956, over 5 million Americans moved into a new State.⁷ Included in this number were 948,000 children of school age (5 to 17 years). All States were affected. Even those that had a net loss of population received new residents from other States.

Mobility is a phenomenon affecting both sides of the school desk. In fact, it seems probable that it is higher for teachers than for the general population. For example, in California nearly half of the new teachers employed by school districts each year have been trained in other States. Many of them have taught in these other States from 1 to 15 years. It is clear that even a State as well favored educationally as California is heavily dependent on the rest of the United States for the quality of its teachers.

Federal impacts on education

The direct impact of Federal activities upon education in the several States has been generally recognized. Some provision has been made under Public Law 874 for helping States and their subdivisions to meet the educational needs arising from the existence of Federal installations such as airbases and defense plants. However, the aid provided is based upon the number of children whose presence in the schools of a State can be directly traced to the existence of Federal or defense installations. The actual impact is much greater than this measure indicates.

When the Federal Government alters its policy with respect to any program that has a major influence on the economy of the Nation, there is also an impact on the educational facilities of the States. For instance, it is anticipated that the accelerated program of interstate highway construction will have a marked tendency to increase the costs of school construction in the next few years. The "tight money" policy which now exists has sharply increased the interest that must be paid by States and local school districts on bonds sold to pay for new buildings.

EDUCATION IS FINANCED BY A NATIONAL ECONOMY

Ours is a national economy. Automobiles produced in Detroit are sold in Los Angeles. Movies made in Hollywood are exhibited in New England. Television shows staged in New York are seen in all the States and the District of Columbia. Many activities are carried on simultaneously in several States—for example, telephone, pipeline, and other transportation and communication operations.

Tax sources for educational support

In the past, educational expenses have been chiefly paid by means of a property tax. However, our present national income depends more upon economic activity than it does upon fixed property. In a speech made at the convention of the American Association of School Administrators in February 1957, R. L. Johns, head of the department of educational administration of the University of Florida, pointed out that "* * * the only sources of our national income which

⁷ U. S. Department of Commerce, Current Population Reports, series P-20, No. 73, March 12, 1957, p. 9, table I.

are increasing or remaining constant in proportion to the total income are compensation of employees and corporate profits. These two sources of income accounted for 80.7 percent of the national income in 1954 and probably will account for a somewhat higher percentage in 1957." Dr. Johns went on to indicate that some tax other than the property tax must, therefore, be called upon to help finance education.

The gross national product is at least a rough indicator of the ability of the American economy to support the various activities undertaken in the country. In 1954, 2.8 percent of this product was expended upon public education.⁸ In this same year, total tax collections were equal to 23.6 percent of the gross national product. Revenues for the public school constituted, therefore, 9.3 percent of total tax collections.⁹

However, when State and local tax collections are considered, it is found that in this same year school revenues formed 43.6 percent of all local tax collections and 26.5 percent of State collections. The amount expended upon public education by the Federal Government has never equaled so much as 1 percent of its tax revenue. In 1954, it was 0.3 percent.¹⁰

It is clear from a consideration of the sources of taxable wealth in our economy and from these figures on the relative importance of education as a subject for expenditure of public funds at the various governmental levels that the financial crisis in American education is not due to the inability of our economy to carry the load. The crisis is clearly due to defects in the mechanism for taxing wealth produced by that economy.

Inequities among the States

The limitation of State and local taxing powers in supporting public education are clearly shown by two facts. The first is the great variation to be found among the States in the ratio of taxable wealth to children to be educated. For example, income payments per pupil in average daily attendance in public schools in 1953-54 varied from \$17,471 in Delaware to \$4,007 in Mississippi. The national average of \$11,104 was exceeded by more than a thousand dollars by 14 States; whereas 19 States failed to reach it by more than \$2,000. The most favored State had an income per child more than 400 percent of that of the poorest State.

The result is that educational facilities are unequal among the States despite the efforts of many of the poorer States to improve their status. North Dakota is 38th among the States in income payments per child; but it is first in the percentage of the total income payments made in the State that is spent for public education. Nevertheless, it is 29th in the amount spent per pupil for the current costs of education, which is less than three-fifths as much as the top State. On the other hand, the top State, New York, is 35th in effort—the percentage of its income payments that are spent on public education. It is able to be in first place in per pupil expenditures because it is in second place in income payments per student.¹¹

⁸ Status and Trends: Current Statistics and Forecasts Related to Education, compiled by the research division of the National Education Association, October 1955, p. 44, table 24.

⁹ Ibid., p. 42, table 20.

¹⁰ Ibid., p. 43, table 21.

¹¹ Research division of the National Education Association. Rankings of the States, January 1957; p. 14, table 21; p. 15, table 23; p. 16, table 26.

In part the inequities among the States are due to differences in population density and in natural resources. However, the major differences in taxable wealth are due to the workings of our economic system. Delaware is first in income payments per child not because of the natural wealth of the State but because it is the home of many large corporations. The high assessed valuations of some Michigan school districts are due to the fact that people throughout the Nation buy the automobiles produced in plants located within their limits.

As a matter of fact, many strategically located States are able to tax the entire economy to provide for their schools. Michigan property taxes paid by automobile manufacturers become part of the costs that are used in determining how much California shall pay for cars. New York city and State income taxes are paid by corporations that do business in Mississippi. These taxes help support New York schools without regard to the fact that the economic activity that made their collection possible took place all over the United States.

THE NATURE AND DIMENSIONS OF THE EDUCATION SHORTAGE

We have had many warnings of our educational shortcomings by prominent educators and lay citizens. The warning of Walter Lippmann, in addressing the fifth annual dinner of the National Citizens Commission for the Public Schools, has a very penetrating quality that makes it appropriate for the present discussion:

We have to do in the educational system something very like we have done in the Military Establishment during the past 15 years. We have to make a breakthrough to a radically higher and broader conception of what is needed and what can be done. Our educational effort today, what we think we can afford, what we think we can do, how we feel we are entitled to treat our schools and teachers—all of that—is still in approximately the same position as was the military effort of this country before Pearl Harbor.

There is an enormous margin of luxury in this country against which we can draw for our vital needs. We take it for granted when we think of the national defense. From the tragedies and the bitter experiences of being involved in wars for which we were not prepared, we have acquired the will to defend ourselves. And, having done that, having acquired the will, we have found a way. We know how to find dollars that are needed to defend ourselves, even if we must do without something else that is less vitally important. In education, we have not acquired that kind of will.

But we need to acquire it, and we have not time to lose. We must acquire it in this decade. For if, in the crucial years that are coming, our people remain as unprepared as they are for their responsibilities and their mission, they will not be equal to the challenge, and, if they do not succeed, they may never have a second chance to try.¹²

¹² Walter Lippmann, *The Shortage in Education*, the *Atlantic Monthly* (May 1954), pp. 37-38.

Two concepts we may pick from Lippmann's warning for the present commentary:

1. The present condition within public education is a danger to the Nation.
2. The essential nature of these conditions is shortage.

The educator's view is that the future of the Nation is so closely connected with what happens in our public-school system that the Federal Government cannot permit itself to be unmoved by what is taking place, nor to be bound by attitudes and viewpoints which may at an earlier time have been merely provincial or dilatory but, in today's fast-moving world, are genuinely threatening.

We may examine the available data to confirm or reject the contention that existing shortages in education are a danger to the Nation, a danger which should prompt us to exercise national educational policy in our own defense. The present paper, in its brief form, will not be able to introduce elaborate original research nor to refer to all existing sources of data. It will call to its support references which have had general circulation and wide examination.

A brief review of the recent 25 years

Our public-school system, in response to our evolving social philosophy that every individual human being shall have full opportunity for the creative or productive use of his talents, has only approached full flower within this past quarter century. This is the period when schools and their learning experiences have been made generally available to all youth through the secondary grades to ages of 17 or 18 years. The expansion of high-school curriculums and the public attitude on child labor, plus the confidence of the American people in the public school as the key to individual opportunity, has brought all but a negligible percentage of high-school-age youth into the classrooms. We have made a substantial beginning in opening the doors of higher education to many young citizens by the provision of regional and community colleges.

At the threshold of this portentous expansion of the public-school system, there have occurred social and economic events of such magnitude that they are seriously threatening this desirable progress. For the American people, the economic depression of the 1930 decade appears to have been a near-traumatic experience.

The resulting sharp decline of births across the Nation led many to believe that there was no justification for educational planning much beyond the already existing school plant and facilities. Expenditure for school buildings throughout the Nation in 1934 was less than one-sixth of its 1930 total. This basic tendency continued until 1941.¹³

World War II caught us unprepared to expand both a wartime and a suddenly changing civilian economy. The need for materials and concentration of manpower in war production left no resources to meet the need for supplying the altered civilian role. The shift in population across the Nation was enormous. Government restrictions on building materials shut off needed school expansion, so that, actually,

¹³ The Committee for the White House Conference on Education, *A Report to the President* (April 1956), p. 23. We shall hereafter refer to the White House Conference Committee report.

less school construction occurred than during the worst of the depression period. Until 1948, less was spent each year on school construction than had been spent in 1930.¹⁴

To compound the school problem, our procreative habits reversed themselves sharply, and we returned to the high birthrates of the prosperous years of the 1920's. Within a few years, we had in the newly congested areas connected with the wartime shift in population new generations of children of school-entrance ages completely beyond the capacity of existing school facilities to accommodate. With the close of the war and the gradual freeing of materials for the civilian economy, we began a race with school-population growth which has not yet been won.

A dramatic example—California

The effect of the events noted above on the educational system of the Nation has been well observed and documented, and such data can be added shortly. Let us, for a few paragraphs, illustrate the national experience in the story of one State alone, California.

The population of California has generally doubled every 20 years since 1860. The proportion of school-age members has varied throughout the decades, but the overall record may be summarized as follows:

Ninety years, 1849–1940, passed before 1 million children were enrolled in the public schools. The enrollment of the second million took only 13 years, 1940–53. The third million will be enrolled in 5 years, 1953–58. It is estimated that by 1965 there will be no fewer than 4 million pupils in the public schools.¹⁵

California sees no decline in its remarkable and painful growth. Forecasters are predicting that the total population of approximately 13 million in 1955 will rise to some 24 million by 1975.¹⁶ Any inclination to shrug at California's distress is hardly becoming the rest of the States, since at least half of this growth may be accounted for by the immigration of "outsiders" from the rest of the Nation.

Let us look closer at California's schools. When classes opened for the 1957–58 school year, there were 183,000 more pupils than had been enrolled in 1956–57. There was need for nearly 7,000 new classrooms to care for this enrollment increase. In addition, there remained a backlog of about 180,000 children attending schools on double sessions. The double-session load has been reduced from 200,000 in 1955–56, but to remove it completely would call for another 3,000 classrooms, or a total approaching 10,000 new classrooms during 1957–58.¹⁷ We may recall that a 4 million enrollment is foreseen by 1965, so that annual increases of well past 130,000 are expected for each of the next 7 years.

The financial effort put forth to try to meet this school-housing crisis in California is equally dramatic. From 1947 to 1949, the State

¹⁴ *Ibid.*

¹⁵ California State Department of Education, *Teachers for Tomorrow's Children*, State Department of Education Bulletin, vol. 25, No. 2 (June 1956), p. 32; California State Department of Finance, *Projected Enrollment in California's Schools, 1956–70* (July 1956), p. 19.

¹⁶ Dr. Weldon B. Gibson, Stanford Research Institute, an address before League of California Cities, San Francisco, September 23, 1957.

¹⁷ Associated Press story, *San Francisco Chronicle*, September 3, 1957. Data obtained from California State Department of Education.

legislature gave to school districts from wartime surplus revenues a sum of \$55 million to assist their school-housing expansion. Since 1949, the citizens of the State have voted \$635 million of general-obligation bonds for lending supplemental funds to match or exceed district bonding capacity. The districts themselves will have expended a total of \$800 million of local revenues. On June 30, 1956, the bonded indebtedness of California's school districts was \$1,110 million. Added to these totals is an amount of \$130 million of Federal construction aid to schools situated near Federal installations of various kinds.¹⁸

The addition of nearly 1,900,000 pupils foreseen by 1970 will call for a California effort totaling over \$3 billion, at current school costs.¹⁹

We have referred only to school costs associated with supplying classroom space. The additional expenditures for current operations almost defy the imagination. The 4 million pupils, at present current costs per pupil, will call for an annual operating expenditure of over \$1,400 million.

If we examine the teacher-supply problem separately, it can be estimated that California will have to find an annual average of 4,990 new teachers per year for the next 9 years just to match enrollment growth. For the year just ended, 1956-57, the public-schools staff was 8,962 larger than in 1955-56. Even this staff increase did not prevent California from having to employ over 12,700 persons on substandard credentials, close to 10 percent of the entire teaching force.²⁰

Besides the estimated 4,550 new teachers to care for added pupils in 1957-58, there will be needed 10,440 replacements to match the teachers who will leave the classrooms for one reason or another. For the present year, California must employ almost 15,000 new teachers. Over the next few years, there must be found and employed a new and added teaching force larger than the present staff of 125,000 members.²¹

The national scene; no less a crisis

While across the Nation there are spots in which this story of shortage is not especially dramatic, the total national scene is, for all practical purposes, no less severe in its outlook than is the one in California. It would be repetitious of this paper to repeat the full scale of itemized needs. Only brief summation will be attempted.

One national survey of school districts, using 1959-60 as the target year, accumulated a total need for 476,000 classrooms and related facilities, to cost approximately \$16 billion at prevailing prices in 1954. Of this total the districts reported that almost \$7 billion was beyond their existing fiscal capacity, although a portion of the deficit could be overcome by better district organization.²²

Another survey completed for the White House Conference on Education accumulated an estimate of 200,000 classrooms for the target

¹⁸ Paul Rivers, chief of Division of Schoolhouse Planning, California State Department of Education. Initial phases of California's State building aid program may be reviewed in 12th Report Senate Investigating Committee on Education, California Legislature, 1955 regular session, pp. 9-12.

¹⁹ Estimates of Division of Schoolhouse Planning, California State Department of Education. Reviewed in California Teachers Association Journal (April 1957), p. 18.

²⁰ Carl A. Larson, California's Need for Teachers, 1957-70, California Schools (July 1957), p. 310.

²¹ *Ibid.*

²² U. S. Office of Education, Report of the Long Range Planning Phase of the School Facilities Survey (December 1955), pp. iii, 5-6, 29-30.

year 1955-56. Projections of the data obtained to fit forecasts of enrollments for 1959-60 produced for the later year an estimate of 375,000 classrooms. The White House Conference Committee suggested:

Responsible people have estimated the sum which should be spent on school buildings by 1960 as everything from \$10 billion to \$15 billion. These figures are useful mainly to give a rough idea of the extent of the problem. More precise estimates will have to wait additional research, many decisions made at the State and local levels concerning the reorganization of school districts, and the quality of buildings wanted. If the people of this Nation continue to want school buildings of high quality, if resistance to the reorganization of school districts continues in many States, if the birthrate remains high, and if construction costs rise, most estimates of the amount of money needed for new schools will prove to be too low.

Of perhaps more significance is the fact that of the 41 States participating in the White House Conference survey, 19 said that they were steadily losing ground in the race to provide enough classrooms. Twelve reported that they were barely holding their own.²³

In the matter of the shortage of teachers, largely parallel to the shortages of trained persons in all fields requiring a good education and mainly caused by the low birthrates of the 1930's, the White House Conference had the following to say:

To sum up, the total annual need is about 85,000 public elementary schoolteachers and there is a backlog need of about 80,000. A total of about 165,000 public elementary schoolteachers is needed this year, in addition to those new in the classroom.

In both the elementary and high schools there are now about 1,066,000 teachers in service in the public schools. There is an accumulated need of 80,000 elementary teachers, and a continuing annual need of 125,000 elementary and high schoolteachers combined. In all, then, about 205,000 new teachers are needed this year for the public schools, plus an unknown number for the nonpublic schools.²⁴

Shortages reduce quality

The present paper has been silent on the major issues of quality in education by dint of great restraint, for this is an ingredient not nearly so easy to measure and tabulate as simpler matters of seating spaces and classroom staff. But behind this conspicuous shortage of physical equipment is ever present the more deplorable shortage of educational quality or outcome. The White House Conference report touches upon this aspect throughout, a quotable bit of which is brief:

The shortage of teachers is at least as severe in the United States as the shortage of school buildings, but it is harder to see * * *. It is no less sinister for that reason. Tens of thousands of American children are today being taught by

²³ White House Conference Committee Report, pp. 27-28.

²⁴ *Ibid.*, p. 40.

men and women who themselves have an inadequate education. Many courses cannot be offered because qualified people cannot be found to teach them.²⁵

Already the high schools of the Nation are finding they do not have enough qualified teachers in some of the educational subjects which in the immediate years ahead may have special significance for the safety and welfare of the country: mathematics, science, industrial arts, homemaking.²⁶

Measures of "quality of education" are much more difficult to establish and especially to convert into financial figures. By and large, quality of education beyond certain required minimum standards of literacy, citizenship, and vocational adequacy, becomes a complex definition of desirable services and formal experiences which it is hoped to provide for each new generation.

The recent study of the New York State Educational Conference Board has come as close to proving the case for high educational expenditures as our know-how in this field will presently allow. These studies found positive evidence that schools ranking highest in mastery of essential skills (the fundamentals) usually have the most comprehensive programs for attaining the other important elementary school objectives. Such schools often use many or all of more than 100 practices not frequently found in schools ranking lowest in the mastery of essential skills. The general conclusion was inescapably that it paid to spend money on education.²⁷

Good schools will spend money for the factors that in the long run mean good education. Class sizes will be no larger than to enable the teacher to do what a teacher is trained to do. The teacher will be fully prepared to fulfill his role as a professional practitioner of education. There will be a sufficient supply of the materials and supplies that make learning efficient and challenging. There will be the auxiliary services required to make the school the child's "other home." Good schools cost money.

THE EDUCATIONAL SHORTAGE IS MONEY SHORTAGE

Within the last few years several attempts have been made to estimate how much money we ought to be spending in America for public education. As early as 1954 the National Citizens Commission for the Public Schools estimated that by 1965 public-school expenditures would of necessity increase by somewhere between \$5 billion and \$10 billion. The White House Conference on Education concluded in 1956 that public-school expenditures should be approximately doubled. This would point to the desirability of an increase of about \$10 billion.

Any attempt to itemize the need becomes even more frightening. The school enrollment will probably increase a minimum of 12 million students during the next 10 years. It will cost more than \$20 billion during the next 10 years to provide housing for these additional children. When this is added to an accumulated existing need of \$10

²⁵ *Ibid.*, p. 34.

²⁶ *Ibid.*, p. 40, *Teachers for Tomorrow's Children*, p. 42.

²⁷ New York State Educational Conference Board, *What Good Schools Do for Children* (1954).

billion we get a total of \$30 billion for capital outlay alone. Teachers' salaries over this period must be raised by at least 75 percent and other current expense costs will increase proportionately. These facts indicate that the cost of public education must be considerably more than doubled in the next 10 years.

If such increases are to be borne by local and State tax sources the outlook is indeed frightening. To meet this need local contributions would have to be doubled and State subsidies practically tripled. Apparently no one familiar with taxation and government thinks this kind of program either probable or possible. Even if this could be accomplished it would still leave tremendous inequalities and many States would even under this increased revenue still be unequal to the task.

Federal Government has not faced the problem

Even though the Federal Government spends a great deal of money on activities which are called education, these efforts are so fragmented and uncoordinated that they make no real impact on the overall problems faced by public education generally. In fact, the Federal Government provides only about 3 percent of the revenue available to the public schools. Nevertheless, all the evidence available about the nature of the income of the people, the comparative ability of the States and communities and the importance of education to the general and economic welfare would seem to indicate that the Federal Government should participate significantly in the financing of the public schools.

Five to seven billion needed

Granting that State finance structures can be perfected and strengthened and that local tax revenues will increase with the expanding economy there will in the next 10 years be left a gap of from \$5 billion to \$7 billion per year in imperative school costs which can only be met through Federal subsidy. This blunt statement may be shocking to some. However, the Russian satellite should also shock us out of our complacency. In the days ahead either we educate our children or we perish. This is a national problem and the wealth of the Nation should be utilized as fairly and scientifically as possible to meet it. This can be done only through substantial Federal participation.

FEDERAL INVESTMENTS IN HUMAN RESOURCES

Katherine Ellickson, assistant director, Department of Social Security, American Federation of Labor-Congress of Industrial Organizations

Like land, roads, and turbines, human beings directly affect the size of our national output. Their combined skills determine the rate of economic growth just as surely as do accumulated capital, technology, and natural wealth.

Federal money spent on the health, education, and welfare of the people is therefore not merely an expense item. It is an investment which brings large economic returns in addition to affecting human happiness.

Federal responsibility for the development of human resources has been more and more recognized in the last quarter century, even though some important business organizations still fear and oppose it.

The reports of the Joint Economic Committee have done much to increase understanding of this responsibility. They have promoted constructive action to aid people and speed economic growth, in accordance with the Employment Act of 1946.

CRITERIA FOR EXPENDITURES

A pertinent interpretation of the purpose of this act was given by the President of the United States in 1953 :

The legislative history of the Employment Act of 1946 makes it clear that it is the determination of the Congress to help develop a strong economy in the United States. A strong economy is necessary to preserve the peace, to build our defenses and those of the free world, to raise the living standards of our people, and to stimulate trade and industry in friendly countries throughout the world.

A strong economy means a free economy—with full opportunities for the exercise of initiative and enterprise on the part of all individuals.

It means a stable economy—so that satisfying jobs are as numerous as the men and women seeking work, and the production of goods is abundant to meet our needs.

It means an expanding economy—in which workers, managers, and farmers, using more and better tools, constantly increase the output of useful products and services and receive steadily rising incomes in a dollar of stable value.

It means a humane economy—to the end that the aged, infirm, and those suffering hardships receive every needed help.¹

¹ Economic Report of the President, 1954, p. 135.

This statement suggests some of the important criteria which should be considered in determining specific Federal expenditures.

Are such expenditures necessary for a strong, stable, and expanding economy? Will they advance our democratic ideals and our position in international relations? Will they promote the general welfare?

What is the cost of proposed expenditures as compared with the economic and human return to be expected? How large are the expenditures compared to tax loopholes that could be plugged or to other expenditures under consideration?

Can the Federal Government perform the functions more efficiently or constructively than either private groups or State and local governments? Will the failure of the Federal Government to act result in human wastes that undermine individual and community well-being and hamper economic growth? Are State and local governments in a position to act adequately without Federal assistance, as indicated by current and past performance? What is the probability of individual State action in the light of interstate competition for business?

SUGGESTED CLASSIFICATION OF PERTINENT EXPENDITURES

In order to clarify major policy issues involved in current Federal expenditures for human resources, it seems desirable to classify such outlays on a basis that takes into account the source of funds, the purposes to be served, and the degree of economic return that may be expected. The approach utilized in table 1 is not necessarily the best but seems helpful for the purpose.

TABLE 1.—*Current Federal outlays for the development of human resources*

[Billions of dollars]		<i>Current annual outlay</i> ¹
Class and program:		
Total, all classes.....		18.3
I. Social insurance.....		8.8
Old-age, survivors, and disability insurance.....		7.7
Unemployment insurance ².....		.3
Federal and State administration.....	0.2	
Distribution to States of excess of Federal tax receipts over appropriations.....	.1	
Railroad retirement.....		.7
Railroad unemployment insurance and temporary disability insurance.....		.1
II. Arising from employer role.....		6.2
Insurance program for Federal civilian employees.....		6.2
Retirement and disability ³	0.5	
Compensation for injuries and unemployment and Federal payments into life-insurance fund.....	.1	
Payments for military personnel.....		.6
Retirement pay.....	0.5	
Medical care for servicemen's dependents.....	.1	
Veterans' benefits and services.....		5.0
Pensions and compensation.....	3.0	
Health and medical services.....	.8	
Education.....	.8	
Other benefits and administration.....	.4	
III. From general funds, with substantial economic return.....		1.9
Education ⁴.....		.3
Health services.....		.4
Hospital construction.....	.1	
Hospital and medical care (other than military and veterans).....	.08	
Maternal and child health services ⁵.....	.04	
Other community health services.....	.2	
Health research ⁶.....		.2
Aid to dependent children.....		.5
Vocational rehabilitation.....		.05
School lunches and surplus food.....		.3
Public housing.....		.1
IV. For minimum human needs, regardless of return.....		1.3
Old-age assistance.....		1.1
Aid to the blind and permanently and totally disabled.....		.2
V. To enhance available earning opportunities.....		.1
U. S. Employment Service ⁷.....		.1
Establishment of minimum employment conditions ⁸.....		.01
Protection of labor's right to organize and bargain collectively ⁹.....		.01

¹ Based primarily on estimated expenditures shown in the Budget of the United States Government for the fiscal year ending June 30, 1958, with deductions for programs not enacted, such as Federal aid for school construction. Actual outlays in fiscal year 1958 depend on regular and supplemental appropriations, ceilings imposed by the Bureau of the Budget, and the number of applicants found eligible for insurance benefits, assistance payments, etc. Because these are estimates, all but the smallest figures have been rounded to the nearest tenth of a billion.

² Excludes State unemployment insurance benefit payments (\$1.4 billion), estimated expenditures for employment service functions (included under V), and benefits for Federal employees (included under II).

³ Excludes refunds of employee contributions to those leaving service. Federal contributions to fund about equal payments to individuals.

⁴ Including programs of the Office of Education for vocational education, agricultural colleges, library services, payments to school districts, and assistance for school construction.

⁵ Includes child welfare.

⁶ Expenditures of the Public Health Service for research on human diseases and environmental health programs, including grants to private and governmental agencies.

⁷ From special earmarked tax for unemployment insurance.

⁸ Administration of the Fair Labor Standards Act and the Public Contracts Act (Walsh-Healey).

⁹ Administration of appropriate sections of the National Labor Relations Act.

Class I includes Federal expenditures for social insurance for the general population and for railroad workers. These outlays do not come out of general revenues but are financed through special taxes, and benefits are paid as a matter of right.

Class II includes outlays arising from the Federal Government's reemployment as an employer, past and present. Programs for veterans and some for military personnel have been grouped with insurance programs for Federal civilian employees. This combination is not customarily followed, and expenditures for veterans and military personnel might well be considered defense items. However, now that private employer fringe benefits have become so important, it seems constructive to emphasize that the Federal Government has parallel obligations. Some of these programs pay benefits as a matter of right, as in class I.

Class III includes programs for the development of human resources which are financed from general revenues and which most clearly bring a substantial economic return. They increase national income and tax receipts in addition to relieving human suffering. These Federal outlays for education, health, rehabilitation, etc., are primarily in the form of grants to State, local, or private agencies.

Class IV is in some ways comparable to class III but outlays here are less certain to result in an economic return.

Class V has been included to emphasize the desirability of overcoming human suffering and waste through increasing the opportunities which are open to people to earn an adequate livelihood. Minimum wages raise levels of living and thus help to develop human resources. Better protection of labor's right to organize and bargain collectively similarly advances economic growth and stability. The United States Employment Service, among other functions, helps workers find jobs suited to their abilities.

The programs listed in these five classes are the major ones clearly directed to the development of human resources. Others might have been included, such as selected activities of TVA and the Department of Agriculture, but they would necessitate complicated policy and financial analysis. Certain other programs are omitted because the outlays are almost negligible, for example, in the fields of safety and apprenticeship training.

The programs selected here largely coincide with the types of Federal outlays included in the analyses of social welfare expenditures prepared periodically by Ida C. Merriam, Director of the Division of Program Research in the Office of the Commissioner of Social Security.² Certain items are added, notably those in class V and Government outlays for life insurance for its employees. The classification is, however, somewhat different.

MAGNITUDE OF CURRENT OUTLAYS

In order to deal with current rather than historical data, current annual outlays have been estimated for each program and class. Such estimates can only be approximate, as explained in footnote 1 of table

² See Merriam, Ida C., *Social Welfare Expenditures in the United States 1954-55*, *Social Security Bulletin*, October 1956, p. 3f, and the forthcoming issue for October 1957. Her classification is "based essentially on administrative structure." She presents much useful data on trends and on State and local as well as Federal expenditures.

1, but they present a sufficiently reliable picture for their intended purpose.

The total for all classes of \$18.3 billion is made up in large part of social insurance payments (\$8.8 billion) and outlays arising from the Federal Government's role as an employer (\$6.2 billion). The 3 other categories together account for only \$3.3 billion.

In table 2, these outlays are compared with gross national product and with total Federal expenditures.

TABLE 2.—Federal outlays for development of human resources, by class, compared to gross national product and total Federal outlays, fiscal year 1958

Class	Current outlays (billions of dollars) ¹	As percent of gross national product ²	As percent of total Federal expenditures ³
All classes.....	18.3	4.0	22.0
All classes except II.....	12.1	3.0	14.0
I. Social insurance.....	8.8	2.0	10.0
II. Arising from employer role.....	6.2	1.0	7.0
III. From general funds, with substantial economic return.....	1.9	.4	2.0
IV. For minimum human needs, regardless of return.....	1.3	.3	1.5
V. To enhance available earning opportunities.....	.1	.02	.1

¹ From table 1.

² Assuming total gross national product of \$440,000,000,000 in fiscal 1958. The seasonally adjusted annual rate for the second quarter of 1957 was \$434,300,000,000. The nearest whole percent has been used except for the last 3 classes.

³ Total Federal expenditures are conservatively estimated at \$85,000,000,000, including authorized budget expenditures, outlays from trust funds, and some additional appropriations in 1958.

For all classes, outlays are only 4 percent of gross national product. Mrs. Merriam, for the fiscal years 1955-56, found that total social welfare expenditures under all governmental civilian programs (including State and local) took 8.6 percent of gross national product.

In evaluating these ratios, it is interesting to make a comparison with experience in other countries. In a number of industrialized nations, social welfare expenditures have reached 10 to 15 percent of gross national product as compared with less than 2 percent around 1900. As the staff member of the United Nations who made this comparison states, "While many social programs may have been initiated by radicals, they have been consolidated or expanded by conservatives. (In a historical perspective, they tend to be above politics.)"³

This quotation may allay fears that expenditures for development of human resources lead to the welfare state and that the welfare state equals socialism.

Slightly more than one-fifth of all estimated Federal outlays are represented by these five classes (table 2). My figure of 22 percent compares with Mrs. Merriam's calculation that Federal social welfare expenditures in fiscal year 1955 were 19 percent of all Federal expenditures. In the depression year of 1934-35, the ratio was 47 percent.

MAJOR ISSUES IN SOCIAL INSURANCE

Social insurance is a constructive and economical technique for providing security against hazards resulting in loss of income. Most

³ Wang, N. T., Social Expenditures in Economic Development, Journal of the American Statistical Association, September 1956, p. 526.

Americans now have this basic form of protection against certain hazards, and the need for public aid expenditures has thereby been greatly reduced.⁴

The desire of the American people for security has by no means been satisfied. Important gaps in social insurance remain, benefits are not adequate, and millions of the lowest income groups cannot meet the eligibility tests. The tremendous growth of private group and individual insurance plans has demonstrated the need for further protection but has only partly met it. Labor-union members, like other Americans, are well aware of current deficiencies. They want further substantial improvements in both governmental and union-management programs.

The Federal Government should continue to expand its social-insurance programs because of their basic advantages. They can cover everyone, regardless of company failures, individual migration, or negligence. They are far more economical to administer. They preserve individual incentives through relating benefits to earnings, but they also promote social justice by being more generous to the lower income groups. They are backed by the Government. If the value of the dollar shrinks, the effects can be offset by new legislation.

Under current provisions, the social-insurance programs do not draw on the general funds of the Treasury. They are financed entirely from special payroll taxes. The contributions by employees and the self-employed may be considered savings which are pooled to provide insurance protection. Employer contributions, based on payroll taxes, in a sense, are supplementary or deferred wage payments, comparable to similar payments towards private pension and welfare plans.

Present Federal payments under the social-insurance programs in class I total \$8.8 billion, 10 percent of total Federal expenditures and 2 percent of gross national product (table 2). These sums are not excessive, and the Nation can afford further expansion.⁵

Old-age, survivors, and disability insurance

Outlays under this program have increased by a billion dollars a year from \$3.4 billion in fiscal 1954 to an estimated \$7.7 billion for fiscal 1958. The additional outlays result from many factors, including extension of coverage to millions of additional people under lenient eligibility provisions, liberalization of benefit calculations, the addition of long-term disability benefits, and reduction in the permissible retirement age for women.

These outlays increase family well-being and encourage high levels of expenditure, thus fostering a growing economy. In case of business recession, some anticyclical effect results from payments to aged workers who are laid off or who fail as small-business men and farmers.

Many improvements in this program can and should be made. Coverage that actually results in benefits should be extended promptly

⁴ From 1935 to 1955, social insurance expenditures per capita rose 929 percent and public aid expenditures per capita fell 70 percent. State and local outlays as well as Federal are included in this estimate by Merriam (op. cit., p. 9).

⁵ Federal social-insurance outlays are substantially larger than those of State and local governments. The latter were \$3 billion in 1956, including \$1.3 billion for unemployment insurance and \$0.9 billion under State workmen's compensation laws, including payments by private insurance carriers (preliminary release of data in Merriam's article in October 1957, Social Security Bulletin).

to low-income groups and others now excluded from social insurance so that their benefits will not be substantially reduced by years without covered earnings. The new long-term, disability-benefits program should be made available to more people. Benefits generally should be liberalized. Protection against short-term disability could readily be incorporated in the old-age, survivors, and disability insurance program, using the same reports, records, and field offices.

As immediate steps to meet most urgent needs, the AFL-CIO is proposing a 10-percent raise in old-age, survivors, and disability insurance benefits; an increase in the earnings ceiling to \$6,000, so benefits may keep pace with earnings levels; and the addition of a new program to cover the costs of hospital, nursing-home, and surgical services for persons eligible for old-age and survivors benefits. Since the additional cost is estimated to equal 1 percent of payrolls on a level-premium basis, increased contributions are proposed, equaling one-half percent each for employers and employees, and three-quarters percent for the self-employed.⁶

Unemployment insurance

Federal outlays for unemployment insurance total only \$0.3 billion, since benefits are financed almost entirely by State taxes. The Federal share, nevertheless, vitally affects administration of the entire Federal-State system and its contribution to economic stability.

Under 1954 legislation, the Federal 0.3 percent tax on payrolls is earmarked for unemployment-insurance purposes, and no savings result to the Federal Government from not utilizing each year's proceeds. The excess, estimated at \$0.1 billion, is distributed to the States in proportion to their taxable payrolls.

More adequate appropriations for Federal and State unemployment-insurance agencies would improve essential services, provide more information, and strengthen the Federal role of maintaining good administrative practices according to the standards now in the law.

For a slight additional outlay, the Federal Government could administer much-needed changes in the Federal law. The present Federal-State system is not prepared to carry out its essential role in maintaining economic stability. Not more than one-quarter or one-fifth of lost earnings are replaced by benefits during periods of recession. Many workers are still not covered, benefits are too small, and duration is too limited. Federal minimum-benefit standards are required to overcome these serious deficiencies.

A system of Federal grants is also needed, instead of repayable loans, to permit adequate benefit payments by States which regularly have heavy rates of unemployment due to their industrial pattern.

Individual experience rating, as practiced by the States, means that taxes paid by employers are reduced when business is good and rise during business recessions. To avoid this, the Federal law should be altered to permit flat-rate tax reductions by States for all employers.

⁶ For further details see my article in the *American Federationist*, July 1957, and statement by Congressman Forand, of Rhode Island, on H. R. 9467, *Congressional Record*, August 27, 1957, p. 15279.

THE FEDERAL GOVERNMENT AS AN EMPLOYER

One-third of the outlays listed in table 1 arise from the Federal Government's social-welfare programs for its employees, past and present. Of the \$6.2 billion, \$5 billion is directed to veterans' benefits and services, and the rest is divided equally between insurance programs for Federal civilian employees and payments for military personnel.

Many of these outlays lead to the development of human resources, and thus contribute to economic stability and growth. In considering whether their size is appropriate, it is necessary to bear in mind the tremendous growth of private-employer programs for pensions, disability, life insurance, and many other types of health and welfare plans. If the Federal Government is to attract and retain good people, it must compete with private industry. Instead of taking the lead, as it used to do, the Federal Government has been lagging behind common practice—for example, in regard to insurance benefits to cover the cost of medical care.

The various payments for civilian employees, military personnel, and veterans might be considered part of the general remuneration of such persons and might be distributed among other classes of expenditure, especially defense. If this were done, the total for programs devoted to the development of human resources would be cut by one-third and would equal only 14 percent of all Federal expenditures and only 3 percent of gross national product (table 2).

HUMAN INVESTMENTS YIELDING LARGE RETURNS

The Federal Government is currently spending less than \$2 billion from its general funds on programs for the development of human resources which are classified as yielding a substantial economic return (table 1). This meager total covers a wide variety of activities providing minimum subsistence for children (\$0.5 billion), health services (\$0.4 billion), health research (\$0.2 billion), education (\$0.3 billion), vocational rehabilitation (\$0.05 billion), school lunches and surplus food (\$0.3 billion), and public housing (\$0.1 billion). Total outlays for this category are 2 percent of all Federal expenditures and four-tenths of 1 percent of gross national product.

These programs help individuals to function more constructively as well as more happily. They will produce more and earn more, enhancing national product and government revenues.

In the field of health research, Congress has recently emphasized the value of such outlays by increasing appropriations above levels requested by the administration. But even \$0.2 billion is a small sum compared to the cost of mental and physical illness, which comes to many billions of dollars annually.

The issues in regard to Federal aid to education have been widely debated and need no elaboration here. But the final report of the White House Conference on Education is worth quoting:

Good schools are admittedly expensive, but not nearly so expensive in the long run as poor ones.

Vocational rehabilitation furnishes convincing evidence that dollars spent in helping people overcome their disabilities are more than

repaid by their earning capacity and the taxes they pay. Yet the \$0.05 billion of Federal outlays for this purpose can only reach a small fraction of the people who could benefit from such rehabilitation and who are waiting for help. The economies of adequate rehabilitation facilities and services are reinforced by disability-insurance programs, since such programs now bear part of the cost of disability instead of leaving it all to individuals and their families.

Investments in children

Money spent for children is of special importance, since their lives are ahead of them. If they are permitted or assisted to develop well formed in mind, body, and spirit, they will be better citizens and workers. Each boy or girl who is crippled physically, mentally, or morally is apt to add to future outlays for jails, hospitals, and mental institutions. The substantial, though less tangible, losses from criminal acts, hate, and potential disloyalty cannot be measured, but neither can they be ignored. Nor can the potential contributions of future scientists, technicians, and skilled workers.

Over 1,800,000 children are now receiving public assistance in the form of aid to dependent children. Many get pathetically small amounts, insufficient for physical health, decent surroundings, and self-respect. Even in the shadow of the Nation's Capitol, teachers still complain that children come to school hungry.

Federal outlays for aid to dependent children are determined in part by the State and local agencies which set standards and allocate funds. But the Federal Government can do much to raise standards and improve the children's opportunities by liberalizing its matching formula, which is less generous than its formulas for aid to the aged, the blind, and the disabled. Other liberalizations in the Federal law are needed to take care of migrant children and families where the wage earner is unemployed. The Nation can certainly afford to spend more than \$0.5 billion a year to assure all children at the lowest income levels a decent chance for development.

False economy

So-called economy in trimming the budgets for this category of human-development programs is false economy. Yet unfortunately a general drive to hold down appropriations affects these items along with others.

In this category, above all others, the Federal Government has a responsibility to accomplish whatever needs doing. If private groups or State and local governments are handling matters adequately, Federal action is superfluous. But where a need remains, as it obviously does today in many communities and areas of activity, the growth of the economy will be undermined by Federal inaction.

Widespread poverty has become intolerable and unnecessary in view of our Nation's productive capacity.

Those who oppose Federal action for these purposes in many cases also oppose adequate outlays at the State and local levels. These are precisely the programs in which the United States Chamber of Commerce, for example, would end Federal grants-in-aid. An approved report of its committee on social legislation states that the chamber endorses the continuation of Federal-grant programs for highways, airports, fish and wildlife, agricultural extension service, forestry, etc. But the chamber favors eliminating Federal grants for aid to

dependent children, maternal and child health services, services for crippled children, child welfare services, education, vocational rehabilitation, school lunches, and for many health services.⁷

The issue of Federal versus State action has been assigned to another panel so one must resist the temptation to enlarge upon it here. When the Chamber of Commerce says that "State governments are closer to the people," perhaps it has in mind the success business has had in preventing adequate action at the State level, where business representatives argue that one State cannot raise its taxes without losing out in the competitive race with other States. Another pamphlet of the Chamber of Commerce intensifies the competitive race by urging corporations, when they are locating new establishments, to weigh tax rates for operating unemployment insurance, workmen's compensation, public assistance, and so forth.⁸

MEETING HUMAN NEEDS REGARDLESS OF RETURN

Money expended for assistance to the aged, the blind, and the permanently and totally disabled is speedily used and thus helps to bolster local community welfare and the economy. Some of the recipients of these types of assistance are helped to get back on their feet and to play a constructive role either in volunteer or paid activities. Insofar as some recipients are still responsible for the care of children, the danger of perpetuating poverty is diminished.

These programs have nevertheless been kept separate from aid to dependent children and class III in order not to weaken the arguments for increased outlays for that class.

Surely \$1.3 billion is not too much to be spending to provide minimum levels of living for people who for the most part are victims of individual tragedy or of the shortcomings of our civilizations. Many suffered heavily during the depression of the 1930's. Many have never known anything but poverty and inadequate opportunities to earn and save. Others have lost their lifetime savings through illness or accident.

The United States Chamber of Commerce would withdraw Federal grants for these groups also. Its proposal keeps recurring in various forms and so promises to be a continuing issue. But a decrease in Federal grants inevitably will mean lower payments to large numbers of these people.

ENHANCING EMPLOYMENT OPPORTUNITIES

The emphasis in the fifth category is not on the individual's capacities but on the job openings available to him. The list of programs is short and the outlays meager (table 1). They have done much good, but the laws and their administration all need improvement so that unions may be strengthened and more workers may have a chance to work under decent employment conditions.

Appropriations for the Federal-State employment service represent the largest sum but it comes from earmarked funds, of which any excess is distributed to the States.

⁷ Chamber of Commerce of the United States, *Federal Grant-In-Aid Programs*, report of the committee of social legislation, 1954, especially pp. 6-7 and 21-22.

⁸ Chamber of Commerce of the United States, *Getting and Holding Good Employers*, report of the committee on economic policy, 1956.

The cost of outlays has not been the controlling factor in determining activity in this category. Other policy considerations have prevented extension of coverage of the Fair Labor Standards Act or the enactment of adequate programs for distressed areas and for recruiting United States workers for farm jobs under decent employment conditions.

Some other types of expenditures might be included here, such as those of the Joint Economic Committee and the Council of Economic Advisers. But the total would still be negligible.

Satisfying jobs, suited to people's abilities and resulting in decent incomes, are the best foundation for the development of human resources. If "satisfying jobs are as numerous as the men and women seeking work," and if adequate social insurance programs exist, public-aid expenditures based on human need can be reduced. Improved Federal laws to enhance adequate opportunities to earn a livelihood are one of the most economical means of eliminating poverty and human waste.

Programs which tend to undermine workers' standards are very expensive. The programs for bringing in foreign contract workers, as now operated, do undermine farm labor standards and are thus very costly to the Nation.⁹

EVALUATING CURRENT EFFORTS

In spite of our Nation's remarkable advances in levels of living and social welfare, much waste of human resources still continues.

Important evidence of this is provided by the results of preinduction examinations of registrants processed for military service. In the period July 1950 through December 1956, one-third of the registrants, or 1.5 million young men, were disqualified. The percent in 1956 alone was slightly higher: 34.7 percent. More than 15 percent of the registrants failed the mental test; about the same proportion were medically disqualified.¹⁰

Our cities and country areas are marred by slums which tend to perpetuate poverty and personal maladjustments even though many people manage to escape their blighting effects.

One-sixth of the Nation's families had incomes under \$2,000 in 1956. Nearly 3 million families had incomes under \$1,000. So did two-fifths of all "unrelated individuals."¹¹

We know enough to overcome much such poverty—the problem is to secure action. Additional studies into the causes of low incomes are desirable, as undertaken recently by New York State and authorized by the 1956 social-security amendments on research in public assistance.¹² But it is equally important to keep focusing public attention on the extent of present wastes so as to strengthen our determination to end them.

⁹ Yet Congress this year again denied the request of the U. S. Department of Labor for funds for more inspectors.

¹⁰ Office of the Surgeon General, U. S. Army, Health of the Army, April 1957, p. 5.

¹¹ U. S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-60, No. 26, September 9, 1957.

¹² No money for this program has been appropriated—not even the \$0.002 billion recommended by the administration.

PROPOSED MEASURES OF HUMAN WELL-BEING

The Joint Economic Committee could usefully initiate a set of measures of human well-being to provide objective data on progress made and wastes still requiring attention. The committee's publication, *Economic Indicators*, has been most useful in providing monthly information on the Nation's economic stability and growth. Why not add a supplementary section devoted to trends in the people's welfare? This might be done at least once a year.

Some measures of this type are already available; others would have to be developed or improved. Appropriate government agencies could be enlisted in a cooperative venture. Though pioneer work will be required, the task is not impossible. Your *Economic Indicators*, which now look so definitive, have a long, developmental history, and they are still being revised by their producers.

Enough measures are available now so a start could be made. Some can be carried back for many years; others cannot be.

The following suggestions are illustrative of the type of indicators that might be considered for inclusion:

Death rates at various ages.

Birthrates and population growth.

Number of families at various income levels.

Measures of housing adequacy and slum conditions.

Measures of national health, such as will be available from the national health survey.

Accident rates, on highways and in industry and homes.

Number of persons rehabilitated and number wanting or needing rehabilitation.

Acceptances and rejections of registrants for military service, by cause.

Percent of children under 18 in broken families.

Levels of educational attainment.

Number and proportion of children in school, full time and part time.

Number of persons covered and not covered by social-insurance programs.

Average size of social-insurance payments.

Number of persons receiving public aid.

Consideration might be given, also, to including Federal, State, and local outlays for the development of human resources, perhaps according to categories such as have been discussed here.

But the basic objective should be to clarify human well-being, insofar as this can be measured in either monetary or nonmonetary terms.

Great emphasis is customarily placed on material progress, which, so far, has been more successfully achieved and measured.

A better rounded picture, focusing primarily on people, could have a profound effect on furtherance of our Nation's goals of life, liberty, and the pursuit of happiness.

PERSPECTIVES FOR A HUMAN RESOURCE POLICY

Eli Ginzberg, professor of economics and director, Conservation of Human Resources Project, Columbia University

It is a cause of constant astonishment to me to find, among such disparate groups as my students, business acquaintances, and officers of the armed services, an attitude toward the Government which can best be described as schizophrenic. In their view, the Government is viewed as something hostile and alien, with objectives and methods that are reprehensible, if not worse. The acerbity of their comments about the Government might lead one to believe that their remarks were directed toward the government of George III, not toward their own freely elected representatives in Washington.

Although it is difficult to sympathize with, it is easy to understand such a negativistic approach. The conviction runs deep in American experience that men should be the rulers of their own lives; that the individual should be free to decide where he lives, at what he works, and how he spends his money. Such freedom is possible only in a society in which the citizen is strong and government weak, for, if the balance shifts, freedom will be circumscribed, perhaps lost.

But a reading of American history reveals another significant strand. Whenever the public becomes aware of a sizable gap between the promise and reality of the American dream, it will use government in an effort to realize more completely its expectations. The concern of the Joint Economic Committee with developing criteria for assessing programs aimed at advancing the general welfare is readily understandable in light of the underlying negativistic attitude toward the growth of the Federal Government. As a modest contribution to the committee's effort, the following analysis will seek to:

1. Explain why the Federal Government played a relatively modest role in the past in the development of the Nation's human resources.
2. Call attention to new developments, both domestic and international, which require a reevaluation of this historic role.
3. Delineate the major criteria to guide governmental action in the future.

THE PAST ROLE OF THE FEDERAL GOVERNMENT

The major requirement for the rapid expansion of the American economy prior to the Civil War was people—able-bodied men and women who could hew down the forests, settle the land, and plant crops. Large numbers were attracted to our shores, and the United States made a gain not only in bodies but in skills and competences. Europe presented us with valuable human-resource capital without cost and without our having to pay even a carrying charge.

This helps to explain why the Federal Government was not pressed too greatly to support education. For all the years that free immigration prevailed, the country did not have to pay its own way in education and training. The point is also worth making that there was a sufficiently close bond between religion and education to lead many denominations voluntarily to support education, particularly at the college level. One need only recall the origins of Harvard College or the much later establishment of the University of Chicago.

In an agricultural economy, especially one in which there was a surplus of good land, an able-bodied man could provide for himself and his family. Those too sick or too old to work could be cared for without much trouble by relatives. The well-being of a family depended largely on the physical strength and competence of the male head of the household and on the vitality of his wife.

But, before one jumps to the conclusion that the Federal Government was substantially inactive during the first century of our national existence in pursuing a human-resources policy, it is well to note the following: The Northwest Ordinance and the Morrill Act both underscored the National Government's interest in furthering public education. The establishment of West Point provided not only trained officers for the Army but engineers for the country at large. Although the Civil War was fought to preserve the Union, it would be a mistake to write down the determination of many northerners to put an end to the shameful institution of slavery. The many wars against the Indian demonstrated the Federal Government's determination to add to the security of the frontiersman. Without further ado, it must be recognized that while relatively few demands were made on the Federal Government to contribute directly to developing the human resources of the Nation, it was by no means totally inactive.

NEW CONDITIONS—DOMESTIC AND INTERNATIONAL

We are more vulnerable today than at any time since our first years as a nation. Whatever questions may arise about the responsibilities of the Federal Government, it is clearly charged under the Constitution to provide for the national defense. The President has stated unequivocally on several occasions that no country can possibly win the next war. The only victory lies in preventing it. And there is general agreement that the best chance of preventing a major war is for this Nation to maintain a strong defense position. What has not been so clearly perceived is the extent to which the level of competence of the population largely determines our defense capabilities. Congress and the public have become aware of the country's need for standby plants and the stockpiling of strategic materials but they have only begun to appreciate how much the military power of this Nation resides in the quality and skills of its people.

The first glimmer of recognition has come out of a concern that the Russians may be getting the jump on us by educating and training a larger number of scientists and engineers, from which the deduction has been made that they may gain a significant lead in military technology, with all that that implies. Irrespective of the Russians, something of major significance is taking place in the area of research and development as it impinges not only on the Armed Forces but on the civilian economy. It is only yesterday that many students of the

American economy believed that chronic unemployment was here to stay. The frontier had disappeared and the slowing down in the rate of growth of the population and our basic industries made it impossible to employ effectively all our available resources. The stagnationists made many errors, but none more serious than their failure to perceive that our economy was entering a new stage of development, one with an internal frontier based on the systematic application of intelligence and money to the discovery of new and the improvement of old products and processes. This was a limitless frontier. It did not preclude the possibility of periodic recessions or depressions, but it did rule out the probability of stagnation.

During the many generations that the labor force was being rapidly expanded by immigrants from abroad, only passing note was taken of the consequences growing out of the fact that certain regions within the United States were unwilling or unable to invest adequately in the education and training of youth. But, with the cessation of immigration at the time of World War I, we became greatly dependent on internal migration as a means of expanding the industrial labor force. New York, Illinois, California could no longer be indifferent to the quality of preparation that young people received in Mississippi and South Carolina, for many of them, upon reaching adulthood, would seek employment in the North and West.

The national import of regional differences was also highlighted by the experiences of the Armed Forces in World War II, when more than 700,000 young men were rejected for military service because they were educationally deficient and almost twice that number were reluctantly accepted because their low level of literacy presented the Army and the Navy with major problems in training and assignment. The increasing need of our society for trained intelligence has begun to undermine the old doctrine that education is, and should remain, solely a local and State responsibility. For, if some regions are unable to provide an adequate education for all, the Nation is the loser.

Advances in research are likewise largely responsible for the new and expanded role of the Federal Government in providing health and medical services. Until the turn of the century, and even later, an individual who was sick did his best to avoid admission to a hospital since his chances of recovery would be diminished thereby. Surgery was in its infancy, and even the best physician could do little to help the seriously ill patient. Small wonder that the demands on the Federal Government were slight. But the intervening decades have witnessed spectacular advances in preventive, therapeutic, and rehabilitative medicine. The Federal Government's first substantial involvement grew out of pressure to provide adequate medical care for the veteran. He was entitled to benefit from the advances of modern medicine. More recently, the Federal Government has become increasingly involved in subsidizing hospital construction and in furthering medical research.

Until the major depression of 1929-33, our experience supported the widespread belief that a man who was willing to work could provide for himself and his family without having to seek assistance from government. If he put aside part of his earnings when he was employed, he could tide himself over periods of unemployment or sick-

ness. No sane man held this view after 1933. As an aftermath of the depression, Congress passed new legislation which placed on the community, rather than the individual, many of the costs of industrial failure and personal misfortune.

The depression experience made us more aware of and responsive to a wider order of social need, not solely to the difficulties growing out of unemployment. And World War II threw a spotlight on other unfilled social needs. As a result, the last two decades have witnessed new and intensified efforts on the part of the Federal Government to assist disadvantaged farm groups, to give the Negro a better chance to participate fully in the American economy, to help veterans secure additional education and training, to provide more adequately for dependent children, and to contribute directly and indirectly in many other ways to raising the level of welfare of the population.

Although our foreign-aid program is predicated on developing and strengthening alliances with nations that oppose communism, it also reflects our response to the need of many underdeveloped people for technical assistance so that they may eventually secure more of the better things of life.

Many additional illustrations could be offered of the broadened framework within which the Federal Government has been fashioning a national human-resources policy. The major factors responsible for this vastly expanded approach are these:

1. The new place of science and technology in our economic development which has resulted in a vastly expanded requirement for trained personnel.

2. The new position of the United States in world affairs. Faced with the ever-present threat of nuclear warfare, this Nation must provide effective leadership for the free world. To do so, we must make full use of all our human resources.

3. The meaning of American democracy was never to be found solely in our economic well-being, important as that has been for our national development. From the start, we have sought to fashion a society sensitive to human and social values. Although committed to the principle of a clear separation of powers between government and the individual and between levels of government, we have been willing to experiment in the hope of advancing the general welfare. With nations, old and new, avidly engaged in a search for the better life, the United States is under constant surveillance to see whether it is living up to its commitments or hiding behind tradition.

GUIDELINES FOR THE FUTURE

The burden of the foregoing is clear: For most of our history, the Federal Government was not called upon to play a significant role in the development of the Nation's human resources. In the past few decades, economic, political, and military events have led to a vast expansion of effort on the part of the Federal Government. But the criteria that should govern the Federal Government's role remain obscure. Hence, in this concluding section, an effort will be made to note briefly the more important considerations that should guide future action:

1. With an economy that is truly national and that in turn depends on the continued large-scale migration of people, our human resources must be viewed as a national resource. Since the strength of our economy is a major deterrent to aggression, the quality of our human resources is a major factor in the defense of the free world.

2. Although the Federal Government must carry expanding responsibility for developing the Nation's human resources, it must assiduously avoid trying to do all, or even most, of the job itself. The essence of a democracy is the right of the family to decide as to the amount and type of education which its children should receive, and the right of the individual to determine at what and where he works. The Federal Government should take all necessary actions to provide maximum opportunities for individuals to prepare themselves as thoroughly as possible for work and life, but it should do so in a manner that encourages other agencies, governmental and voluntary, to continue to contribute as much as possible to this same end, for, if all responsibility were to devolve on the Federal Government, it would jeopardize the future of our democracy.

3. There is need for the Congress and the public to appraise critically the growing impact of the Federal Government on the development and utilization of the Nation's human resources growing out of such diverse developments as large-scale Federal expenditures for research and development, the tremendous training effort that takes place within the Armed Forces, the consequences of Federal social-security and agricultural policies. There is reason to believe that such a review would reveal, in varying degrees contradictory, overlapping, and ineffective results emerging from the expanded efforts of the Federal Government and point the way to more constructive policies.

4. Because of the long lead time required to educate and train people, there is great need for planning studies that are focused not on today's but tomorrow's problems. There is no institution in our society better fitted to undertake some of the basic statistical and related studies in the field of human-resource development than the Federal Government. Although it has expanded its work in this area during the past decade, broader and deeper investigations are required. While the Federal Government should take leadership, it should avoid trying to do the whole job itself. It needs, and must have, the active cooperation of business, trade unions, foundations, universities, and other interested groups.

5. In assessing future programs, the Federal Government, both at the legislative and administrative level, has need to appreciate that the investment principle applies even more to people than to capital. Hence, dollars well spent to raise the education, skill, and health of the American public will pay for themselves and yield a sizable profit to this and to future generations.

THE PENSION STRUCTURE

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INTRODUCTION

It is only within the last generation that pensions have emerged as an important economic institution. Currently, annual payments on the order of \$13 billion are being made to over 16.5 million beneficiaries (closer to something like 14.5 million, if account is taken of those receiving payments under more than one program); in the aggregate, pension funds are growing at about \$6 billion a year. These are substantial magnitudes, but even more impressive is the size pension programs appear likely to reach in the future.

For purposes of this paper, a broad definition of "pensions" is used. More specifically, the old-age retirement, disability, and survivorship features of the following programs are taken to be the components of what will be referred to as the pension structure:² Old-age, survivors, and disability insurance; railroad retirement; public assistance; Federal pensions and disability payments to veterans; retirement programs for governmental employees; and private pension plans.³ In 1940, less than \$1.5 billion of payments were associated with these programs as compared with \$12.6 billions in 1956. The growth in pension benefits has outstripped the growth in income. In 1940 they represented 1.7 percent of personal income; by 1956, the percentage was 3.9. Over this same period, a fivefold growth occurred in the number of people to whom (or for whom) benefits were paid, from about 3.3 million to 16.5 million. But some duplication is involved in these figures, because some individuals received payments under more than one program. A rough correction on this score would put the 1956 figure at about 14.5 million. Thus, it appears that by 1956 about 1 in 12 of our population was receiving benefit pay-

¹This paper draws on materials collected for the exploratory survey of the economic effects of pensions undertaken by the National Bureau of Economic Research. It is, however, a purely personal statement, since it has not been subjected to the National Bureau's usual review procedure. In preparing this paper I have benefited from the comments of John J. Carroll, C. Harry Kahn, Robert Lampman, and Gladys Webbink.

²By structure, we do not mean to suggest a set of programs consciously and carefully framed in relation to one another, but merely those programs that, wholly or in good part, are addressed to the same type of need.

³This definition is broader, particularly in its inclusion of some types of public assistance, than what is usually considered to fall under the category of pensions. The specific items that go into the totals used here and in the rest of this paper are delineated in the notes to table 1.

Neither conceptually nor statistically can a line be precisely drawn between pensions and payments to meet other kinds of needs, since some programs that provide retirement benefits also provide disability and survivorship payments, and in others the disability payments are closely akin to old-age benefits. For the purposes at hand here, no further refinement in definition is necessary.

Of the payments made in 1956, under what is considered to be the pension structure for purposes of this paper and is summarized in table 1 below, about 66 percent went for old age, 18 percent for survivors, 16 percent for disability. But veterans' nonservice-connected disability payments could really be considered to have a heavy old-age component, and transferring them to the old-age category would make the payments for support in old age comprise almost 70 percent of the total.

ments from at least one of the programs that make up what is here designated as the pension structure.

Not all the programs that make up this structure involve the accumulation of reserves, but, for those that do—private plans, old-age, survivors, and disability insurance, railroad retirement, and governmental employee pension plans—a very rapid increase in fund assets has occurred, from around \$6 billion in 1940 to over \$73 billion by 1956. During 1956 alone, reserves increased by \$6.3 billion and represented about 28 percent of personal saving.⁴

The nature and current scale of pension-plan operations and their growth have been responsible for increasing interest in the effects pensions might have on such important economic variables as savings, investment, productivity and resource mobility, and the level of income and its distribution.

Only a few of the problems posed by pension are treated in this paper. More specifically, after a brief description of the pension structure, there will be a discussion of:

- (a) The effect of pension plans on saving.
- (b) The future size and burden of pensions.

A BRIEF VIEW OF PENSIONS AND RELATED PROGRAMS

The pension structure

While numerous specific factors help to explain the origin and growth of each particular pension program, the development of all of them has been strongly influenced by two broad trends. One is demographic—on absolute and relative growth in the population age 65 or over, which increased from 3.1 million in 1900 to 14.1 million in 1955, from 4.1 percent of the population to 8.6 percent. By 1975, it is estimated that this age group will number 20.7 million and will constitute 9.3 percent of the population.⁵ More directly related to the need for income in retirement is the sharp increase over time in the average number of years spent in retirement due to the rise in life expectancy and the decline in the number of years that older persons, on average, spend in the labor force. In 1900, a 60-year-old working male had a life expectancy of 14.3 years and a labor force expectancy of 11.5 years, leaving 2.8 years in retirement. By 1955, the life expectancy had increased to 16.1 years and the number of additional years he could be expected to spend in the labor force had declined to 9.2, therefore, an expected duration of retirement of 6.9 years.⁶

The declining importance of agriculture and the growth of urbanization are additional demographic factors leading to an increased need for formal arrangements for providing support in nonworking old age.

The other trend referred to is the increase in the scope and functions of government. This can, of course, be traced back to 1900 or earlier,⁷

⁴ Personal saving, as estimated by SEC and adjusted for comparability with the personal-saving item of the Commerce Department's National Income Accounts, and with the addition of Government insurance and pension reserves (Survey of Current Business, July 1957, p. 12).

⁵ Bureau of Labor Statistics, Employment and Economic Status of Older Men and Women, Bulletin No. 1213, pp. 2, 3.

⁶ *Ibid.*, p. 34.

⁷ Solomon Fabricant, assisted by Robert E. Lipsey, *The Trend of Government Activity in the United States Since 1900*, National Bureau of Economic Research, Inc., 1952, p. 140.

but the experience of the great depression accelerated the trend and heightened the community's desire for income security.

The most important component of our pension structure—old-age, survivors, and disability insurance—was instituted in 1935.⁸ Continual extensions of old-age, survivors, and disability insurance have expanded the program to a point where a little more than 90 percent of the gainfully employed are covered or eligible for coverage. In 1956 some 8.5 million persons received old-age, survivors, and disability benefits aggregating \$5.7 billion.⁹ While not designed to accumulate an actuarial reserve, old-age, survivors, and disability insurance has over the past built up a reserve fund and is expected to continue to do so in the future. Investments by the fund are limited by law to Federal securities or securities guaranteed both as to principal and interest by the Federal Government. At the end of 1956, the fund totaled \$22.5 billion, having grown over the year by \$850 million.¹⁰

The railroad retirement program, restricted to workers in the transportation industry was also instituted in 1935. In 1956 payments of \$638 million were made to 649,000 recipients. Its reserve fund stood at \$3.6 billion having grown by \$79 million over the year.

While the history of private pension plans can be traced back to 1875, only recently have they become an important economic institution. A significant speeding up of their growth began with World War II and has continued since. During the war some unions turned their attention to instituting or increasing existing private pensions (and other fringe benefits), since, among other reasons, direct wage increases were limited under the stabilization policy then in force. In many cases, moreover, employers looked on pensions as a device for attracting scarce workers and holding their labor supply. Quite likely, additional contributing factors were the high rates of corporate tax, and the provision introduced in the Internal Revenue Code of 1942 that the employer's contributions to pension plans would be considered a deductible business expense only if the plans did not discriminate in favor of officers or certain selected personnel. High personal rates, too, made the postponement of tax liabilities associated with the pension alternative to cash wage increase desirable. (As a matter of fact, in a tax context pensions are most saliently viewed as a means of ironing out the lifetime earnings stream, pulling some income from high tax rate earning periods over to periods when lower rates would apply. In explaining the growth of pensions, this personal tax averaging may be more important than the deductibility of pensions from taxable income for corporate tax. For this latter fact alone does not explain a preference for pensions over cash wage increase which would also be deductible.) Later events—the inclusion of a pension program as part of the coal strike settlement in 1946, the Inland Steel case decision by the National Labor Relations Board in

⁸ Old-age insurance was introduced in 1935; provision for survivors were added in 1939; payments for permanent and total disability after age 50 were made part of the program in 1956, effective July 1, 1957.

⁹ Not all of these payments were for retirement, however. About \$4.4 billion, 77 percent of the total, went for old age; the rest to survivors.

¹⁰ Over the 5 preceding years the fund may decline slightly as outpayments under the program exceed inpayments and fund earnings. But with the contribution rate for both employers and employees schedule to rise by one-half of 1 percent in 1960, the fund can be expected to grow again.

1948 (confirmed by the Supreme Court in 1949) to the effect that pensions are a bargainable issue, and the Steel Industry Fact Finding Board's recommendation in 1949 in favor of a pension program supported solely by employer contributions—all tended to accelerate this trend. As a consequence, private pensions have grown very rapidly particularly in the last decade.

Rough estimates prepared by Mrs. Weltha Van Eenam of the Social Security Administration for 1956 show 14 million workers covered by private plans, the number of beneficiaries (annuitants or equivalent) at 1,200,000, and benefit payments of \$725 million. In 1940 only 3.7 million workers were covered. Another indication of the rapid growth of private pension programs is the fourfold increase in their reserve funds between 1947 and 1956—from about \$7 billion to just under \$29 billion. Between 1955 and 1956 alone, assets in private pensions funds increased by \$3.6 billion.

The Federal Government's participation together with the States in the public-assistance programs began in 1935. While no contractual relationship is involved, old-age assistance payments, aid to the blind, and to the permanently and totally disabled (instituted in 1950) are included in the pension total because they meet the same general sets of needs as pensions in the strict sense.¹¹ In 1940 the major component of the pension structure, by 1956 these assistance payments had fallen substantially behind old-age, survivors, and disability insurance and somewhat below the veterans' programs in size of benefits. While they have grown over most of the period since 1940, both payments and beneficiaries have changed only slightly over the last several years.¹² In 1956 payments totaling \$1.9 billion went to 2.9 million recipients. About 87 percent of these payments went for old age, the rest for payments to the blind and disabled.

Veterans pensions and related programs have a long history, but their present size is almost completely a direct outgrowth of the two World Wars. These benefits, too, have grown rapidly in the last 15 years, and further growth can be expected because of the large number of veterans who will be eligible for such payments in the future.¹³ Of the several types of payments made to veterans, those for disability¹⁴ and survivors are considered to fall in the category of pensions as broadly defined in this paper. Between 1940 and 1956 the total of such payments grew from \$339 million to \$2.1 billion; while the number of recipients grew from 651,000 to 2.3 million.

The remaining major category of the pension structure—the various retirement programs for the employees of Federal, State, and local governments—originated earlier than most of the other components, but it, too, has shown rapid growth in the last decade and a half. Benefit payments under these plans increased from \$300 million in

¹¹ Excluded from the pension structure as the term is used here, however, are general assistance and aid to dependent children, the latter because most of the cases are due to broken homes rather than death or disability.

¹² For old-age assistance alone, the number of beneficiaries reached its peak in 1950 and has been dropping slowly since. But payments have continued upward since that date at a moderate rate.

¹³ As of June 1956 there were over 22 million veterans (Statistical Summary of VA Activities, June 1956). For their growth potential see reference and discussion in a later section of this paper.

¹⁴ Includes compensation payments for service-connected disability of 50 percent or more and pension payments for non-service-connected disability to veterans whose annual income did not exceed \$1,400 if they had no dependents or \$2,700 if they had a wife or minor child. We chose 50 percent disability arbitrarily in service-connected cases as the dividing line between those able to work and those who are de facto pensioners.

1940 to \$1.6 billion by 1956, and the number of beneficiaries almost quadrupled, from a quarter of a million to just under 1 million over the same period. Even more rapid has been the growth of the funds established under the governmental employee retirement plans. For the Federal civil-service retirement system, reserves in 1940 stood at \$600 million, and in 1956 at \$7.3 billion; again between these two dates the funds established under the State and local employees plans increased from \$1.6 billion to \$11.3 billion. Between 1955 and 1956, the annual increase in reserves for the Federal system was \$800 million; for the State and local systems \$1.4 billion. At present over 5½ million persons are covered by the Government employee retirement systems.

TABLE 1.—Total payments and number of beneficiaries, all pension programs, 1940, 1947, 1955, and 1956

Program	Payments (in billions)				Beneficiaries or recipients (in thousands)			
	1940	1947	1955	1956	1940	1947	1955	1956
Old-age and survivors insurance ¹	(2)	\$0.5	\$5.0	\$5.7	113	1,836	7,540	8,473
Railroad retirement ²	\$0.1	.2	.6	.6	144	239	613	649
Public service employee retirement ⁴.....	.3	.5	1.4	1.6	249	419	904	976
Veterans ⁵.....	.3	1.5	2.1	2.1	651	1,596	2,153	2,288
Public assistance ⁶.....	.5	1.0	1.8	1.9	2,139	2,413	2,902	2,890
Private plans ⁷	(8)	(8)	.6	.7	(8)	(8)	970	1,200
Total.....	1.2	3.7	11.5	12.6	⁹ 3,296	⁹ 6,503	⁹ 15,082	⁹ 16,476

¹ Payments include old-age retirement and survivorship (monthly and lump sum). Beneficiaries include all of these except lump sum.

² Less than \$0.05 billion.

³ Payments include old-age retirement, survivorship (monthly and lump sum), and permanent and total disability; beneficiaries, all these except lump sum.

⁴ Payments include Federal civil-service old-age retirement, survivorship (monthly and lump sum), and disability; other Federal contributory old-age retirement, survivorship (lump sum), and disability; Federal noncontributory old-age retirement and disability; State and local government retirement old-age retirement, survivorship (monthly and lump sum), and disability. Beneficiaries include all of these except lump sum.

⁵ Payments and beneficiaries include old-age retirement, survivorship (monthly), non-service-connected disability, and service-connected disability where disability is 50 percent or more. In this last category, the 1956 entry is as of the end of the fiscal year.

⁶ Payments and beneficiaries include old-age assistance, aid to the blind, and, for 1955 and 1956, aid to the permanently and totally disabled.

⁷ Rough estimates by Mrs. Weltha Van Eenam of the Social Security Administration.

⁸ Not available. Estimated at \$70 million for 1946. (Challis A. Hall, Retirement Contributions, the Spending Stream, and Growth, in Federal Tax Policy for Economic Growth and Stability, papers submitted by panelists appearing before the Subcommittee on Tax Policy, Joint Committee on the Economic Report, Washington, D. C., Government Printing Office, 1955, p. 78.)

⁹ Because a number of individuals receive payments under more than 1 program there is some overlap in these figures. For 1955 the data permit a rough estimate. In that year about one-fifth of old-age assistance recipients (around 500,000) were also receiving old-age and survivors insurance benefits. Almost all of those getting private pensions were probably old-age and survivors insurance beneficiaries too. With the help of Lenore Epstein of the Department of Health, Education, and Welfare, it has been estimated on the basis of data from a number of special studies that somewhere between 390,000 and 420,000 of the old-age and survivors insurance beneficiaries (not in receipt of old-age assistance) were receiving benefits under a program for veterans, Government employees, or railroad workers. All in all, then, about 1.8 million of double counting is involved in the 1955 figures. There was virtually no overlap in 1940, a relatively slight amount in 1947, and about the same degree of overlap in 1956 as in 1955.

Source: Social Security Bulletin, September 1953, table 4, and Annual Statistical Supplement 1955, tables 5 and 78; Veterans' Benefits Administered by Departments and Agencies of the Federal Government, Digest of Laws and Basic Statistics, Staff Report No. II, President's Commission on Veterans' Pensions, 84th Cong., 2d sess., House Committee Print No. 262, tables 45-49; 1956 data from the Social Security Administration and annual report of the Administrator of Veterans' Affairs for 1956.

Tables 1 and 2 summarize and give the source of the data used in this glance at the pension structure. Table 1 contains the information on payments and recipients; table 2 covers the size of reserves.

Not merely rapid growth of pensions, but also their increased importance as a source of income for those over 65, is indicated by the data of table 3, which is reproduced from an article by Lenore A. Epstein.¹⁵ Over this 7-year period, with the population over 65 growing by 22 percent, those in this age group with income from earnings increased by 5 percent, but the number of old-age and survivors insurance beneficiaries more than trebled, while the beneficiaries of other social-insurance programs increased by almost 60 percent. On the other hand, recipients of public assistance not receiving social-insurance benefits fell somewhat, and the number of persons with no money income or income solely from other sources was more than halved.

TABLE 2.—Total assets of pension funds, 1940, 1947, 1954, 1955, and 1956

[In billions]

Pension program	Value of assets in fund, Dec. 31 ¹					Increase in assets during—	
	1940	1947	1954	1955	1956	1955	1956
Old age, survivors, and disability insurance.....	\$2.0	\$9.4	\$20.6	\$21.7	\$22.5	\$1.1	\$0.8
Railroad retirement.....	.1	1.4	3.4	3.6	3.6	.2	2.1
Civil-service retirement and disability (Federal).....	.6	2.7	6.0	6.5	7.3	.5	.8
State and local employee retirement.....	1.6	3.3	8.7	9.9	11.3	1.2	1.4
Private plans:							
(a) Insured.....	(²)	4.0	9.8	11.1	12.3	1.3	1.2
(b) Noninsured.....	1.1	3.3	12.2	14.2	16.2	2.0	2.0
Total.....	5.4	24.1	60.7	67.0	73.2	6.3	6.3

¹ For State and local employee retirement, date is end of fiscal year falling in calendar year.

² Computed from unrounded data.

³ Not available.

⁴ Rough estimate for 1948.

Source: Social Security Bulletin, annual statistical supplement, 1955; Tally of Life Insurance Statistics, April 1957; Securities and Exchange Commission, Corporate Pension Funds 1956, statistical release series, No. 1474, pp. 25-26; Raymond W. Goldsmith, A Study of Saving in the United States, vol. I, Princeton University Press, 1955, p. 1073; Bureau of the Census, Summary of Governmental Finances in 1956, p. 34.

¹⁵ Lenore A. Epstein, Money Income Position of the Aged, 1948-55, Social Security Bulletin, April 1956.

TABLE 3.—Number and percentage distribution of persons aged 65 and over, by source of money income, June 1948 and June 1955 ¹

	Number (in thousands)		Percent-age change, 1955 from 1948	Percentage distribution ²	
	1948	1955		1948	1955
Total, aged 65 and over.....	11, 550	14, 100	+22	100. 0	100. 0
Persons with earnings and/or social-insurance benefits.....	5, 900	10, 550	+79	51. 2	74. 6
Earnings and earners' wives not themselves employed.....	3, 850	4, 050	+5	33. 4	28. 6
Old-age and survivors insurance beneficiaries.....	1, 450	5, 850	+303	12. 6	41. 4
Not receiving old-age assistance.....	1, 300	5, 350	+312	11. 4	38. 0
Receiving old-age assistance.....	150	500	+233	1. 2	3. 4
Beneficiaries of other social insurance programs, no receiving old-age and survivors insurance benefits ³	850	1, 350	+59	7. 5	9. 7
Less persons with both earnings and social-insurance benefits.....	250	700	+180	2. 3	5. 1
Public-assistance recipients not receiving social-insurance benefits.....	2, 250	2, 050	-9	19. 5	14. 4
Persons with no money income or income solely from other sources.....	3, 400	1, 550	-54	29. 3	11. 0

¹ Persons with income from sources specified may also have received money income from other sources, such as returns on investments, private pensions, or annuities, or cash contributions from relatives.

² Calculated from unrounded estimates.

³ Railroad retirement, Government-employee retirement, and veterans' compensation and pension programs; includes beneficiaries' wives not in direct receipt of benefits.

Source: Estimated in the Division of Research and Statistics on the basis of published and unpublished data from the Bureau of the Census and agencies administering income-maintenance programs.

But the relative importance of pensions grew more than this recital of the number of recipients alone would indicate, because there was also a very substantial rise in the average amount paid out under the various programs. Over the 7 years ending in June 1955, Epstein's data show a 144 percent increase in average monthly payments to retired-worker beneficiaries under old-age and survivors insurance (from \$25 to \$61), an increase of 33 percent in average Federal civil-service benefits (from \$89 to \$118), and a rise of 37 percent in average monthly old-age assistance payments (from \$38 to \$52). In contrast, the earnings of those over 65 changed only slightly. Over the period 1948 to 1953 Epstein reports the median annual earnings of men over 65 in covered employment up 16 percent to \$2,275; the median earnings of women fell 12 percent to \$950.

Very briefly, then, these are the magnitudes of the pension structure. As even this cursory review has shown, payments and asset accumulations of significant size are involved in the current operations of pension programs. Moreover, all signs point to larger flows in the future.

Fiscal aid to the aged.

But this by no means exhausts the Federal Government's provision for the aged. For there are a number of income-tax relief measures which are directed to the same function as pensions—viz, income support of the aged. For some purposes the difference between tax

relief and income payments is purely formal. An income payment or tax amelioration of the same size has a similar effect on the disposable income of the individual, and on the Government's surplus or deficit.

Since 1948 an additional exemption of \$600 has been permitted taxpayers over 65.¹⁶ In addition, since 1951, persons 65 or over are not subject to the percentage exclusion (the lower limit) on the medical expense deduction that applies for all other taxpayers.¹⁷ The 1954 code provided for the aged a special credit which boils down to a credit against personal income tax equal to 20 percent of the first \$1,200 of most of the income received in retirement exclusive of social security, railroad retirement benefits, military retirement pensions or other nontaxable pension receipts.¹⁸

These fiscal concessions are not insignificant. Kahn has estimated on the basis of 1952 data that the extra exemption lowered the tax liability of the aged by about \$500 million, and their more liberal medical deduction led to an additional \$100 million decline in tax liability.¹⁹ Currently, of course, the tax saving would be somewhat larger. In 1954 the retirement income credit was used on about 300,000 taxable returns, lowering their tax liability by \$50 million; some 175,000 nontaxable returns claimed \$21 million of credit on this score, only a portion of which, however, can be considered an effective tax saving.²⁰ An additional revenue loss arises in connection with the tax treatment of private pension plans. Unlike cash wage payments or interest receipts, employer contributions to private pension funds and accumulated earnings on these funds are not taxed to the employee when made or earned on his behalf, but are taxable usually at lower rates (or perhaps not at all) when received by the employee in retirement. Hall has estimated, admittedly roughly, " * * * that the net revenue loss from retirement plans alone in 1954 was about \$800 million."²¹ (It is not appropriate to consider the reduction in corporate tax liability that follows from the deductibility of the employers' contribution to pension funds, because the presumed alternative to such contributions—cash wage payments—would also have been a deductible expense.) With both employer contributions and earnings on pension funds higher now than in 1954, the current

¹⁶ Two additional exemptions can be taken on joint returns if both are over 65.

¹⁷ Taxpayers under 65 can deduct only those medical expenditures (other than drugs) in excess of 3 percent of adjusted gross income, and drug expenditures that exceed 1 percent of adjusted gross income. These lower limits do not apply to persons over 65. (The ceiling on medical expense deductions applies to all taxpayers.)

¹⁸ Pechman, in an interesting discussion of the retirement income credit as well as the more general matter of special tax provisions for the aged, notes that the retirement income credit was designed to give others the same de facto tax exemption that occurs under old-age and survivors' insurance, with contributions taxable and benefits exempt, for individuals whose contributions fall short of their later benefit receipts. He summarizes its provisions as follows: "The method chosen was to allow a tax credit at the first bracket rate of 20 percent on the first \$1,200 of 'retirement income.' The amount of retirement income subject to the credit is to be reduced by (a) any social security or railroad retirement benefits, military retirement pensions, or other nontaxable retirement pensions, and (b) any amount of earned income, including income from self-employment, in excess of \$900 received by persons under 75 years of age. Retirement income is defined to include pensions and annuities, interest, rents, and dividends. Property incomes, as well as pensions and annuities, were included in retirement income to avoid discriminating against those who save and invest their own funds for retirement purposes." (Joseph A. Pechman, *Individual Income Tax Provisions of the 1954 Code*, National Tax Journal, March 1955, p. 124. Footnotes omitted.)

¹⁹ Estimates provided by C. Harry Kahn of the National Bureau of Economic Research.

²⁰ Statistics of Income, 1954 (preliminary), p. 16.

²¹ Challis A. Hall, *Retirement Contributions, the Spending Stream, and Growth, in Federal Tax Policy for Economic Growth and Stability*, Papers Submitted by Panelists Appearing Before the Subcommittee on Tax Policy, Joint Committee on the Economic Report, Washington, D. C., GPO, 1955, p. 796.

magnitude of the revenue loss associated with private plans may be closer to \$900 million.

Summing up all these tax concessions yields a substantial total—something on the order of \$1.5 billion. Casting an eye to the future, there appears to be the possibility of additional tax support for retirement. For there has been growing sentiment to extend to the self-employed the privilege of income tax averaging now afforded employees under private plans. Legislation to accomplish this has been under consideration for several years—H. R.'s 9 and 10. That the support here via a lower tax liability could be large is indicated by the estimates presented by the Secretary of the Treasury for an earlier version of these bills.²² Under the most recent versions of these bills, more restricted in scope than their earlier formulation—they now apply strictly to the self-employed (rather than all those not covered by a private pension) and permit them to make payments into a retirement savings program, free of tax, up to 10 percent of earned income, with an annual limit on amount exempted from tax of \$5,000 and lifetime limit of \$100,000—the revenue loss might, at a very rough guess, run around \$400 million (plus or minus \$100 million).

All in all, then, what are the net government expenditures associated with this pension structure? They are not measured by the benefit payments in table 1 for several reasons. A number of programs involve specific revenue receipts or contributions to support them. Thus, under old-age, survivors, and disability insurance, these receipts (employer, employee, and self-supported contributions) came to \$6.5 billion in 1956, some \$800 million more than benefit payments.²³ Likewise railroad retirement insurance contributions of \$632 million were about equal to benefit payments.²⁴ Again in 1956, under the Federal civilian employee retirement programs, employer contributions were close to \$400 million, employee contributions \$600 million, benefits \$550 million. Under the State and local retirement systems, employer contributions came to about \$1 billion, employee contributions close to \$800 million, and benefits about the same.²⁵ In their guise as employer, then, government expenditures for these two programs were \$1.2 billion. Veterans and assistance payments, supported out of general revenues, may be considered government expenditure to the full amount shown in table 1. Private plans ostensibly involve no outlay by government. But they do involve a closely related type of support—lower tax revenues on the part of government. Hall, as noted earlier, has estimated a revenue loss of \$800 millions in 1954 associated with such plans. Currently it would be higher, say around \$900 million. This suggests a total of government expenditure or tax support for pension programs as here defined of something on the order of \$6.2 billion—\$1.9 billion for assistance; \$2.2 billion for veterans; \$1.2 billion for governmental employee plans; and about \$900 million of tax revenue loss under private plans.

But to get the full involvement of government the revenue loss due to special tax provisions applying to the aged or retired should be

²² Individual Retirement Act of 1955, hearings before the Committee on Ways and Means, House of Representatives, 84th Cong., 1st sess., on H. R. 10, 1955, p. 44. He estimated a revenue loss of \$3.4 billion; \$660 million for the self-employed alone.

²³ Survey of Current Business, July 1957, pp. 22 and 23.

²⁴ *Ibid.*

²⁵ Slight differences between these data and those of table 1 are due to differences in definition.

considered. The added exemption, removal of the medical deduction floor, and the retirement income credit account in toto for a revenue loss on the order of three-quarters of a billion dollars. So the total of government expenditures and tax revenue losses would be about \$7 billion as of 1956. (This fails to take account of the surplus of \$800 million run on current account by old-age, survivors, and disability insurance.)

Conclusion

We have then a complex set of arrangements for providing support in retirement. Following Titmuss' lead we can sketch out three different types of programs that all provide support in old age. He distinguishes:

(1) Social welfare expenditures—specific government transfer payments under such programs as old-age, survivors, disability insurance, and public assistance.

(2) Fiscal welfare devices—tax liability ameliorations related to age or retirement status.

(3) Occupational welfare benefits—private pension plans.²⁶

The broad goals of all three types of arrangements point in the same direction. In this sense they are related. But they do not comprise an integrated set of programs. They comprise a structure, but only in a loose sense. The components of the structure are not closely articulated. They each, of course, have a specific focus; they are administered by various levels and agencies of government and by nongovernmental entities (business firms and labor unions) as well. The structure is already large and complex, and it will grow larger and, perhaps, more complex as well. Changes in one program have implications for the others, may complement or conflict with one or more of the other programs. What are some of the interrelations among the programs making up the retirement-income structure?

One obvious point is this: A number of persons receive payments under more than one program. So the net effect of the pension structure on them cannot be assessed by examining any one program alone. Some idea of the extent of this overlap can be obtained from footnote 9 of table 1.

Secondly, to the extent that some programs are expanded in scope or level of benefits, the need for others may not be as strong. Thus, it was expected that the need for old-age assistance payments would dwindle as old-age and survivors insurance expanded and took hold. The recent expansions in old-age, survivors, and disability insurance to almost complete coverage of all gainfully employed, and payments for permanent and total disability at age 50, have opened to question the appropriateness of some of the present provisions of the veterans' program.²⁷

Thirdly, changes in one program frequently carry direct, or sometimes untoward, consequences for one or more of the others. Under old-age, survivors, and disability insurance the benefit structure is regressive in relation to average earnings before retirement, i. e., benefits in relation to earnings constitute a declining fraction as such earnings

²⁶ R. M. Titmuss, *the Social Division of Welfare* (Eleanor Rathbone Memorial Lecture), Liverpool University Press, 1956, p. 11.

²⁷ *Veterans Benefits in the United States*, a report to the President by the President's Commission on Veterans' Pensions, April 1956.

rise. This effect is particularly pronounced at the top of the earnings range. Under the majority of private plans, however, the benefit structure is progressive in relation to previous earnings; the ratio of benefits to previous earnings rises with earnings.²⁸ The net result for those who will receive both old-age, survivors, and disability insurance and payments from a private plan of this type is a benefit structure roughly proportional or, rather, only slightly regressive in relation to average previous earnings.²⁹ The development of private plans substantially changed the benefit pattern as initially established by another program. (It is obvious that changes in benefit levels are also involved.) As another example, take two recent changes in old-age, survivors, and disability insurance. The introduction of optional retirement for women at 62 under old-age, survivors, and disability insurance could affect the retirement age set for women in private plans, which had been tending to approach that for men. In many private plans that had provided payments for permanent and total disability, it was stipulated that such payments would be adjusted downward to take account of any disability payments subsequently established under a Federal program. Under these conditions, old-age, survivors, and disability insurance's disability payments tend to be centered out by a decline in private disability payments.

Fourthly, conflicting influences tending to work at crosspurposes may be set up by the various programs that an individual is covered by. During working life, under private plans, changing employers is penalized if the employer's contributions are not vested—and vesting usually occurs only after considerable service or when the worker is well along in age. Old-age, survivors, and disability insurance benefit rights, however, are not affected by job changes. On the other hand, in retirement old-age, survivors, and disability insurance penalizes participation in the labor force; private plans do not. (Under old-age, survivors, and disability insurance, for retired workers under 72, 1 month's benefit payment will be lost for each unit of \$80 or fraction thereof, by which earnings exceed \$1,200.)

²⁸ Thus, for the "conventional" (as distinguished from the collectively bargained "pattern") plans in the most recent Bankers Trust survey of private pension plans, benefits (under the plan alone and exclusive of social security) as a percent of earnings runs like this:

Average annual compensation during credited service:	Median benefit ranges exclusive of social security as a percent of compensation
\$3,000.....	26-30
\$4,200.....	26-30
\$7,200.....	36-40
\$20,000.....	41-45

(Bankers Trust Co., A Study of Industrial Retirement Plans, 1956 edition, p. 19. This is for plans in which benefits are based on compensation during the entire period of credited service.)

²⁹ Zisman gives the following figures which are to be compared with the data of the immediately preceding footnote:

Average annual compensation during credited service:	Median benefit ranges inclusive of social security as a percent of compensation
\$4,200.....	57-61
\$7,200.....	52-56
\$20,000.....	47-51

(Joseph Zisman, Private Employee—Benefit Plans Today, Social Security Bulletin, January 1957, p. 15.)

PENSIONS AND SAVINGS

Do the fiscal operations of pension plans increase the flow of saving?

The fiscal operations of pension programs bear an intimate relation to saving, a process that plays a strategic role in the determination of the level of employment and also lies at the very heart of economic development and growth. As regards its bearing on stability, variations in the amount of savings the community will seek to make, may, depending on its investment plans, cause a change in the level of resource employment, prices, or both. As to economic growth, one of the key variables is the extent to which we are willing to forgo current consumption, thus freeing output for capital formation.

All of the programs that constitute what is here designated as the pension structure (see table 1) affect the flow of savings to some degree since they all involve a redistribution of income or an alteration of its direction of flow. Under private pension plans, for example, a portion of the flow of payments into cash wages or corporate profits and, consequently a portion also of the flow of income-tax payments to government is redirected toward deferred compensation and, to a relatively slight degree at present, to payments to beneficiaries. Generally similar is the result of the transfer operations of pension programs for governmental employees. Again, under old-age, survivors, and disability insurance, a portion of the flow of income to individuals is diverted—directly in the case of the employee's contribution and indirectly either through lower wages or higher prices depending on whether the employer's contribution is shifted backward or forward—and transferred as benefit payments to other individuals or additions to the trust fund. Finally, veterans programs and public assistance payments, supported out of general revenues, redistribute income from taxpayers to the program's beneficiaries.

Even though these last two programs are in effect on a pay-as-you-go basis, some change in saving is to be expected because of the differing propensities to save of taxpayers and those who receive assistance or veterans' program payments. It is generally held that, for all practical purposes, the savings function is linear; so the effect due to income-class redistribution per se would be slight. Yet it is reasonable to think that recipients of these payments have a lower marginal propensity to save than the population at large. Therefore, on balance, these programs tend to lower savings. But the absolute decrease in savings on this score is probably not as great as the effect (generally opposite in sign) of the other components of the pension structure.

The remaining components of the pension structure, however, would seem to exercise an effect in the direction of increasing saving, and to a substantial degree. Old-age, survivors, and disability insurance, railroad retirement, private plans and the pension programs established for governmental employees, all show an excess of receipts (contributions plus earnings on invested funds) over outpayments (benefits plus running costs) which is likely to continue over

the next several decades at least.³⁰ The annual additions to their reserves are substantial. For all these programs it came to \$6.3 billion in both 1955 and 1956. (See table 2 above for details and sources.) Ten years from now annual fund accumulations may well run on the order of \$9 billions. Such magnitudes are impressive, especially when related to the aggregate of saving. In 1955, for example, pension-fund asset growth accounted for 30 percent of total personal saving, while the pension-fund sector's accumulation represented 28 percent of the total in 1956.³¹

But these are nominal savings. There are reasons to believe that the net accretion to the flow of saving falls short of the net change in reserves. This is the conclusion reached by several of the more thorough investigations of the problem, which estimate the change in saving as the net result of the change in saving (or consumption) brought about because of: contributions (either of employees, employers, or the groups that bear them on various assumptions of shifting and incidence), benefit payments, fund earnings, and, where appropriate, government-tax revenues. Among the factors that explain this result are the following:

(a) Some workers may consider pension-fund accumulations a substitute for savings they otherwise would have made.

(b) Government saving will be lower (or dissaving greater), that is, Government's surplus will be smaller or its deficit larger because under private plans what would have taken the form of taxable wages or dividends and interest shows up as currently nontaxable deferred compensation and fund earnings. (Unless, of course, taxes are raised or expenditures lowered to compensate.)

(c) The income-class distribution and savings propensities of contributors (or taxpayers) and beneficiaries differ in such a way that transfers from the one to the other tend to increase consumption (i. e., lower saving). (An additional influence, not taken account of in the studies cited below, and one that it would be very difficult, if not impossible, to measure is this: insofar as formal pension-plan payments displace informal intrafamily or charitable retirement support arrangements, there is a release of funds that might, in part at least, be saved.)

In connection with old-age and survivors insurance, for example, Carroll has estimated that in 1951, when the fund accumulation came to \$1.7 billion, after taking account of the income transfers connected with old-age and survivors insurance fiscal operations, savings were higher by \$1.2 billions, only 70 percent of the increase in the fund's assets. Nor is this finding for 1951 an atypical result. For, extrapolating the then existing old-age and survivors insurance structure to

³⁰ Recently great publicity has been given to the probable tailing off of old-age, survivors, and disability insurance's asset accumulation in 1957 to virtually nothing, the possibility of a slight decline in the fund in 1958, and the likelihood of a further decline in assets in 1959. This result, caused by a higher level of claims than originally expected in response to changes in coverage and eligibility introduced in 1954 and 1956, is a short-run phenomenon. The longer run picture is substantially unchanged. With the scheduled rate increase in 1960, annual additions to the fund will, probably, once again take place, but at an uneven rate, tending to fall off before the rate increases of one half percent in both employer and employee contributions scheduled for 1960, 1965, 1970, and 1975. Long-run estimates (intermediate-cost) show the fund growing over the rest of this century. (See pp. 25 and 26 of Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, letter from Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, H. Doc. 180, 85th Cong., 1st sess.)

³¹ Aggregate personal saving is as estimated by the SEC adjusted for comparability with the personal saving item of the Department of Commerce national income accounts, and with the addition of the Government insurance and pension reserves. (See Survey of Current Business, July 1947, p. 12, table 6.)

1953, 1955, and 1957 he obtained net saving increments equal to 65, 68, and 65 percent of fund accumulations respectively.³²

(The growth in old-age, survivors, and disability insurance benefit payments relative to contributions over the last several years—due both to the normal increase in previously covered workers now retiring and recent expansions in coverage and liberalization of benefits—together with the upward movement of wage levels have changed the picture. Carroll's revised estimates show a net increase in consumption (a net decrease in saving) because of old-age, survivors, and disability insurance's fiscal operations in 1956, and a similar, but more pronounced result, for 1957. The net decline in saving caused by income transfers from contributors (and those who bear the shifted portion of the contributions) to beneficiaries outweighs the net addition to saving represented by that portion of the program's receipts, if any, allocated to the fund.)

For the aggregate of private pension plans in 1954, Hall estimates the net saving effect at no higher than 60 percent and possibly as low as 7 percent of the growth in reserves, depending on the assumptions made about the effect of the growth in equity in a pension fund on other saving of those covered, and the response of government fiscal policy to the loss of revenue traceable to these plans. If it is assumed that the Government does not seek to recoup the revenue loss, the net addition to saving would be within the range of 7 to 30 percent of the growth in reserves; with the Government's revenue loss compensated for by lowering expenditures by a commensurate amount, the increase in net saving would range from 35 to 60 percent of the increase in reserves; with the revenue loss recovered by an across-the-board increase in personal income tax rates, the relevant net saving percentage would fall in the range 27 to 52.³³

As Both Carroll and Hall have noted, estimates of this sort are subject to numerous qualifications. They do point, however, to a substantial gap between the nominal savings of pension funds and the net accretion to savings due to the entire set of fiscal operations associated with pension programs.

Not all students of this problem would agree with this conclusion, however. Dearing, for example, was of the opinion that net new saving would come to almost as much as net asset accumulation.³⁴ On the other hand, Murray looks for very little additional saving from private pension plans.³⁵ And Friedman holds that it is really not pos-

³² John J. Carroll, *Fiscal Aspects of Social Security Programs*, Ph. D. Dissertation, University of Michigan, 1953.

³³ Challis A. Hall, *Retirement Contributions, the Spending Stream, and Growth, in Federal Tax Policy for Economic Growth and Stability*, Joint Committee on the Economic Report, 84th Cong., 1st sess., p. 796.

³⁴ "In summary, it appears that the bulk of annual contributions for the support of industrial pensions will represent net additions to the supply of individual money savings * * *" (Charles L. Dearing, *Industrial Pensions*, the Brookings Institution, 1954, p. 175). Dearing's argument is phrased in terms of contributions, but this is equivalent to talking about pension fund asset growth, because over the last several years fund earnings and benefit payments have run about the same level.

³⁵ " * * * on balance, it seems to me that private retirement plans tend to increase the flow of institutional savings and may represent a modest net addition to personal savings" (Roger Murray, *The Effect of Retirement and Pension Funds on Saving, in Savings in the Modern Economy*, edited by Walter W. Heller, Francis M. Boddy, and Carl L. Nelson, University of Minnesota Press, 1953, p. 192). The increase in institutional savings that Murray refers to connotes a change in the composition of savings, i. e., the relative importance of various media, not an increase in the amount of savings.

sible, without much more work than has been done, to decide whether pension plans augment or decrease the flow of savings.³⁶

Understandably, empirical evidence bearing on the problem at hand is sparse and inconclusive. What material there is suggests that pension and other savings are largely noncompetitive, and, therefore, pension plans add to savings. A finding, pointing in this direction, has been cited by Katona.

* * * It is argued that social security and private pension and retirement plans make it now less necessary to save for old age than even a few years ago. Do collective security arrangements obviate the need for independent saving? * * *

This problem could and should be studied empirically. At present we have only a small bit of evidence which has a bearing on it. In a study recently completed by the Survey Research Center and soon to be published by the Institute of Life Insurance, the relationship between ownership of individually purchased life insurance and membership in collective insurance plans was analyzed. This relationship is crucial since individually purchased life insurance is probably the closest substitute for the collective insurance programs. It appeared that people who are covered by social security or private pension plans have larger life-insurance policies than people with similar incomes who are not covered. Apparently, the will to save and the perceived need for savings have not been impaired by collective security arrangements.³⁷

That a finding related to only one other form of saving does not settle the question needs no elaboration, especially since the savings response to pension coverage may cumulate over time with growing awareness of their pension rights on the part of those covered.

Thus there is the additional complication that the effect, whatever it may be, depends on how much people know about their pension coverage. For it is not their existence, per se, but employees' awareness of these provisions that will affect behavior. Awareness is something that can be expected to increase over time. That some people do not know the facts of their private pension coverage, at least, is indicated by the results of two surveys of pension plan coverage made in 1953 and early 1954 by the Pennsylvania Joint State Government Commission. One asked the information of individuals; the other sought it from employers. The survey of individuals showed

³⁶ * * * a dollar in the form of a reserve held by the Government and available to the individual only under narrowly specified circumstances is worth less to him than a dollar in privately held reserves that he can dispose of at will; in consequence, each dollar increase in government held reserve would tend to produce less than a dollar decrease in private savings. In fact, however, social security obligations are not fully funded; the increase in accumulated benefits exceeds the increase in government pension and retirement funds. It may well be, therefore, that the increase in these funds has been less than the decrease in private savings that the existence of the corresponding benefit programs has produced. The conclusion is that, without much more detailed analysis, it is not possible to say whether the net effect of governmental social security and other programs has been to increase or to decrease recorded savings as a fraction of income, let alone by how much" (Milton Friedman, *A Theory of the Consumption Function*, Princeton University Press for the National Bureau of Economic Research, 1957, p. 123). The first part of his argument applies to private plans also, and is strengthened by the general lack of really effective vesting provisions in these plans.

³⁷ George Katona, *Attitudes Toward Saving and Borrowing*, in Board of Governors, Federal Reserve System, *Consumer Instalment Credit*, pt. II, vol. 1. Conference on Regulation, National Bureau of Economic Research, 1957, pp. 453-454. For the data referred to by Katona, see pp. 55 of the *Life Insurance Public*, Institute of Life Insurance, 1957. Similar results were obtained in a British savings survey. (See L. R. Klein, *Patterns of Savings: The Surveys of 1953 and 1954*, *Bulletin of the Oxford Institute of Statistics*, May 1953, p. 206.)

842,000 Pennsylvanians covered by pension plans; the employer survey put the figure at 1,194,000.³⁸ While definitional differences between the two surveys may help to explain this discrepancy, it nonetheless appears that some employees are unaware of their inclusion in a private pension plan and, undoubtedly, many of those who know they are covered know little about the provisions of the plan. Greater awareness of the provisions of the pension plans in which they are participating might, however, cause employees to discount more heavily the degree to which a given buildup of their "equity" in a pension fund represents real saving. Because labor turnover is high and the extent of vesting relatively slight, McGill has estimated that "Certainly no more than 50 percent of employees presently covered under private pension plans will ever receive a cash benefit from the plan."³⁹

In brief summary, while it appears that there is no definitive answer to the question whether and to what extent the various types of pension programs augment the flow of savings, we may conclude that on net balance the fiscal operations of the pension structure tend to increase the flow of saving, but by considerably less than the amount of annual pension fund asset growth would suggest.

What is the significance of the probable acceleration or saving caused by pension programs?

Should we view with alarm or regard as salutary the fact that, on net balance, total savings are probably higher than they would be in the absence of pension programs? This question, of course, cannot be answered unequivocally. The answer depends both on one's judgment on how high aggregate demand for output will be, and one's preferences as regards the composition of output, i. e., its division between consumption goods and capital formation. Earlier discussions of this problem framed with reference to the economic experience of the thirties tended to emphasize the deflationary potential of adding to the stream of savings the community would seek to make. In this context it was held that pension fund accumulations would lower consumption and have little or no effect on investment; thus aggregate demand, output, and employment would be lowered. More recently, reflecting the changed economic environment, increased attention has been devoted to the effect of trust fund accumulation on the supply of investment-seeking funds and the consequent increase in capital formation. In contrast to the earlier argument that led to the conclusion of a net decline in output, more recent analyses lead to the conclusion that the primary effect of pension fund growth is on the composition of output, weighing it more heavily with investment than would otherwise have been the case. Thus, in a recent analysis of the pertinent functional relations, Gilmore concluded:

Under conditions of high business confidence and moderately high interest rates * * * trust fund accumulation increases real saving and investment, and because of the increase in the stock of capital, also increases output in the long run.

* * * * *

³⁸ Selected Employee Benefit Plans, a report of the Joint State Government Commission to the General Assembly of the Commonwealth of Pennsylvania, session of 1955, pp. 15 and 39.

³⁹ Dan M. McGill (ed.), *Pension: Problems and Trends*, Richard D. Irwin, Inc., 1955, p. 40.

If these views are correct, the most important conclusion of this analysis is that it is now economically possible for a generation by saving to provide for its own future retirement needs.⁴⁰

To go one step further, if over the longer pull, as many hold likely, the general outlook is for oversufficient aggregate demand with consequent inflationary pressures, the increase in saving due to pension programs will tend to dampen the rise in prices. Under these conditions, pension plan operations would leave total output unaffected, would cause a larger fraction of it to be devoted to capital formation, and would tend to moderate price increases, thus helping to insure the adequacy of the benefits to be paid out under the plans. That pension funds would, therefore, be playing a salutary role need not be belabored.

Pensions as stabilizers

Nor is this conclusion invalidated by the consideration of cyclical fluctuations around a full employment (with or without inflation) trend, for the deflationary pressures of pension plans can be expected to vary in intensity in a countercyclical way. Pensions are one of the class of devices whose fiscal operations tend to buttress spending and, thus, to moderate variations in the level of income and employment. In periods of declining economic activity, contributions tend to fall while benefit payments remain steady at the very least, or rise somewhat. So when aggregate income is falling, the operations of pension programs tend to moderate the decline on balance, making it less severe than it would have been. Similarly, a rise in the level of income would be moderated by the tendency for contributions to increase and benefit payments to remain steady (or, allowing for their trend, to rise more slowly than they would have).

Thus Merriam has estimated for a hypothetical recession commencing in 1955 and reaching a low in 1957 (the estimates were prepared prior to 1955) that under old-age and survivors' insurance as it stood in 1953—

* * * total contributions in 1957 would have been about \$1.9 billion more than aggregate benefit payments if economic conditions were good, but only about \$5.5 billion more under conditions in which 10 percent of the labor force were unemployed.⁴¹

These figures, derived from a hypothetical model, should not be taken to describe actual events but rather to illustrate the offsetting effect under a set of specific assumptions as to the nature of the recession and the provisions of the old-age and survivors' insurance program. The introduction starting in July 1957 of payments after age 50 for total and permanent disability will tend to increase the cyclical flexibility of the program, for, as Merriam remarks:

⁴⁰ Curry W. Gillmore, *Trust Funds and National Output*, Southern Economic Journal, July 1957, pp. 52-53.

⁴¹ Ida C. Merriam, *Social Security Programs and Economic Stability*, in *Policies to Combat Depression*. A Conference of the Universities—National Bureau Committee for Economic Research, Princeton University Press, 1956, p. 228. The rest of this section draws heavily on Merriam's paper.

Such benefits are generally more sensitive than old-age retirement benefits to fluctuations in economic conditions and employment levels.⁴²

Railroad retirement and the programs for governmental employees would respond in a similar fashion but not as vigorously.⁴³ Assistance payments, too, would show an "appropriate" response but probably not a very strong one.⁴⁴ Veterans' compensation and pensions should increase in absolute amount in a period of economic adversity, and, presuming no increase in tax collections to finance them, this too would shore up spending. The response here is liable to be relatively strong, because income ceilings apply to eligibility for such payments. With declining aggregate income and employment more veterans would fall below these limits.⁴⁵

Finally, as regards private plans there are these considerations that suggest that they will operate countercyclically: In a contraction, for example, contributions will tend downward as wages fall. Benefits, if anything will increase; so fund accumulation will decline. As already noted this will probably mean a relative decline in saving. Some measure of flexibility is permitted employers as regards their annual contributions both for current and past service credit, and this will impart additional cyclical flexibility to contributions, causing them to fall relatively more when profits are low and rise relatively more when profits are high. Moreover there has been a rapid growth in provision of pensions through profit-sharing plans under which the rate of fund accumulation increases in expansion and falls off in contraction.

These conclusions on private plans apparently run counter to considerations raised by Congressman Mills during the tax hearings of this committee several years ago. He noted several points "sometimes made in this connection," particularly that—

the tax provisions serve to remove sizable amounts of highly cyclically sensitive income, employer contributions on behalf of covered employees, from the tax base so that changes in the amount of this element of employees' compensation are not reflected in taxable income and, * * * [also] * * * employers' deductions increase with increases in levels of economic activity and decrease during recessions, offsetting tax revenues perversely.⁴⁶

But as Hall notes in his discussion of these points, although the built-in flexibility of the tax structure is impaired (but only slightly), this is more than offset because the effect on personal saving is greater than (and opposite in sign to) the effect on government saving; therefore, on balance the probable effect is a relative increase in savings during expansion and the reverse in contraction.⁴⁷

All in all, then, the pension structure's effect on aggregate demand is appropriately countercyclical. While it probably should not be counted among the major stabilizers, it is a force in the right direction.

⁴² *Ibid.*, p. 227.

⁴³ Merriam explains that they are more mature systems than OASI.

⁴⁴ *Ibid.*, p. 232.

⁴⁵ Merriam, *op. cit.*, p. 230.

⁴⁶ Federal Tax Policy for Economic Growth and Stability, hearings before the Subcommittee on Tax Policy of the Joint Committee on the Economic Report, 84th Cong., 1st sess., p. 652.

⁴⁷ *Ibid.*, p. 653.

Only the most tentative conclusions can be drawn on the effect of pension programs on savings. This is an area where much work remains to be done. Subject to reservations already noted, it may be said that—

(1) On net balance, the fiscal operations of the pension structure probably add to the net flow of savings in the community, but by less than what a look at annual fund accumulations would lead one to believe.

(2) Given the general economic complexion of our times, this increase in saving is, on the whole, desirable.

(3) Moreover, pension-fund savings tend to vary in an appropriate direction in the course of cyclical fluctuations, helping to moderate both expansions and contractions.

THE FUTURE SIZE OF PENSIONS

The pension structure over the next 30 years

To many peoples' way of thinking one of the key problems raised by increasing numbers of persons over 65 and the burgeoning structure of pension arrangements for their support in retirement is simply this: Can we afford it? Thus a British Royal commission that investigated the economic and financial problems of the provision for old age summarized what it judged to be one of the major issues with this question: "What can a future generation afford to do for the elderly out of its own resources without undue strain?"⁴⁸ Or, again, Ball in his study of the effect of pensions on the economy, observed:

Probably the most fundamental economic question connected with the growth of the aged population is whether the flow of goods and services going to the retired aged will be so great in the future that the gainfully employed will find it difficult to produce enough for the aged and at the same time have enough for themselves, their children, and their wives.⁴⁹

As a first and, as will be seen, very rough approximation, whether the transfer of purchasing power from the working to the retired population that is brought about by pension plans will constitute a heavy "burden" apparently depends on two things that can be measured or estimated—the size of the transfer and the flow of output it will be bid against.⁵⁰ To get some idea of how important this transfer of purchasing power may become, we need to know what benefit payments and national income will be in the future. But because such a comparison obscures some of the basic issues involved and its interpretation must be qualified, a further discussion of the concept of "burden" appears later in this section.

There are available recent projections of the size of benefit payments in 1965, 1975, and 1985, under all public pension programs, and of national income at the same dates which were published in the report of the President's Commission on Veterans' Pensions—Veterans' Bene-

⁴⁸ Report of the Committee on the Economic and Financial Problems of the Provision for Old Age, Cmd. 9333, 1954, p. 35.

⁴⁹ Pensions in the United States, a study prepared for the Joint Committee on the Economic Report by the National Planning Association, Robert M. Ball, staff director, Washington, 1952, p. 39.

⁵⁰ While the word "burden" is commonly used, it has a number of different meanings and is subject to numerous qualifications. That is why quotation marks appear around it in what follows.

fits in the United States (further details of these estimates appear in the Commission's staff report No. X. They were prepared by the Department of Health, Education, and Welfare and the Commission staff. That there are pitfalls in projecting economic variables over a period as long as 30 years requires no elaboration. But the projections serve a useful illustrative function; they suggest some of the possibilities as to the magnitude of pension benefits over the next three decades.⁵¹

Two sets of projected values are set forth in table 4—one based on the assumption that present (1955) laws and benefit rates for all programs remain unchanged with the exception of the introduction of cash disability payments under old-age and survivors' insurance commencing at age 50 as in H. R. 7225, 84th Congress (one of the amendments passed in 1956), and the other assuming that benefit rates would increase at half the rate of increase in productivity per man-hour posited in the national income projection (that is, at one-half of 2.5 percent annually), and, in addition, veterans' payments⁵² would be changed to include general service pensions assumed as follows: pensions of \$100 a month to all present wartime veterans after age 65 and a liberalization of service pensions to surviving widows from \$50.40 to \$65 per month, as well as a 30-percent increase in payments to minor children. (Note that since these estimates were prepared, changes that will cause an increase in benefit payments were made in most of the public programs.)⁵³

What do the projections show?

In 1955 total public pension benefit payments of \$11.5 billion equaled 3.6 percent of national income. Even with no change in existing laws and benefit structures, pension payments are expected to grow (especially those made under old-age, survivors, and disability insurance) to an estimated annual rate of \$19.5 billion, or 4.7 percent of national income by 1956.⁵⁴

While further growth in benefit payments is looked for over the ensuing two decades, a more rapid relative increase in national income is projected. The estimates put benefits at 4.3 percent of national income in 1975, and 4.0 percent by 1985. This latter figure is not much higher than the actual percentage for 1955.

⁵¹ What has been put in the category of pensions for the purpose at hand differs in some respects from the definition used in preparing table 1, although the 1955 total of payments comes to \$11.5 billion in both cases. But the veterans program entry in table 4 below is \$0.5 higher than table 1's which excludes payments for service-connected disabilities where the degree of disability is under 50 percent. Also table 1 includes private pension benefits; table 4 does not.

⁵² This category includes payments made for service-connected disability and death benefits and non-service-connected pensions to veterans and dependents.

⁵³ The estimates exclude private plans. Had they been included, larger benefit payments would have been indicated—in 1955 about \$600 million more; in 1965 under assumption (a) perhaps something on the order of \$1.8 billion (see Hall, *op. cit.*, p. 788).

⁵⁴ This growth will be due both to an increase in the number of the aged and the fact that more of them will be eligible for pension benefits, particularly under old-age, survivors, and disability insurance.

TABLE 4.—Public pension benefit payments and national income: Actual, 1940–55, and estimated, 1965, 1975, 1985

[Dollar figures in billions]

Year	National income	Change in rate of national income over decade ¹	Benefit payments		Change in rate of benefit payments over decade ¹	Change in benefits as percent of change in national income
			Amount	As percent of national income		
	(1)	(2)	(3)	(4)	(5)	(6)
Actual:						
1940.....	\$81.6	-----	\$1.9	2.3	-----	-----
1945.....	181.2	-----	2.5	1.4	-----	-----
1950.....	240.0	\$158.4	6.5	2.7	\$4.6	2.9
1955.....	322.2	141.0	11.5	3.6	9.0	6.4
Estimated:						
(a) Assuming no change in existing law and benefit rates: ²						
1965.....	414.0	91.8	19.5	4.7	8.0	8.7
1975.....	571.0	157.0	24.8	4.3	5.3	3.4
1985.....	756.0	185.0	30.6	4.0	5.7	3.1
(b) Assuming benefit rates to increase at half the rate of increase in national productivity assumed in projecting national income and liberalization of veterans' payments as described in text: ³						
1965.....	414.0	91.8	25.6	6.2	14.1	15.4
1975.....	571.0	157.0	37.9	6.6	12.3	7.8
1985.....	756.0	185.0	56.9	7.5	19.1	10.3

¹ The 1950 entry, for example, is the difference between the 1950 and 1940 values.² Except introduction of disability payments at age 50 in old-age and survivors insurance. (See text.)³ Estimated by applying to all programs on p. 115 of Veterans' Benefits in the United States—except the workmen's compensation and unemployment compensation entries—the rate of increase computed from the table on p. 124.

Source: Veterans' Benefits in the United States, pp. 117–118, 124; Survey of Current Business, July 1955; Social Security Bulletin, September 1953.

But the history of pension growth suggests that the assumption of maintenance of existing benefit structure probably constitutes the lower limit of the range of conjectures that might be made about the development of pension program benefit provisions in the future. For one thing it takes no account of the growth potential of veterans' non-service-connected pensions. For another, with real wage levels rising as productivity increases, it implies a decline in the ratio of pension benefits to average working life earnings.

“Reasonable” possibilities in both respects are legion. Two of them are incorporated in the data under (b) in table 4.

These projections assume general service pensions, etc., for the veterans' program (as noted above) as well as an upward adjustment of the benefit provisions of all the pension programs including this one. The specific assumption incorporated in these data is an increase in benefits at the rate of 1.25 percent per annum (one-half the rate of increase in productivity assumed in projecting national income.⁵⁵ Under these assumptions public pension benefits would, of course, grow much more rapidly. By 1985, it is estimated they would be close to \$57 billions, some 7.5 of projected national income. Their share of income would be over twice as large as it was in 1955.

These projections suggest that: (1) the next 30 years will witness a rapid rise in public pension benefits. However, should present laws

⁵⁵ If real wages kept pace with productivity, this assumption implies a lag of pension benefits in relation to real wages.

and benefit provisions remain unchanged, national income would increase in step with pensions. If the veterans' program were expanded and if in addition to this benefit provisions were changed so that real benefits tended to rise, although not as rapidly as productivity (and, quite possibly, wages), public pension benefits would grow more rapidly. Their pace would outstrip national income, and the fraction they would constitute of national income could, conceivably, more than double.

(2) No matter which assumption is made about benefit provisions over the next 30 years, the growth of pension payments is likely to be particularly marked over the early part of the period. That is to say, the time pattern of benefit payment growth shows a pronounced bulge over the period 1955-65. Note the percentages in column (6) of table 4 which relate the change in pension benefits to the change in national income. Between 1945 and 1955 the increase in the annual rate of benefit payments came to 6.4 percent of the increase in the annual rate of national income. Between 1955 and 1965, with no change in benefit provisions, the projected growth in the rate of benefit payments equals 8.7 percent of the projected increase in the rate of national income. Much lower values are estimated for the relative change between 1965 and 1975 and that between 1975 and 1985. Under the other assumption an even higher ratio of benefit increment to national income increment is estimated. The change between 1955 and 1965 would, again, be more pronounced than between the two later decades.

(3) Under existing laws and benefit provisions, the major portion of estimated total benefit growth will be accounted for by OASDI—\$6.2 billion of the total \$8 billion increase between 1955 and 1965; \$14.5 billion of the \$19.1 billion increase in projected total benefits between 1955 and 1985. But another pension program has substantial possibilities of growth that may or may not materialize. Should general service pensions for veterans be enacted, the veterans' program would increase by an estimated \$4 billion by 1965, and over the 30-year period the annual rate of veterans' pensions would increase by \$8.4 billion, or almost one-third of the increase in the rate of total benefit payments.⁵⁶

These data, of course, just set out the contours of the problem. No easy conclusions follow from them about the "burden" of pensions. Whether pensions will account for too "high" or too "low" a share of income cannot be concluded simply by reference to them. In part this is because pension transfers can only be evaluated within the context of all the uses to which the community desires to devote increases in its output—more schools, more roads, more medical expenditures, more research and developmental expenditures, etc. It is easy to discount extension of any selected program as involving allocation of a small percent of expected increments in output. It is not easy to discount the total all these programs will add up to. And then there is the question of just what is implied by a calculation that sets pension benefits against income. Is it correct, as this procedure seems to imply, to consider pension benefits a "burden" to the full amount of the monetary transfers involved?

⁵⁶ For these data see source note of table 4.

Some observations on "burden"

Pension payments together with private charitable contributions and intrafamily contributions constitute the body of transfer payments to the nonworking aged. But it would not be correct to count all pension benefits as a "burden." For to the extent that pension transfers had their origin in previous saving (and accumulated interest thereon) they represent no more of a "burden" than personally provided annuities. The interest and dividend component of pension payments is a reward for permitting the use of capital; the return of capital component permits drawing against output to a greater extent than current participation in production alone would permit, but only to the amount of capital formation that previous saving made possible.

In other words, while it is true that the flow of output over any given period is the result of the effort expended by those working at that time, and it is also true that pension transfers enable nonworkers to claim some of this output, in assessing the "burden" of pensions—i. e., how much of a transfer of goods and services from workers to nonworkers is effectuated by pension benefits—we need to know to what extent the generation now working is helped in its task because, due to pension programs, the now-retired generation set free some of the output it engendered at an earlier date for capital formation. If the retired generation failed to exercise claims to the output it produced over working life to an amount sufficient (with accumulated interest) to match its pension receipts, and if this resulted in a commensurate amount of capital formation, and if there had been no change in price levels over the whole of their working and retired life, the working generation would, after meeting the claims of pensioners against output, be just as well off as it would have been in the absence of pension programs. Viewed in this way, pension programs that meet the stated assumptions merely involve a rearrangement of the pattern of lifetime consumption possibilities—consumption less than the income due to participation in production during work life, balanced by more consumption in retirement.

The ifs of the preceding paragraph are important qualifications. Insofar as pension program operations do not result in forgone consumption or the savings⁵⁷ made under their auspices are not matched by investment, pension retirement benefits will, indeed, deprive the working population of some of the output that is due solely to its efforts, for the retired generation will not have "put any output in the bank" during its working life to set off against the claims to output that it will receive via pension benefits. On the other hand, should prices rise over time and pension payments remain unchanged, then the retired generation will, in effect, be able to take out only a fraction of the output their pension-program-induced abstinence set aside in working life. There will be a transfer of output from the retired generation to the working generation. The prospect or, rather, the likelihood of inflation is something to keep in mind in any discussion of the "burden" of pensions. Inflation will always ameliorate a "burden" by lowering the real value of any monetary promise that one generation makes to another.

⁵⁷ Note that here the discussion relates to the saving associated with contributions (in payments) and fund earnings of pension programs, whereas the discussion in the section on savings, considered the net result of this and the savings effects associated with benefit payments, and changes in Government revenue (where appropriate).

What follows, however, assumes investment to the full amount of consumption forgone in working life due to participation in a pension plan, and no change in price levels. Then it could be said that a "burden"—a net deprivation of real goods and services—will be imposed by a pension program on the working generation if in the aggregate pension transfers to retired persons exceed the amount of forgone possible consumption due to the retired generation's participation in a pension plan when they were working. For then they will be consuming more over their lifetime than their lifetime earnings (including property income, receipts) alone would permit. This excess of consumption over income can only come about by drawing on the output engendered by the working population. In this case pension transfers have a real counterpart in a flow of output from workers to nonworkers. This net transfer of output from one generation to another is the concept implicit in a literal reading of comparisons of the type that appear in table 4.

Can we, then, with reference to this concept of "burden" say that funded plans are "burdenless," that de facto pay-as-you-go programs (old-age assistance and payments to veterans) are "burdensome" to the full amount of the transfers made under them, and that OASDI falls somewhere in between? Not without qualification. On the one hand, while programs are approaching maturity, due to funding for past service credits under private plans, and because of the nature of OASDI's benefit eligibility requirements, the retired generation will recoup more from the program in retirement than it contributed to it in working life. But they will, of course, have forgone current use of income engendered in production to some extent, and over time each generation's income forgone during working life will approach closer to its retirement benefits.

Even where pension payments have no basis in previous saving, the net "burden" would be less than the amount of such payments, because the existence of such a pension program makes for a lower total of private charitable and intrafamily contributions than would otherwise have been the case.

So far the discussion has run in terms of the generation of retired persons in the aggregate. In this context "burden" is related to transfers of output between generations. Break up this aggregate into the individuals comprising it and an additional concept of "burden" emerges, a "burden" that is related to transfers of output among individuals. Even if a generation as a whole gave up potential consumption just equal to the amount of consumption its pension receipts in retirement would permit, an individual member of that generation may be "burdened," "benefited," or left unaffected, depending on whether the forgone current expenditure of income associated with his participation in a pension program during working life falls short of, exceeds, or just equals his pension receipts in retirement. This "burden" is, of course, if measured in terms of differential claims against output, matched by a commensurate "benefit" for someone else in the same generation, consisting of a redistribution of claims to output from some members of a given generation to others.

Under old-age, survivors, and disability insurance, for example, a lack of congruence between contributions and receipts arises from the difference between the contribution formula and the benefit formula,

as well as from the possibility that some or all of the employers' contribution comes out of the community at large in proportion to consumption expenditures (or wages), rather than in proportion to future benefits. Under private plans, too, there are reasons to expect benefit expectancies and contributions (forgone possible consumption) to diverge. To some extent the employer's contribution may come out of lower profits or higher prices and, hence, be supported by others than the ultimate beneficiaries. This same result follows from the tax treatment of private plans for, as already noted, they lead to lower personal tax liabilities and if Federal revenues are maintained, the rest of the community will have a heavier tax load. An additional reason for expecting a lack of correspondence between current income forgone and pension benefits in the future under private plans is this: with labor mobile and employers' contributions not vested until after long period of service, it is entirely likely that a substantial fraction of those now under a plan will not receive any benefits from it.

Still another kind of "burden," a psychological "burden" may be noted.

Even if his forgone consumption potential during working life were just to equal his retirement benefits, a "burden" may be imposed on an individual if his participation in a pension program was not wholly voluntary. For he may have wished to arrange the use of his income over time in a pattern different from that necessitated by the pension program. He may have had in mind a different interest rate from that obtainable under the plan. That is to say, to him the sacrifice involved in foregoing current consumption may have been greater than the interest reward provided by the plan.

In summary, these observations on "burden" suggest that the pension structure is less "burdensome" in the sense of permitting one generation to draw against the output of another than a mere reading of the figures in table 4 would indicate. But they also serve to point up the fact that, connected with pension programs, there are other "burdens" or "benefits" related to the individual that are not covered by the data of the table. Two final cautions:

(1) This section's discussion has run in terms of "burden" in a situation with a pension program as against one without it. But, accepting a certain level of support in old age as having been decided on, a more salient view of "burden" would be that associated with one particular program compared with the "burden" associated with alternative possibilities.

(2) Many other economic effects, not discussed in this paper, are associated with pensions. The evaluation of all these effects and, hence, the net effect of pensions on the economy goes far beyond the narrower considerations of "burden" raised here.

WELFARE PROGRAMS AND ECONOMIC GROWTH AND STABILITY

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The present report is concerned with the relation of health, education, and social-security programs to long-term economic growth and economic stability. It is also concerned with the size and problems of financing welfare expenditures—present and prospective.

LONG-TERM ECONOMIC GROWTH

The social-welfare programs contribute to growth in a number of different ways. They help to improve the quality of living and enhance economic well-being. They help to provide the scientific and managerial talent on which private investment depends for stimulus and support. They influence the numbers available for gainful employment and the productivity of the work force. They generate need for a supporting volume of public investment and give stability to consumer markets. Each of these facets of the interrelation of social-welfare programs and economic growth is discussed briefly below.

Economic well-being and growth

Rapid economic development has been accepted as a goal. But men attach value not only to accumulation of goods but also to the purpose of that accumulation. Good health, education, and family security are essential parts of the quality of living and of the objectives of an expanding economy in a political democracy. In centuries past there has been economic growth and at the same time high mortality rates. There has been economic growth and high illiteracy rates. But once having reached a level of economic production which meets the basic necessities without long hours of work, the question of priorities between purchases of education and of health services, and of additional goods becomes a real one. Muñoz-Marín, the Governor of Puerto Rico who has provided the leadership which has raised Puerto Rico from a slum to a symbol of progress, recently proposed an Operation Serenity through which society "would use its economic power increasingly for the extension of freedom, of knowledge, and of understanding imagination rather than a rapid multiplication of wants."¹ Operation Serenity deserves careful thought lest in the concern with economic growth, the purposes of economic growth are overlooked.

¹ Quoted in Henry van Zile Hyde. Public Health and the Social Sciences. Public Health Reports, May 1957, p. 425.

The time for basic decisions on these priorities may have been some years ago. However, decisions on welfare spending—notably in education—have been made not in the market but in the political arena of legislative decision. Decisions on health programs have waited, in large part, on the progress of medicine, that is, on achieving effective therapies for specific diseases. Our present ordering of priorities may be illustrated in many ways. Prof. Alvin Hansen has put it this way:

Quality and social priorities at long last must concern us or perish in the midst of material plenty. Just now we are starving our schools while we race up and down 6-, 8-, and 10-lane highways in ever newer and longer cars.²

We turn out chrome-finish refrigerators, dishwashing machines, dryers, home air conditioners, self-rolling vacuum cleaners to improve family living, yet preventable childhood illness and infant deaths still occur, and appropriations for maternal and child health services are restricted.

There seems to be little doubt that better criteria are needed to determine priorities in the public and private spheres so that a more balanced set of social priorities can be attained. New institutional approaches may be required, calling for the inventive skills of the political scientists, sociologists, and economists working jointly to this end.

Growth of private investment

Levels of education, health, and social security not only are implicit components of a standard of living but they are means to economic growth and to prevention of public dependency. One important way the social-welfare programs contribute to economic growth is by financing the education and training of scientific and managerial manpower.

Scientific advance and invention are increasingly recognized as important supports for new private investment—the investment required to produce increased material goods. Progress in science and invention, in turn, depends upon our national pool of scientific talent. Current concern about a shortage of engineering and scientific personnel, about the inadequacies of education in mathematics and the sciences in the public-school system, and about the qualified young people who are not attending college grows out of the dramatic achievements in applied science in the past decade. Governmental research and development programs for military purposes more than doubled after the Korean conflict, and further increases are projected with the emphasis on nuclear weapons, guided missiles, and high-speed aircraft. In industry, research and development activity has grown rapidly and, as a concomitant, there has been rapid obsolescence of existing products and development of new products. The new products require retooling and new installations and because of the greater technical complexity of products and production methods, new demands are created for engineers and scientifically or technically trained personnel.

² Alvin H. Hansen. Statement in Federal Tax Policy for Economic Growth and Stability. Subcommittee on Tax Policy of the Joint Committee on the Economic Report, 84th Cong., 1st sess., 1956.

Partly in response to labor-market conditions and prospective earnings scale, and to GI and other educational aids, and partly in response to higher family income levels, there has been a considerable increase in the proportion of persons of college age attending college. College enrollments increased from about 1.4 million at the beginning of the school year 1939 to almost 3 million the beginning of the school year 1956. The number of 18-year-olds in the population in 1957, however, was less than the number of same age in 1940. During this time period, the population increased by 39 million.³ The low number of additional young entrants into the labor force reflects the depression birthrate. It is from this present relatively small manpower pool that immediate needs for additional professional, scientific, and technical leadership must come, as well as other trained personnel.

To provide the scientific manpower required for economic growth and to make maximum use of intellectual resources curriculums will have to be enlarged, the supply of trained teachers will have to be increased, and there will have to be additional opportunities for college training and advanced degrees.

Labor force and productivity

A second important contribution of social welfare programs to economic growth results from their impact on the size of the effective work force and on productivity. For centuries, economic and political theorists have emphasized the cost to society of premature death. In 1835, Quételet, a Belgian mathematician, wrote:

In his early years, man lives at the expense of society; he contracts a debt which he must one day discharge; and if he dies before he has succeeded in doing so, his life will have been a burden rather than a benefit to his fellow citizens * * *.⁴

Measures directed to reduce losses in productive capacity through premature death and disability essentially require no elaboration as a part of governmental policy for economic growth.

Between 1900 and 1917, the overall age-adjusted death rates decreased at 1.074 percent per annum, a higher rate of decrease than in the subsequent period from 1921-37. The decline in the first part of the century is largely attributable to environmental public health expenditures. Through these expenditures diseases such as typhoid, diarrhea, and dysentery, commonly transmitted by water, milk, food, and by insects, were controlled by public-health programs.

Between 1938 and 1950 the average rate of decline in mortality was more than twice that of the first part of the century. Acceleration in reduction of mortality starting about 1938 is attributable mainly to the dramatic use of the new drugs in treatment of conditions involving infections. As the National Office of Vital Statistics concluded in its analysis of mortality reports:

The increasing availability and use of these new therapeutic products have all but closed the history of many infectious diseases as causes of death.⁵

³ Testimony of Ralph C. M. Flynt, Director of Higher Education Programs Branch, Office of Education before Subcommittee on Special Education, U. S. House of Representatives, Committee on Education and Labor, August 12, 1957, pp. 5, 6.

⁴ Quoted in René Sand. *The Advance to Social Medicine*. Staples Press, 1952, p. 584.

⁵ National Office of Vital Statistics. *Vital Statistics of the United States, 1950*, vol. 1, p. 169.

What have these gains meant for labor force participation and production? Reduced death rates have resulted in a decline in separations from the labor force at all ages up to age 65. Despite the marked delay in entry into the labor force by young people, and the earlier exit from the labor force by those in the older age groups, the male worker today puts in many more years of work than did his counterpart 50 years ago.

These achievements can be traced to a wide variety of factors, paramount among which is the series of technological advances which resulted in the great productivity increases we have witnessed in the past 50 years. But it is difficult to see how these factors would have operated without the two long-term trends we have described above; that is, without the manpower potential of our population at least approximately keeping pace with the other factors of growth.⁶

The improvement in health status reflected in lower mortality has been one of a complex of factors facilitating the employment of women, especially of women with children.

Improved health status also leads to an increase in effective labor force participation by reducing the manpower force required to meet the contingency of absenteeism. Illness of the employee or his family is an important cause of absence from work, and reduction in such absences is reflected in improved efficiency and in reduced work-force requirements. Elimination of such absences would be the equivalent of the addition of at least 1.3 million workers to the labor force.⁷

Industrial advance and urbanization have been accompanied by a twofold change in occupational patterns and skills which direct attention to the public education system.⁸ On the one hand it has enhanced the importance of skills and of specialists in the sciences, engineering and related technical fields. On the other hand, new production techniques both in industry and agriculture have for some groups of workers meant a depreciation, a downgrading, and a dividing of skills, and old skills have become redundant.

Both types of occupational change suggest greater emphasis on educational and related services and as a consequence, higher public expenditures. As indicated earlier, the increased need for professional workers and technicians requires more advanced training for a larger number of people. Increasing mechanization and the growing diffusion of automatic or semiautomatic, multipurpose and high-precision machines require retraining opportunities, counseling services, and financial aids to facilitate new training and mobility within a community and necessary movement to new areas when "uprooting" occurs.

The strategic political and economic role in our society of the educational system leads to concern not only with advanced education

⁶ Seymour L. Wolfbein. *The Length of Working Life*. Division of Manpower and Employment, Department of Labor, July 1957, pp. 5, 8 (processed).

⁷ Estimated from data presented in George W. Bachman & Associates. *Health Resources in the United States*. The Brookings Institution, 1952, p. 273.

⁸ The price of illiteracy and ignorance is high, especially in a society in which the basic concept is that of self-government and which depends upon an educated citizenry to use that system of government and make the selections and choices presumed. Economic motivation and enterprise, moreover, require a system of universal education to offer greater equality of opportunity and flexibility of movement in the labor force.

and vocational training but with the education program basic to these. Deficiencies in elementary and secondary school facilities and in funds to attract necessary teaching staffs pose urgent problems for communities and the Nation.

Thus far the discussion has dealt largely with aggregate numbers in the work force and rates of production. Education and health services and supporting income maintenance programs such as the program of aid to dependent children and the survivors insurance can help to improve the productive capacity of the low-income groups and at the same time contribute toward the elimination of poverty and future public delinquency.

Educational attainment is one of the most important factors determining occupational and income status. The 1950 census data, for example, indicate a progressive increase in the average income with increased education. Average annual income in 1949 of men 45 to 54 years of age who had no elementary schooling was \$1,588; it was \$3,112 for those who completed elementary school and \$4,519 for those who completed high school. Average income of college graduates was \$3,388 above the average for high-school graduates.⁹ Thus, investment in education appears to pay substantial dividends in earning power required for self-support.

The interrelationships between income and health status are difficult to disentangle. Some of the infectious diseases, like tuberculosis and rheumatic fever, have been closely identified with poor housing conditions and low income. Low income may be associated with neglect of conditions requiring medical attention. Low income also may be the result of illness of the primary wage earner or of interruption of earnings due to sickness of other family members. Sufficient experience has been accumulated in the administration of the public-assistance programs to suggest that illness is an important factor in public dependency. Dependency of between one-fourth and one-third of the 6 million persons receiving public assistance is attributable at least in part to illness. Expanded efforts to prevent illness, to provide early access to medical care, to improve disease therapy and rehabilitation services would reduce the long-run burden of illness on public resources. At the same time, these efforts would increase the effective work force.

Public investment

A third way in which the social welfare programs contribute to economic growth is by generating public investment opportunities.

Approximately one-third of new public works construction has been for health and educational facilities, including in the health category sewer and water facilities. Wartime curtailment of public construction, postwar population increases, and technological changes in the physical facilities associated with altered public services created large deficits in building needs. Hospital and health facility requirements are in the magnitude of \$12 billion; expenditures required for waste-treatment works, both public and industrial, are estimated at about \$10 billion; to meet the existing deficit in elementary and secondary school facilities would call for about \$6 billion in construction out-

⁹ Paul C. Glick and Herman P. Miller, *Educational Level and Potential Income*, American Sociological Review, June 1956.

lays. Education, health, and water facilities support public functions in these areas but they also are important to private plant location, as even a summary review of industrial location surveys emphasizes.

Federal support of facilities for education and health services has a direct bearing on the capacity to provide services. First, support of needed construction releases for current operation some funds which otherwise would go into buildings. Second, public aid for construction provides a stimulus to private giving to charitable educational and health agencies. Concern about National Government controls and interference has often directed national program proposals into support of brick-and-mortar programs rather than support of teaching staffs or hospital operation. However, services and facilities and their financing are patently interrelated.

Decision on timing of public works involve not only the acceleration or postponement of public works in the light of private investment activity but also the timing and priorities of various types of public works and the relative urgency of a public facility as a part of a service program. Should new highways be built now, and schools later? Should the costs of cleaning up polluted waters be left to a future generation as this one bears the burden of a depression and wartime backlog of construction needs in education? Should construction of educational facilities associated with research and scientific manpower take precedence over basic education?

Consumer markets and growth

A fourth way the social welfare programs contribute to economic growth is by enhancing the stability of consumer income and improving the equity of its distribution. Welfare expenditures are essentially redistributive outlays which tend to reduce inequities in command over goods and services. While redistribution has not been pursued as a positive policy, there is a redistributive effect which follows from the selection of the beneficiary groups, the limitation of payments and services to needy groups, and from the characteristic distribution of economic risks and of population by income groups.

The social-insurance payments go to those who have suffered a reduction in income due to retirement, death, disability, or unemployment of the primary wage earner. Public-assistance payments are conditioned on the meeting of a needs test. While not all health services have an income qualification, public services are more attractive to those who cannot afford any others, and most expenditures are made for services subject to a need or medical indigency standard. Veterans' benefits are more attractive to those in the lower income groups, and non-service-connected payments and medical benefits are restricted to those who meet an income test.¹⁰

The net redistributive effect, however, depends not only on the income status of beneficiaries but also upon the distributive impact of taxes levied to finance the programs. Several studies have been made of the redistributive effects of total budgetary income and outgo.¹¹ These several studies indicate that, on balance, the total

¹⁰ Howard G. Schaller, *Veterans Transfer Payments and State Per Capita Incomes, 1929, 1939, and 1949*, Review of Economics and Statistics, November 1953, pp. 325-332.

¹¹ Alfred H. Conrad, *The Multiplier Effects of Redistributive Public Budgets*, Review of Economics and Statistics, May 1955, pp. 160-173; see also A. H. Conrad, *Redistribution Through Government Budgets in the United States, 1950*, in *Income Redistribution and Social Policy* (Alan T. Peacock, ed.), London, 1954, pp. 178-261; see also John H. Adler and Eugene R. Schlesinger, *The Fiscal System, the Distribution of Income, and Public Welfare*, in *Fiscal Policies and the American Economy* (Kenyon Poole, ed.), 1951.

fiscal operations of the National, State, and local governments redistribute incomes vertically from the higher to the lower income groups and reduce thereby the degree of income concentration. The largest gains are shown for the income group receiving less than \$2,000 of consumer income. A study made more than 10 years ago points to some net redistribution of income favorable to the low income groups as a consequence of the social insurance program operations.¹²

The redistribution effected by the social-welfare programs alone is very much circumscribed by the regressive base of the social-insurance levies, and the major reliance on State and local revenues, particularly on property and sales taxes for the noncontributory programs. For the most part, there is a horizontal redistribution of income between the wage earners who pay the taxes and the aged, the disabled, the widows, and the children who receive the benefits. Over a period of years a large part of benefits received and taxes paid by a family are equated. Social-insurance contributions are returned on retirement or death; education benefits received by the young family are returned in property taxes when the children are grown. Within a single year the major difference in the distribution of disposable income resulting from welfare services and payments (as compared with the distribution of income received from production) is attributable to Federal grants-in-aid and Federal benefits paid to special beneficiary groups, such as veterans. Grants and special benefits to Federal beneficiaries, however, account for less than 20 percent of total welfare outlays.

Social-welfare programs can help to maintain consumption. In 1929, welfare transfer payments and services accounted for 5.1 percent of "adjusted" disposable personal income (table 2). In 1935, with a drastically reduced income level, and expanded social services, these welfare additions to consumer income accounted for 10.9 percent of disposable income. Last year (1956), although income was at an all-time peak, 11.2 percent of disposable personal income was made up of welfare payments and services. A decade or so ahead this percentage may be expected to reach 12 or 13 percent of income after taxes—a proportion sufficient in size to enhance the stability of the national economy.

The shifting of income among income groups can have an additional long-run effect on aggregate consumption and contribute to expansionary forces in the economy. Without a quantitative evaluation, which takes account of the specific content of social welfare finance, the importance of this redistribution for aggregate consumption cannot be assessed. There are other aspects of this question on which appropriate investigation might throw much needed light. Does a full-blown system of security protection alter decisions of families within an income class to save or to spend? If the major economic hazards of family life were protected by the social insurances or by public services would families alter their consumption and saving decisions, and in what direction? How much can be achieved in raising, through expanded health, education, and welfare services and payments, the productivity and living levels of low-income families? These essential tools for social welfare policy decisions are at present not available. The programs appear, however, within a limited range to work toward a long-run increase in consumption.

¹² Mushkin, Seltofsky, and Small, *Social Insurance Financing in Relation to Consumer Income and Expenditures*. Social Security Board Bureau Memorandum No. 63, 1946.

Tax burdens

The potential contribution of health, education, and social-security programs to economic growth has to be assessed against the tax load required to finance these programs and the damper on national growth which the tax burdens may represent. There is a vital choice to be made between tax reduction and added government programs, between leaving money in the pockets of individuals and corporations for disbursement in such directions as they deem best, or for public direction of these funds into governmental activities through the compulsion of taxation. The balancing of forces of growth germinated by welfare programs against the deterrents to growth set off by tax requirements is only one ratio which must be drawn from the profit and loss statement.¹³

Not all welfare programs contribute directly to economic growth. Education is not concerned exclusively with work-force skills, with inventiveness and scientific advance; it is concerned too with transmitting our cultural traditions, with elevating man, with broadening horizons. A large share of the National, State, and local health dollar goes to finance services for the chronically ill, many of whom will make no further contribution to production. More than 2.5 million of the public-assistance caseload is made up of old-age-assistance recipients; and half of these assistance recipients are at least 75 years of age.¹⁴ There are now about 14.5 million persons aged 65 and over in the United States. The number of aged is expected at least to double within a 40-year period.¹⁵ With the increases in the number of aged, the number of persons eligible for retirement benefits under the old-age and survivors' insurance program and other retirement systems will rise. The percentage increase in beneficiaries will be even more steep since benefits are largely deferred rights which accumulate over a long period of time. As of May 1957 over 10 million persons were receiving old-age and survivors' insurance benefits; some 8.5 million of these were aged 65 and over.

It has been stated earlier that in a society struggling for subsistence, prolonged educational training, voluntary retirement, and extensive welfare services are not possible. But in a high level economy capable of producing the wide variety of consumer goods which we have come to accept as our standard of living, the choices are of a different order. One type of choice is between (*a*) added economic output, (*b*) more leisure hours for the worker, and (*c*) added improvements in welfare services and income. In the decades ahead, the choice may be between how quickly we move to a 30-hour week or how fast toward meeting human needs more adequately.

When the 1935 Social Security Act was under discussion, emphasis was placed on preventive rather than ameliorative measures. The emphasis has continued to be on preventing public dependency and dealing with causes of dependency. To reduce the weight on public funds funds of preventable illness (physical and mental) and of preventable illiteracy and poor education, to restore larger numbers

¹³ See discussion of this issue in Eveline M. Burns, *Social Security and Public Policy*. McGraw-Hill Book Co., 1956, ch. 14.

¹⁴ Frank J. Hanmer, *Recipients of Old-Age Assistance: Personal and Social Characteristics*. Social Security Bulletin, April 1957, pp. 3-13.

¹⁵ T. N. E. Greville, *Illustrative United States Population Projections*. Social Security Administration, Actuarial Study No. 46, May 1957, p. 23.

of disabled to work capacity, and to make available community services required for the continued employment of working mothers and others with dependents in their care, additional public funds will have to be provided at least temporarily. But only by such preventive expenditures can the burden be effectively reduced in the future.

WELFARE PROGRAMS AND ECONOMIC STABILITY

The welfare programs occupy a significant place among governmental measures to maintain a high level of employment. While declines in business activity would have an impact on health and medical services and on public education, these programs, given their present financial framework, are not basic tools of stabilization policy. The social-security programs, however, provide at least a partial corrective to a decline in wages and salaries.¹⁶

Social insurances

Three aspects of the problem of management of the social-insurance funds during various phases of the business cycle may be mentioned.

First, there are no nationwide special statutory provisions for adjustment of the fiscal operations of the social-insurance programs in the different phases of the business cycle. The countercyclical flexibility of the programs is achieved under the basic provisions of the social-insurance programs. That is, there is no statutory provision for flexible adjustment of contribution rates or benefits during a decline, or during an inflationary period. However, benefit provisions have been amended to reflect changes in earnings and, in the past, scheduled rate increases have been reassessed in the light of economic circumstances. It may be anticipated that, in the future, consideration will be given to postponing the scheduled contribution rate increases for old-age and survivors insurance if such increases are likely to intensify deflationary pressures. Consideration should also be given to contribution rate increases to offset inflationary movements, that is, rate increases limited to an equitable relationship of benefits provided to premiums assessed.

Second, the investment provisions and management of the social insurance reserves are designed to facilitate a coordinate operation of the reserve holdings, public debt, and credit-control policies.

The primary objectives in designing the investment provisions of the social-insurance trust funds were to assure safety of the funds, necessary liquidity, and a yield commensurate with the needs of the programs. It was recognized from the outset that the social-insurance funds under the Social Security Act of 1935 would have important impacts on the financial markets and on the management of the public debt. The selection of marketable and special issues of United States Government obligations as permissible investments for the social-insurance reserves and the management of these investments by the Secretary of the Treasury were designed to facilitate the administration of these funds in the light of general economic policy.

¹⁶ The following section is adapted from Selma Mushkin and Philip Booth, *Financing of Unemployment, Cash Sickness and Workmen's Compensation Insurance*. *National Tax Journal*, September 1956, pp. 203-231, and from Selma Mushkin, *Fiscal Status of Old-Age and Survivors Insurance Programs in the United States*. *National Tax Journal*, June 1955, pp. 149-170.

The various Government investment accounts, at least potentially, provide the Treasury with authority and resources for maintaining stability in the Government bond market and with an important instrument of economic and fiscal policy. As the Secretary of the Treasury indicated in his 1949 report:

Beginning in the spring of 1947, the Treasury took action to control an incipient boom in the Government bond market—by selling long-term bonds from some of the Government investment accounts, by offering the investment series of bonds to institution investors, and by increasing short-term interest rates. All of these operations combined to take upward pressures off the market. When conditions changed, and a downward pressure on bond prices developed, the market was stabilized through purchases of long-term bonds.¹⁷

With relatively minor exceptions, in terms of volume of market transactions, the Government investment accounts used for market stabilization purposes were not trust funds such as the social insurance trust funds. Holdings of social insurance trust funds and other similar trust funds in which moneys are held in trustee capacity by the Treasury for the benefit of covered employees or States are not considered suitable at present for market operations.

Third, under basic laws, the social-insurance programs tend to compensate for changes in other sectors of the economy. The financial operations of the combined social-insurance programs furthered the general anti-inflationary economic program of the administration during World War II, the Korean conflict and in the years following. In the fiscal year 1956, for example, a total of \$2.5 billion was added to reserve investment holdings of Federal trust accounts. The old-age and survivors insurance trust fund accounted for \$1.5 billion, or 58 percent of the total.¹⁸ The increments to these reserves, largely financed from the excess of payroll taxes, aided in reducing the inflationary pressures of high demand.

Temporarily, additions to the old-age and survivors insurance trust fund have been curtailed. In recent months, the rate of benefit disbursements has exceeded the rate of contribution income. Unless action is taken to advance the scheduled stepup from 1960 to an earlier date net payments to the public rather than net receipts from the public to this fund may be anticipated. While long-range financial stability of the old-age and survivors insurance system does not require an acceleration of the contribution time schedule, the need for new measures to combat inflationary forces may suggest such action.

During a period of downswing, particularly in the early phases of decline, the social-insurance programs work automatically as compensatory economic devices. It is estimated, for example, that a decline of 10 percent in employment would lead to a rise of approximately 5 to 10 percent or about 300 to 600 million dollars in old-age and survivors insurance benefits, at present disbursement levels. A decline in employment opportunities for the aged would increase the number of eligible persons who are forced into retirement and who would

¹⁷ A more recent statement of the Treasury policy regarding investing Government accounts is contained in the report of the Comptroller General of the United States on the Postal Savings System, transmitted to the Congress on November 4, 1954.

¹⁸ Secretary of the Treasury. Annual Report on the State of the Finances for the fiscal year ended June 30, 1956, p. 367.

apply for old-age benefits. At present, about 25 percent of persons aged 65 and over who have insured status under the program have chosen to remain in active employment and are not drawing benefits.¹⁹

The countercyclical adjustments of social-insurance programs are further augmented by the responsiveness of contributions to changes in employment and earnings. Contributions which are geared to pay-rolls and earnings quickly reflect changes in these payrolls. A 10-percent decline in earnings would tend to be reflected in a somewhat smaller percentage decline in taxable earnings within the \$4,200 maximum, and in tax collections.

Although the unemployment-insurance program was adopted during the depression of the thirties, when the problems of widespread unemployment and depressed economic activity were sharply before the Nation, the program was designed as a partially corrective measure. At the time the program was developed, proponents of unemployment insurance were divided sharply into those who emphasized the purpose of stabilization of employment through employer incentives and those who emphasized the purpose of mitigating the hardships of the unemployed and of maintaining buying power by an adequate benefit structure. Experience rating (with its variation of rates from employer to employer) emerged from the emphasis on employer incentive toward stabilization; these rate variations have had a continuing effect on program development. Emphasis on employer incentives also has facilitated the integration of guaranteed annual wage plans with the unemployment benefit structure. Increasingly, however, attention has been directed to the adequacy of benefits and the effects of these payments on consumption expenditures.

Several factors have contributed to the recently increased general concern with benefit adequacy. The Social Security Act of 1935 contemplated unemployment benefits at 50 percent of current wages. Benefits have failed to keep pace with changing levels of gross national output and earnings, despite liberalizations under State laws. For 4 consecutive years, the Council of Economic Advisers in its reports to the President has urged States to increase benefits so that the great majority of the beneficiaries will be eligible for payments "that at least equal half their regular earnings."

Despite growing disparity between average wage levels and unemployment benefits, the unemployment-insurance program contributed toward easing the toll of economic transition. During four periods in the past decade and a half, the changes in the volume and amount of unemployment benefits have clearly demonstrated the usefulness of the program in stabilizing consumption. In the tooling up from peacetime activity to war production during the early 1940's, in the transition in 1946 to civilian production, and again in the postwar industrial readjustments of 1949 and 1954, the unemployment insurance system evidenced its responsiveness to changes in employment opportunities. During the 6 months from April through September 1954, benefit payments were \$1.1 billion compared with \$0.4 billion in the corresponding months of 1953. The contribution of the program toward easing the effects of production retooling and setbacks

¹⁹ Bureau of Old-Age and Survivors Insurance. Quarterly Summary of Earnings, Employment and Benefit Data, August 1957, p. 12.

also served to underscore the weaknesses in the benefit structure—weaknesses not only in benefit amounts but also in duration and in coverage—which reduced the compensatory economic effects of the program.

The potentially compensatory effects of the program have also been offset somewhat by the fact that under experience rating operations, tax rates have tended to rise in periods of increased benefit expenditure and to decline in prosperous years. Increased attention to the need for correcting this weakness in the tax structure has led a few States to adopt tax schedules designed to provide a uniform annual yield expressed as a percentage of wages. This device merely prevents tax rate changes from accentuating business cycle movements but it does not actually counter such movements. The 1956 action by Congress setting up a loan fund for States whose employment insurance reserves are in danger of exhaustion provides some additional safeguards to States in their attempt to improve the cyclical movement of contributions.

Studies of the economic effects of the unemployment insurance program have served to define different ways of measuring compensation for wage loss and to clarify their uses. At least two yardsticks need to be distinguished:²⁰ the proportion of income loss of individual workers and their families which is compensated; and the net change in national disposable income (taking account of the net change in benefit outlays and earnings). Various studies of the offset to income loss suggest that, in a period of downturn of fairly short duration such as the 1948-50 downswing, unemployment benefits amount to one-quarter or one-fifth of the net income loss. The difference between compensation for an individual worker's income loss and compensation for the economy as a whole is suggested perhaps most sharply by the potential financial operation of the program after a period of prolonged downswing. If the period of decline depresses wage rates, benefits paid to eligible unemployed workers may be expected to be a proportionately higher percent of their wages. However, an increasing number of unemployed workers would have lost eligibility for benefits which is based on recent attachment to the covered labor market; those qualifying for benefits would in increasing numbers exhaust their rights to benefits,²¹ and the total benefit disbursements in a 12-month period might in fact be reduced despite a continuing rise in the volume of unemployment. The net effect as compared with a previous period may be a negative—rather than a positive—addition to income.²²

Depression experience with workmen's compensation payments points up the different meanings of compensation for wage loss. Weekly maximum benefits for an Illinois worker with one child were almost 85 percent of average weekly earnings in 1933 as compared

²⁰ See Marvin K. Bloom, *Measuring the Effect of Unemployment Benefits on the Economy*. Research Council for Economic Security publication No. 102 for a description of various methods of measurement.

²¹ In 37 States, duration of benefits varies with the worker's earnings or employment experience (or both) in the base period used for determining his benefit rights. If he had considerable unemployment in the base period, his weeks of benefits in the next year would be correspondingly reduced, thus increasing the likelihood that if again unemployed, he would exhaust his benefit rights before getting another job.

²² The upward adjustment of employer tax rates coupled with cyclical changes in tax shifting would appear to reinforce this effect.

with a range of about 50 to 55 percent during the 1920's and even lower percentages during the early 1940's.²³ Accidents for which compensation was received were relatively few because of the low level of employment and the retention of only the best workers. In West Virginia, with an exclusive State fund program, total accidents in 1932-33 among insured workers were at about two-thirds the 1928-29 number. Total benefit disbursements amounted to \$3.8 million in 1933 as compared with \$4.8 million in 1929. It is important to note that low levels of earnings and employment necessitated premium adjustments in many State workmen's compensation programs during the depression. In their recent volume of workmen's compensation, the Somers have pointed out that:

Prosperity has meant low (premium) rates, depression high rates. * * * Throughout the forties rate reductions were general and substantial, reflecting the vast increase in payrolls, the relative inelasticity of benefit maximums against rising wage levels, and the development of other social-security programs which have, in part, taken the pressure off workmen's compensation.²⁴

Despite upward rate adjustments during the depression, disbursements for benefits exceeded premium payments in some States at least.

An important step forward in understanding the economic operation of the program has been taken through the recent initiation of studies of income and consumption patterns of beneficiaries under the unemployment-insurance program in selected communities.²⁵ A start has been made in the case of the unemployment-insurance program to evaluate the cyclical response patterns of the social insurances. Similar studies are needed in the case of the other social-insurance programs.

Public assistance

The public-assistance programs backstop the social-insurance benefits by providing income maintenance for those in need, for those who have exhausted their unemployment benefit rights, and for those whose social-insurance benefits in addition to other income resources fall below the standards of assistance. Within narrow limits, the public-assistance caseload may be expected to vary with changes in unemployment level as long as the open-end grants are maintained. Federal participation depends upon the size of the program in the States as determined by the numbers of needy persons in the federally aided categories; however, it also depends upon the amount of State and local funds devoted to the assistance programs. While under present Federal grant-in-aid provisions there may be some automatic increase in the proportion of financing out of Federal funds, the increase in the Federal share is contingent on a reduction in average payments under the pressure of an increased number of claimants and of declining State and local revenues.

Repeatedly the imbalance between development of general assistance provisions and of the growth of federally aided categories has been

²³ Herman Miles Somers and Anne Ramsay Somers, *Workmen's Compensation, Prevention, Insurance, and Rehabilitation of Occupational Disability*, John Wiley & Sons, Inc., 1954, p. 78.

²⁴ *Ibid.*, p. 114.

²⁵ Philip Booth, *Recent Studies of Benefit Adequacy*, paper presented at annual meeting of American Statistical Association, New York City, December 27, 1955.

pointed out. The majority report to the Commission on Intergovernmental Relations of the Study Committee Report on Federal Aid to Welfare urged abandonment of the categorical approach and substitution of a single Federal grant for public assistance to the needy.

A single Federal grant program for all State and local welfare will encourage States to give attention to the needs of all needy persons. The present arrangement of Federal aid for several rather narrowly defined programs means that help to needy persons or families ineligible for assistance under these programs may be, and frequently is, much less than that provided to those qualifying for federally aided public assistance.²⁶

It is the general assistance program which is the most sensitive to economic changes. During the post-World War II industrial readjustment which occurred in the first part of 1949, for example, the general assistance caseload rose 20 percent.

As long as the present State-Federal, local-State fiscal arrangements for grant-in-aid purposes continue in force, a solution to the problem of maintaining welfare expenditures for the four aid categories and of meeting increased general assistance caseloads in the face of shrinking State and local revenues will wait on emergency action.

Health and education programs

The service programs as contrasted with the transfer programs are not designed to stabilize economic activity. Moreover, the Federal outlays under these programs are not very significant in terms of economic adjustments. Apart from veteran education allowances and medical services, the total Federal expenditures for these purposes are less than a cent and a half per dollar of budget outlay.²⁷ While there may be some increase in demand for types of public health services with a decline in family income or increased unemployment, e. g., tuberculosis, cancer, and other disease casefinding, public health nursing, immunizations, and other clinic services provided under the public health programs, the total Federal support of such activities is in the neighborhood of about \$12 million. With the exception of a few States, medical assistance to those in need is provided by public hospital agencies or welfare departments. Similarly education programs supported by the National Government would not be enlarged appreciably by decline in employment. Increases in demand for vocational training and a decline in dropouts from school by youngsters entering the labor force might be anticipated, but the Federal support programs are such that these changes would not influence Federal expenditures without new appropriation and legislative authorizations.

Operation of the federally aided welfare programs is dependent upon the basic grant-in-aid provisions. Increased attention needs to

²⁶ A Study Committee Report on Federal Aid to Welfare submitted to the Commission on Intergovernmental Relations, June 1955, p. 14.

²⁷ Computed from expenditure estimates for the fiscal year 1957 in the budget message of the President for the fiscal year 1958, pp. M4 and M58.

be focused on the ways to improve existing grant provisions so that they may be more useful as an instrument of fiscal policy. As a minimum it would appear desirable to amend these provisions so that program levels could be maintained in the face of declining State and local revenues. Proposals have been advanced to vary the proportion of Federal financial participation in grant programs with changes in economic activity.²⁸ A major objective of these countercyclical grant proposals is to maintain the level of services and payments under grant programs by safeguarding these program levels against the impact of reduced State and local revenues. More extensive and detailed study is needed of countercyclical grant proposals to assess their practicability as a fiscal policy device. The three provisions of grant programs which influence their fiscal operations need to be appraised, namely, appropriation provisions, allotment provisions, and matching requirements (statutory or administrative).

WELFARE PROGRAMS: PROJECTED COST AND FINANCING

In the preceding discussion of the contribution of social welfare programs to economic growth and stability brief reference has been made to the future development of the social welfare programs. The section which follows discusses the emerging problems of social welfare finance for the decade or so ahead.

Outlays under existing programs

Increased social-welfare costs are projected under existing legislative authority. The two primary pressures on social-welfare expenditures are the growth in child population of school age and in the aged population who will qualify for benefits under retirement systems. In 1955 there were 27.7 million children enrolled in elementary school and 7.4 million in high school. By 1965 it is expected that there will be 35.7 million enrolled in elementary grades and 11.9 million in high school.²⁹ Continued increases in the birth rate as well as the still to come impact of the postwar baby boom on the high schools and colleges of the country are the basic factors which presage growing expenditures for public education even as shortages of facilities and teachers may become more acute. As indicated earlier the basic old-age and survivors insurance program is far from a mature program. At present, benefit outlays amount to about 4 percent of taxable payrolls, the level premium cost of the system, however, is estimated at 7.4 percent of payroll. Long-range actuarial estimates of the Social Security Administration indicate a long-run trend of mounting old-age and survivors payments; benefit outlays are estimated to reach \$12 billion by 1965, \$17 billion by 1980, \$22 billion by 2000, and to increase beyond that time.³⁰ Pension costs under other public retirement programs will also increase with the rise in the number of qualified retired employees. There are other factors which indicate higher welfare outlays in the years ahead, within present statu-

²⁸ James A. Maxwell, *Federal Grants and the Business Cycle*, National Bureau of Economic Research, 1952.

²⁹ U. S. Department of Labor, *Our Manpower Future, —1955—65*.

³⁰ Robert J. Myers, *Actuarial Cost Estimates for the Old-Age Survivors and Disability Insurance System as Modified by Amendments to the Social Security Act in 1956*. (Prepared for the use of the Committee on Ways and Means, July 23, 1956, pp. 8 and 14.)

tory authority—pressures for example of competitive earnings levels on salary levels of public employees, of scientific change, and of changing standards of living.

Social-welfare expenditures in 1956 totaled about \$34 billion. The services represented by these outlays accounted for about 11 percent of consumer income that year. To finance the social-welfare services a revenue burden amounting to 9 percent of gross national product was imposed.

Tables 1 and 2 present illustrative projections of the social-welfare budget in 1965 based on existing legislative authorizations, known population changes, and a continuation of past economic trends. Education outlays are estimated for 1965 at almost \$5 billion more than 1956 level; social-insurance benefits, primarily due to retirement benefits to a larger number of aged are estimated at about \$8 billion above the 1956 payments; other welfare expenditures are estimated at about \$2 billion above the 1956 expenditure levels.

Does a social welfare budget of almost \$50 billion mean a larger revenue load on the national economy? With an increase in population, employment, and earnings of the projected amounts, social-welfare-program revenue requirements (including additions to social-insurance reserves) are estimated at \$53 billion. For the most part the growth in social-welfare-revenue requirements would be proportional to the gains in national output. The United States Department of Labor estimated the manpower demand and gross output for 1965, based on a projection of past trends to 1955, and on a 25 percent increase in gross output per capita.³¹ The Bureau of Labor Statistics estimates, adjusted only for price increases since 1955, indicate a gross product of \$585 billion in 1965 as compared with a gross product of \$434 billion in the second quarter of 1957. Thus, the growth in social-welfare outlays under existing legislative authority would not be at the expense of a higher aggregate taxload on gross production of the economy.

Will the increased social welfare budget require new taxes? Will it require an expanded Federal budget? The classification of program expenditures shown in table 2 provides an approximate approach to answers to these questions. Over half of the projected increases are in social-insurance benefits financed through trust-fund operations, and by special earmarked social-insurance contributions now provided under existing statutory authority.

Federal programs for special beneficiary groups and those programs in which the Federal Government provides over half the funds are estimated to represent a smaller rather than an increased taxload on the national output. Total expenditures in these two classifications are estimated at \$7.6 billion for 1965 as compared with \$7.1 billion for 1956, a far smaller rise than the projected rise in gross national product. Thus as far as the Federal administrative budget is concerned the projection is for reduced Federal tax-rate requirements.

Almost 45 percent of the projected \$15 billion increase in the social-welfare budget represents higher outlays for programs financed primarily out of State and local taxes. While these predominantly State and local programs are estimated to increase \$6.6 billion and reach \$23.2 billion by 1965, the proportion of gross product devoted to

³¹ Our Manpower Future, 1955-65, op. cit.

their finance would remain at the 1956 level—4 percent of gross national product.

Increased State and local revenues under existing tax legislation proportionate to gains in economic activity and output are not indicated, however, by past trends. Several recent studies, for example, have emphasized the inflexibility of property taxes which still account for about 45 percent of State and local tax collections.³² Property-tax collections over the past decades have failed to keep up with expanded national output. The host of complex issues involved in expanding property-tax collections, including impact on housing values and effect on new housing construction, the relation of property assessments to market values and equalization of property assessments, suggest problems ahead in financing education, public hospital and medical care, general assistance, and the other related programs. While considerable progress is being made in methods and procedures of property taxation and in removing constitutional and legal barriers to effective property-tax utilization, it may be anticipated that a substantial gap will exist between State and local revenues and amounts required to finance welfare-program outlays. It is this gap which points to continued public debate of State-local and national-State fiscal relations in the years ahead.

Types of new proposals and approximate costs

The social-welfare programs are developing programs. Technological and scientific advances, the growth of metropolitan areas, altered patterns of family life, and the rising standard of living contribute to changing welfare standards and create new social problems. In the operation of social-welfare programs gaps in protection are brought to light and new approaches to social problems are identified. In view of these forces which underlie proposals for extension of existing welfare activities, it is not sufficient to measure the fiscal impact of existing programs; an attempt must be made to anticipate developments in the immediate years ahead.

Many different proposals have been advanced to enlarge and improve social-welfare services. The proposals advanced are directed in the first instance, at least, to one of several of the following:

- Research (scientific and social)
- Physical facilities necessary to the service function
- Manpower required to provide services
- Methods of organization of services
- Methods of financing the provision of services, or cash payments

It is possible within the scope of this paper to take account only of several major proposals from among the many advanced. Among the more important of the proposals are extension of the social insurances to provide more adequate protection against the hazards of unemployment, industrial accidents, sickness, and severe disability, and against unexpected and large hospital-care costs, enlargement of educational and health facilities, and improved organization of these services, improvement in the quality of education in the public schools, and in opportunities for higher education, and assistance to voluntary health plans to facilitate the broadening of coverage and benefits to the aged

³² Mabel Newcomer, *State and Local Financing in Relation to Economic Fluctuations*, National Tax Journal, June 1954, pp. 97-109. Also Melvin and Anne White, *Impact of Economic Fluctuations on Municipal Finance*, National Tax Journal, March 1954, pp. 17-39.

and other medically indigent groups in the population. An illustrative listing of program proposals follows:

Social-insurance programs

Extension of cash sickness-disability benefit protection

Improved workmen's compensation protection

Increased unemployment-insurance benefits

Extension of severe disability benefits to persons in younger age groups

Hospitalization insurance for old-age and survivors' insurance beneficiaries

Programs for special Federal beneficiary groups

(No change)

Programs financed primarily by Federal funds

Extended vocational and other rehabilitation services

Programs financed primarily by State and local funds

Education proposals

Scholarship or other support for college and graduate students

Construction aid for new or expanded higher education facilities

Construction aid for elementary and secondary schools

Operation aid for elementary and secondary schools

Extended educational services for handicapped children

Health maintenance proposals

Improved organization of medical services; for example, care of mentally ill, rural health services

Construction or operation support to increase health manpower; for example, homemakers, laboratory technicians

Aid to voluntary health insurance plans to increase coverage and scope of benefits; for example, for low-income groups for aged, etc.³³

Without a specific description of program content it is patently not possible to estimate with any precision funds required to finance the proposed programs. However, the approximate order of magnitude of additional annual revenue requirements, National, State, and local, is illustrated based on a continuation of economic and demographic trends.

Adoption of these proposals is estimated to increase the social welfare budget about \$7.5 billion, from the \$49.5 billion projected for 1965 to about \$57 billion. With the new benefits added, the revenue requirements of the social welfare program would be increased by 1965 to 10.4 percent of gross product, as compared with 9 percent for 1956.

If the problem of hospitalized illness expense of aged persons is met in the next decade through extension of the social insurances, about 55 percent of the \$7.5 billion increase in social welfare outlays would be financed out of social insurance contributions. The remaining 45 percent would represent additional revenue required by programs primarily financed by States and localities. If the hospital cost problem of the aged is met in some other way, for example, by

³³ Proposals for aid to voluntary health plans and for provision of hospitalization insurance for old-age and survivors' insurance beneficiaries may be considered as alternative proposals, involving about the same amount of public expenditures.

aid to voluntary health plans under a Federal-State grant program, the division of costs between the social insurances and State and local programs would be reversed. About 40 percent of the additional outlay would represent social insurance charges and 60 percent a charge primarily on State-local funds.

Expansion of the social insurances would require a stepping up of contributions, from an average rate of about 9 percent in 1965 to about 11 percent, and an increase in the taxable wage maximums. Willingness of employed groups and their employers to assume the new contribution obligations will be a direct factor in the political discussions and decisions of benefit extensions. It may be noted that not all of the increase in contributions would represent a new charge on covered employees and their employers. At present employers are contributing \$5.7 billion annually to private pension and welfare funds, including contributions for cash sickness, disability benefits, and health insurance for their employees.

In a recent survey of 3,100 firms employing 6.8 million employees the National Industrial Conference Board found that 85 percent of hourly workers and 75 percent of salaried workers were covered under group accident and sickness insurance and all but 2 or 3 percent were covered for basic hospitalization insurance. The companies surveyed were financing the entire cost of group accident and sickness insurance for almost 4 out of each 10 workers while for over 5 of each 10 the plans were financed jointly by employers and employees. In the case of hospitalization insurance, employers financed the entire cost for more than one-third of the employees and participated in the financing of protection for nearly an additional one-half of the employees.

A part of the present employer contributions to private welfare plans would be offset against additional social insurance contributions by the altered arrangements for dealing with protection against sickness, and with hospitalization coverage of retired employes. (At the same time, improved labor mobility would result by removal of at least a part of the fringe benefit barrier to shifts in employment.)

As indicated earlier \$6.6 billion in additional funds would be required by 1965 for programs primarily financed by State and local funds, without additions to existing activities. Although the tax load on gross national product would not be enlarged, financing of these programs will require marked changes in methods of raising funds and a reordering of National-State-local responsibilities. Additional health and education programs along the lines of those proposed before legislative committees and by various study groups would add \$3.3 billion to \$4.5 billion to the budget of these programs. The additional State and local program obligations can be expected to intensify the search for new revenue sources and to make more persistent demands for State aids to localities, and for Federal aids.

Revenue relief or public programs

It is important to bear in mind that the proposals for public action in social welfare program areas at times take the form of tax relief measures. The Revenue Code of 1954, for example, increased deductions for personal medical expenditures as a method of offsetting the hardships to families occasioned by unpredictable severe illness. This authorized deduction is designed to provide a measure of tax relief to families suffering expensive illness. The 1954 code introduced a

new category of deductions up to \$600 for expenses incurred in the care of an incapacitated dependent, or children under 12 years of age, by employed mothers, widows, or widowers. The new code, furthermore, provided some relief to taxpayers against the cost of higher education by eliminating the \$600 gross income test for determining the dependency status of children under 19 years of age, of those over 19 still attending school, and by excluding scholarship aid in determining whether a taxpayer provides over half the support of a child or stepchild. Other changes were made relating to welfare programs. The code authorized the claiming of an exemption for support of parents where several children contributed to this support but no one taxpayer contributed over half the support. The authorization was broadened for widows and widowers with dependent children to split incomes for 2 years after the death of their spouse, and single persons who support one or more parents in a separate home became eligible for half the benefits of income splitting. A tax credit of 20 percent was provided for the first \$1,200 of retirement income. Provisions on the deductibility of cash sickness benefits and sick leave pay were clarified.

Earlier—in 1948—taxpayers over 65 years of age, and blind persons were allowed an additional personal exemption of \$600; in 1950 aged persons were permitted to deduct all medical expenses from gross income.

In discussion of tax law modification to provide special deductions, exemptions, and credits for special family situations, for the economic and personal hazards of life the question of equity among taxpayers has been the major issue. Within this context, there are many other special family economic risks and circumstances which can create differences in capacity of taxpayers. These situations are occasioning demands for further extension of tax relief provisions. Important among proposals now current are those calling for tax credits for voluntary health insurance premiums, and for tuition paid to colleges and universities; for additional personal exemptions for all disabled persons; for a broadening of business expenses to include transportation and other extra work expenses of handicapped persons, advanced training expenditures of teachers, physicians, and other professional groups, and expenses associated with changes of employment such as employment agency fees, moving expenses, etc. The possibilities of such special provisions are legion for there are innumerable family relationships and ways of meeting family economic and employment problems.

There is an additional equity problem sometimes lost from sight in these proposals for tax relief. Such special provisions for exemptions, deductions and credits involve a loss in revenue—a loss which is an indirect subsidy of the aged, of children who provide parental support, of young people attending colleges and universities and of disabled persons. It appears necessary to inquire, therefore, whether the groups who would receive the benefits of tax reduction are the most appropriate beneficiaries of a public program, whether public expenditure programs in the amount of the projected revenue loss would provide welfare aid more equally to all groups in the population, or whether a direct expenditure program would more equitably

provide aid to the 45 million or so in the population whose economic status is so low that they are not Federal income taxpayers or dependents of these taxpayers.

TABLE 1.—*Social welfare revenue requirements:*¹ *Amount and percent of gross national product, selected years*

Program	Amount (in millions)				Percent of gross national product			
	1929	1935	1956	1965 ²	1929	1935	1956	1965 ²
All programs.....	\$4,596	\$6,754	\$37,137	\$53,200	4.4	9.3	9.0	9.1
Social insurance programs.....	529	435	13,357	22,300	.5	.6	3.2	3.8
Old-age, survivors, and disability insurance.....			6,521	14,300			1.6	2.4
Other.....	529	435	6,836	8,000	.5	.6	1.6	1.4
Veterans' and other Federal beneficiary programs.....	494	489	4,415	4,650	.5	.7	1.1	.8
Veterans.....	484	470	4,311	4,500	.5	.6	1.0	.8
Other.....	10	19	104	150	(³)	(³)	(³)	(³)
Programs financed primarily by Federal funds.....	2	1,828	2,718	3,000	(³)	2.5	.7	.5
Public assistance, special categories.....		115	2,367	2,500		.2	.6	.4
Other.....	2	1,713	351	500	(³)	2.4	.1	.1
Programs financed primarily by State and local funds.....	3,571	4,002	16,647	23,250	3.4	5.5	4.0	4.0
Education.....	2,800	2,300	12,300	17,200	2.7	3.2	3.0	2.9
Health maintenance.....	500	661	3,428	5,000	.5	.9	.8	.9
General assistance.....	71	841	196	250	.1	1.2	(³)	(³)
Other.....	200	200	723	800	.2	.3	.2	.1

¹ Represents contributions assessed for social insurance programs and revenues required to cover cost of other programs.

² Illustrative estimates.

³ Less than 0.05 percent.

NOTE.—Percents may not add to totals because of rounding.

Source: Amounts shown for social insurance contributions, 1929, 1935, and 1956, from Survey of Current Business, July issues; other amounts for 1935 and 1956 from Social Security Bulletin, September and October issues; 1929 figures from report of the Committee on the Costs of Medical Care and from official agencies.

TABLE 2.—*Social welfare benefits:*¹ *Amount and percent of personal disposable income (including value of public services)*

Program	Amount (in millions)				Percent of personal disposable income ²			
	1929	1935	1956	1965 ³	1929	1935	1956	1965 ⁴
All programs.....	\$4,435	\$6,706	\$34,287	\$49,500	5.1	10.9	11.2	11.9
Social insurance programs.....	368	387	10,507	18,600	.4	.6	3.4	4.5
Old-age, survivors, and disability insurance.....			5,652	12,000			1.9	2.9
Other.....	368	387	4,855	6,600	.4	.6	1.6	1.6
Veterans' and other Federal beneficiary programs.....	494	489	4,415	4,650	.6	.8	1.4	1.1
Veterans.....	484	470	4,311	4,500	.6	.8	1.4	1.1
Other.....	10	19	104	150	(⁴)	(⁴)	(⁴)	(⁴)
Programs financed primarily by Federal funds.....	2	1,828	2,718	3,000	(⁴)	3.0	.9	.7
Public assistance, special categories.....		115	2,367	2,500		.2	.8	.6
Other.....	2	1,713	351	500	(⁴)	2.8	.1	.1
Programs financed primarily by State and local funds.....	3,571	4,002	16,647	23,250	4.1	6.5	5.5	5.6
Education.....	2,800	2,300	12,300	17,200	3.2	3.7	4.0	4.1
Health maintenance.....	500	651	3,428	5,000	.6	1.1	1.1	1.2
General assistance.....	71	841	196	250	.1	1.4	.1	.1
Other.....	200	200	723	800	.2	.3	.2	.2

¹ Amounts shown for social insurance and public assistance represent transfer payments and exclude administrative costs, except for grants to States; surplus food distributions to needy persons and public institutions are also excluded.

² Personal disposable income estimates are adjusted so that they include not only transfer payments, but also value of services received under health and welfare programs. Value of other public services has not been added.

³ Illustrative estimates.

⁴ Less than 0.05 percent.

NOTE.—Percents may not add to totals because of rounding.

Source.—Amounts shown for social security payments, 1929, 1935, and 1956, from Survey of Current Business, July issues; other amounts for 1935 and 1956 from Social Security Bulletin, September and October issues; 1929 figures from report of the Committee on the Costs of Medical Care and from official agencies.

FEDERAL RESPONSIBILITIES FOR EDUCATION

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The facts about the growing crisis in the field of education are familiar to most of us. The White House Conference on Education,¹ the Commission on Intergovernmental Relations,² and lay groups who have investigated our educational system³ all agree that there is need to spend more for education—above all to raise the level of compensation for teachers at all levels so that the highest quality of education may be offered to all our children and youth.

The ideal of equality of opportunity for all through education has been accepted in our democracy. Equality of opportunity requires some differentiation in the program offered to students of differing abilities. It involves that provision of opportunity which will enable each individual to realize his full potential. Unfortunately this ideal has never been fully realized. The capacity of some States to offer educational opportunity is much greater than others. In addition, the willingness of some States and localities to spend for education has differed, and the amount of effort expended for education has varied at both the State and local level.

Studies of educational records of our young people indicate that there are many who are well qualified to finish high school who do not. Many others who should go on to college do not. The reasons for this failure to educate those who are fully qualified mentally may be inadequate educational opportunity in their early years, inadequate family financial resources, or their failure to realize the importance of further education. The latter fault is one that the parents must share with the schools, but it is a fault that could be largely overcome if there were a high level educational program throughout the United States and the potentialities of further education were pointed out to those most gifted. Even within the limitations indicated above there is going to be a tremendous rise in the number who are going to school and college due to the increase in the birthrate and the larger numbers who wish to continue their education for a longer period of time.

The only way this crisis can be solved, and solve it we must, is for the Federal Government to assume responsibility for the support of a minimum program on the basis of an equitable distribution of the cost among the Federal, State, and local governments. Such a program need not preclude the possibility of extra effort expended by

¹ A Report to the President, the Committee for the White House Conference on Education, Washington, 1956.

² A Report to the President, the Commission on Intergovernmental Relations, Washington, 1955.

³ Beardsley Ruml and Sidney G. Tickton, *Teaching Salaries Then and Now, the Fund for the Advancement of Education*, New York, 1955; *National Citizens Commission for the Public Schools, How Do We Pay for Our Schools?* New York, 1954; *National Citizens Commission for the Public Schools, Financing Public Education in the Decade Ahead*, New York, 1954.

some States or localities in the support of a superior program that may be more costly.

THE RESPONSIBILITY OF THE FEDERAL GOVERNMENT FOR EDUCATION

The interest of the Federal Government in the provision of a minimum educational program for all children is the basic premise from which we must start. The quality of educational opportunity offered will determine the competence of our citizens and the capacity of our professional personnel, managers, workers, and technicians. These persons will be, in a few years, those who are leading the Nation and determining the rate at which the Nation will progress. The wealthier States must be concerned with the educational opportunity provided in States of lesser financial capacity. It is from those States that many of their future work force of all types will come. The interest of the poorer States is equally compelling. By raising their educational standards, they may hope to achieve the status of their more opulent neighbors.

Why should Federal aid be considered now? Certainly there have been even greater problems in the past and in spite of the uneven educational opportunity offered in different parts of the United States our growth has continued without interruption, except for the years of the great depressions. Several reasons make the need for Federal aid more compelling today. Perhaps the most important has been the tremendous increase in the severity of Federal tax burdens. In face of such increases the State and local governments are finding it difficult to finance their basic service programs, particularly in education. Second, the need for more educated people expands continuously as the complexity of the economic, the technical, and the political system grows apace. What was once a reasonably good education no longer proves to be satisfactory. If we are to solve the problems associated with our social and economic development in the future, we must have many more persons with highly developed skills. The limiting factor in the expansion of many enterprises today is not lack of capital, but rather, the lack of managers, skilled workers capable of running the increasingly complex machinery, and of technical personnel necessary to develop and adapt the equipment of the plant to make the greatest use of modern technological developments. Third is the extraordinary increase in population and the growing mobility of the population. These reflect, among other things, the great prosperity of the past 15 years and the desire of many persons to live in the suburbs. This trend seems to be a steady one and has created many special problems. The difficulties confronting a State like California or a town like Levittown are not definable in terms of potential or present wealth, but are rather, related to the capacity of the State or local government to pay for the sudden large capital outlays required to meet the minimal needs of the children of school age. What might have been financed without strain over a period of many years in a more normally growing community, now has to be done overnight. Debt limits, tax rates, and public attitudes are adverse to so rapid an expansion in the costs of government. The unhappy consequences include inadequate school buildings, oversized classes, double sessions, and salaries too low to attract as teachers those persons best qualified to do the job.

There are still other reasons why the Federal Government must enter the picture, among which are the following: The decline of the property tax⁵ has made it difficult for local governments to support adequate educational programs. Attempts to find other sources of local revenue have met with little success except in those metropolitan centers such as New York and other large cities that have a great appeal as cultural and business centers. But even in these cases, there has been a steady movement of shops to the outlying districts, and the ability of the city to continue to tax nonresidents must certainly be questioned. At the State level there is a superior taxing power, but growing resistance to the imposition of heavier taxes as a result of the reaction of taxpayers already heavily burdened by the Federal Government. In addition, the States fear that any tax increase will work to the disadvantage of the State in its appeal to new industry. Although all studies of this problem suggest that there is a gross exaggeration of the importance of taxation as a determinant of industrial location, there is a great reluctance on the part of any State to be considered a high-tax area. On the other hand, more attention should be given to the quality of schools, parks, water supply, roads, police protection, and other services, as important determinants of the attractiveness of a community for new industry.

The States also find it difficult to increase their tax collections because of the rather inequitable distribution of their tax burden. Most of the States rely upon the sales tax as their primary revenue source. This tax is regressive in relation to income and places a more severe burden upon the poor than upon the rich. A few States have lessened this regressivity by the exemption of food and clothing, but such exceptions greatly decrease the size of the tax base and its potential revenue-raising capacity. Other States have relied upon selective excise taxes as their primary revenue source. These taxes have an uneven incidence; they tax only those who use tobacco, go to the races, drink alcoholic beverages, or drive a car. Other tax sources, such as the various corporation franchise taxes and business levies, produce only a small part of the total State yield.

One of the most interesting facts is the decline in State individual income tax. Since 1937 no State has passed a new individual income-tax law. Perhaps this is appropriate in view of the severity of the Federal burden imposed upon this source. But it suggests that there is need for the Federal Government to recognize the problems it has created for the States and, therefore, to assume some responsibility for State functions. Even if the Federal income tax were reduced there is little chance that the States would increase their use of the individual income tax. There is no question that the individual income tax can be most efficiently administered at the Federal level. Competition among the States, either real or fancied, will make it difficult for them to use this source. Enforcement of an income tax is more difficult at the State level. Double taxation is a much greater problem at the State level. Some agricultural states will never find it possible to use the income tax effectively. All this points to the need for a new recognition on the part of the Federal Government of the difficult position of the States and local governments.

⁵ Mabel Newcomer, *The Decline of the General Property Tax*, *National Tax Journal*, vol. VI, No. 1, March 1953.

FEDERAL AID AND CENTRALIZATION OF POWER

One of the chief arguments against Federal aid to the States is the fear that, once granted, there will be imposed upon the States unnecessary controls and restrictions. This fear is often promoted by those who wish to avoid any new commitment by the Federal Government. Others object, because they realize that they will be helping to pay for the education of children who are residents of other than their own State. Still others fear the use of Federal aid because of a strong States rights position.

The fear of centralization of control over education is grossly exaggerated by the opponents of Federal aid. In the political system under which our governments operate, the locus of political power is at the State and local level. Congressmen represent their districts. They must also be reelected every 2 years. Senators must be reelected every 6 years but they, no less than the Congressmen, are sensitive to local interests and respond to local pressures. The fear of undue centralization is overemphasized by those who want to avoid new commitments at any price. On the opposite side, there can be made a strong case for Federal aid as a means of preserving the ability of the States to provide those services that the public demands without becoming so derelict in their duties that there will be demand for direct Federal intervention.

THE DISTRIBUTION OF AID

Once the principle of Federal aid for education has been granted, there is need to consider the terms on which the aid will be distributed. This raises many difficult issues of policy. Not least is the reluctance of the wealthier States to see funds that they contribute to the Federal Government paid to those States of lesser financial capacity. Yet the basic issue is just that—it is necessary to help the poorer States if adequate educational opportunities are to be assured.⁶ The ideal is to grant Federal aid in such a manner that all will make an equal effort in relation to taxpaying capacity and need. In other words, any Federal-aid program should have a real element of equalization in it. The measure of capacity can be wealth and income. The measure of effort should be the real tax rate in relation to the tax base. The measure of need should be the number of children requiring education.

In view of the greater efficiency of the Federal Government as a revenue collector and the pressing needs of the State and local governments, there is a case to be made for some basic part of the Federal grant to be given to all the States on a per pupil basis. This also recognizes the political realities that suggest that no Federal-aid program will be passed unless all States get something regardless of their capacity and need. Once this has been done, then the rest of the Federal grant should reflect differentials in capacity and need. Given such a program much could be achieved in the equalization of education opportunity over all of the United States.

One must realize that even a flat grant of a certain amount per pupil will have a certain degree of equalization in it in view of the large

⁶ In 1956 Delaware had a per capita personal income of \$2,858 and Mississippi had a per capita personal income of \$957. Survey of Current Business, vol. 37, No. 8, August 1957, p. 11.

differences in income in different States and the differentials in birth rates among the States. The rich States would pay more than they get back and the poor States would receive more than they paid. But such a program would not go far enough to provide real equalization of educational opportunity over the United States.

The best measure of differential capacity is probably the personal income payments figure of the Department of Commerce. All States should be required to make a realistic effort in relation to their income. Only after this has been done, should they be eligible for equalization grants. The problem of the poorer States is not troublesome, as most of them are today making a greater effort in relation to their capacity than are the wealthier States. Measurements of need can be determined by use of school-enrollment figures, assuming there are no barriers placed in the way of all children attending school. The question of the degree of equalization desired and the amount of flat grant versus differential grant will have to be worked out. The efficient solution would be to minimize the basic aid granted to all and to maximize the differential grant. Such a program would permit the same amount of money to do more to equalize educational opportunity.

CONCLUSIONS

In face of the rapidly rising population and the need for more highly educated people there is little possibility that the States will be able to raise the money to do the job. The resistance to increases in the property tax has severely limited the power of local governments to pay more for education. The States are little better off. Fearful of getting out of line, they are unlikely to do more than the minimum. The danger is that if the financing of education is left to the State and local governments the quality of educational opportunity offered our children will gradually decline. This we cannot afford if we are to maintain the growth that we expect and the leadership so necessary in these troubled times. To prevent this danger, there is only one possibility: The use of the superior revenue-raising powers of the Federal Government to help the States. Not only can the Federal Government raise money more efficiently and administer taxes more equitably, but it has the capacity to distribute the costs of education more fairly among all of the people who will benefit from improvements in the quality of our workers and leaders.

We must now face the fact that old relationships among the Federal, State, and local governments have changed. When the Federal Government demanded little, the State and local governments were in a favorable position. Today, they are second and third claimants upon the taxpayer's dollar and are finding it increasingly difficult to pay their bills.

The national interest in high educational standards is clear. Our ability to maintain a stable political and social structure over years ahead will be determined by our capacity to maintain a growing economy. In large measure, growth will be determined by the sort of education we give our young people. If we fail to give a good education, we will pay the price of our failure for years to come. Failure to grow can have serious consequences. Over our past history,

there has been no greater solvent of political tensions and economic differences than the remarkable improvement in living standards we have achieved. Should this decline in the future, there would arise a host of difficulties new to our society that would place us in a position more like that of the older European countries who have suffered from internal dissension, class differences, and the frustrations of a much slower rate of economic expansion.

The choice is clear. Either Federal aid will be forthcoming on terms that can be made acceptable to the States, or we will suffer a general deterioration in the quality of education and the consequent deterioration in our economic and social well-being.

CRITERIA OF FEDERAL WELFARE EXPENDITURES: A LAWYER'S VIEW

Alanson W. Willcox, former general counsel, Federal Security
Agency

In a discussion of criteria of Federal expenditures for health, education, and welfare, the role of the lawyer must be a minor one. Constitutional considerations have become of minimal importance as limiting factors in the formulation of policy. It still needs emphasis, however, that the breadth of congressional authority is not universally apprehended, and that policy decisions may, for that reason, be more restrained than they need be.

Federal expenditures for the provision of benefits or services to individuals are of two kinds; grants-in-aid to the States, on the one hand, and direct Federal action, on the other. In the case of grants-in-aid, the lawyer must content himself with urging that, as a general rule, legal considerations (including "States rights," if legal rights are implied by the phrase) should have little to do with the shaping of broad national policies. In the case of the one general program of direct Federal action, the national system of social insurance, legal or quasi-legal considerations are more immediately involved, and the lawyer may properly recommend, as a criterion of congressional action, a meticulous respect for the integrity of the contributory system and the complete and faithful carrying out of the promises made to contributors.

Until 20 years ago, no one could say with assurance that expenditures for the health, education, or welfare of the people at large were within the powers conferred upon the National Government by the Constitution. Grants had been made to the States, both of land and of money for education, and, occasionally, of money for other purposes; but even these grants, which left operating programs in the hands of the States, could claim to exist only by constitutional sufferance.¹ And even if grants-in-aid for these purposes were valid, a circuit court of appeals and two Supreme Court Justices were able to hold, as late as 1937, that direct Federal expenditure for the welfare of the aged invaded the constitutional prerogatives of the States and violated the 10th amendment.² Certainly, the powers of the National Government in this whole area were hemmed in by doubts.

The doubts were set at rest by the Social Security cases.³ Those

¹ *Massachusetts v. Mellon*, 262 U. S. 447 (1923). Attacks on grants-in-aid for maternal and child health were dismissed on jurisdictional grounds. In the course of the opinion, the Court indicated plainly that no constitutional rights of the States were violated, but the basic question of the scope of the national power of expenditure was not reached.

² *Davis v. Edison Electric Illuminating Co.*, 89 F. 2d 393 (1st Cir. 1937), reversed in *Helvering v. Davis*, 301 U. S. 619 (1937). Justices McReynolds and Butler based their dissent from the reversal on the 10th amendment.

³ *Helvering v. Davis*, *supra*; *Steward Machine Co. v. Davis*, 301 U. S. 548 (1937). These cases were decided by the same 9 Justices who had invalidated so much early New Deal legislation; and it is significant that 7 of them (including Sutherland and Van Devanter) concurred in the decisions on the principal constitutional issues.

decisions established the power of expenditure as a separate power of the National Government, coequal with the other powers enumerated in the Constitution, and specifically held that congressional action in this area is not invalidated by the 10th amendment and must prevail over any inconsistent policy of the States. The full significance of these decisions has been slow of acceptance; we find the Congress, as recently as 1953, speaking of health, education, and welfare as fields which "may be" constitutionally the primary responsibility of the States.⁴ One cannot quarrel with the assignment of this responsibility primarily to the States if the assignment is made on grounds other than constitutional, but, once the power of the National Government was established, there ceased to be reason to attribute to the Constitution a preference for State action to provide public benefits or public services. A national government created to promote the general welfare, and empowered to raise and spend money for that purpose, cannot be relegated, a priori, to a secondary role in meeting the needs of the people.

NATIONAL AND STATE POWER

The existence of a national power of expenditure for these purposes does not limit the authority of the States in any such way as does the national power to regulate interstate and foreign commerce.

It follows that the distribution of welfare functions between National and State Governments, and the shaping of programs at both governmental levels, are matters for legislative determination essentially uninhibited (except where discrimination is alleged) by constitutional limitations.⁵ But, if concurrent authority in the two levels of government is not to lead to wasteful duplication of effort or other anomalies, determinations by each of the many legislative bodies involved must be made with an eye to what is being done at the other governmental level. In this process of mutual adjustment, Congress must necessarily take the lead, because Congress speaks with a single voice while the States speak with 48 different voices—whereas each State can adjust itself to a single national pattern, national legislation can hardly be adjusted to 48 State patterns. This political necessity for national leadership has been reinforced, in dealing with programs as costly as those addressed to health, education, and welfare, by the greater fiscal resources of the Central Government. Not only, then, has the National Government in the past 20 years been placed on a constitutional parity with the States in the matter of expenditures for the general welfare, but in a very real sense, it has been forced into a position of primacy in blocking out those basic policies that are of nationwide concern.

On the record of these 20 years it can fairly be said that Congress has recognized and in large measure discharged the responsibility thus

⁴ 67 Stat. 145. This was the act creating the Commission on Intergovernmental Relations.

⁵ The statement in the text relates to expenditures as such, and not to ancillary regulatory measures such as compulsion to attend school, compulsory quarantine of infectious disease, and the like. Even with respect to expenditures there may be an outer boundary to permissible legislative action; in *Helvering v. Davis*, the Court, perhaps with an eye to the Townsend plan, left room for such a holding. Expenditures, of course, must be for a public purpose or, in the case of the National Government, for the general welfare.

There is probably also a constitutional limitation, analogous to the prohibition of discrimination, upon expenditures which exact the surrender of constitutional rights unrelated to the purpose of the expenditure. See Justice Frankfurter concurring in part and dissenting in part in *American Communications Assn. v. Douds*, 339 U. S. 382, 417 (1950).

cast upon it, and has done so without abusing the enormous power which the social-security cases showed it to possess. The grant-in-aid has become the established mechanism through which the National Government has helped the States do better those things that are within the competence of the States; while despite the power to do more, direct national provision of benefits or services (except to selected groups who are of special national concern) has been confined to a single program—long-term social insurance—which the States are not in a position to operate.

There are many reasons, both objective and subjective, to prefer State and local programs for health, education, and welfare wherever they are practicable, and Congress has shown itself sensitive to these considerations; at times, some have thought, unduly sensitive. But Congress has been ever aware that a chief obstacle to adequate programs is their great cost in relation to State and local tax resources, and in the grant-in-aid it has found a happy device to enable these programs to draw upon the national fisc without converting them to national operation. Indeed, since Nation and States share the power and the responsibility to provide for the general welfare, the grant-in-aid is an appropriate response wherever a need is widely felt and costly to meet.

It is a contradiction to urge, as is sometimes done, that a grant must be justified by some national interest distinct from the interests of the States; for the general welfare is itself, by constitutional mandate, a national interest. By the same token, objection to grants-in-aid based on "States rights" is an anachronism if it fails to take account of the Nation's rights as well. A Congress which in meeting a substantial part of the cost contents itself with the imposition of a few basic standards as conditions of its aid ought to be credited with self-restraint, not condemned for usurpation.

Defense of the grant mechanism in principle should not belittle the difficulties that arise in its practical application. But whatever the shortcomings of existing grants, the mechanism is without doubt the best yet discovered⁶ to enable the Federal Government to participate in welfare programs without monopolizing them—an objective which seems to have motivated most congressional legislation in this area and to accord best with the people's preference to have these matters dealt with near at home.

THE NATIONAL SYSTEM OF SOCIAL INSURANCE

The one outstanding and conspicuous exception to the policy of leaving welfare programs to State operation is, of course, old-age, survivors, and disability insurance.⁷ Given the present structure of

⁶ Grants in kind have occasionally been used, as have details of Federal personnel, to supplement cash grants. The tax-offset device in unemployment compensation is a substitute for a grant-in-aid, but is one not likely to be repeated in other programs.

⁷ Benefits for veterans, railroad workers, and merchant seamen are not true exceptions since they are for groups of special Federal concern and could probably be sustained independently of the general-welfare clause—the first under the war power, and the other two under the commerce clause (but see *Railroad Retirement Board v. Alton Railway Co.*, 295 U. S. 330 (1935)). The Hospital Survey and Construction (Hill-Burton) Act is a partial exception, involving a combination of Federal and State administration and requiring no State financial participation. There are of course many direct Federal expenditures in this field for other than the immediate provision of services or benefits to individuals, such as payment of the administrative costs of the Department of Health, Education, and Welfare and its constituent units, expenditures for research, and the like.

that system, relating benefits to lifetime earnings as it does, the reasons for direct national operation are self-evident: Many factors most notably the mobility of our population, would make operation of State-by-State systems anything like old-age, survivors, and disability insurance quite impracticable. But the question runs deeper if we ask why the system is structured as it is, and the answer depends upon an understanding of the nature of contributory social insurance; for if, as some still assert is the fact, old-age, survivors, and disability insurance were nothing but a system of taxing one group of people and spending the proceeds for the benefit of other groups of people, there would be no fundamental reason that the needs of these other groups could not be met by the States, with such Federal aid as Congress might deem appropriate. It is because social insurance involves a commitment for the long-term future that it must be constituted as it is, and thereby put beyond the range of State action.

Old-age, survivors, and disability insurance is of course a system of taxing and spending, but it is also something more than that. The best testimony on the latter point, more persuasive than any theoretical argument, is the insistence of organized labor that payroll taxes be increased when benefits are enlarged. It is not usual to find organized groups of taxpayers demanding that their taxes be raised, and when such a demand is made it is the strongest kind of evidence that something in addition to the payment of taxes is at stake.

The something in addition, in this case, is the integrity of contributory social insurance. The values which labor, along with most of the American people, sees in this system of insurance have been too often stated to need more than the briefest of restatements here. First in order of importance, perhaps, is that contributory insurance enables people to earn their own way, which most prefer to asking for charity even from the State. It is not very important what portions of the old-age, survivors, and disability insurance benefits are in fact earned by contributions; one can accept a generous bargain and keep his self-respect, as many find it difficult to do in accepting help labeled as "charity" and available only on proof of poverty.

Then, too, aside from its psychological importance, the absence of a means test in old-age, survivors and disability insurance means that the benefits of that system form a nestegg to which each person is free to add what he can through individual savings or private group arrangements—something that is automatically ruled out when benefits are conditioned on poverty. Finally (and this is a point overlooked by some and disputed by others) contributory social insurance holds far greater assurance than any other system that the promised benefits will actually be paid when they fall due, whether their due date is next year or is 30 or 40 years hence. If we are to enable men to plan their own economic futures and the economic security of their families, if we are to relieve men's minds as best we can of the haunting fear of destitute old age, or destitution of their dependents if they should die, we must give the promises we have made them all the certainty of fulfillment that is possible in a world of fallible human beings. This the structure of old-age, survivors and disability insurance is designed to do, and this it does better than any other system yet devised.

Congress has repeatedly evidenced its judgment that the values of contributory social insurance outweigh in this instance the usual argu-

ments for State or local operation of welfare programs, and the popular consensus is clearly in accord. But realization of these values could easily be jeopardized, either by lack of sufficient congressional vigilance in amending the statutes or by loss of popular credence in the promise which the statutes make.

These dangers are not imaginary. The former hazard is illustrated by the proposal a few years ago to blanket in the millions of so-called unprotected aged and pay them minimal pensions from the trust fund—a proposal which, tempting though it was in other ways, would have undermined the contributory principle and destroyed the rationale of payroll taxes. The other hazard loomed in the early days when the financing of the system was under attack as improper and even fraudulent—an attack which ought never to have been made and which, despite its constant reiteration, seems not appreciably to have impaired popular confidence in the system. Both these hazards have apparently been safely passed, but a new attack has developed which seeks to show that the system accords its present contributors no certainty that the benefits now promised them will not be curtailed or withdrawn in the future. If contributors generally should come to believe this, the values of social insurance would be largely lost, and it would be a serious question whether we should not revert to State-administered programs of some sort.

The essence of social insurance consists in the assurance of future payments. In old-age, survivors, and disability insurance this assurance is effected, not by contracts with the contributors which might disastrously freeze the benefit structure, but by several aspects of the system which in combination go about as far as to commit future Congresses as it is legally possible to go. In the first place, Congress has struck an implied bargain by the very fact of imposing taxes of a kind that would never be tolerated except as a quid pro quo for promised benefits—most conspicuously, by imposing an income tax with no personal exemption, a tax limited to earned income, a tax which excludes all income above \$4,200 a year. It has imposed these special taxes in amounts sufficient, as far as can now be known, to pay the whole cost of old-age, survivors, and disability insurance over the indefinite future, and it has dedicated the proceeds of these taxes—for practical purposes, has dedicated them irrevocably—to meeting the cost of benefits and administration. Finally, by labeling the system “insurance” Congress has made its commitment to the contributors explicit. Being a moral and political rather than a legal commitment, it cannot be defined with precision, but it is hardly the less binding for that.

Despite these considerations, the existence of any effective commitment is challenged by some, who assert that old-age, survivors, and disability insurance is no more than a method of taxing the present labor force and its employers for the use of those now on the benefit rolls, and that the system gives no assurance that people now working, or their survivors, will receive the promised benefits when their working days are ended. There is no evidence that the enormous popular support of old-age, survivors, and disability insurance has thus far been affected in the least by these contentions, but they have a superficial plausibility that makes them dangerous.

One piece of this argument depends on a misapprehension of what was argued to the Supreme Court and decided by it in sustaining the

old-age insurance provisions of the original Social Security Act. Those provisions, like all their subsequent modifications, consisted of a taxing part and a spending part. Each part was attacked on various constitutional grounds and each was sustained. There the Court's function ended; if each part was valid, it was of no concern to the Court that the two might be so dove-tailed as to constitute together a system of contributory social insurance. Significantly, the word "insurance" does not appear in the Court's opinion. If the commanded payments were valid taxes, it was of no importance that they might also be properly described as compulsory contributions or premiums; all taxes, indeed, are compulsory contributions. The Court neither affirmed nor denied that the system was social insurance, for that was none of its concern. It is true that the Department of Justice in its brief equivocated on this point, but since the point was not in issue this merely means that the Department confined its arguments to the constitutional questions that were before the Court. It is hard to take seriously an attempt to use this brief, written 20 years ago by lawyers to whom social insurance was an unfamiliar concept, to support the thesis that Congress has for many years been misleading the people by calling the system insurance. At any rate, the advocate purposes, the Court disposes; and the effort to disparage the system finds not a scintilla of support in the opinion of Mr. Justice Cardozo.

Another facet of the attack on old-age, survivors, and disability insurance is the contention that the system is not insurance because the benefit rights are created by statute rather than by contract, and because Congress has reserved to itself the right to amend or repeal the act. Ordinarily argument about definition would be of only academic interest; obviously social insurance differs in a number of respects from private insurance, and does not meet altogether definitions framed to describe the latter. In this instance, however, nomenclature is of some importance because the word "insurance" has been used by Congress presumably for the very purpose of underscoring the commitment implicit in the operative provisions of the statute. It is therefore pertinent to note that the United States Supreme Court has characterized as "industrial insurance" some statutes which confer benefit rights.⁸

More recently the Court has held that a system of disability payments established by an employer constituted health insurance although there were no employee contributions, the benefits were payable from the employer's own funds without the intervention of an insurance carrier, the benefits varied with length of service, and the whole scheme could be changed or terminated by the employer except for benefits to which an employee had already become entitled.⁹ The Court remarked that it was merely construing the term "health insurance," as used in the Internal Revenue Code, in accordance with "its broad general meaning." If a private scheme of this sort is insurance, it would seem quite clear that old-age, survivors, and disability insurance, the benefits of which are fixed by the law of the land, is entitled to be so described.

⁸ *Grange Lumber Co. v. Rowley*, 326 U. S. 295, 299, 303 (1945). The Court remarked that "the State supreme court has characterized the system * * * as an industrial insurance statute having all the features of an insurance act."

⁹ *Haynes v. United States*, 353 U. S. 81 (1957).

But it is said or implied that Congress, if it wished to create a system entitled to be called insurance, ought to have done so by contract, and authority is cited that the United States cannot constitutionally repudiate its contracts.¹⁰ Aside from the serious doubt that in a system of compulsory insurance one Congress could thus bind its successors,¹¹ and aside from the folly of so doing if it could, a contractual system would give no more legal assurance of ultimate payment than does the present system—no assurance, that is, which the courts could enforce in the event of hostile congressional action. For a Congress bent on repudiating its insurance commitment could always withdraw the right to sue the Government and withdraw appropriations available for the payment of benefits, as it did in order to prevent windfalls when the Supreme Court affirmed the inviolability of gold-clause bonds.¹² The right to do these things cannot be relinquished by Congress, and contractual rights, no matter how inviolable, become hollow when there are no funds to meet them and no right to sue for their enforcement. Contributors are and in the nature of things must be dependent on Congress, and not on the courts, for the ultimate protection of their insurance rights.

The points thus far discussed provide no more than a smokescreen for the one real argument, that the reservation of power to amend or repeal the benefit provisions of old-age, survivors, and disability insurance makes the congressional promise embodied in those provisions illusory. The power to amend would almost certainly have existed though it had not been expressly reserved, but in any case its existence was and is essential in a system as vast and complex as this. In the 22 years since their enactment the original provisions have been changed many times and almost beyond recognition, and there is no reason to suppose that finality has even been approached. These amendments have redounded to the very great benefit of the contributors to the system; indeed, the increase of benefits as the cost of living has risen means that social insurance has afforded a degree of economic security, when measured by the purchasing power of the benefits, that private insurance cannot equal.

But change in the benefit structure may involve something other than a simple increase in amounts, and a grave problem is posed whenever the process of amendment leads to the abrogation or reduction of benefits previously promised. Can such action be reconciled with the underlying commitment implicit in old-age, survivors, and disability insurance?

The answer depends basically on whether the action is taken as a necessary incident to an improvement of the system, and thus accords with the basic purpose for which the power of amendment was reserved. Repeal in 1939 of the provision of the original Social Secu-

¹⁰ *Lynch v. United States*, 292 U. S. 571 (1934). The opinion in this case itself largely refutes the contention for which the case is cited, for it plainly recognizes that if Congress had undertaken to withdraw the right to sue, the Court would have been compelled to reach a different conclusion.

¹¹ Payment of a tax which one is legally required to pay, unlike the voluntary payment involved in the Lynch case, ordinarily does not constitute such legal consideration as is essential to the formation of a valid contract. A promise of benefits in consideration of the payment of taxes would therefore presumably be legally repealable. Possibly Congress could make a binding promise in consideration of the performance of work in covered employment, but it seems unlikely that the Supreme Court would extend the doctrine of the Lynch case to an arrangement in which the promisee has really surrendered nothing.

¹² 49 Stat. 938, 31 U. S. C. 773 (b), 773 (c).

rity Act by which persons dying without qualifying for monthly benefits should receive a generous refund raised no significant objection, because there were substituted survivors' benefits of greater value to nearly all concerned, but even so it was fortunate that the change could be made before "money back" rights had built up to any great size. This change was clearly an improvement, and its desirability illustrates the need for an element of flexibility in the congressional commitment even though a handful of people may suffer a minor loss. The same cannot be said, unfortunately, of amendments with respect to deportees and convicted subversives which, even in the relatively temperate form in which they were finally enacted, smack more of punishment than they do of any true purpose of the insurance system. Somewhere between these two stands the curtailment of the rights of nonresident aliens, which illustrates a potentially serious problem for the future. No one could have objected very strenuously if it had been decided originally that nonresident aliens who had been in this country only a short time should not receive the bonanza which it was felt necessary to provide generally to those who have been in covered employment only briefly. But once the promise had been made to these aliens, its repudiation would probably have raised a good deal of protest except for the fortunate coincidence that the victims were too far away to be heard.

Let us suppose that certain dire but improbable prophecies should be borne out by the fact, and that the recently enacted disability benefits should prove in the next few years to be disastrously expensive and entirely unworkable. Could a formula for their repeal be devised that would do substantial justice to the millions of people who have made additional contributions from their pay envelopes for disability protection? This is an extreme and unlikely case, but it illustrates the difficulty of revising a commitment that will run, for many individuals, 50 or 60 years into the future. Even the Congress can make mistakes, and in old-age, survivors, and disability insurance it has made the correction of any excess of liberality an extraordinarily difficult problem.

It has been well said that the insurance system, though not contractual in nature, is "vested with the aura of a contract."¹³ From all evidence, people generally are not in the least disturbed by the difference between a contract and an aura. The reason for this is not far to seek; it means simply that people have confidence in the Congress of the United States. After all, Congress has it in its power to honor or dishonor all fiscal obligations of the Government, and the credit of the United States is the best in the world. Surely those who foresee fiscal irresponsibility in the case of social insurance have the burden of showing grounds for their fears, a burden all the heavier because so many of every congressional constituency have a stake in old-age, survivors, and disability insurance.

If improvements in the future require some modification of existing benefit rights, as they may, we can trust to Congress' sense of obligation and sense of fair play to assure that contributors are treated equitably. The greater danger lies in changes that may appear minor or even trivial, that injure only a few, or injure only those who for

¹³ Security, Work, and Relief Policies, H. Rept. Doc. No. 128, pt. 3, 78th Cong., 1st sess. (Washington: G. P. O., 1943), p. 523.

one extraneous reason or another may not enjoy the sympathies of the people at large. Here, the reserved power of amendment may lure the Congress into actions which it would not consider if there were a binding legal commitment, actions which find no warrant in the purposes of the insurance system itself. However politically innocuous such amendments may appear, however the ethical questions they raise may be resolved, they will exact a price far beyond their immediate significance if they can be used to disparage in the public mind the Government's undertaking to pay the promised benefits. Even the smallest seeds of doubt could be dangerous, for no one can know that some may not land on fertile soil. What happens to a handful of people, even unpopular people, can be held up by those who choose to do so as an example of what might happen to the rank and file in a period of financial stringency. No one can know at just what point public confidence might begin to be shaken, or what the consequences would be if it were, but one probable consequence is that payroll taxes would become very unpopular indeed, ultimately perhaps too unpopular to survive. The risk is not worth taking, for the stakes are too high.

There are people in positions of influence who apparently still believe that the adoption of compulsory social insurance was a mistake and have not given up hope of effecting its abandonment, and presumably of bringing about a return to the public-assistance approach as the only public aid available to those now within the ambit of old-age, survivors, and disability insurance. Frontal assault on the insurance system at the present time would be hopeless, and these dissenters have now hit upon its most vulnerable point, the lack of a precise and definitive commitment for the future, in an effort to weaken public support for the system that they would like ultimately to see abandoned. Complacency in the face of this attack would be unwise, for there is a color of truth in the argument which, under some conditions, could render it effective. Congress itself is the only body that can render this destructive argument futile, and it can best do so by rejecting every amendment that would withdraw or curtail the benefit rights of any person unless the amendment is required, and can be justified to the people, as a necessary incident in the continuing process of strengthening and improving the system.

XIV. FEDERAL EXPENDITURES FOR TRANSPORTATION, PARTICULARLY HIGHWAYS, AND OTHER PUBLIC WORKS

FEDERAL EXPENDITURES FOR TRANSPORTATION, PARTICULARLY HIGHWAYS, AND OTHER PUBLIC WORKS

THE FEDERAL HIGHWAY ACT OF 1956, AND THE FEDERAL-AID AIRPORT PROGRAM

DEPARTMENT OF COMMERCE

Materials submitted by Frederick H. Mueller, Acting Secretary of Commerce¹

EXCERPTS FROM STATEMENT OF HON. SINCLAIR WEEKS, SECRETARY OF COMMERCE, IN HEARINGS BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON PUBLIC WORKS, UNITED STATES SENATE, 84TH CONGRESS, 1ST SESSION ON S. 1048, S. 1072, S. 1160, AND S. 1573, BILLS RELATING TO THE NATIONAL HIGHWAY PROGRAM, PAGES 319-320

Finally, I emphatically state that it is my opinion that the solution of the highway problem, and particularly the construction of the Interstate Highway System, is imperative for our economic well-being and expansion. The improvement of the Interstate System also satisfies the defense needs. It is interesting to note that since World War II, American industry has invested \$205 billion in plant and is expected to invest \$27 billion in plant in 1955.

Thus, private industry is spending for capital improvements each year approximately as much as Federal Government would be spending under this bill in 10 years for the vital Interstate Highway System. The magnitude of the task is difficult to comprehend. It is by far the largest engineering and construction program ever undertaken during peacetime. By way of comparison, the Panama Canal cost less than one-fifth of the annual expenditures contemplated on the Interstate System. This undertaking will require the closest cooperation between the 48 States and the Bureau of Public Roads over a period of 10 years. A project of this magnitude cannot be undertaken successfully on a piecemeal basis any more than it would be possible so to undertake a project such as the St. Lawrence seaway, which is a relatively small undertaking as compared to the construction of the Interstate System.

¹The Department of Commerce has submitted the following materials in response to the request of the Subcommittee on Fiscal Policy for a statement concerning Federal expenditures for transportation, particularly highways, and their relationship to the Nation's economic growth and stability. The materials consist of excerpts from testimony by the Secretary of Commerce, the Honorable Sinclair Weeks, in the hearings by a subcommittee of the Committee on Public Works, United States Senate, 84th Cong., 1st sess., with reference to S. 1048, S. 1072, S. 1160, and S. 1573, bills relating to the national highway program, pp. 319-20; before the Subcommittee on Roads of the Committee on Public Works, House of Representatives, February 7, 1956, with respect to H. R. 8836, Federal Highway Act of 1956; and in the hearings by the Committee on Ways and Means, House of Representatives, 84th Cong., 2d sess., on H. R. 9075, a bill to amend the Internal Revenue Code of 1954 to provide additional revenue from the taxes on motor fuel, tires, and trucks and buses, pp. 175-180; and excerpts from the Federal-Aid Airport Program, Policies and Procedures, Department of Commerce, Civil Aeronautics Administration (Department of Commerce: October 1, 1955).

Under the 1954 act we were instructed to make an evaluation of the highway needs throughout the United States and to report upon these needs. This study and that of the Clay committee covered not only immediate highway deficiencies but the needs for the future as well. In evaluating the interstate highway problem the estimates are based on bringing that system up to standards which will be adequate for at least 20 years after the completion of any given section thereof. In obtaining the detailed estimates, the Bureau of Public Roads was dependent for the most part on the cooperation of the 48 States.

On the basis of these estimates and in keeping with these standards, the total requirements are estimated at \$23 billion for the existing Interstate System of 37,600 miles. Provision has been made by law for the extension of the Interstate System to a total of 40,000 miles. The difference between these 2 figures, 2,400 miles, has been reserved for extension of the system in urban areas and a substantial portion, if not all, of these extensions are included in the administration bill.

For this purpose an estimated figure of \$4 billion has been provided, making a total of \$27 billion for the entire Interstate System and the extensions thereto. Of this \$27 billion, States and local governments would be expected to contribute \$2 billion, which leaves a balance of \$25 billion to be provided under S. 1160.

It is estimated that there will be 81 million vehicles on the road in 1965, 40 percent more than at present. In the next 10 to 15 years our population will, it is estimated, increase about 30 million. Our roads are a vital part of our programs for commerce, trade, transportation, and defense. The basic issue before the Congress is the need to obtain in 10 years an Interstate System adequate for the next 20 to 30 years. To the extent not needed, the program involved in S. 1160 can automatically adjust and cut down. We believe the need fully exists, and that this measure is a sound way in which it can be accomplished with the minimum of uncertainty in planning and engineering.

STATEMENT OF THE HONORABLE SINCLAIR WEEKS, SECRETARY OF COMMERCE, BEFORE THE SUBCOMMITTEE ON ROADS OF THE COMMITTEE ON PUBLIC WORKS, HOUSE OF REPRESENTATIVES, FEBRUARY 7, 1956

I appreciate the opportunity to appear before your subcommittee and express my views with respect to H. R. 8836, the Federal Highway Act of 1956, and other pending highway proposals. Before commenting on the bill, I should like to say that I am greatly pleased with the efforts which the members of the Committee on Public Works are making to solve the highway problem. I sincerely hope that the users of the Nation's highways also will appreciate your efforts.

The need for an expanded and adequate highway program was definitely established by representatives of farm organizations, industry, labor, and other interests, and officials of State and Federal agencies at hearings before your committee during the last session of the Congress, and I will not attempt to further confirm these needs. However, I should like to point out that the President has emphasized repeatedly, in his state of the Union and budget messages and his Economic Report, that a greatly improved highway system is vital for both economic development and national defense, as well as to reduce traffic deaths and injuries.

We are very gratified that H. R. 8836 accomplishes the principal objectives of the President's program for completion of the National System of Interstate Highways by authorizing construction of the system as a single integrated project, requiring the Federal Government to assume the principal responsibility for financing the program, and providing for apportionment of funds among the States on the basis of need.

In contrast to the practice of the Federal-Aid Highway Act of 1954 and previous acts authorizing appropriations for the Interstate System on a 2-year basis, H. R. 8836 provides total authorizations of \$24,825 million for the 13-year period beginning with the fiscal year ending June 30, 1957, and continuing through the fiscal year ending June 30, 1969.

We believe it imperative that completion of the Interstate System be authorized as one project rather than on a piecemeal approach. I have referred to the President's statements on the need for an improved highway system, and I should like to quote from his state of the Union message concerning the necessity for authorizing the Interstate System as an entire project:

In my message of February 22, 1955, I urged that measures be taken to complete the vital 40,000-mile Interstate System over a period of 10 years at an estimated Federal cost of approximately \$25 billion. No program was adopted.

If we are ever to solve our mounting traffic problem, the whole Interstate System must be authorized as one project, to be completed approximately within the specified time. Only in this way can industry efficiently gear itself to the job ahead. Only in this way can the required planning and engineering be accomplished without the confusion and waste unavoidable in a piecemeal approach. Furthermore, as I pointed out last year, the pressing nature of this problem must not lead us to solutions outside the bounds of sound fiscal management. As in the case of other pressing problems, there must be an adequate plan of financing. * * *

I cannot state any more clearly the necessity for authorizing the whole Interstate System as one project.

We also believe that it is very necessary that the Interstate System be completed over a period of 10 years, as recommended by the President, rather than over a 13-year period as provided in H. R. 8836. We are falling further and further behind in our efforts to keep the Interstate System adequate to meet our needs. Complete cessation of highway construction during World War II and the astonishing increase in the number of motor vehicles have rendered this even more difficult. If we are to catch up with our needs, the Interstate System must be completed within a relatively short period of time. We urge that the period for completion of the system be fixed at 10 years, and that an adequate plan of financing be adopted which will permit accomplishment of this objective.

In this connection, we understand that the Committee on Ways and Means is drafting a bill designed to provide revenues considered necessary for the highway program, and that such bill will be consolidated with any bill reported out by your committee.

Funds for completion of the Interstate System would be apportioned among the States under H. R. 8836 in the ratio which the estimated cost of completing the Interstate System in each State bears to the total cost of completing such system as set forth in computations compiled by the Bureau of Public Roads in House Document No. 120, 84th Congress.

We believe that this is the only method which will fully accomplish the objective of completing the Interstate System in a given period of time in accordance with the needs determined by the States with the cooperation of the Bureau of Public Roads. The formulas used in previous acts for apportioning funds among the States on a basis of population, area, and mileage would not permit this to be accomplished. Nor would such formulas assure simultaneous completion of the entire system. However, we suggest that provision be made for reevaluation of the needs of the Interstate System in the several States to take care of designation of the remaining 2,300 miles in the 40,000-mile system subsequent to the computations set forth in House Document No. 120.

In view of the special interest which the Federal Government has in early completion of the 40,000 miles in the Interstate System, we agree that the matching of funds for the construction of such system should be on a 90-percent Federal and 10-percent State basis as provided in H. R. 8836. Although the system constitutes only about 1.2 percent of our total road mileage, it joins 42 State capitals and 90 percent of all cities over 50,000 population. It carries more than one-seventh of all traffic, one-fifth of all rural traffic, and directly serves 65 percent of the urban and 45 percent of the rural population. It is the key network for industrial production, interstate travel, and civilian and national defense.

The States have the responsibility, under the various Federal-aid statutes, for the planning, construction, and maintenance of projects in the interstate and other national highway systems. They also have the responsibility for enforcement of speed, highway marking, and other phases of highway use. Despite the dominant role of the Federal Government with respect to the Interstate System, we do not believe there should be any change in these traditional Federal-State relationships and responsibilities. In this concept fall such provisions as the one relating to regulation of sizes and weights of motor vehicles. We believe that Federal participation in the Interstate System should parallel existing Federal-aid highway procedures except only for limited power in the Federal Government to acquire rights-of-way at a State's request where necessary to assure limited access.

We therefore favor the Federal Government's being given authority where requested by a State as provided in H. R. 8836, to step in and acquire rights-of-way, including control of access, where a State requests it to do so because of the inability of the highway department to acquire such rights-of-way with limited access or with sufficient promptness to expedite construction on segments of the Interstate System. The Federal Government now has such authority with respect to defense-access roads, and similar authority with respect to projects on the Interstate System would expedite the construction and improvement of such system.

We are surprised to encounter the provision in H. R. 8836 relating to credits to the States for existing free or toll highways located on the Interstate System. Although a similar provision was contained in bills implementing the report of the President's Advisory Committee on a national highway program, no such provision was incorporated in the highway bill passed by the Senate or in the bill reported by your committee.

In any event, we have given the proposal a great deal of thought, and do not favor it at the present time. The President's program for the Interstate System contemplates completion of a system in accordance with needs and not the purchase of one. Obviously, more roads can be completed if those already built are not bought. Furthermore, the States would not appear to be hurt by failure to extend credit for such roads. In general, toll roads have been set up on a sound fiscal basis, and have not cost the States a penny. No amount has been included in the authorizations for the Interstate System for toll- and free-road credits, and it would therefore be necessary to increase the authorizations or cancel a part of the needed program if such credits are to be extended.

We are also gratified that H. R. 8836 meets the objective of the President that Federal aid be continued for improvement of other national highway systems.

The bill continues the practice of previous years of having Congress enact in even numbered years highway legislation containing authorizations for the Federal-aid primary and secondary systems and extensions thereof within urban areas for the subsequent 2 years. The bill authorizes an additional \$25 million for the fiscal year 1957, \$750 million for the fiscal year 1958, and \$775 million for the fiscal year 1959 for such systems. The bill also expresses the congressional intent progressively to increase the total authorization for these 3 categories by a minimum of \$25 million annually for a 10-year period ending June 30, 1969.

We favor continuation of aid to the primary and secondary systems and extensions thereof within urban areas, and believe that the practice of providing authorizations for such systems on a biennial basis is sound. Funds appropriated under such authorizations are apportioned among the States on the basis of population, area, and mileage. These factors and related highway needs change from time to time, and it is only appropriate that the Congress have an opportunity to review them. The pronouncement of congressional policy to increase progressively the total authorization for these 3 systems by a minimum of \$25 million annually for the 10-year period ending June 30, 1969, gives recognition to the growing need for improvement of these highways, and should be of material assistance to the States. The pronouncement has the added advantage of enabling the States to plan in advance concerning the raising of matching funds.

H. R. 8836 continues for the fiscal years 1958 and 1959 the authorizations set forth in the Federal-Aid Highway Act of 1954 for forest highways and similar roads on the Federal domain. The bill expresses the congressional intent to continue until June 30, 1969, the authorizations for these roads at annual rates not less than those for the fiscal years 1958 and 1959. These routes constitute important links in our highway system and provide access to economic areas and

resources. The need for their continued improvement is clearly evident.

We are very much in favor of the provision in H. R. 8836 which would increase the present \$10 million annual emergency fund authorization under section 7 of the Federal-Aid Highway Act of 1952 to \$30 million for the repair or reconstruction of highways on the Federal-aid systems which are damaged as a result of disaster. The proposed increase is necessary in order to meet the 50-percent Federal share of the cost of the damage to Federal-aid systems resulting from hurricanes Connie and Diane and the floods in the eastern and western coastal States.

We suggest that a provision be inserted in H. R. 8836 which will authorize the Secretary of Commerce to employ specialized and additional personnel in the top supervisory and administrative grades under the Classification Act of 1949 for the purpose of meeting the greatly increased responsibilities which will be imposed on the Bureau of Public Roads as a result of the highway program. The engineering program contemplated by H. R. 8836 will be the largest ever proposed, and the activities of the Bureau of Public Roads will be more than tripled.

I again desire to compliment your committee on the serious and determined effort which it is making to develop legislation providing for an expanded and adequate highway program. I shall be pleased to answer any questions which you may have.

EXCERPTS FROM STATEMENT OF HON. SINCLAIR WEEKS, SECRETARY OF COMMERCE, IN HEARINGS BEFORE THE COMMITTEE ON WAYS AND MEANS, HOUSE OF REPRESENTATIVES, 84TH CONGRESS, 2D SESSION, ON H. R. 9075, A BILL TO AMEND THE INTERNAL REVENUE CODE OF 1954 TO PROVIDE ADDITIONAL REVENUE FROM THE TAXES ON MOTOR FUEL, TIRES, TRUCKS, AND BUSES, PAGES 175-180.

I appreciate the opportunity to appear before your committee in its consideration of H. R. 9075, the Highway Revenue Act of 1956, which is intended to provide for raising the necessary Federal revenues required to finance the Federal highway program authorized by H. R. 8836, the Federal Highway Act of 1956.

I should like to refer to the principal provisions of H. R. 8836, and repeat certain of the views which I expressed to the Committee on Public Works.

H. R. 8836 provides total additional authorizations of \$24,825 million for the National System of Interstate Highways for the 13-year period beginning with the fiscal year ending June 30, 1957, and continuing through the fiscal year ending June 30, 1969.

The bill also authorizes an additional \$25 million for the fiscal year 1957, \$750 million for the fiscal year 1958, and \$775 million for the fiscal year 1959 for the Federal-aid primary and secondary systems and extensions thereof within urban areas, and expresses the congressional intent progressively to increase the total authorization for these 3 categories by a minimum of \$25 million annually for a 10-year period ending June 30, 1969.

Furthermore, the bill provides authorization, for forest highways and other roads on the Federal domain for the fiscal years 1958 and 1959 in the same amounts as now provided in the Federal Aid High-

way Act of 1954 for the fiscal years 1956 and 1957, and expresses congressional intent to continue until June 30, 1969, authorizations for such roads at annual rates not less than those contained in the Federal Aid Highway Act of 1954.

In testifying before the Committee on Public Works, I stated that we were very gratified that H. R. 8836 accomplished the principal objectives of the President's program for completion of the Interstate System by authorizing construction of the system as an integrated project, by requiring the Federal Government to assume the principal responsibility for financing the program, and by providing for apportionment of funds among the States on the basis of need.

However, I urged that the period of authorizations for completion of the Interstate System be fixed at 10 years, as recommended by the President in his various messages to the Congress, and that an adequate plan of financing be adopted which would permit accomplishment of this objective.

I also stated that we were gratified that H. R. 8836 met the objectives of the President that Federal aid be continued for improvement of other national highway systems.

It is my understanding that virtually all of the witnesses now being heard by the Committee on Public Works are supporting the principal provisions of H. R. 8836. The need for an expanded and adequate highway program was also confirmed by numerous representatives of farm organizations, industry, labor, and other interests, and officials of State and Federal agencies at hearings before the Senate and House Committees on Public Works during the last session of the Congress.

There is, therefore, no real necessity for further confirmation of these needs. However, I consider it appropriate that your committee, which has the task of raising the Federal revenue required for financing the Federal highway program authorized by H. R. 8836, be provided with some information as to why such a program is required for the personal safety, the general prosperity, and the national security of the American people.

During the past year, 38,300 persons lost their lives in highway accidents. Another 1,350,000 persons suffered injuries, with 100,000 of them being permanently disabled. The losses in the past year alone from these deaths and injuries have been estimated at the astounding total of \$4.7 billion.

The number of motor vehicles increased from 58 to 61 million during 1955, and estimates indicate that there will be 81 million vehicles on the highways by 1965.

Contributing to the conclusion that a continuing rise in the number of motor vehicles is in prospect are the expected increases in our population and annual income. Estimates indicate that our population will increase by about 30 million in the next 10 or 15 years.

Economists predict that our annual income and productivity will increase by at least 40 percent in 10 years. Much of the increase in our annual income is expected to go to those in the lower and middle-income brackets, the ones most likely to convert their rising income into automobiles.

These estimates and predictions indicate that the fearful toll of injuries and property damage resulting from accidents on our highways will increase in even greater proportion unless steps are taken immediately to modernize our highway system.

In addition to the huge toll of personal casualties and property damage, we are losing billions of dollars each year as the direct or indirect result of existing inadequacies in our highways. These losses are the result of delays, soaring operating costs due to traffic congestion, rising insurance premiums, and so forth.

Farmers, manufacturers, and all forms of businessmen suffer delays and unnecessary expense in the transportation of their products to the consumer.

It is unnecessary to point out that the consumer ends up by paying the increased distribution costs resulting from inadequate roads. Our highway system must be expanded and made adequate from the standpoint of safety and economics.

It is even more necessary that the Interstate System, which is the backbone of the Nation's highways, be authorized for completion over a period of 10 years as recommended by the President. This system, the designation of which was authorized by the Federal Highway Act of 1944, consists of 40,000 miles of routes in the United States which were selected by joint action of the State highway departments in cooperation with the Federal Government.

The designated routes were found to be the most important from the standpoint of military and civil defense. Although the system constitutes only about 1.2 percent of our total road mileage, it joins 42 State capitals and 90 percent of all cities over 50,000 population. It carries more than one-seventh of all traffic, one-fifth of all rural traffic, and directly serves 65 percent of the urban and 45 percent of the rural population.

It touches or crosses 406 of the 435 congressional districts, and includes virtually every section and segment of the population.

Because the system serves as a main trunkline for the transportation of men and material between our major population and industrial centers and seaports, it would afford a much greater degree of service than any other system in the efficient and rapid movement of heavy types of military equipment in time of war.

Since the system is composed of the main arterial routes leading out of our major cities, it would be of inestimable value for rapid and mobile evacuation of the civilian population from urban centers.

Both the Congress and the President have recognized that the Nation's highway problem is very acute. The Federal Aid Highway Act of 1954 directed the Secretary of Commerce to make a study of the costs of completing the several systems of highways in the several States.

The President appointed an Advisory Committee on a National Highway Program, with Gen. Lucius D. Clay, as Chairman. This Committee submitted its report in January 1955, entitled "A 10-Year National Highway Program."

The President transmitted the report to the Congress with a special message on February 22, 1955. Legislation was subsequently introduced which implemented the recommendations set forth in the President's message.

The Secretary of Commerce submitted the report called for by the Federal-Aid Highway Act of 1954 on March 25, 1955.

The Advisory Committee recommended that special emphasis be placed on early completion of the Interstate System, and estimated

the cost of completing the system to be \$27 billion as of December 31, 1954.

The committee recommended that the Federal Government provide \$25 billion of this amount, and that State and local subdivisions provide the remaining \$2 billion.

The study submitted by the Secretary of Commerce to the Congress, which was prepared by the Bureau of Public Roads on the basis of detailed estimates submitted by the 48 States, estimated the total cost of completing the then 37,700 miles of the Interstate System to be approximately \$23 billion.

The cost of completing the remaining 2,300 miles, which have been subsequently designated, was estimated to require an additional \$4 billion.

Both the Advisory Committee estimates and those of the Secretary of Commerce were based on requirements necessary to bring the Interstate System to standards which would be adequate for estimated traffic in the year 1974.

The President has recommended in his state of the Union and budget messages, and in his economic report to this Congress, that completion of the Interstate System be authorized as one project over a period of 10 years.

As I stated previously, H. R. 8836 provides for completion of the Interstate System as an integrated project by containing total authorizations of \$24,825 million for the 13-year period beginning with the fiscal year ending June 30, 1957, and continuing through the fiscal year June 30, 1969.

We believe that if we are ever to solve our increasing traffic problem the Interstate System must be authorized as one project. Modern highways are the product of technology and require painstaking design and preliminary engineering, as well as right-of-way acquisition.

Absence of a definite program inevitably leads to a dissipation of careful plans and resources, with a consequent waste and need to redevelop highway standards and assemble the required manpower and materials.

Furthermore, a partial or piecemeal program does not catch up with needs, and multiplies cost. The States cannot undertake to obtain the necessary modernization of State laws for the advance acquisition of rights-of-way, controlled access, and integration of highway authority at all levels of government unless they are assured of an adequate program.

H. R. 8836 also requires the Federal Government to assume the principal responsibility for financing completion of the Interstate System by providing for 90 percent Federal and 10 percent State matching because of the predominant Federal interest in this National System.

Being relieved of the heavy interstate burden, the States can then apply greater amounts of their own funds for matching Federal funds provided for the Federal-aid primary and secondary systems.

H. R. 8836 provides that funds for completion of the Interstate System shall be apportioned among the States in the ratio which the estimated cost of completing the Interstate System in each State bears to the total cost of completing such system as set forth in the study submitted by the Secretary of Commerce to the Congress, which was published as House Document No. 120.

We believe that this is the only method which will fully accomplish the objective of completing the Interstate System in a given period of time in accordance with the needs determined by the States with the cooperation of the Bureau of Public Roads.

The formulas used in previous Federal-aid highway acts for apportioning funds among the States on the basis of population, area, and mileage would not permit this to be accomplished. Nor would such formulas assure simultaneous completion of the entire system.

I have previously referred to the fact that I recommended to the Committee on Public Works that the authorization period for completion of the Interstate System be fixed at 10 rather than 13 years, as provided in H. R. 8836.

I made this recommendation because we are falling further and further behind in our efforts to keep the Interstate System adequate to meet our needs. Complete cessation of highway construction during World War II and the amazing increase in the number of motor vehicles, to which I have previously referred, have made this even more difficult.

Although I have referred throughout the statement to the Interstate System because of its predominant Federal interest, the bill wisely includes provision for continuing assistance to the States in improvement of Federal aid primary and secondary systems and their extensions into urban areas.

The main through roads and interstate roads comprising the principal highways of the Nation constitute the primary system. The secondary system consists of farm-to-market routes, rural mail routes, school-bus routes, and county and local roads which feed the local traffic into the primary roads.

The Federal-aid primary system consists of a total of about 234,400 miles, of which 16,500 miles are in the urban category and 40,000 are included in the Interstate System. The mileage of the secondary systems is about 483,000 miles.

H. R. 8836 quite properly, therefore, authorizes an additional \$25 million for the fiscal year 1957 for the Federal-aid primary and secondary systems and extensions thereof within urban areas.

The bill further increases the authorizations for the fiscal years 1958-59 and expresses the congressional intent progressively to increase the total authorizations for these systems by a minimum of \$25 million annually for a 10-year period ending June 30, 1969.

We believe that these increases and the pronouncement of congressional policy provide a well-balanced program of expansion on all our road systems. The pronouncement should be of material assistance to the States in enabling them to plan in advance concerning the raising of funds required under the 50-50 matching formula applicable to the granting of Federal aid to these systems.

I believe that it will be of interest to you to know that two-thirds of our highways are below minimum safe-driving standards for today, much less tomorrow, with wornout pavements, poorly engineered curves, narrow rights-of-way, jammed intersections, and narrow bridges.

Speaking in terms of national averages, the typical rural highway on the Interstate System has a surface that was last improved in 1937, and a roadway on which the last major improvement of alinement and

grade was made in 1932. Only about 5,000 miles of this system outside of towns have more than 2 lanes.

The cost estimates which have been computed for needed improvements for our highway system naturally provide the highest design standards for the Interstate System, while progressively lower standards have been used for each road system of lesser importance.

The States have the responsibility at the present time, under the various Federal-aid statutes, for the planning, construction, and maintenance of projects in the interstate and other Federal-aid highway systems.

No change is contemplated in these responsibilities with respect to the construction of the highway systems which would be authorized by H. R. 8836.

Practically everyone would benefit from an expanded highway program such as that authorized by H. R. 8836. Farmers, manufacturers, and businessmen in general would be able to get their products to the consumer in much less time.

Consumers would enjoy lower transportation costs.

Highway transportation, which is a major factor in our economy, would thrive.

Our general economy would benefit since industry and employment directly related to the highway transportation system and its byproducts account for about one-seventh of the total value of our gross national product.

THE FEDERAL-AID AIRPORT PROGRAM POLICIES AND PROCEDURES

The Federal Airport Act (Public Law 377, 79th Cong., approved May 13, 1946) authorized a grant-in-aid program to assist public agencies in the development of a nationwide system of public airports adequate to meet the needs of civil aeronautics.

Under the original act, appropriations were made annually, thus requiring operation of the program on a year-to-year basis. Under this program more than 1,100 airports were built or improved and substantial progress was made in the development of many public airports.

The basic Federal Airport Act was amended (Public Law 211, 84th Cong., approved August 3, 1955) to authorize definite amounts for Federal participation in airport development for each of the fiscal years 1956, 1957, 1958, and 1959. The act, as amended, enables communities to prepare long-range plans for airport development under the Federal-aid airport program. By permitting advance planning for the expenditure of Federal funds, the act now provides a better opportunity for sponsors to arrange their financing to match the availability of Federal funds.

POLICY FOR ADMINISTERING THE FEDERAL-AID AIRPORT PROGRAM

The Civil Aeronautics Act of 1938 and the Federal Airport Act of 1946 place statutory responsibility in the Secretary of Commerce to provide a system of public airports adequate to anticipate and meet the needs of civil aeronautics, both air carrier and general aviation. Today, there exists a basic system of public and private airports to serve the Nation, representing a large investment of public and private funds. Growth in the volume of air traffic, technological developments in the science of aeronautics, shifts in the relationship between the airport and its neighbors, and other factors in this dynamic industry all combine to create a changing aeronautical demand which, in turn, requires that the national system of airports be capable of adapting itself to varying conditions. The primary purpose of the Federal-aid airport program will be to assist each community, irrespective of population, which has a substantial aeronautical requirement, in developing new or bringing its existing civil airport(s) to a standard compatible with the present and future needs of civil aeronautics, so that such airport(s) will be a part of "a system of public airports adequate to anticipate and meet the needs of civil aeronautics." Listed below are the policy objectives which will serve as guide lines in the administration of the Federal-aid airport program.

1. Construction of new airports should be limited to communities where (1) the volume of air traffic, now or in the future, exceeds the potential capacity of the existing airport(s); (2) the existing air-

port(s) cannot economically be improved to handle their air traffic safely and adequately; (3) the community or area lacks an airport but facts show the need for one; or (4) one new airport can serve one or more communities more efficiently than existing facilities.

2. A community can be included in the national airport plan and can qualify for Federal aid if, within the established forecast period, it will have a substantial aeronautical necessity. Occasionally, the existing aeronautical activity in a community understates its potential; such a locality can be included in the national airport plan and can qualify for Federal aid if evidence clearly shows that the measurement of present aeronautical activity fails as an indicator of its airport requirements or if it has one or more specific requirements (aeronautical necessity that cannot be translated into measurable units of aeronautical demand) provided the satisfaction of the need is essential to the public welfare.

3. The majority of committees can be adequately served by one properly planned, well-developed civil airport; under these conditions, Federal-aid airport program funds should be spent on only the one airport. The airport can be a new one provided the community has a substantial aeronautical requirement, but does not have an airport or has an existing airport which needs to be replaced. Certain metropolitan areas, however, now need, and others soon will need, more than one airport to handle their volume of civil air traffic efficiently and safely; in such cases each necessary public airport will be eligible to receive Federal-aid airport program funds.

4. Where proposed military occupancy of a civil airport will result in depriving any segment of civil aviation of needed facilities, every effort should be made by the affected community, in its negotiations with the military services, to secure adequate reimbursement for such military occupancy. This reimbursement, or an amount equivalent thereto, should be utilized to construct an adequate civil airport or replacement facilities without Federal-aid airport program participation. Under no circumstances, however, will Federal-aid airport program funds be used to provide a new airport unless special circumstances provide justification for the administrator to approve the termination of the community's obligations to the Federal Government (if any exist) with regard to the first airport.

5. Federal-aid airport program funds should be spent primarily to assist in projects essential to operational safety and efficiency of airports.

6. Federal-aid airport program funds should be used to encourage and to provide long-range solutions to community airport problems. The development or improvement of a facility which may be replaced in a very few years, or other short-range solution, should be adopted only when the facts, balanced against the amount of funds required, justify such a solution.

7. Expenditures for runway construction at new airports will generally be limited to a single runway. Its approaches should be acquired, zoned, or otherwise protected for aeronautical safety. Expenditures for runway improvement at existing airports will largely be restricted to the dominant runway and its approach zones with a gradual phasing-out of the less used runways. More than one runway will be eligible when traffic volume demands additional runway capac-

ity or where wind conditions require an additional runway for safety and operational efficiency giving consideration to the economic factors of air transportation at that location.

8. Federal-aid airport program funds may be used to develop adequate airport buildings to the extent necessary to satisfy the functional requirements of civil aviation. Facilities associated with the airport terminal buildings will only be eligible for Federal funds to the extent that such facilities are required for the safety and reasonable comfort and convenience of passengers and users of the airport.

9. Entrance roads within the normal boundaries of the airport, and solely for airport usage, are eligible for construction with Federal-aid airport program funds. Such funds will not be used for construction of roads and streets for facilitation of flow of traffic to and from the airport.

10. In administering the Federal-aid airport program, the needs of national defense will be recognized to the extent feasible, but Federal-aid airport program eligibility will be limited to development justified by civil needs.

11. Under the Civil Aeronautics Act of 1938, the CAA is responsible for fostering and promoting the development of civil aviation and will normally point out to airport owners known deficiencies in airport facilities. In performing this function, however, CAA employees must point out that a recommendation to correct a deficiency does not in any way imply a commitment of funds under the Federal-aid airport program. Such funds are earmarked when a specific project has been included in an approved program and a tentative allocation of funds has been made. However, funds are committed only when a grant agreement has been executed.

12. Sponsors should be encouraged to accomplish necessary development for which Federal-aid airport program funds are not available. All possible assistance within the limits of available time and personnel will be rendered to sponsors to accomplish this end. Even though Federal-aid airport program funds are not used in accomplishing airport development, adherence to CAA standards and specifications is desirable.

13. Any and all items of development proposed for inclusion in a project will be evaluated in the light of current standards. Although the Federal share of an overall development may be comparatively small, the items of work to be accomplished with Federal assistance will be judged on their own merit and must be fully eligible. In short, each item for which Federal funds are sought must "stand on its own feet." In those cases where Federal funds constitute less than the normal Federal share of the total funds required for the items of eligible development being undertaken by the sponsor, it will save both time and money if the Federal funds are applied to construction items only, eliminating all engineering and administrative costs.

14. Each project should provide a usable unit of airport development. If the development of a usable unit is susceptible of more economical accomplishment under stage construction, Federal-aid airport program funds may be programed in advance for accomplishment of the development over a period of 2 or more years, within the limit of available authorization.

15. All work must be accomplished in accordance with an approved master layout plan.

16. A shortage of funds should not be used as a reason for compromise planning or programing. A project should provide for high quality development regardless of the size of the program or the availability of Federal funds.

17. Because of administrative procedures involved in the Federal-aid airport program, it is generally impractical to consider a project involving less than \$5,000 in Federal funds unless special necessity for the development warrants Federal participation. Small projects on 1 airport should, wherever possible, be consolidated in 1 grant agreement rather than be accomplished over a period of years.

18. All development authorized at one airport during any fiscal year should be contained in a single grant agreement unless special circumstances exist.

19. On all new runways or landing strips or expenditures on existing runways, the sponsor will be required to own, acquire, or agree to acquire, runway clear zones as defined in programing standards at each end of each runway or landing strip on which Federal-aid airport program funds are to be expended. Exceptions will be considered (on the basis of a full statement of facts by the sponsor) where a showing of uneconomical acquisition cost, or lack of necessity for acquisition, can be made. If military necessity now requires or will require runway length in excess of civil needs, runway clear zones will be eligible at the end of the fully extended runway, but the cost of the land required for the military extension is not eligible. Federal-aid airport program funds can be used to acquire only one clear zone at each end of each eligible runway unless justified by changed civil requirements; when military runway extensions are provided within a clear zone, every effort shall be made to have a substitute clear zone provided without Federal-aid airport program funds. If easements rather than acquisition of property for runway clear zones will afford the sponsor adequate control of the surface of such areas, easements will be eligible in lieu of title.

20. Where economically feasible, large developments which lend themselves to financing over a period of more than 1 year and accomplishment under more than 1 grant agreement will be given tentative allocations for future years rather than to obligate the entire Federal share in 1 fiscal year. Grant agreements will be made against such tentative allocations only during the fiscal year in which the funds are authorized for obligation.

21. No Federal-aid airport program funds will be authorized for expenditure on an airport unless the Administrator is satisfied that the sponsorship requirements under existing and proposed agreements with the United States, applicable to that airport, have been or will be met.

THE CIVIL WORKS PROGRAM AND ECONOMIC GROWTH

, DEPARTMENT OF THE ARMY

Statement submitted by Dewey Short, Assistant Secretary of the Army (Civil-Military Affairs)

THE RELATIONSHIP OF FEDERAL REGIONAL DEVELOPMENT PROGRAMS TO THE PROCESSES OF ECONOMIC GROWTH IN THE PRIVATE SECTORS OF THE ECONOMY

The Federal Government does not have regional resource development programs, other than the program of the Tennessee Valley Administration, in the sense that such programs are concerned with the development of the resources of a specific region primarily from the viewpoint of the region itself. Rather, the resource development programs of the Federal Government are, by and large, nationwide programs geared to meet specific needs wherever they emerge. The navigation and flood control activities of the Corps of Engineers are outstanding examples of these nationwide programs. Under these programs, individual projects for navigation, flood control, and associated purposes are carried out when and as authorized by Congress, if the benefits from the viewpoint of the Nation as a whole and to whomsoever they accrue exceed the costs by whomsoever incurred. The individuals, industries and communities whose flood losses are reduced, who utilize the improved waterways and hydroelectric power and otherwise benefit from these nationwide programs are components, of course, of the region and, in this sense, the programs have an important regional impact. These effects are strikingly apparent in areas such as the Pacific Northwest, the Mississippi Alluvial Valley, the Ohio River Basin, and the Missouri River Basin where such programs have been planned and carried out as elements of overall river basin developments. In several instances overall plans have been developed through the joint action of Federal, State, and local interests for the comprehensive development of the water and associated land resources of major river basins and groups of such basins comprising a larger region. Such overall plans have been completed for the Arkansas-White-Red River Basins in the Southwest and for the river basins comprising the New England-New York complex. The preparation of a comprehensive plan for the Delaware River Basin is currently underway.

The responsibility of the Corps of Engineers for civil works embraces the planning and carrying out, as authorized by Congress, of projects for navigation, flood control, and associated water development purposes. These associated purposes include hydroelectric power, water supply, pollution abatement, the protection and enhancement of fish, wildlife, and recreation resources and improved land use made possible as a result of the flood control (including major drainage) and water supply features of such projects.

The magnitude of the civil-works program may be gaged by the fact that as of June 30, 1956, there were 3,208 active projects which the Congress had authorized to be constructed for a variety of purposes including navigation, flood control, hydroelectric power, water supply,

and associated uses. These projects have an estimated construction cost of \$16 billion. Included in the totals are 2,294 completed or substantially completed projects with a construction cost of \$3.4 billion, leaving 914 projects under construction and those not yet started with an estimated construction cost of \$12.6 billion of which \$9 billion has not yet been appropriated.

At the present rate of appropriations for construction, about \$500 million for fiscal year 1957, it would require more than 20 years to complete the presently authorized program. It is likely that this period will be extended as the Congress very likely will authorize additional projects which are currently under various stages of preauthorization study.

Although the expenditures for Federal civil works are a small part of the total annual construction expenditure, public and private, in recent years, they may have a significant effect on the economy of the areas and regions in which the projects are constructed. This effect would be intensified, of course, during periods when manpower and other resources utilized in project construction would otherwise be underemployed. The principal effects, however, of these projects on local areas and regions, as well as the Nation as a whole, are the benefits they provide on a continuing basis. The major uses and effects of these projects are briefly described in the following sections.

Flood control

A recent study by the Corps of Engineers of 391 projects, which on June 30, 1954, had been in operation continuously over an 11-year period, estimates that these projects had prevented flood damages totaling \$7.3 billion. These projects also gave rise to additional benefits in the form of increased net returns from higher uses of flood plain property than would have been possible without flood protection. But no estimate is available of these benefits. Many of these projects are multiple purpose and, in addition to flood control, provide benefits from water development uses.

Navigation

The navigation element of the civil-works program consists of three major parts: Coastal harbors and channels, Great Lakes harbors and channels, and inland and intracoastal waterways. Navigation facilities provided under this program carry huge tonnages of foreign and interstate commerce and have yielded large savings in transportation costs. Total waterborne commerce of the United States in calendar year 1956 reached a record high of 1,093 million tons.

The Federal Government has improved in varying degrees some 27,000 miles of waterways in this country to provide the most extensive inland navigation system in the world. Traffic on the inland waterway system has grown tremendously over the years, reaching a record high of 109.3 billion ton-miles in 1956, about 3.5 times the traffic in 1946. As a result of the improvement of coastal harbors and channels by the Federal Government, depths of 35 feet generally prevail at major harbors on the Atlantic and gulf coasts, ranging up to 45 feet in New York Harbor; and depths of 30 to 40 feet prevail along the west coast. Harbors and channels of lesser depth have also been provided for commercial and sport fishing, recreational boating, and for use as harbors of refuge. In the Great Lakes, the connecting channels are being improved with depths of 27 and 27½ feet which together with the St. Lawrence seaway currently under con-

struction will provide a continuous channel for oceangoing commerce extending some 2,300 miles inland.

Hydroelectric power

The generation of hydroelectric power is an important feature in a number of civil-works projects. The present installed capacity of all multiple-purpose projects of the Corps of Engineers approximates 5 million kilowatts. The capacity, when the projects presently under construction will have been completed, will be 7.6 million kilowatts. At projects constructed and operated by the Corps of Engineers 18.1 billion kilowatt-hours were generated during fiscal year 1956. Installed capacity at Corps of Engineers projects now operating or under construction at the end of fiscal year 1957 was equal to 38 percent of all electric utility system hydrogenerating capacity and to approximately 8 percent of the total capacity of all sources of the Nation's utility systems.

Development of hydroelectric power in Corps of Engineers' projects in the Columbia River Basin has been a major factor in the industrialization of the Pacific Northwest region. To a lesser extent this has also been true in other parts of the country including the Missouri River Basin and the southeastern and southwestern regions.

Water supply and streamflow regulation

The Corps of Engineers has general legislative authority to modify reservoir plans to provide additional storage for water supply, on the condition that local interests pay the cost of such additional storage, and to make contracts with States or others for the purchase of surplus water that may be available at civil works projects. In this manner numerous communities have availed themselves of the opportunity to obtain needed water supply storage space. The Corps of Engineers is providing a little more than 1 million acre-feet of storage space in 16 reservoirs in the interest of domestic and industrial water supply, which serve over 38 towns and cities. In addition, almost 4 million acre-feet of storage space are being operated either exclusively or jointly for irrigation and other uses.

Public recreation use of project areas

In recent years there has been a phenomenal growth in the recreational use of reservoir areas and of the improved waterways and harbors constructed by the Corps of Engineers. Total attendance at reservoir areas increased from 16 million in 1950 to more than 71 million in 1956 and the rate of increase is still sharply climbing. Already attendance at these projects exceeds the total attendance at all national parks. Some concept of the impact on the local economy may be gathered from the experience at Lake Texoma on the Red River in Texas and Oklahoma. Attracted by boating, fishing, picnicking, camping, swimming, and hunting, approximately 5 million persons visited Lake Texoma in 1954, and expended in this local area many millions of dollars for equipment, food, lodging, and other needs.

THE USEFULNESS OR LIMITATIONS OF CIVIL WORKS PROGRAMS FOR PURPOSES OF STABILIZATION

Timely development and control of the water resources of the Nation is a basic requirement for sustained economic growth. A rapidly growing population, higher per capita use, and greater demands in

both industry and agriculture are placing a heavy strain on existing water facilities. Water resources developments must keep pace with, and preferably should anticipate, these growing demands if water is not to be permitted to become a limiting factor in the economic growth of communities, regions, and the Nation as a whole.

Water is a prime necessity in implementing advanced industrial technology in production for both civilian and military needs. Increasingly industry is seeking locations along major watercourses which assure adequate water supplies and low-cost transportation of bulk commodities. But, such industrial developments involve large capital investments which are feasible only if such locations are provided a reasonable degree of protection against serious flood damage.

The backlog of authorized civil works, totaling at present some \$9 billion and including projects in all sections of the country, constitutes an important segment of needed Federal public works available for accelerated construction should conditions warrant. In the construction of these projects large quantities of fabricated materials and machinery, as well as on-the-site labor, are utilized thus benefiting employment throughout the economy.

THE STANDARDS EMPLOYED BY THE CORPS OF ENGINEERS IN DETERMINING THE KIND AND SIZE OF CIVIL-WORKS PROGRAMS REQUESTED

Most civil-works projects are undertaken by the Corps of Engineers only upon specific authorization by the Congress. Plans for works of improvement are prepared by the Corps of Engineers when authorized by an act of Congress or by a resolution of the Senate or House Committee on Public Works authorizing a review of a previous report of the Chief of Engineers.

An initial step in the preparation of the project report is a public hearing at which local interests are afforded full opportunity to express their views on the character and extent of the improvement desired and on the need and advisability of its execution. After careful analysis of the data obtained from local interests and developed through field and office studies, a plan of improvement is devised best suited for solution of the problems under consideration and the area in question. Consideration is given to optimum use of the water resources of the area through multiple-purpose development. Generally separable features are included to the extent that the benefits resulting from their inclusion equal or exceed the added costs, in order that the project may provide maximum net benefits from the development of the water resource. Before completing his report, the Chief of Engineers invites the comments of the affected States and other interested Federal agencies.

Over the years the Corps of Engineers has participated in the preparation of plans for the comprehensive development of the water resources of a number of river basins, including, among others, the Columbia River Basin, the Missouri River Basin, the Ohio River Basin, the Arkansas-Red-White River Basins, and the New England-New York region. These basin plans provide a broad framework for the consideration of specific project proposals.

The rate at which projects comprising the active backlog are initiated and carried to completion is geared to overall budgetary considerations. Within these broad limits, the urgency of needs and local interest are factors of primary importance in project selection.

FEDERAL EXPENDITURES FOR TRANSPORTATION

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Some of the specific questions set forth by the Subcommittee on Fiscal Policy in its "outline of study" as submitted to the panel participants have a very pertinent bearing upon Federal expenditures for the provision of basic transportation facilities such as highways, waterways, and airways. Indeed, the questions are so opposite to conditions in transportation as to suggest the thought that they could well have been designed with particular reference to basic problems in transportation and the Federal Government's role in regard to them.

Among such questions the following are particularly appropriate in reference to transportation: As a practical matter, are there any standards which can be applied to determine what kind of activities should be undertaken by government, in what amounts and at what rates? For example, are there any practicable economic criteria for comparing demands for public services with private demands? Are there any standards for determining the kind of government programs and the way in which they are conducted so as to minimize government interference in decisions by business and consumers about use of resources? What standards can be applied for determining whether specific programs proposed to be undertaken by the Federal Government are economical? For example, how can any such standards of economy in government be applied in deciding whether a specific program should be undertaken and the size of the program in relation to other Government activities? In what sense can a government spending program be described as wasteful? What considerations should enter into decisions about the level of government (Federal, State, or local) at which public functions are undertaken?

These are major issues affecting transportation and, considering the growth tendencies of Federal programs involving expenditures on behalf of transportation, they are important from the standpoint of the general Federal budget as well. Such expenditures also have a significant relationship to the economic growth objectives of the Employment Act, if for no other reason because that act, soundly construed, must be concerned not merely with growth, as such, but with growth that is economic growth and not just more activity.

The fact that such questions as those presented so persistently come up with reference to government expenditures on behalf of transportation indicates an awareness of the need for better means than we now have for testing such expenditures in economic terms. Basically the problem is the allocation and utilization of resources in transportation for true economy, considering all of the costs that are incurred. Resource conservation and economy are no less essential when transportation facilities are provided by government expendi-

tures than when they are provided through private channels. Unfortunately, however, gross deviations are more likely where Government expenditures are involved, with the result that serious distortions from standards of real economy in competitive transportation occur.

While the fundamental problem of economic allocation and utilization of resources would exist even if all transportation facilities and services were provided by the Government, the consequences of uneconomic allocation and utilization are especially disturbing where, as is the actual case, some basic transportation facilities are provided through public expenditures and some through private undertakings. Under these conditions, public expenditures backed by the taxing power create a serious threat to successful competition by those means of transportation that are privately financed and that, in addition, must pay their share of general taxes. Although those who operate on basic transportation facilities provided by government do pay certain general taxes, they do not pay any taxes or make any payments in lieu of taxes on the publicly financed facilities they use. For common carriers, this tax disparity is compounded by another—the war-emergency transportation excise taxes on freight and passengers which still remain in effect more than a decade later. Private transportation bears no such taxes.

So the question is: What can the Government do to foster and maintain an environment of economic neutrality with respect to transportation, recognizing that the Government is, and in all probability will continue to be, deeply involved in spending programs for the development of basic transportation facilities of various kinds? Or, as the subcommittee's outline very aptly poses the question: Are there any practicable economic criteria for comparing demands for public services with private demands and are there any standards for determining the kind of Government programs and the way in which they are conducted so as to minimize Government interference in decisions by business and consumers about use of resources?

To forestall any possible misunderstanding perhaps it should be acknowledged immediately that perfection in the allocation and utilization of transportation resources can hardly be expected either as to Government expenditures or in private sectors of the economy. Miscalculations and misjudgments in commitments of capital and spending will, of course, sometimes happen. This is really only another way of saying that our economy is a profit-and-loss economy. But certainly this does not mean, either, that all we can rely upon is whim, group, or sectional pressures, and guesswork. Where we can substantially improve upon the economic processes of decision making and reduce the errors in resource commitment there is every reason to do it.

TRANSPORTATION USER CHARGES

There can hardly be any question but what the principal defect now existing in the policies and standards by which Government expenditures on behalf of transportation facilities are determined can be very substantially corrected. This defect is, in all too many situations, the lack of a sensitive connection between spending for and paying for transportation facilities provided by the expenditure of Government funds obtained from general tax revenues. In these circumstances the costs involved have little or no influence upon those who seek

Government expenditures for their own advantage in private or commercial transportation operations. Those who urge the provision of transportation facilities for their use and advantage cannot even be said to represent a true "demand," for the economic concept of demand has meaning only in relation to a price or cost. Thus, for example, when a steel company, or oil company, or coal company, or perhaps all of these and others similarly situated seek a waterway improvement from the Government at a cost to general taxpayers but not to themselves, they do not in a true sense constitute an economic demand. The economic discipline of cost fades into the background and, then, decisions are made primarily through political activity rather than in terms of economic calculation. We do not know what the demand for subsidized transportation actually is, nor is there any satisfactory way of finding out so long as those who petition for and use the facilities are not required to pay the costs.

It is for these reasons that the costs of transportation facilities and services provided by Government expenditure need to be brought out of hiding and registered effectively at the point of business and consumer decision by requiring compensatory user payments from those who use such facilities and services. A simple expression of this principle may be stated as follows: Users of transportation facilities and services provided by Government expenditure should have such facilities and services only to the extent that they pay for them in compensatory charges.

The answer to the question of whether transportation user charges would help to bring about a more economic allocation of resources in transportation seems very positively in the affirmative. In short, this policy would afford substantial relief from political pressures for uneconomic projects and spending programs because sponsors' recommendations to the Congress would be made on a more realistic economic basis.

Reimbursement of the costs by compensatory user charges would also establish a sounder competitive basis for the utilization of available alternative means of transportation according to relative economy, all costs considered. Without such charges, shippers and consumers cannot make unbiased economic choices in deciding which mode of transportation to use in particular situations, for they will, of course, take no account of hidden subsidy costs from which they are relieved and which instead are borne by taxpayers. Their choices are misguided or distorted choices and, as such, they foster not economy in transportation but diseconomy resulting from misdirection and misutilization of transportation resources. Such diseconomy can only mean that, in the aggregate, transportation costs are increased, not decreased. Yet the belief dies hard that subsidized transportation is cheap transportation.

This discussion is particularly concerned with expenditures and compensatory charges for transportation facilities and services. Doubtless there are other important areas where prices for services received rather than general taxes would be a superior economic tool in financing and controlling government spending,¹ particularly where

¹This and other aspects of Government spending and its control are discussed by C. Lowell Harriss, *Government Spending: Issues of Theory and Practice*, Public Finance, international quarterly journal devoted to the study of fiscal policy and related problems, No. 1, 1957.

the users are identifiable, the uses are measurable, and the objectives of policy can be attained by this means of financing. The user-pay principle does not, of course, offer a universal solution or panacea for problems of effectively directing and controlling Government spending in all areas of Government activity. It would hardly be appropriate in public-school financing, for example, because our basic objectives of universal education could not in this way be achieved. Nor would it be effective in respect to the maintenance of public law and order, the national defense, or carrying out the objectives of certain welfare programs. With respect to penal institutions and houses of correction, the user-pay principle would, most certainly, break down.

Transportation, however, presents about as clear a case as would be possible to conceive for application of the user compensation principle. In present-day transportation in this country, with the several alternative modes now available to meet our requirements, economic criteria should have a greater role than they do under prevailing policies and methods of financing. This is not a matter of advantaging one means of transportation as against another; quite to the contrary, general application of the user compensation principle would go far toward establishing an environment of economic neutrality. In transportation, noting once again the terms of reference in the subcommittee's outline, these are "the standards for determining the kind of Government programs and the way in which they are conducted so as to minimize Government interference in decisions by business and consumers about use of resources."

Although this conclusion respecting user charges has had increasing acceptance, both inside and outside the Government during three President administrations and in numerous committees of Congress over the past 20 years or more, effectuation of the user-pay principle has been slow and erratic. We continue to have what may well be called chronic subsidies in transportation not because there is any longer a basic need for them in order to have a sound and adequate national transportation system but, rather, because please and pressures for their continuation are so strongly exerted by those who reap special economic advantage from them. For example, the infant industry argument is stretched almost beyond recognition and then is subtly transformed into a further development contention in which each new stage of development takes on the cloak of infancy. A closely associated rationalization is that a superior means of transportation should be nurtured by Government support in order to fulfill its promise, overlooking the fact that prolongation of subsidy makes the true determination of relative economic superiority impossible. There is also the kind of argument stemming from historical analogy in which the major premise is that what was done a hundred or more years ago or from time immemorial ought to be regarded as a model or standard of policy now and for the future, in total disregard of differences in conditions which make such historical comparisons invalid today. Still another perennial favorite among the contentions for subsidy is that the tax-supported mode of transportation makes a contribution to the national defense, which may well be true as far as it goes but overlooks the fact that each mode of transportation and every important segment of the whole economy adds something to our total national strength and security.

Finally, there is the contention that the particular mode of transportation for which subsidy at taxpayers expense is being urged will diffuse indirect benefits throughout the national economy and because of this diffusion transportation users should not be required to bear the costs. Diffusion of indirect benefits is, of course, not a unique but very general phenomenon in an interdependent economic system. All forms of transportation and, for that matter, all worthwhile types of economic activity have this common characteristic; it is not peculiar to any one of them. This fascinating theory of diffused and indirect benefits as a basis for financing transportation and other economic facilities and services has startling implications if we imagine its application as a general policy throughout the economy. Consider, for example, the consequences of applying it to steel, to coal, to aluminum, to telephones, to automobiles, and to a host of other goods and services that might, by some standard or other, be regarded as generally beneficial. At least we can be sure that this would play havoc with the functioning of the price system.

Whether in transportation or elsewhere, indirect or diffused benefits are no justification for spreading subsidies around wherever such benefits can be indicated. Moreover, the best transportation facility for a given purpose will, all cost and services considerations accounted for, contribute the most in diffused or indirect benefits to the economy generally. Should it then receive the most bountiful subsidy, whether or not it is needed for successful performance?

These indirect and diffused benefits are really the eventual product of transportation. If the costs are borne directly by the users, they will either absorb them for the services they receive or pass them on to others as a component part of the price of economic services or goods supplied to others. This, in the usual course of our price-cost economy, is the proper (i. e., consistent with economic allocation of resources in a competitive economy) way for transferred, indirect and diffused benefits to be brought into relation with the stream of economic costs. When this fundamental requirement of real economy is made effective, we shall have the essential basis for an unbiased allocation and utilization of resources in transportation.

A reasonable regard for brevity does not permit here any detailed analysis of the various Government spending programs for basic transportation facilities such as highways, waterways, airports, and airways. However, some further observations regarding certain of these transportation programs are especially pertinent to the questions presented in the subcommittee's outline.

THE EXPANDED FEDERAL-AID HIGHWAY PROGRAM

Although Federal grants-in-aid to the States for highway development had been established policy on a limited scale for many years, the much greater magnitude of the new program which eventuated in the Federal-Aid Highway Act of 1956 called for a searching re-examination of policy issues, and especially for a realistic determination of how the very large outlays proposed could be paid for. Up to that time there had been no definite plan for financing Federal highway aid and there was no specific connection between the Federal spending for highways and required payments by highway users to support such spending, although contentions had now and then

been advanced that the proceeds from some of the existing general fund excise taxes could be regarded as serving that purpose.

In the early stages of considering proposals for an expanded Federal highway program virtually all attention was centered on highway needs, with very little on financing that would involve additional levies with which to pay for the proposed expenditures. Not until this approach was substantially reversed and the matter of sound financing was definitely confronted did a feasible plan begin to emerge.

Only a few of the significant provisions of the 1956 act can be touched upon here. There were certain notable achievements, however, that merit particular emphasis in the context of this subcommittee's search for improved standards of governmental expenditures.

The first of these accomplishments is the requirement of the act that Federal expenditures for highway aid shall be covered entirely by revenues from charges levied upon highway users, with a trust fund of receipts from user charges set up to assure that this requirement is met. Since the conditions and principles involved are essentially the same, consideration might well be given to applying this trust fund control plan to the financing of government expenditures on behalf of waterway and airway transportation facilities as well as to highway facilities.

In the 1956 Highway Act Congress also provided that operators of large and heavy vehicles on the highways shall pay special user charges in addition to the kinds of charges imposed on passenger automobiles and other ordinary vehicles. Although the scale of the special charges adopted was modest, in principle at least the extraordinary responsibility of large and heavy vehicles for highway costs was recognized despite very strenuous opposition from the commercial trucking industry.

Also, for the first time, Congress in the 1956 act found it necessary to impose limits upon the dimensions and weights of vehicles permitted to operate upon the Interstate System of Highways, in order to protect the highway investment and to prevent a continuing upward spiral of increasing vehicle sizes and weights, and of the resultant highway standards and costs that would be necessary to accommodate such vehicles. As the House and Senate committees proceeded in their deliberations on the highway problem, they foresaw the pitfall of an open-end commitment to provide evermore costly highway facilities for vehicles of ever-increasing weights and dimensions.

Congress also recognized that it had not reached final answers in its first action on these problems. Accordingly, the Secretary of Commerce was directed, through the Bureau of Public Roads, to conduct further investigations of these and related matters. Studies now being conducted, particularly under the directives of section 210 of the act, involve a consideration of the effects of vehicle sizes and weights on highway costs. This section of the act further directs the Secretary of Commerce and his aids to study and report on "indirect benefits" from highways "in addition to benefits from actual use of such highways." It will be interesting to see what findings this analysis of "indirect benefits," a subject referred to elsewhere in this paper, may bring forth.

THE ST. LAWRENCE SEAWAY

Provisions of law, in both the United States and Canada, authorizing joint development of the St. Lawrence seaway require that its costs be self-liquidating from tolls upon the users. Although prior to authorization sponsors of the project gave unreserved assurances that the navigation project would easily be self-supporting and involve no costs to taxpayers, some prospective users, now that the waterway is approaching completion, express misgivings as they press for low tolls in disregard of the costs to be met.

While this turn of events is not altogether surprising where a government-financed project is involved, the implications are nonetheless significant. If, as some of the sponsors and prospective users of this project now contend, it cannot be self-supporting, as contemplated, this would necessarily mean that it is not an economically sound transportation facility. The seaway as a navigation facility can provide nothing except transportation and no amount of emphasis upon "general benefits" could change this fact or elevate an otherwise uneconomic facility to the status of economic soundness. Those who now contend that the seaway cannot pay its costs and who make appeals to various "general benefits" in an attempt to avoid adequate toll charges would do well to consider the economic implications of their position and to note in this connection the following penetrating analysis with reference to waterway projects generally, as contained in the report of the task force on water resources and power of the (Hoover) Commission on Organization of the Executive Branch of the Government:

* * * Facilities solely for navigation provide transportation, nothing else, and all of the intangible benefits must necessarily be derived from a waterway improvement as an instrument of transportation. The essential fallacy of bringing intangible benefits into the reckoning as additional factors is that they beg the entire question of whether a proposed waterway facility will actually be an economically sound transportation alternative and they, therefore, lead to multiple counting of the alleged economic benefits twice if not more than twice.

The sound promotional development of industry, of agriculture, of higher living standards and of the economy generally depends upon the economic utilization of available resources on the basis of alternatives available or capable of development. A waterway that is deficient when measured in terms of economy as a facility for transportation cannot be given any real justification by adding on so-called intangible benefits to give it greater validity, for the reason that the other forms of transportation which are existing or potential alternatives to it likewise provide such collateral and intangible benefits and, obviously, the best economic facility as an instrument of transportation will contribute to such intangibles to the maximum extent * * *²

² Commission on Organization of the Executive Branch of the Government, Task Force Report on Water Resources and Power, June 1955, vol. 3, pp. 1317, 1332-1333, Evaluation of Federal Navigation Projects, by Charles D. Curran, task force administrator. See, also, in the same volume, pp. 1299-1316, User Charges on the Waterways of the United States, by John H. Frederick.

In an economic appraisal of the seaway project there are still other circumstances to be considered. Under existing policies, users of the seaway are to have the use, without charge, of improvements by the United States in the connecting channels and harbors of the Great Lakes. Also, electric power is to bear all of the common costs of this joint power-navigation undertaking, with no share of such costs assigned to the transportation function. If transportation through the St. Lawrence seaway cannot even bear its own direct or separable costs, then the seaway shapes up as an extremely dubious economic venture in transportation and as a waste of economic resources.

FEDERAL AIDS TO AIR TRANSPORTATION

The economics of air transportation has from its beginning been closely interwoven with advances in military aviation, as the spectacular development and operation of modern aircraft has been spurred by tremendous expenditures of public funds required for the national defense and security. This intrinsic relationship, stemming from the fact that the basic tool of air commerce is also a primary military instrument, will continue indefinitely. It has, of course, already contributed very greatly to the rapid growth of civil air transportation.

Especially in view of this very substantial intrinsic advantage and impetus, there is all the more reason to question the justification for continuing, in addition, to bestow upon civil air transport subsidies and aids that were initiated as temporary expedients when air commerce was a fledgling activity and industry many years ago. As yet, however, little progress has been made toward the elimination of such special aids to civil air transportation so as to place it on a sound economic basis of self-support.

While most of the domestic airlines now receive "service rates" of mail pay that are considered to be free of subsidy, some are still on a subsidy basis and all of them continue to be eligible for subsidy under the "need" provision of the Civil Aeronautics Act of 1938, which stands unchanged.

Federal expenditures for airway facilities and services, and for airport aid, have increased in recent years along with the growth of air traffic, and further substantial increases have been programed for the years ahead.³ Still, although the matter has been under consideration for some time, no policy has been adopted which would require the commercial airlines and private flyers to pay in compensatory user charges a reasonable part of the costs⁴ of these federally financed facilities. In its present form and at the present rate the existing Federal excise tax on motor fuel, which applies to aviation gasoline as well as to other grades of gasoline but not to kerosene as used in jet engines, would not serve as an adequate user charge for aircraft and has never been designated as such by Congress.

This matter of airway and airport user charges seems likely to come before Congress in the near future. When Mr. Lewis S. Rothschild,

³ Civil Aeronautics Administration, Federal Airway Plan, Fiscal Years 1957-62, December 1956.

⁴ The Federal airways also serve military aircraft, so that some apportionment of the costs is indicated.

Undersecretary for Transportation, Department of Commerce, appeared before a subcommittee of the House Committee on Appropriations on March 13-14, 1957, he stated:

* * * We have been taking a hard look at the possibility of instituting user charges in the field of air facilities, and we believe that our studies are sufficiently far advanced so that we can see a feasible way of adding user charges.

Within the present session of the Congress we expect to be up here to give you our ideas as to how a substantial part of this money can be recovered through the medium of user charges.⁵

⁵ House Committee on Appropriations, hearings before the subcommittee on Department of Commerce appropriations for fiscal 1958, 85th Cong., 1st sess., pp. 222-223.

THE FEDERAL HIGHWAY PROGRAM

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Of all Federal expenditure programs, the highway program has undergone the most drastic change in recent years, with the enactment of the 1956 Federal highway legislation. The net result is not only a sharp increase in the level of Federal spending for this purpose and in the relative role of the Federal Government compared to that of the States in the highway field, but also in the philosophy of Federal highway finance, which for the first time links levies on highway users with highway expenditures. The program has been widely hailed as a solution to one of the most pressing problems of the present decade; namely, that of traffic congestion. However, several major questions can be raised with respect to the program as it stands, in terms of widely accepted principles of government expenditures and intergovernmental fiscal relations.

The relative roles of the Federal Government and the States in highway finance

Traditionally the financing of highways has been primarily a State-local function, with the States having come to play a dominant part after 1920. The Federal Government first entered the field on a permanent basis in 1916 through the provisions of grants-in-aid to the States for highway construction. While the grants grew in importance over the years, several basic rules were carefully adhered to: (1) The retention of primary responsibility for highway development and financing in the hands of the States, (2) the matching of Federal and State funds on a 50-50 basis for primary highways, (3) the allocation of funds on the basis of a formula geared to expenditure requirements without regard to financial capacity of the States, and (4) the treatment of the expenditures by the Federal Government as a regular budget expenditure, in no way related to revenues from taxes levied upon products, such as gasoline, related to highway use. These were regarded as general revenue levies.

The Federal grant program was designed primarily to stimulate the States to increased highway activity, and particularly to the completion of interstate highways, some links of which were of little concern to the States directly involved. There was almost universal acceptance of the view that the Federal program had been successful in accomplishing its goals. By 1950, however, there had developed two divergent points of view with respect to the future of the Federal highway program. Some State officials—governors particularly—argued that the program was no longer necessary, and that the grants and the Federal levy on gasoline should be eliminated, entire responsibility being returned to the States. On the other hand various groups interested in highway development urged an increase in the Federal program.

This latter point of view won out in the establishment of the 1956 Federal program. The sharp increase in Federal highway expenditures, with 90 percent Federal financing on the interstate network, and increased control over State highway policy, has greatly increased the role of the Federal Government and essentially established a truly Federal highway system, although actual operation, technically, rests with the States.

Without question the new program will speed the rate of highway construction, particularly on the most urgently needed routes between major cities and in urban areas, and on this basis it has been widely hailed as desirable. However, serious doubt can be raised about the justification for such a sharp increase in the role of the Federal Government in this field. A long standing and almost universally recognized rule in the field of intergovernmental fiscal relations is that of the desirability of placing the conduct of each function at the lowest level of government consistent with efficiency of operation and adequacy of financing. In the case of functions in which higher levels of government have some obvious interest, the extent of their participation in financing and control of the activity should bear as close a relation as possible to their relative interest compared to that of the Government in the hands of which actual performance of the function rests.

So far as highways are concerned, the placing of primary responsibility for them in the hands of the States obviously permits adequate efficiency in performance of the function, probably greater efficiency, for the most part, than would be obtained if the function were placed at the Federal level. Secondly, the States have tax sources, primarily the gasoline tax and license fees, which are capable of providing large sums of money for highway finance on the basis of allocation of tax burden according to the benefit rule, which is generally regarded as most equitable in this field. Finally, no extreme "poor versus rich" State problem is encountered, since, in general, the States with the greatest highway needs, per capita, are those with high per capita incomes, and thus extensive car ownership and usage. Some States with very extensive highway mileage per car-mile have somewhat more difficult problems, but the argument for equalization is minor compared to that in such fields as welfare and education.

The original Federal highway-grant program had been introduced essentially because of the slowness with which some States had moved in the development of their State highway programs, and was justified on the grounds that the Federal Government had some interest in an adequate national highway network, for reasons relating to national defense and other factors. But the limitation of the scope of the Federal participation recognized the paramount role of the States. But the 1956 program involves essentially the replacement of basic State financial responsibility by Federal responsibility, so far as the interstate network is concerned. This is difficult to justify on any of the possible bases:

1. In general no greater efficiency in construction and operation is made possible. The Federal Government can enforce certain uniform rules, such as limitation of access, on which State practice might differ, but it is very questionable if the substitution of Federal for State judgment in this field is desirable. The argument over bill-

boards is a case in point. While much can be said for restricting billboards which obscure scenery, in many instances they provide useful information (about motels, etc.) and in other instances help to break the monotony—one of the worst evils of the modern superhighway, which is an excellent means of getting quickly between two points, but deadly monotonous for long-distance continuous travel. In any event a strong case can be made for leaving such decisions in the hands of the States.

2. The Federal Government has no significant additional tax sources for highway finance which the States cannot tap. The Federal program relies primarily upon the gas tax and the truck-use tax, both also imposed by the States; the use by the Federal Government hinders increased State reliance on them. The disadvantages which the States suffer with certain types of taxes, such as the income tax, are not found to any degree with the highway levies.

3. There is in general little or no need for equalization, certainly beyond that provided by the pre-1956 programs. In a general way the States with the most urgent highway needs are the heavily populated, high income, high gas-consumption States, which are most competent to finance their road needs. Some Federal assistance to States with peculiar problems is without question justified, but not to the extent of the 1956 program.

Why, then, did the Federal Government increase its encroachment in the State field to such a great extent? The answer is obvious—the inertia of the States, their failure to increase highway-user levies and adjust highway-fund allocation formulas adequately to permit the construction of urgently demanded highways. The history of State policy in this field is well known, and need only be summarized. Road usage greatly increased in the postwar years, particularly on major intercity routes. Costs of construction rose much more rapidly than gas-tax yields, partly because of the specific rate of the gas tax. Many major roads were obsolete, and completely new roads were necessary. At the same time, formulas for allocation of State highway-user levies gave far too much to rural roads and far too little to major intercity routes and urban expressways, relative to needs.

On the other hand, the States were reluctant to make adequate increases in highway-user tax rates, for several reasons. One was the frequent commitment of governors and legislators against any tax increases, regardless of their nature. Another was the practical political difficulty in changing the obsolete formulas, which would have given a large portion of any tax increase to roads other than those for which the need was most urgent. A third was the frequent vigorous opposition of highway-user groups and oil companies to the increases, partly because of the obsolete allocation formulas. In some States fights over relative increases on various types of users and allocation of increased revenues between States and localities tied up action. Actual policies, of course, varied widely among various States. A number turned to the toll principle to finance most urgently needed routes, but this principle was of limited potential application. A few, such as California, made substantial increases in expenditures for highways. But on the whole many States lagged seriously in meeting highway needs.

As a consequence of State inertia, increasing pressure was placed upon Congress to take action. The administration, although in gen-

eral committed to a philosophy of restricting increases in Federal activities relative to those of the States, accepted the recommendations of the Clay committee for greatly increased Federal participation and urged enactment of the enlarged program. This experience should serve as a warning to the State governments, particularly to State officials complaining about Federal interference in State spheres of activity: If they wish to maintain their autonomy in various fields they must take action to meet the demands of the people for services in the field; otherwise, almost certainly, the Federal Government will move in by default.

What of future Federal-State relations in this field? It is likely to be very difficult for the Federal Government to back out of its heavy involvement, especially in light of the long-term nature of the program established. It is very doubtful if the program will expire in 1972 or in any year in the foreseeable future; State experience has long ago demonstrated the fact that the task of highway building is a never ending one, not one of building one set of highways. In terms of a logical division of functions, the Federal Government should seek to reduce its participation concomitant with an increase in State activity, with decreases in both Federal expenditures and highway-user taxes. But in practice this result is difficult to attain. On the whole, the experience of recent years in the highway field demonstrates very well the problems of obtaining an allocation of functions on any logical basis, and of the importance of expediency and inertia in influencing allocation.

The determination of the level of Federal expenditures

Granted the degree of Federal participation, there remains the question of the determination of the actual level of Federal expenditures. The figures have been in a sense predetermined for a 16-year period in the 1956 act, which was based largely on the findings of the Clay committee. The whole procedure thus far and the structure established for the coming years are of such nature as to preclude any rational calculation of the desirable level of expenditure relative to that for other purposes. There are several facets:

1. The program was based primarily on the Clay committee recommendations. This committee essentially studied the highway needs in an absolute sense, seeking to ascertain the expenditures required to bring the highways up to a certain engineering standard. The committee, several of whose members were directly affiliated with highway transport and construction, was inevitably highway minded, and was in no position to balance highway needs against needs for other governmental and private activities. It is difficult to arrive at a reasonable balance of governmental expenditures for various purposes by any means, but this certainly cannot be done when a particular activity is considered without reference to competing needs, present and future. There can be little argument that many of the new roads envisaged under the program are vitally needed, relative to other possible expenditures. But some persons who have studied the program believe that the projected standards are unnecessarily high in some instances. Many present roads are reasonably adequate for the traffic which they carry; while construction of them to four-lane standards may be "nice," it may be much less important, on any objective evaluation, than expenditures for other purposes. One example is the rule

that there must be no rail crossings at grade; this can produce the ridiculous result of spending perhaps \$300,000 to carry a highway across a branch-line spur on which a freight train moves twice a week. A grade crossing with an adequate warning system might be much more sensible economically.

It must always be kept in mind that in conditions of full employment, one activity cannot be increased without a sacrifice of other activities, private or public. If we have more highways we must have less of something else. A reasonable optimum level of highway construction can never be determined without reference to competing needs—yet essentially this has been done in the Federal highway program.

2. The establishment of a fixed program of expenditures by year for the period extending until 1972 tends to rigidify the annual expenditures, regardless of changing needs and changing economic conditions, as noted in the following section. Obviously the figures set are subject to change, but the establishment of them in the law introduces a rigidifying influence.

One factor, continued inflation, will make change in the figures almost inevitable. Already it is becoming obvious that the original sums of money will not permit the building of the planned roads because of higher costs.

3. The establishment of the highway trust fund removes the revenue and expenditure figures from the budget. The result is a further lessening in the opportunity to reconsider highway needs in terms of needs for other governmental activities. In addition the significance of the budget figure as an indicator of Government expenditures is reduced. The States have found earmarking possible without the establishment of separate trust funds; the Federal Government should have likewise. The actual procedure results in very misleading picture of trends in governmental expenditures and the relative importance of various functions.

Full utilization of existing roads

In terms of the overall highway program of the country, one of the serious defects has been the failure to utilize to greatest capacity the existing road and street network; the choice is often considered to be one between present routes as they operate against superhighways, without adequate regard for improving the capacity of existing roads. During past decades two horrible errors were made in highway planning: The routing of highways through the main streets of cities and towns, and the failure to control access to main highways, with consequent ribbon development and congestion. Many present-day routes are reasonably adequate if these bottlenecks can be removed, as, of course, they have in part, though not to an adequate extent. Other roads would be much more tolerable if passing lanes were added at intervals of a few miles, so that cars would not be bottled up indefinitely behind slowing moving vehicles.

A large part of the utilization difficulty, however, rests with defective traffic-control legislation. The whole philosophy of control has been one of slowing down traffic, based on the notion that drivers typically go too fast if not controlled, rather than one of facilitating the movement of traffic at speeds consistent with safety. Speed limits are frequently set excessively low; long experience has demonstrated

that these cannot effectively be enforced, but since some drivers will obey them, the flow of traffic is slowed down, and accident hazards increased. Forty-five-mile limits on main highways and 20-mile limits on arterial streets in suburban areas are as obsolete as the car of 1905 for which they were designed. On the other hand, almost no use is made of effective minimum speed-limit requirements, which would perhaps do more to facilitate the movement of traffic and reduce accidents than any other move. In urban areas the use of 4-way stop signs instead of timed signals is a major source of delay, as is the failure to time signals properly, and use of signals and stop signs for the deliberate purpose of retarding the flow of traffic.

It is not necessarily argued that it is within the proper sphere of the Federal Government to attempt to force action on the part of the States on these questions. But the failure of the States and local governments to act has directly resulted in higher Federal expenditures for highways than otherwise would be required, and some greater effort to obtain cooperative action might be attempted by the Federal Government.

Fiscal policy implications

The long range Federal highway program has significant fiscal policy implications; while it offers potentialities for aiding the attainment of economic stability, as it is now formulated it offers greater danger of increasing instability, particularly by contributing to further inflation. The program has unfortunately been planned without regard to the state of economic activity. To the extent to which inflationary pressures continue over the next several years, the increased highway expenditures will tend of course to aggravate the upward spiral. This will be offset to a certain extent by increased collections of highway user levies, but these will in part enter into business costs (truck user levies, for example), and thus the anti-inflationary effect weakened. In other words, a period of continuing inflation is, from a fiscal policy standpoint, an undesirable one in which to increase governmental expenditures of this type. On the other hand, however, the construction of urgently needed roads cannot be postponed indefinitely, inflation or not. Should large-scale unemployment develop in the immediate future, the program would of course prove to be a stabilizing one.

On the whole, while fiscal policy aspects cannot be permitted to dominate the shaping of a program of this type entirely, it should be possible to build certain stabilizing influences into the program, by varying the annual expenditures in terms of the state of business conditions. The most urgent projects must be built regardless of inflation, but the less important ones can be postponed for a time to determine if unemployment does develop. In depression periods the rate of construction can be speeded up materially; the program essentially provides a backlog of depression projects of a highly useful character, if it is properly employed. It must always be kept in mind that many highways and other projects which are marginal or submarginal in periods of full employment and inflation may be economically justifiable in depressions, in which necessary manpower and other resources would otherwise be idle.

The special problem of urban traffic congestion

The most pressing highway problem is that of extreme rush-hour congestion in large metropolitan areas, one so bad that it brings traffic to a complete standstill at times, and causes serious loss in time. This is likewise the most difficult and expensive to solve, because of the high cost of new expressway construction in metropolitan areas. A substantial portion of the new Federal highway expenditures will be devoted to this problem, in contrast to past policy, by provision of large sums for the building of urban area expressways.

Unfortunately, however, there is increasing doubt on the part of many experts in the field whether expressways, although highly desirable in many instances, will solve the problems. The construction of them often merely shifts the point of congestion and increases chaos in the downtown areas by pouring still more traffic into streets of limited capacity. Basically the automobile is a highly inefficient device for carrying large numbers of persons into a congested area in a short period of time; rapid transit facilities of some form are much more effective, and, where available, preferred by large numbers of persons for travel to and from work and shopping, although typically the persons prefer the use of their cars for other forms of travel.

Unfortunately, however, such facilities are almost never in themselves profitable, and therefore additional ones cannot be built by private enterprise; even existing ones, built at much lower cost figures, are typically unprofitable. From an overall cost standpoint, however, it may be far cheaper to build additional transit facilities and insure continued operation of existing ones than to concentrate expenditures on expressways alone. But unfortunately the Federal program provides for aid for expressways only, and thus not only fails to aid the metropolitan areas in the determination of the optimum solution to their traffic problems, but actually favors one method over the other—one which in many instances may prove in the end to be self-defeating.

Quite apart from new facilities is the question of maintaining existing services, particularly railway commuter service into large cities. This service is typically unprofitable, and is clearly constituting a drain on the none too adequate earnings of the railroads from other services. This is a minor problem for a large and relatively profitable system with limited commuter service, such as the Burlington; it is a very serious one for such roads as the Long Island, the Pennsylvania, the New York Central, the Jersey Central, the New Haven, and the Chicago & North Western.

Almost certainly a crisis will arise in this field in the next decade; without public support this service will face abandonment; yet such an occurrence would have catastrophic effects on traffic problems in such cities as New York, Boston, Philadelphia, and Chicago. The notion that rail commuter service is "obsolete" and "outmoded" is not borne out by the facts, nor by the evidence that despite the great increase in auto ownership, rush-hour rail commuter service has remained very stable for a number of years, and in recent years has tended to rise.¹ The same pattern is found on rapid transit lines of

¹ Passenger-miles traveled by railway commuters have increased each year since 1954 and are now substantially higher than the 1936-40 average, despite reduced service available. These figures obscure the rise in rush-hour traffic because of the tendency of non-rush-hour traffic and that on Saturdays to fall.

most metropolitan areas, while surface lines, caught in the same congestion that has strangled auto traffic, have lost business sharply, despite extensive modernization.

It is highly desirable that so long as the Federal highway program is committed to aid in solving the urban area traffic problem it assist not merely expressways but rapid transit facilities as well. While these are not profitable in themselves (as many highways would not be if operated on a toll basis) their contributions to the lessening of traffic congestion and thus of expenditures on expressways may be very significant, and render them entirely justifiable, economically. This is not to suggest, that expressways should not be built, but merely that Federal assistance be given to the development of an integrated system of both expressways and rapid transit facilities, using each to the optimum, so far as the latter can be determined.² The present one-sided policy may easily aggravate the problem it sets out to solve.

Other aspects of passenger transportation policy.

Apart from the question of highway expenditures is that of Federal expenditures for other forms of transportation, particularly air transport. The Federal Government has provided significant assistance in the development of commercial air transport, to the point at which most of the major airlines are now able to stand on their own feet financially. As a consequence of the rapid growth in air transport, rail intercity passenger transport has lost ground rapidly, until the point has now been reached at which some experts feel that intercity rail passenger service will vanish entirely, except in special circumstances, over the next several decades. Federal policy of aiding the airlines has of course contributed to this decline, as have certain other policies, such as increased trucking of mail by the post office in recent years. The time has come at which overall Federal policy affecting passenger transportation generally needs review. There has been a tendency in the past to aid one type of service without regard to the effects of the aid on other forms; an integrated review of the whole question, in terms of the requirement for various forms of passenger transport in light of defense and other needs, is required.

SUMMARY

1. The Federal highway program established in 1956 will undoubtedly stimulate highway development. But it involves a very substantial increase in the scope of Federal relative to State activities in this field, an increase for which there is little justification, except inertia on the part of the States.

2. Return of increased responsibility to the States in this field would be highly desirable, in terms of usual principles of allocation of functions, but is very unlikely to occur.

3. The experience in the highway field should serve as a warning to the State governments in other fields that failure on their part to provide widely desired services will lead to Federal intervention in these fields.

² In some instances a rapid transit line can be built in the median strip of an expressway at very low cost. This is being done on the Congress Street Expressway in Chicago.

4. Federal highway expenditures under the new program have been determined independently of relative needs for other activities. This policy cannot possibly lead to a reasonable optimum determination of relative expenditures for different purposes.

5. The removal of the revenue and expenditure figures from the Federal budget not only interferes with future review of expenditure levels, but also results in a misleading picture of governmental activities.

6. A sharp increase in highway spending in a period of inflation is obviously contrary to accepted principles of fiscal policy. On the other hand, the demand for highway facilities is so great that their construction, in large part, cannot be deferred until a period of unemployment. It should be possible, however, to adjust annual expenditures somewhat in terms of economic conditions, instead of adhering to a rigid prearranged schedule of annual expenditures. The highway program provides a useful backlog of projects for immediate construction in a severe depression.

7. A serious defect in the program is the failure to provide for assistance to urban area rapid transit projects, so that an integrated program of expressways and rapid transit lines may be developed. The emphasis on expressways alone may aggravate rather than solve some aspects of urban traffic congestion.

8. Federal expenditures affecting passenger transportation generally require review to permit an integrated overall picture of their effects, in terms of future needs for various types of passenger transport facilities.

THE FEDERAL GOVERNMENT'S ROLE IN THE HIGHWAY PROGRAM

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INTRODUCTION

This paper is concerned with the Federal Government's participation in the highway building program, requiring it to spend substantial sums of money on highway construction over an extended period of time. Two major points are dealt with. First, attention is directed to certain basic considerations which make this Federal expenditure policy not merely desirable, but extremely necessary. Second, the highway program, viewed as a national problem, is related in character and significance to other national problems in a way that might help to resolve conflicts.

The above two points have been selected for attention because of the present status of the highway program. The program has been set in motion, but as yet not much work has been done. Because of this it is felt that nothing new and meaningful can be provided by delving into the details of the program itself. Rather, it is felt that until results of the program begin to show up on a substantial scale, there is need to continue to focus attention on the basic gains to be achieved by the program, and on the complexities which might interfere with or delay its progress.

WHY MUST THE FEDERAL GOVERNMENT BE INVOLVED IN THE HIGHWAY PROGRAM

It was inevitable that the Federal Government become involved in the highway program in an important way. The Federal Government has now, and it always has had an important role to play in solving major national problems. The highway program is, indeed, a response to a major national problem.

Federal, State, and local governments face and deal with a wide variety of problems in the day-to-day management of their affairs. Some of these problems are large, and some are small. Some are short-run and some are long-run problems. How then, is it possible to recognize and give proper attention to major problems of national scope?

The answer to this question seems to hinge upon the long-run implications that the problem holds for the Nation as a whole, particularly if the problem should remain unsolved for some length of time. That is, major national problems are those that pose as a threat to, or bear importantly upon the Nation's present and future security, and upon the status of key social, political, and economic structures and processes. These latter include, for example, natural resources, such as fertile soils and mineral fuels. They include primary industries, such

as agriculture, forestry, mining. They include also the skills and learning of the people. The transportation network, which we are concerned with here, is certainly one of these key national economic structures and processes.

The Nation's transportation network includes, of course, several different transportation systems. In addition to highways, there are the railways, airways, inland and coastal waterways, pipelines, and electric power transmission systems. While all of these systems are important to the Nation's continued economic growth, a major problem of national scope currently exists, however, only for the highway system.

The problem which pertains to highways and not to the other transportation systems, or in fact to other key economic structures, is this: the structures and operating processes of the present highway system are grossly inadequate for our national needs, in most parts of the United States. It is widely recognized that the problem is not just one of catching up with road maintenance, or of catching up with road-building. It is one of replacing an obsolete inadequate highway system with a modern adequate one. This would be a major problem for any nation to face. It is a particularly critical problem for the United States, because of the country's very great geographical size, and because of the extent to which its productive and distribution processes have grown to depend upon motor-vehicle transportation.

The need for better highways is perhaps most vividly felt in a personal way by many Americans, in the regular routine of their own and their family's lives. Their standard of living has permitted the adoption of a degree of mobility unmatched elsewhere in the world. Much of this mobility is dependent upon privately owned motor vehicles, and the use of public streets and highways. There are the daily flow patterns generated largely by the home-to-work-to-home movements. A considerable amount of movement within and around the city is generated by the varied shopping and social needs of the family. Also there are the intercity flow patterns generated by week-end and vacation traveling. Lack of good highways both within and between cities poses a threat to the full utilization of all of the advantages which greater mobility offers.

That Americans seek this type of mobility, and the freedoms associated with it, is borne out by a number of related trends such as suburbanization, increased multiple ownership of passenger cars, rising gasoline consumption, and the appearance of many types of drive-in business services. The distribution industries which link together producers and consumers have undergone, and are still undergoing, drastic changes in character as a result of these trends. American people have tasted and consumed large quantities of freedom of mobility, and they have decided that they want even more of it. To have more of it, better highways must be built.

The Highway Revenue Act of 1956 is in itself ample testimony that the people of the United States have come to realize that a job must be done on the highway system. Although building and maintaining highways are not usually thought of as temporary types of jobs, in this particular case the job is, in a sense, a "one-shot" proposition. It is a big one-shot job, of course, but the dimensions are limited. The highway building program can be started, and it can be finished, per-

haps never having to be done again. In the historical record of the United States there have been other big one-shot jobs, such as the canal-building program of the early part of the 19th century, and the railway-building program of the latter part of the 19th century. Any job of huge proportions is more likely to be promoted successfully when its magnitude is judged both in terms of its current importance and in terms of historical perspective.

WHY IS SATISFACTORY PROGRESS ON THE HIGHWAY PROGRAM A NECESSITY?

Building a new and better highway network is not just a matter of pleasure, speed, and safety. The Federal Government's highway expenditure program is necessary, in fact, to assure continued national economic development, in the form of increased total production and increased per capita productivity.

A new system of major highways will contribute to increased total production, and increased per capita productivity, simply by reducing the costs (inputs) required to obtain a given quantity of space utility (outputs). The movement of materials and goods is as much a part of the total productive process as is the transforming of shapes and forms and the conveying of materials from machine to machine within the factory building. Thus, better highways will contribute to increased total production and increased per worker productivity. It is simply the process of getting more for less by doing it a better way.

WHY MUST THE FEDERAL GOVERNMENT'S ROLE IN HIGHWAYS BE SO LARGE?

Streets, roads, and highways are legitimately the responsibility of local governmental agencies. It would not have been necessary for the Federal Government to participate in highway building to such a large extent if local highway agencies had been able to eliminate highway obsolescence on their own. However, the problem has become too huge to be handled entirely at the local level. Nevertheless the role of local agencies is still an extremely important one. The actual planning, deciding, and carrying out of building programs is still the recognized responsibility of the local agencies. Operationally the Federal Government's role is mainly one of financial support, site approval, and control of standards. However, fundamentally the Federal Government's role extends beyond, to the more basic task of coordinating and giving direction to effort. It is thus imperative that the cooperative basis of the relationship between Federal and State agencies continues to work.

Uniform national standards in highway quality require the participation of the Federal Government. It is well known that when road supervision is maintained completely at lower government levels, road conditions can change sharply at township, county, and State lines.

In addition, an adequate highway network is necessary for national security, which is itself the responsibility of the Federal Government. National security includes both the needs of civil defense and of military organizations.

HOW IS THE HIGHWAY PROBLEM RELATED TO OTHER FEDERAL GOVERNMENT PROBLEMS?

It is important to treat the overall highway problem, and other related and connected problems so that the order of their importance is taken into account. Otherwise it is possible that conflicts with lower order problems might delay or interfere with highway building progress.

For example, there are no doubt instances where civil defense requirements conflict with economical transportation needs. If a compromise cannot be reached without delay, the nondefense role of highways should take precedence for the time being, even though the role of highways in civil defense plans is an important one. Even problems pertaining to how to finance the highway program are of a lower order than the problem of should there be a highway program. Conflicts should be resolved, always with the ordering of the related problems in mind. The highest level of need is that of efficient economical motor vehicle transportation.

It is highly probable that the actual financing of the program will raise new problems. There appears to be agreement that capitalization costs (interest), and operating and administrative costs should be borne, so far as is practical, by benefiting groups and individuals. Of course, this is not a simple principle to apply, because of the inevitable controversy which has arisen concerning who benefits, and by how much. This paper does not deal with the details of how this principle might be applied. So long as those who benefit can be identified, a fair system of use-taxation can be worked out. It is important that costs and benefits be examined and judged in the broadest sense, going beyond the confines of traditional economic analysis. The special highway cost allocation study provided for by the 1956 Highway Act should certainly throw light upon the crucial pertinent issues. Thus all claims concerning inequities should be given full and fair consideration, but they should not be permitted to stall or delay the program.

Inflation has loomed up as a challenge to the success of the highway program. The sums of money designated for the program are beginning to appear inadequate because of rising costs. Inflation should not be permitted to water down the rate of highway building, however. Cost estimates should be revised upward to allow for the changing value of the dollar. Highway building plans need to be judged continuously in terms of aggregate national output in physical terms, as well as in dollar terms. The Nation needs to apply X percent of its aggregate productive effort to the highway program, whether or not there is inflation.

The problem of how to plan the financing of the program from year to year so as to minimize any unfavorable effects on short-term economic conditions is by no means of small import. At each stage of planning allowance should be made for the economic conditions currently at hand. Thus the highway financing procedures should, so far as is practical, be consistent with wise fiscal policy.

That is, although taxing procedures should probably not be changed because of short run fiscal needs, the rate of spending might be speeded up if it is needed to counteract declining business activity. However,

the highway program is of sufficient importance that the reverse policy (i. e., a slowdown) should not be permitted.

A MORE ELABORATE PERIODIC REPORTING OF PROGRESS IS NEEDED

Because of the exceptional importance of the highway building program for the Nation's future growth and stability, it is here proposed that there is a very real need for a more elaborate reporting of highway building progress on a periodic basis. The Bureau of Public Roads might well consider what materials are readily available, and what additional information need be gathered in order that official summaries of progress in considerable detail be issued monthly, bi-monthly, or perhaps only quarterly.

The purpose of such a highway program progress report would be initially to keep enthusiasm alive especially during the early years of the program when costs are high, but visible results are scarce. Furthermore, an official comprehensive compilation of data would tend to stimulate local area comparison of achievements (i. e., State by State). These reports could also be used to spotlight special problems that arise as the program proceeds.

The reports could include, for example, current and to-date measures of aggregate national progress, such as mileage constructed (by types), and money contracted and spent. Also, current and to-date measures of progress might be provided by local areas, States, and, if possible, metropolitan areas. To permit meaningful comparison, local progress might be expressed as a percent of the local program goal. Simple charts and maps could aid in dramatizing the step-by-step stages of the program's progress.

SUMMARY

This paper deals with basic considerations which underlie the need for the Federal Government to participate on a large scale in the Nation's highway program. Highways are a key element of the economy, and the highway system has been permitted to become obsolete. The economy is only as strong as its weakest link; consequently, a highway replacement program is a necessity for long-run national growth and survival. It is necessary for the Federal Government to participate in this program in a major way to assure success. The program is of sufficient importance that treatment of related problems, and conflicts should include consideration of orders of significance, so that delays can be avoided as much as possible. In order to focus greater attention upon the program and its progress, it is proposed that special highway program periodic progress reports be prepared and published.

PUBLIC WORKS—FOND HOPES AND HARSH REALITIES

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It is common knowledge that our public capital plant is inadequate to meet the demands made upon it. The volume of public construction has been increasing rapidly and is setting a new record each year. But this does not seem to reduce the vast backlog of needs at sufficient speed. We are running fast but do not appear to make enough headway.

The two main obstacles to a more rapid acceleration of public construction are:

1. **Rising construction costs:** Total construction has been increasing at a faster rate than the gross national product. Simultaneously construction costs have risen more sharply than other price indexes. It is feared that added emphasis on construction may lead to still higher costs.

2. **Tax and debt burden:** The heavy taxload and competing demands for public moneys—for national security and for a multitude of domestic public services—limit the rate of increase in funds which can be channeled into public works.

Thus the basic questions to be answered are:

1. How can public-works needs be met at a time of full employment without feeding more fuel to the fires of inflation?

2. How can these needs be met without unduly cutting other public requirements or overburdening the country's already top-heavy tax and debt structure?

The magnitude of present and future construction needs—public and private—is largely the result of the unprecedented population increase of 30 million since World War II, and the expected addition of another 30 million during the next 10 years. Other factors contributed, such as suburbanization, industrialization and insistent demands for more and better public services. Low activity during the depression and war days led to an accumulation of needs. Private residential and nonresidential construction were far below required levels during the 1930's and 1940's. Public works did not do poorly in the 1930's but lost at least \$20 billion to \$30 billion in the 1940's.

Public works construction has expanded substantially more than private construction. The increase between the 1920's and the 1950's amounts to 44 percent in private building and to 145 percent in civil-public works. (See table 1.)

TABLE 1.—*New construction 1920-59*

[In billions of 1957 dollars]

Period	Private residential	Private nonresidential	Public civil	Public major national security	All new construction
1920-29.....	\$116	\$97	\$44	\$1	\$261
1930-39.....	44	49	70	2	165
1940-49.....	73	68	48	47	236
1950-59.....	168	142	108	22	440
Total.....	403	356	270	72	1,102
Increase in percent, 1920-29 to 1950-59.....	42	45	145	2,750	69

NOTE.—Data for 1920-56 are actual. 1957-59 author's projection.
Source of data: Departments of Commerce and Labor.

It is hard to tell how deeply the spectacular construction rate of the 1950's is cutting into the backlog of needs. Concepts of need vary widely among sections of the country, communities and economic groups. Standards move up as old benchmarks are approached.

The hospital survey shows almost the same number of beds needed now as at the start in 1948. Conflicting estimates of classroom shortages serve to confuse more than to clarify the issue.

Dollar expenditures, though adjusted for price changes, cannot simply be translated into service units. The cost of the average home, school (classroom), hospital (bed) has increased more than the construction cost index would indicate. Public as well as private facilities are being designed more elaborately and to higher standards; they are being better equipped and built more expensively than ever before.

One hundred billion dollars was a frequently quoted total of the public works backlog needs a few years ago. In 1955 the Construction Division, Business and Defense Services Administration, Department of Commerce compiled 10-year requirements for State and local public works at \$204 billion (in 1954 dollars). Others added \$100 billion for Federal public works and arrived at a \$300 billion 10-year public works need. That almost equals all public works construction in the past 40 years. It is very unlikely that such a goal could be approached within the next 10 years.

During the past decade public works construction has outpaced every other sector of the economy: gross national product increased 45 percent, personal consumption expenditures 36 percent, private construction 56 percent, public construction 180 percent (all in constant dollars). Public works were lifted from 1.5 percent of gross national product in 1947 to 3.2 of gross national product in 1957 (see table 3). Such a feat could be repeated only if we were willing to cut back on other activities and let construction costs skyrocket.

It appears necessary to review not only how much it would be desirable to have in new roads, schools, hospitals, etc., but to evaluate realistically how much of these facilities can be built within the Nation's existing and foreseeable economic and fiscal framework. The question thus is: How can we best achieve a balance between the legitimate claims for public facilities and other demands upon our national product?

This paper will attempt to deal with this question in three parts:

1. Review of past trends, particularly during the past decade.
2. Current and future public works requirements, and methods of meeting them.
3. The use of public works as a contracyclical tool.

HISTORICAL REVIEW

The civil public works share of all new construction jumped from 17 percent during the 1920's to 42 percent during the depressed 1930's, averaged 20 percent in the 1940's and 24 percent in the 1950's. In 1957 it equalled 27 percent. All public construction now accounts for 30 percent of total new construction.

Between 1929 and 1957 private construction increased 50 percent (residential 71 percent, nonresidential 34 percent), public construction 114 percent (constant dollars). Public construction dropped from 2.38 percent of gross national product in 1929 to 1.48 percent in 1947, then soared to 3.24 percent in 1957.

Within the public works field, national security showed the greatest increase between 1929 and 1957, followed by education and conservation.

During the past 10 years, educational construction led the field with a spectacular 570 percent increase, followed by national security 309 percent, with other types of public construction showing increases between 30 and 188 percent (constant dollars).

The percentage distribution reveals a steady decline in the highway share, from 51 to 35 percent and an almost complementary increase in national security construction from 1 to 13 percent in 1957.

Education is the only field besides national security that increased its percentage share of public construction.

The distribution by source of funds shows a jump in the Federal share from 9 percent in 1929 to 36 percent in 1957. Contrary to a widely held belief, Federal funds have declined since 1947 to 30 percent, with State and local governments raising their contribution from 64 to 70 percent.

Within the past 10 years Federal civil public works declined from 16 to 8 percent, Federal grants-in-aid to State and local governments from 12 to 9 percent of all public construction.

During the past decade Federal construction expenditures for civil works increased 45 percent, for grants-in-aid, 117 percent; State and local governments boosted their construction funds by a dramatic 207 percent (constant dollars).

TABLE 2.—*New construction, 1929, 1947, 1957*

[In 1957 dollars]

	1929, actual	1947, actual	1957, estimated	Change, 1929-47	Increase, 1947-57	Increase, 1929-57
All new construction:	<i>Billions</i>	<i>Billions</i>	<i>Billions</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Private residential construction.....	\$9,587	\$11,061	\$16,400	+15	48	71
Private nonresidential construction.....	12,382	10,197	16,666	-18	63	34
Public construction.....	6,575	5,039	14,100	-23	180	114
Total.....	28,544	26,298	47,100	-8	79	65
Public construction, by type:						
Highways.....	3,348	2,130	4,950	-36	132	48
Educational.....	1,020	421	2,820	-59	570	174
Hospitals and institutions.....	267	125	360	-53	188	35
Sewer and water.....	669	515	1,400	-23	172	109
Conservation and development.....	304	578	750	+90	30	147
Major national security.....	50	440	1,800	+780	309	3,500
Other.....	907	829	2,020	-9	144	123
Total.....	6,575	5,039	14,100	-23	180	114
By source of funds:						
Federal.....	(622)	(1,833)	(4,250)	(+195)	(132)	(583)
Direct:						
Major national security.....	50	440	1,800	+780	309	3,500
Civil public works.....	360	793	1,150	+120	45	219
Grants to State and local govern- ments.....	212	600	1,300	+183	117	513
State and local governments.....	5,953	3,206	9,850	-46	207	65
Total.....	6,575	5,039	14,100	-23	180	114

Source: U. S. Departments of Commerce and Labor: Construction Review, various issues.

TABLE 3.—*New construction, 1929, 1947, 1957*

[In percent of gross national product]

	1929 actual	1947 actual	1957 estimated
All new construction:			
Private residential construction.....	3.47	3.25	3.77
Private nonresidential construction.....	4.49	2.99	3.82
Public construction.....	2.38	1.48	3.24
Total.....	10.34	7.72	10.83
Public construction:			
By type:			
Highways.....	1.21	.63	1.14
Educational.....	.37	.12	.65
Hospitals and institutions.....	.10	.04	.08
Sewer and water.....	.24	.15	.32
Conservation and development.....	.11	.17	.17
Major national security.....	.02	.13	.41
Other.....	.33	.24	.47
Total.....	2.38	1.48	3.24
By source of funds:			
Federal.....	(.23)	(.54)	(.98)
Direct:			
Major national security.....	.02	.13	.41
Civil public works.....	.13	.23	.26
Grants to State and local governments.....	.08	.18	.30
State and local governments.....	2.16	.94	2.27
Total.....	2.38	1.48	3.24

Source: U. S. Departments of Commerce and Labor: Construction Review, various issues.

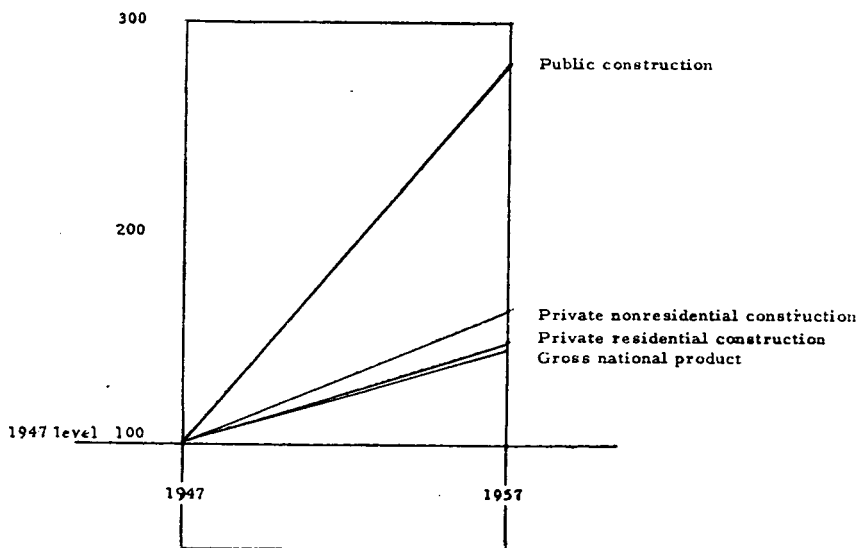
TABLE 4.—Percent distribution of new construction, 1929, 1947, 1957

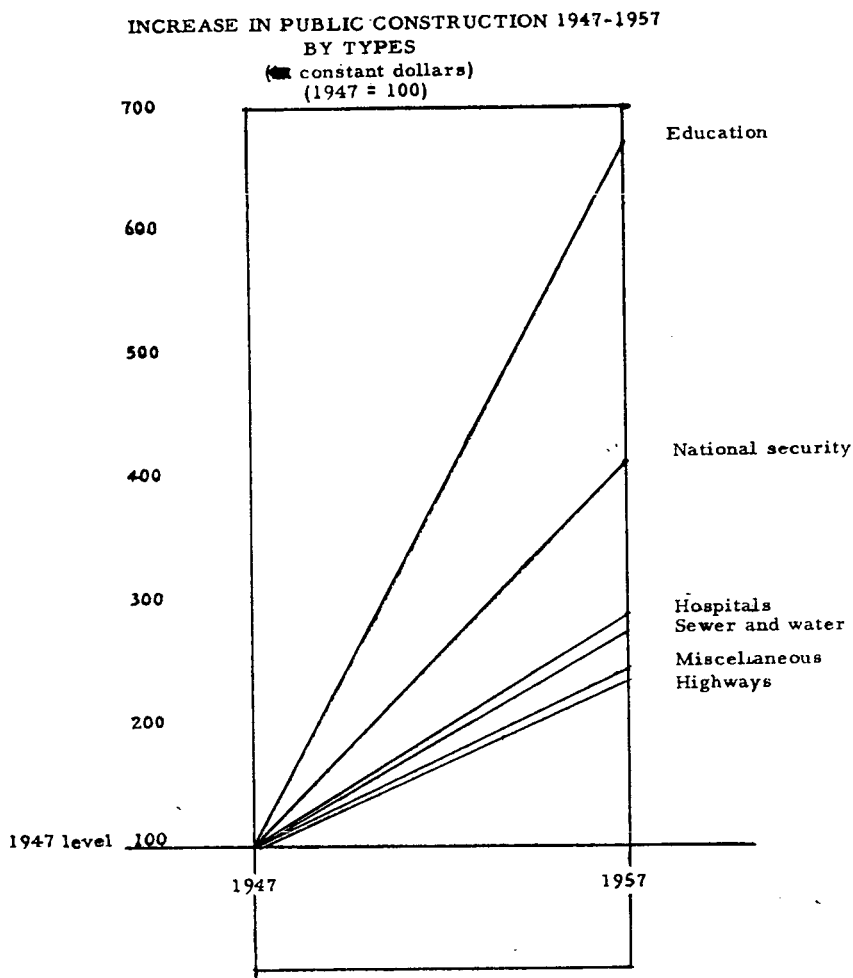
	1929	1947	1957
All new construction:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Private residential construction.....	34	42	35
Private nonresidential construction.....	43	39	35
Public construction.....	23	19	30
Total.....	100	100	100
Public construction:			
By type:			
Highways.....	51	42	35
Educational.....	16	8	20
Hospitals and institutions.....	4	3	3
Sewer and water.....	10	10	10
Conservation and development.....	5	11	5
Major national security.....	1	9	13
Other.....	14	16	14
Total.....	100	100	100
By source of funds:			
Federal.....	(9)	(36)	(30)
Direct:			
Major national security.....	1	9	13
Civil public works.....	5	16	8
Grants to State and local governments.....	3	12	9
State and local governments.....	91	64	70
Total.....	100	100	100

Source: U. S. Departments of Commerce and Labor: "Construction Review" various issues.

INCREASE IN CONSTRUCTION VOLUME AND GNP

1947 to 1957 (■ constant dollars)
(1947 = 100)





This trend of relatively greater State and local responsibility seems to be in the process of being halted or reversed. The 1958 United States budget proposed to double Federal civil public works expenditures between 1956 and 1958. Almost half of the increase from \$1.8 billion in 1956 to \$3.7 billion in 1958 resulted from the stepped-up highway program. But it is significant that 5 of the 7 functional categories of Federal civil public works in the budget were more than doubled. State and local governments cannot accelerate their capital programs at such rate because construction accounts for almost one-fourth of their expenditures. It equals only 5 to 7 percent of Federal outlays.

Not all of the proposed new and enlarged Federal works programs were enacted. But a number of new programs were approved at the 1956 and 1957 sessions and many other proposals for new or expanded construction programs are being seriously considered. The enlargement of the housing program, the built-in growth of the highway pro-

gram, and the continuing pressure for many others make it appear that the Federal Government may assume a greater role in the public works field in the years ahead.

All new construction increased from 7.7 percent of GNP in 1947 to 10.8 percent of GNP in 1957, with more than half of the increase accounted for by public construction.

Table 5 shows that during the past 10 years the composite construction cost index of the Department of Commerce went up 46 percent—the Engineering News-Record indexes, even 60 and 74 percent, respectively, for building and other construction—while industrial wholesale prices rose 31 percent, all wholesale prices 22 percent, and the consumer price index 26 percent. The rise in building material costs at 39 percent accounts for the minor part of higher construction costs, a wage rise of 77 percent for the major part.

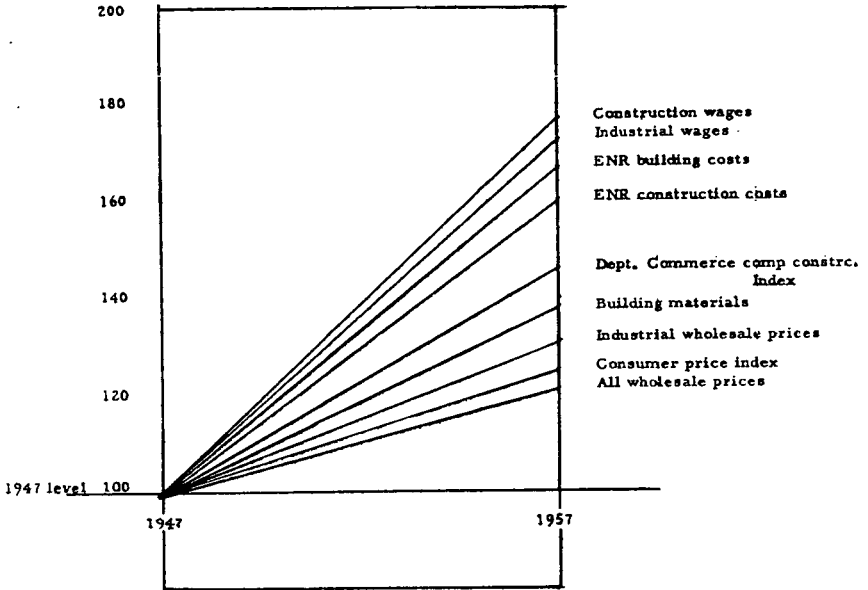
Average hourly wages in contract construction went up \$1.25 compared with a rise in manufacturing wages of \$0.83. (See table 5.)

TABLE 5.—Prices, employees and wages in construction and selected other fields 1947 and 1957

	Index (1947-49=100)		Increase in percent	
	1947	1957 (June)		
Prices:				
Composite construction index, U. S. Department of Commerce.....	95.3	137.0	46.8	
Engineering News-Record Index:				
Buildings.....	93.5	149.9	60.3	
Other construction.....	92.2	160.2	73.8	
Building materials.....	94.2	130.7	38.7	
Industrial wholesale prices.....	95.3	125.2	31.4	
All wholesale prices.....	96.4	117.4	21.8	
Consumers Price Index.....	95.5	120.2	25.9	
	In current dollars		Increase	
	1947	1957 (June)	In dollars	In percent
Wages:				
Average hourly earnings:				
Contract construction.....	\$1.62	\$2.87	\$1.25	77
Manufacturing industries.....	1.24	2.07	.83	67
Average weekly earnings:				
Contract construction.....	61.47	108.40	47.02	77
Manufacturing industries.....	49.97	82.80	32.83	66
	In thousands		Increase	
	1947	1957 (June)	In thousands	In percent
Employees:				
Contract construction.....	1,982	3,109	1,127	56.9
Manufacturing industries.....	15,290	16,915	1,625	10.6
Civilian labor force.....	60,168	69,842	9,674	16.1

Sources: U. S. Departments of Commerce and Labor and Council of Economic Advisers.

PRICES AND WAGE INCREASES IN CONSTRUCTION
AND SELECTED OTHER FIELDS
1947 to 1957
(1947 = 100)



The wage boosts would have been noninflationary if they had been accompanied by correspondingly greater productivity. But there is no evidence that productivity has increased more rapidly in construction than in manufacturing. While no accurate devices are available for measuring changes in productivity, crude measures suggest that productivity increased considerably more in manufacturing than in construction.

Manufacturing industries boosted their output 44 percent with a work force 11 percent higher than in 1947. Construction output went up 79 percent with a contract construction force 56 percent greater than in 1947. More substantial wage boosts apparently made it possible to enlarge the construction trades work force by 56 percent during a period when the total civilian labor force expanded only 16 percent.

Within construction itself, productivity seems to have increased more substantially in engineering work than in building construction. There has been progress in design but firmly entrenched featherbedding practices, antiquated building codes and the slowness with which the public is willing to accept other than conventional methods, retard progress in productivity in the field of building. The combination of higher wages and lower productivity—not in absolute terms but compared with manufacturing—lifted construction costs more steeply than prices of other goods. Undoubtedly this created consumer resistance which is now particularly apparent in the housing field.

Union contracts concluded in the first half of 1957 show the familiar pattern of greater wage boosts in the building trades than in other

industries. Some contracts provide for regular 6-month increases for as far as 3 years ahead. This means that the trend toward higher building costs will continue. What has been said in another field probably also applies here: Labor and management buried the hatchet—deep in the consumer's skull.

Consumer resistance has already led to a squeeze on contractors—failures are up one-fourth—and to a slowing up of activities. It would not be surprising if pockets of unemployment were to appear in some areas—unless they are absorbed by enlarged public works. Nor is it unusual that the Government now is being asked to help an industry which has been pricing itself out of the market.

Highway construction costs have been on the increase, prior to and particularly since the enactment of the enlarged highway construction program. It is now evident that the present authorizations are inadequate to build the system as planned. Greater funds will be required which in turn probably will drive up costs. By how much the eventual cost of the interstate highway system will exceed earlier estimates may somewhat depend on the number of years by which the completion date will be extended beyond the presently planned 13 years.

To sum up the construction picture of the past decade and the present outlook: Efforts at meeting the vast needs for public and private facilities succeeded in accelerating construction activity—more rapidly in the public than in the private field—beyond the growth rate of the economy, at the cost of driving prices up steeply. How much longer this process will go on and at what rate will depend on the pressure exerted toward further speedups in construction. Higher interest rates, brought about by an excess of demand over supply of investment funds, and rising construction costs may well slow up the growth of private building to a rate less spectacular than that which we have experienced in the past 10 years. This trend is evident in the residential field and may soon spread to nonresidential building.

Whether such development will lead to a correction of the existing imbalance by the market forces cannot easily be foretold. A slowdown in construction will create pressures upon the Federal Government to facilitate the financing of private building and to expand public works construction. If successful they would make adjustments less likely.

Under the continuing demands for more and better public facilities, State and local governments are likely to keep increasing their construction outlays. This will probably proceed at a moderate rate. Capital outlays now account for 27 percent of all State and local government expenditures and can be expanded only as ballot approvals of higher tax rates and bond issues and the absorptive capacity of the bond market permit.

Federal policies may well be a greater determinant of the future course of construction volume and costs than they have been in the past decade. A continuation of the trend evidenced in the 1957 and 1958 budgets and of attempts at stimulating State and local governments to greater efforts will produce a larger construction volume at higher costs.¹

¹ The New York financial analyst Harry L. Severson recently projected State and local construction and bond issues for the next 10 years on an assumption of an annual increase in construction costs of 3 percent (The Changing Market for State and Local Bonds). This may not be an unlikely assumption if pressure for a greater construction volume keeps increasing.

CURRENT AND FUTURE PUBLIC-WORKS REQUIREMENTS AND METHODS OF MEETING THEM

The public works field is divided between the Federal Government and State and local governments. The Federal Government currently is building 9 percent of all civil public works and contributes about 10 percent of the State and local public-construction funds.

Federal public works

No survey exists of the total needs for Federal civil public works. A number of studies have been undertaken, particularly in the water-resources field. However, the division of responsibility between the Federal Government and other public and private interests in this area is so controversial and policies have fluctuated so widely over the years that estimating the Federal share of all needs is largely crystal-ball gazing into future Federal policies.

Would a comprehensive national survey of all needs that may be regarded as Federal works responsibilities be helpful? A coordinated approach and the development of a grand plan undoubtedly are desirable. But it is doubtful just how great the practical value of such an undertaking would be as long as the views on the subject, based on conflicting political philosophies, differ so greatly. Meanwhile the established practice of judging projects on their individual merits within the framework of a general economic and fiscal plan may have to suffice.

Doubts have been expressed regarding the reliability of benefit formulas used to evaluate natural resource projects. Such formulas compute presumptive benefits for 50 and up to 100 years ahead. It may be questioned whether it is possible to foresee what for example the economical sources of energy or the benefits by classes of users will be 100 years from now. The diversity of formulas has led to competition among agencies. It appears desirable that formulas be uniform among agencies and that they be computed for shorter terms than at present.

The value of formulas should not be overrated. Many of the factors involved are subject to varying interpretation or cannot be expressed in mathematical terms. Final decisions probably will continue to be made more on a general judgment than on formulas.

In the majority of Federal departments, facility needs do not depend as much on broad policy considerations as they do in the water-resources field. Federal departments generally keep public-works plans for their authorized activities current for 6 years ahead. This provides a reservoir for acceleration in case economic fluctuations make such action desirable. The present processes of review of departmental requests for Federal direct public works by the Bureau of the Budget in consultation with the Council of Economic Advisers, and later review by congressional committees seem adequate.²

As a rule such review and executive and legislative control should not be weakened by the delegation of decision-making power on capital projects to semi-independent bodies or by grant of authority to enter lease-purchase contracts.

²This refers to review of public works within the existing procedural framework of budgetary review. It shall in no way detract from recommendations for improvements in the budgetary process.

Procedures for the review of grants-in-aid or loan programs to State and local governments do not appear adequate. There is little if any prior consultation with top State officials on the need for or form of new or expanded programs intended to aid the States.

The Commission on Intergovernmental Relations in its report to the President recommended that in the case of proposed Federal grants-in-aid "a healthy safeguard here is for Congress to consult representatives of State governments—those with overall responsibility as well as heads of functional agencies—on the need for and the form of national participation."

Senate Resolution 184, 85th Congress proposes to implement this recommendation by transmitting, subsequent to committee action, all bills on new or enlarged grant-in-aid programs to the Governors and presiding officers of both Houses of the legislatures or to the chairmen of legislative councils in the several States for their opinions on the need for and form of such aid.

This recommendation should be given earnest consideration. If grant-in-aid programs aim to assist State and local governments—as is usually declared the legislative intent—then it appears reasonable that the governments to be aided ought to be consulted prior to final congressional action.

A good guideline for future Federal policy in accepting responsibilities was recommended by the Commission on Intergovernmental Relations (p. 6 of its report to the President): To reserve national action only to those cases where private initiative or State and local governments are inadequate and for responsibilities which only the National Government can undertake.

This principle applies to public works as well as to other activities. The burden of proof should rest upon those who assert the inadequacy of private or State and local ability to exercise responsibility.

The annual volume of Federal public works construction and particularly of new starts should be geared to the level of economic activity. The extent to which this can be done and the methods will be discussed in chapter 3 of this paper.

State and local public works

Most of the public facilities which serve the daily needs of our population are responsibilities of State and local governments. Those governments are building 91 percent of all civil public works in 1957. For obvious reasons most surveys of public works needs focus on the State and local field.

The Council of State Governments has recommended that the States study their facility needs and prepare long-range capital outlay plans. But only 8 or 9 State governments are known to have surveyed their public works requirements in recent years and to have prepared capital outlay programs for 5 to 10 years ahead. Even those plans do not cover all fields of State governmental responsibility.

Many large cities and some small ones have surveyed their facility needs and maintain 5- to 10-year capital outlay programs. Those programs cover only city governments and exclude the ten thousands of other governmental units which exercise independent jurisdiction within city boundaries such as counties and special districts operating schools, hospitals, parks, water, and sewer systems, etc.

It is obvious that surveys of public works needs on a territorial basis are woefully inadequate and are of no help in estimating nationwide requirements.

Considerably more progress has been made in individual public works fields such as roads, schools, hospitals, water and sewer plants by local surveys with national coverage. The Construction Division of the Department of Commerce in 1955 compiled a number of such surveys conducted within the preceding 2 years, estimated the remaining gaps and showed this picture of 10-year requirements for State and local public works:

TABLE 6.—Requirements for State and local public works construction, 1955-64

[In billions of 1954 dollars]	
Highways.....	\$92.0
Educational.....	41.5
Hospital and institutional building.....	22.0
Water and sewerage works.....	25.3
Other.....	23.2
Total.....	204.0

Source: Department of Commerce.

Construction costs have risen about 14 percent since these surveys were taken and the present estimate would approximate \$230 billion. Moreover, the estimates were based on population projections for 1964. To satisfy the needs of the 1967 population, the total would run at least \$240 billion.

State and local construction has increased from \$3.8 billion (1957 dollars) in 1947 to \$11.2 billion in 1957. In percent of national income it rose from 1.7 to 3.1 percent.

If we assume a 40-percent growth of the national income over the next 10 years and a stable State and local construction share of 3.1 percent, such construction will reach \$15.6 billion (1957 dollars) by 1967. The 10-year volume will be \$136 billion.

If we assume a gradual increase in national income percentage from 3.1 to 3.7 percent, State and local construction will reach \$18.6 billion by 1967 and the 10-year volume will total \$150 billion.

Both projections assume a continued high level of defense spending but no shooting war, a gradual increase of gross national product over the period and no major economic disturbances.

To reach a 10-year total of \$240 billion would require about 5.5 percent of the national income over the next 10 years. This probably cannot be done under the assumptions listed above.

State and local governments boosted their tax collections within the past decade from 5.6 to 8.1 percent of the national income, their total revenues, including charges, Federal aid, et cetera, from 8.8 to 12.9 percent of the national income. It seems reasonable to assume that State and local revenues will continue moderately to increase as percent of national income, particularly if Federal tax cuts give other governments more fiscal leeway. But the major share of higher tax proceeds will be needed for operating purposes. It is unlikely that State and local construction will receive more than a slightly higher percentage of the national income than at present. An assumption of an increase from the present 3.1 to 3.7 percent and of a 10-year volume of \$150 billion may be on the optimistic side.

To obtain the necessary funds will not be easy. State and local governments have been financing an increasing share of their construction by borrowing. State and local debt increased from \$16.8 billion in 1947 to about \$54.5 billion in 1957. A 10-year construction volume of 136 to 150 billion dollars may raise State and local debt to over \$100 billion—provided that the market is able to absorb such a volume of tax-exempt securities.

For some time now the placing of the \$6 to \$7 billion of State and local securities which reach the market each year has been difficult. The steeply progressive tax structure has shrunk investable funds of wealthy individuals to whom the tax-exempt feature has the greatest value. Few of them are willing to convert a major part of their long-term investments into dollar securities.

It has been estimated that four-fifths of the long-term investment funds in 1957 come from the great fiduciary investors—pension funds, savings institutions, and insurance companies—to whom the tax-exempt feature is of little or no value. This situation is unlikely to change; municipal bonds often may have to compete with other bonds on a straight-rate basis. Their interest rates may stabilize at a higher level than what they enjoyed in the past.

It is known that the bond market as such as been weak. Whether the current preference for equity investments over dollar securities will change depends to some degree on Federal policies which may confirm or disprove a public expectation of a continued decline in the value of the dollar.³

The market for State and local securities could be widened by Federal acquisition of such bonds which cannot be sold at preset interest rates. Also, the State and local construction volume could be boosted more rapidly by substantial increases in Federal grants-in-aid and by attracting more labor and material from other fields. It is likely that an attempt to build the \$240 billion of public works within the next 10 years by such means would drive up construction prices sufficiently to boost the eventual program cost to \$300 billion or more.

Increases in Federal grants-in-aid beyond the revenue increases resulting from growth in the national economy would have to come from higher Federal taxes, from cutbacks in other public services, or from increases in the national debt. None of these alternatives appears promising. Demands are rising for Federal tax reductions. The revenues of all governments in the United States, Federal, State, and local, from taxes, charges, social-security contributions, etc., totaled \$121 billion in the fiscal year 1956, the equivalent of 37 percent of the national income. It is doubtful whether the economy can sustain a burden of such magnitude in the long run without losing its vitality and its capacity to expand.

There is widespread hope and expectation that Federal expenditures will grow more slowly than revenues from existing tax rates so that rate reductions will be possible. Certainly Federal taxes should not be raised.

What all this adds up to is the sobering conclusion that the total volume of public works needs shown in the various surveys could be

³ A pass-through of the tax-exempt feature such as proposed in H. R. 1222 or H. R. 5702 could be of some help to the municipal bond market.

met within the next 10 years only at the price of inflation and a heavier tax burden. It would, of course, be highly desirable to provide all these roads, schools, hospitals, and other facilities. But it appears more likely that the program will have to be stretched out over more than 10 years. Actual building in the next decade may more nearly approximate 60 percent of the requirements shown in the Department of Commerce survey.

That does not mean that each type of public works should or will be cut 40 percent across the board. Only the total may be in that neighborhood.

The so-called 10-year requirements for roads, schools, hospitals, etc., should not be treated as essential needs nor as attainable goals but as what most of them are: expressions of the desires of functional administrators who are conscientiously trying to promote what they believe to be in the best interest of the people but who cannot be expected to judge the relative priorities of the multitude of claims for public funds nor the overall capacity of the economy to meet them.

How should the volume of construction for each type of public works be set? Should a nationwide survey be undertaken of all State and local public-works needs, as an aid to Congress in deciding the extent of the Federal assistance necessary in each field?

It is unlikely that such a survey would yield more reliable results than past surveys. A national survey of needs which implies that its results may be taken as the basis for Federal action is an open invitation to local officials to overstate needs.

To have such a survey undertaken by uniform national standards and through Federal officials who are not members of the particular professional group—similar to a census—would be very expensive. Its practical value is doubtful. National standards would either be far in excess of attainable levels in low-income States or would understate reasonable goals in wealthy States, or both.

The protracted arguments over the magnitude of classroom shortages and the glaring inconsistencies in some of the recent surveys indicate that concepts differ too widely to permit any optimism in regard to the applicability and acceptability of national standards for community facilities.

If, however, each State and community were permitted to set its own standards we would again face competitive bidding and wind up with surveys that resemble letters to Santa Claus.

How then are decisions on aid to State and local governments to be made at the national level?

The present system of review suffers from the shortcoming that in most cases only officials and groups with a vested interest in the particular activity are being heard. It was suggested earlier in this paper that State officials of general (overall) responsibility be consulted. Such a procedure would help but would not cure the basic ill.

The demand for more and larger grant-in-aid programs is growing. The 1958 budget lists 83 existing and 14 newly proposed programs of aid to State and local governments. At the same time charges are increasing that the Federal Government is gaining control of most State and local activities, is undermining the autonomy of these governments and is eroding the foundations of the Federal system. The

specter of Federal control by a spreading bureaucracy hovers over most of the programs, and has become a reality in many of them.

The system of programmatic grants-in-aid subjects Congress to ever-increasing pressures from special-interest groups. Every new or enlarged program is an invitation to less favored groups to try harder next year. Unsuccessful groups raise the cry that they are being discriminated against, e. g., "Congress cares more about roads than about schoolchildren."

The Subcommittee on Tax Policy of the Joint Economic Committee made a very cogent remark in its report on taxation 2 years ago.

"It should be recognized that use of the Federal tax system as a means of stimulating growth of any particular industry necessarily means willingness to deter the growth of others not equally favored." This observation also applies to programmatic grants-in-aid.

There is no yardstick which would enable Congress to measure objectively the relative need for every type of public facilities in every corner of the country. Nor could one be devised. Thus, Congress has inadequate factual information to help it judge claims which may or may not be exaggerated; it is burdened with decisions which it is not well set up to make.

If the trend of the past few years continues, we may have 150 to 200 grant-in-aid programs within 10 years. It is likely that the proliferation of grant-in-aid programs, will force Congress to spend an increasing part of its time trying to decide how justified complaints about inadequate local services are. Such decisions could better be made at the local level where the existence or lack of adequate local services and facilities can be seen, felt, and judged more clearly and reliably.

The market mechanism could provide more balanced decisions than can be reached—after much pulling and hauling—under the present system in Washington.

That does not mean that State and local governments must be left to their own devices in financing public services and facilities. Some States and communities, or possibly all, may lack the fiscal capacity to meet the legitimate demands made upon them. That question cannot be adequately discussed within the frame of this paper. But there is no doubt that Federal assistance can be rendered to States and communities by better methods than programmatic grants-in-aid and without the possibility of undue Federal control of local activities.

The problem is not that the Federal Government aids State and local governments financially but that such aid is spread over almost 100 programs with innumerable detailed controls and that there is no adequate factual basis for the judgments to be exercised at the Federal level.

Obviously, there is no inability to finance a particular service, be it roads or schools or hospitals. There may be an inability to raise the sum total necessary to meet all legitimate claims on a State or local government. This could be remedied by general fiscal grants by the Federal Government better than by programmatic grants.

Nonemarked, unconditional grants could be given in the form of tax sharing, on a per capita basis or with some built-in equalization, or by a formula combining these factors.

Such a system would have these advantages:

1. Many of the fights of competing interest groups over the division of public funds would be shifted from Washington to

State capitals. This would relieve Congress of the necessity of concerning itself with the adequacy of innumerable local services and facilities and permit it to concentrate on those problems of national importance with which only Congress can deal.

2. It would eliminate the charges that the Federal Government is invading an increasing number of fields of traditional State and local responsibility, is subjecting State and local governments to national control, and is gradually transforming our Federal system into a centralized system of government.

3. It would eliminate the necessity of maintaining a large Federal bureaucracy to control and supervise the spending of Federal aid funds in close to 100 programs.

4. It would inject greater flexibility into the fiscal system and would provide a more effective and speedier mechanism to counteract undesirable economic fluctuations.

The main argument for a change from programmatic to financial grants is that it would strengthen State and local autonomy and permit greater leeway for direct popular decisions on public issues. This argument, of course, can also be used against the proposal: substitution of financial for programmatic grants would shift many major decisions from Congress to State legislatures, city councils, and to the people directly. If the purpose of grant programs is not to aid State and local governments but to provide throughout the country certain services and facilities regardless of local judgment, then programmatic aids are the answer and not fiscal aid.

The interstate highway program which is 90 percent federally financed has become in effect a Federal program with a token State and local contribution. It may be worth while exploring whether a 90-percent Federal participation is likely to make for the most economical administration of right-of-way acquisition and construction or whether a 100-percent Federal national highway system may not be preferable.

The short fall in highway fund revenues below estimates—while construction costs apparently will be greater—suggests that further consideration be given to the revenue potential of tolls on the interstate system. There seems to be no justification for abandoning tolls where they are now collected. Most of the new sections could not be fully self-supporting, but many could make a substantial contribution toward their cost. Also, the effect should be studied which free urban and rural superhighways will have on existing or potential competitive systems of mass or freight transportation such as urban and suburban rapid transit, railroads and airlines.

The revenue potential of user charges has barely been tapped. Full or partial support of public facilities by direct beneficiaries can provide much revenue, grant relief to the general taxpayer, and often can advance construction. User charges are viewed with little enthusiasm by those who may be called upon to foot the bill and are opposed by groups which dislike the market mechanism as such.

In summary: The question asked earlier (How can we best achieve a balance between legitimate claims for public facilities and other demands upon our national production?) can be answered: It is likely that a better balance will be achieved by decentralizing decisions as much as possible and by letting them be made by the presumptive

users of the facilities who will weigh their desire for more and better public facilities against their wishes for alternative uses of the funds.

Whether a community needs more urgently a school, a hospital, a firehouse, or street paving or whether it prefers getting along on what it has without raising its tax rate can be more objectively decided without Federal incentives for some activities and none for others.

This probably also answers the two questions asked at the outset. The wide dispersal of decisions would make it likely that the sum total of actions on taxes, debt or construction level corresponds more closely to the wishes of the American people than could be accomplished by another process.

PUBLIC WORKS AS A CONTRACYCLICAL TOOL

Expansion of public-works construction is an effective method of utilizing idle resources during a major, long-lasting depression. It exerts a stimulating influence on consumption and on the economy as a whole while producing tangible permanent assets.

The possibility of a major depression of the magnitude of the 1930's cannot be ruled out but has become remote in today's political and economic climate. Contracyclical policy now aims to and can arrest economic declines before they get out of hand.

The perfection of monetary and fiscal policy devices has made public works a less useful and less-used tool to counteract mild, short-lived economic fluctuations. Public works action by its very nature is clumsier than monetary tactics, cannot be regulated or switched on or off as easily or quickly, nor produce prompt results. It faces innumerable statutory and constitutional obstacles, requires a larger and cumbersome legal, political, and administrative mechanism, and generally needs the consent of so many parties that an emergency may pass before all signatures have been dotted. Public works action lacks the most important qualifications of an efficient contracyclical tool: speed and flexibility. It has a psychological advantage over monetary devices: visibility to the untrained eye of the remedial Government action.

With all their shortcomings, however, public works still are an essential element of economic strategy. Their acceleration in times of declining employment or retardation during inflationary pressures can help to counteract those trends.

It has been said with some justification that fiscal and monetary measures should be used to stabilize the economy, public works to stabilize the construction industry.

Attitudes toward a flexible public works policy are divided. Groups which generally do not favor enlarged government activity are more prone to recommend retrenchment in public construction at times of full employment and rising prices than expansion when employment is falling off. Conversely, groups which hold that government ought to do much more than it is doing, are quick to push enlarged public works programs when unemployment looms on the horizon but reject the idea of contraction when inflationary tendencies are evident. In the view of both groups public works have only a one-way flexibility—in the direction which serves their major purposes.

In political reality public works do seem to have largely a one-way flexibility. It is much easier to expand them in times of economic

decline than to restrain them in prosperous days. In the long run, the inflationary spirit and trend almost always seem to gain the upper hand.

Public attention turns to public works as public works—rather than as roads, schools or hospitals—during periods of growing unemployment. Public works enjoyed the spotlight in the 1930's, again in 1949 and in early 1954. Several bills proposing the establishment of a public works administration were submitted in the second session of the 83d Congress and the Council of Economic Advisers created a public works planning unit in the spring of 1954.

The President in his 1955 economic report recommended establishing an Office of Coordinator of Public Works Planning. However, by then the economy had turned up again and public works as public works were no longer in the limelight. They had again become merely roads, schools, and hospitals. The proposal was not renewed in subsequent years.

The public works planning unit was transferred from the Council of Economic Advisers to the White House Office in the summer of 1956.

Public works policy at times of inflationary pressures

If any proof was needed that public works are hard to restrain—inflation or no—it was delivered during the past 2 years. While the Federal Reserve Board was trying to curb inflationary trends, the Federal Government more than doubled its public-works program and did its best to stimulate State and local government into enlarging theirs.

It is small wonder that the Reserve's antiinflationary policies were only moderately successful as they were counteracted by expansive fiscal policies of Federal, State, and local governments.

Because a public-works project once authorized cannot be held back, as evidenced recently by the upper Colorado project, it should be tried, at least, to postpone new starts and authorizations when inflation is rampant. But even this was not done in 1957.

The executive board of the Municipal Finance Officers Association in June 1957 issued a warning "Local finance officers should realistically evaluate the present economic status of their communities in an era of creeping inflation with a view to conserve financial resources to the greatest possible extent * * *." It suggested that "local governments acquire only the most urgent essential improvements, postponing others until loanable funds are available in larger supply." This was but a voice in the wilderness. Those who complain—justifiedly—about lack of Federal-State-local fiscal policy coordination had a point: municipal finance officers were counseling restraint during inflation when Federal officials were practicing expansion.

To be sure, the MFOA recommendation is not being followed: sales of State and local bonds in 1957 are running higher than in 1956; their annual total will be second only to 1955 when toll-road issues reached their peak.

There have been bitter complaints that high interest rates make it more difficult for State and local governments to market their bonds. Remedial action by the Government has been demanded. The purpose of high interest rates—to balance demand and supply in a tight capital market—seems to be understood by few.

It is impossible to be optimistic about the prospects of a deliberate governmental policy—at any level—to retard public works construction for contracyclical purposes.

Public works policy at times of growing unemployment

Federal civil public works now account for 8 percent of all civil public works and for 0.3 percent of gross national product. The volume could be tangibly increased within 6 to 8 months by accelerating the progress rate of projects under construction and by advancing the start of new projects. The 6-year advance program of public works maintained by Federal departments offers a ready reservoir when activity and employment in private construction drop.

In selecting the types of projects it should be remembered that four-fifths of the contract construction force is in the building field and only one-tenth each in highway construction and in other engineering construction. Three-fifths of the building work force consists of special trades such as plumbers, painters, and electricians. Specialization and rigid unionization limit the possibility of shifting workers from one type of construction to another. A drop in residential building cannot easily be offset by using the employees on road work.

The timing of military public works is and should be conditioned by national security considerations rather than by economic fluctuations.

As a rule Federal direct public works can be accelerated more quickly than most types of State and local works. In terms of volume however, the State and local field offers a far greater potential because of the vast amount of backlog needs in that area.

State and local governments will be hard put to meet their operational obligations at a time when economic decline reduces their revenues. They will have few ready funds to increase public works construction. Tax boosts will be unpopular—and in fact undesirable because of their deflationary effect—and ballot approval of bond issues may be hard to obtain in an atmosphere of general belt tightening. Expansion of State and local construction during a depression will have to be underwritten largely by Federal deficit financing.

States and local governments will need grants-in-aid rather than loans or guaranties. Most larger governmental units can sell bond issues but cannot legally incur indebtedness without cumbersome and time-consuming processes. Nor can they raise matching funds in short order.

Speedier action could be expected if 100 percent of the funds were supplied by the Federal Government. Even then most governors could not legally spend the sums without calling their legislatures into session.

A technique of fiscal coordination between the Federal Government and State and local governments for contracyclical action has yet to be developed. The volume of unconditional grants-in-aid as outlined in chapter 2 of this paper can be more easily and quickly regulated by the Federal Government than programmatic grants. Also States would have greater leeway in the use of the funds and could expend them more rapidly. But there is no "grand plan" that offers a solution applicable to all States. A study is needed of the constitutional and statutory provisions in each State in order to develop adjustable

formulas—and in some cases standby State and Federal legislation. Such a study could best be undertaken by the Bureau of the Budget in cooperation with State and local budget and finance officers and their organizations, the National Association of State Budget Officers and the Municipal Finance Officers Association.

A large shelf of blueprints of State and local public works could reduce lead time between authorization and execution of expansion programs. That fact motivated the initiation of planning advances for State and local public works plans in 1944. Presently both advances and grants are available for planning purposes. But the utilization of these programs under sections 701 and 702 of the Housing Act of 1954 is relatively small.

The major delaying factor in State and local public work construction is not so much the lack of blueprints but the time required to secure community acceptance and conclude financial arrangements under existing constitutional and statutory restrictions.

Efforts to build flexibility into the construction of the highway program so far have not been successful. A 100-percent Federal interstate highway program probably would be more responsive to directives for acceleration.

A program of rehabilitation of public buildings and roads would offer certain advantages: it would require little advance planning and engineering work, could be initiated with the least delay, would require few specialized skills and be spread widely throughout the Nation. It could be switched on or off, expanded or contracted. Unfortunately, it bears an undeniable resemblance to leaf raking.

The potential construction volume in the fields of urban renewal and public housing is great. The lead time, however, is long, usually extending over several years.

Summary

Acceleration and retardation of public works construction can and should be used to help offset major undesirable economic fluctuations which fail to respond to monetary and fiscal measures.

A slowdown at times of inflationary pressures should particularly apply to new starts but also to Federal projects under construction and to Federal aid and stimulation of State and local activities.

Substantial acceleration of Federal as well as State and local public works is possible and desirable when activity and employment in the construction industry show major declines. If such declines result from imbalance in costs, markets or methods, government intervention should not prevent the necessary corrections.

The largest potential for public works expansion in time of a major economic downturn lies in the State and local field. Most of the necessary funds would have to be provided by the Federal Government. Better techniques for a flexible Federal-State-local fiscal coordination should be explored in cooperation between the Bureau of the Budget and State and local finance officers.

HOW TO PROVIDE THE ROADS FOR WHICH USERS ARE WILLING TO PAY

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The Federal highway program, approved by Congress in 1956, is the most recent major addition to the Federal budget. It is undoubtedly part of a trend toward a greater Federal share in the Government of this country. Merely to attribute something to a trend, however, is not to justify it, and the economics of this program, inaugurated at a time when the size of the Federal budget is already causing widespread concern, deserves a more careful examination than it has so far received. That there is a need for more roads is fairly clear, that the States and cities have not been fully able to satisfy this need may also be granted, but does it follow from this that the Federal Government should step in? And, if it does follow, is the present period of full employment and inflationary pressures the right one for starting a large new investment program? These are the questions which I will discuss, without pretending to provide final and definite answers. In order to provide an orderly analysis, I shall start with a few basic problems of highway economics; the Federal program will not be taken up until the end of the paper.

The commercial principle

The principle that expenditures for roads are to be paid for by road users is by now widely accepted. It is, perhaps, surprising that this should be so, for, in the area of public expenditures, the desire to get something for nothing has always been prominent. In fact, the acceptance of this principle should be attributed not so much to its theoretical merits (which are considerable), but to a compromise between two conflicting tendencies. On the one hand, road users are dependent on governments for the facilities they need, but, on the other hand, they have to defend themselves against the pressure to impose heavy indirect taxes on gasoline, automobiles, and such. The establishment of a link between expenditure on roads and taxation of road users has enabled the latter to obtain road facilities without disproportionate burdens. In the case of the States, in particular, this link has often taken the form of a special-purpose fund and, with the Highway Revenue Act of 1956, a similar device has been introduced into the Federal budget. Nevertheless, it cannot be said that the mere acceptance of what is sometimes called the commercial view of road expenditures has solved all problems. It is by no means clear that present arrangements lead to the building of those roads for which

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there is the greatest public demand, nor that they lead to the most efficient utilization of available roads; the present paper is devoted to an examination of those problems.

As already noted, the commercial principle of road finance really consists of two parts. The first part says that road taxation, taken over a long period of time, should not be less than road expenditure over the same period. The usual justification is based on considerations of equity between competing industries; because of the inherent ambiguity of the concept of equity, it is perhaps better to state this argument in terms of allocation of resources. The mere fact that subsidizing roads out of general taxes would be unpleasant for the railroads is not relevant from an allocative point of view, for it would be undesirable if the Government were to guarantee individual industries against the consequences of economic or technological changes. What is relevant is that such subsidization may make roads cheaper in the eyes of their users than they really are, and that, consequently, some transportation would be diverted to the highways even though, from the social point of view, it could be more cheaply performed by the railroads. From this point of view, therefore, it is not really important that the total cost of roads should be borne by their users, but rather that the charges for road use are arranged in such a manner that people can choose between alternative forms of transportation on the basis of their social cost. We shall see later to what extent it is satisfied by the existing system of user charges.

The second part of the commercial principle says that highway users should not pay more than the cost of the road they use. The allocative arguments just advanced are, of course, equally relevant here, but there is one special point to be noted. Excise taxes on various commodities have been in existence from times immemorial, and without any justification in terms of the benefits which the Government provides for the industries concerned. The temptation to obtain additional revenue from gasoline and automobiles has naturally been strong, for these commodities are consumed mostly by the wealthy and their consumption is not too sensitive to price increases. Most economists take a poor view of excise taxes; given the fact that they exist, however, there seems to be no reason for regarding gasoline and cars as less suitable objects of excise taxes than, for instance, tobacco, phonograph records, or transportation charges. Nevertheless, it will be convenient for the discussion that follows to ignore any contribution to general revenue which excise taxes on the paraphernalia of highway use may produce.

One argument sometimes raised against the commercial principle deserves to be mentioned. It is held that roads produce so many indirect benefits, such as cheaper transportation, better accessibility of schools, availability of postal services, contribution to the defense needs, etc., that they should be subsidized on that ground. This argument is unsound, because it could equally well be applied to all other industries. Few economic needs could be satisfied, for instance, if there were no steel, yet this can hardly be considered an argument for subsidizing the steel industry. It is true that roads are a peculiar industry, but their peculiarity does not lie in the production of indirect benefits. Any contribution which they may make to the defense or to the post office should be charged to those departments, and not to

highways as such. The only important exception to the commercial principle arises when highways are constructed for purposes of unemployment relief. The unemployment compensation saved may then rightly be regarded as a subsidy to road construction from general revenue.

For the present purpose, the above brief remarks in favor of the commercial principle have to suffice. From now on, I shall take it for granted road finance is to be arranged in such a manner that the costs of roads are charged to their users with a view to attaining an optimal provision and utilization of roads. The next question concerns the extent to which such an arrangement is administratively feasible.

Methods of highway finance

The commercial principle would be substantially satisfied if roads were operated by private enterprise. For various reasons, to be discussed in a moment, this solution is now unthinkable, but, in the early 19th century, it did, in effect, prevail. The more important roads were then built and operated by turnpike companies, though not without some intervention from the Federal Government. These roads were financed by tolls. The advent of railroads gradually brought an end to the turnpike companies, and the roads were taken over by the State and local governments, which often continued to levy tolls. When automobiles became important, however, the tolls gradually disappeared. On highways, they did not reappear until the late 1930's, but, for the financing of bridges and tunnels, they were never entirely abandoned. After the Second World War, the toll-road movement spread rapidly, and it is only just recently that it seems to have weakened again. Because of their close connection to the commercial principle, a further analysis of toll roads may be useful.

The principal difficulty with toll roads has always been the relatively high cost of collection. By "cost" is meant not only the expense to the operator of the road, but also the time lost and the annoyance of road users. It is true that on modern toll roads both kinds of costs are quite small, but this is only so because these roads have a very heavy volume of traffic and because the number of access points is limited. On city streets, and on moderately traveled rural highways, the cost of collection would clearly be prohibitive. The levying of tolls on major bridges and tunnels is only feasible because access to such facilities is naturally restricted. Tolls, therefore, do not provide a general solution to the problem of road finance. Many people have inferred from this that tolls should not be used on road facilities at all, but this conclusion is unwarranted. When properly applied, tolls are a very valuable, even if minor, component of the system of highway-user charges. Before considering what constitutes a proper application of tolls, however, we must look at other methods of financing highways.

Apart from tolls, highways and streets are mainly financed from property taxes, taxes on vehicles (such as license fees and excise taxes on automobiles and parts), and taxes on the use of vehicles, more particularly the excise tax on gasoline. Property taxes, which are mainly of importance for the finance of city streets and minor rural roads, are not usually counted among highway-user charges; since their economic basis lies, however, in the increased value of property due to the

accessibility provided by roads, they are closely akin to user charges. Property taxes are eminently suitable for the financing of access roads, even though there may be only an indirect link between the value and the highway or streets that give access to it. They are much less suitable for the financing of through roads, which often have a harmful effect on the value of adjoining property, and whose benefits for other property may be too indirect to appeal to the imagination of voters. When automobile traffic developed and tolls went out of existence, other sources of finance for major roads, therefore, had to be found. Taxes on vehicles and on the use of vehicles proved to be the answer to this need, though it should be added that, in the case of the Federal excise taxes on gasoline and on automobiles, there was no formal connection with highway construction until 1956.

With the aid of revenues from gasoline taxes and license fees, an enormous mileage of roads has been constructed or improved. Whether the roads so provided were always those which were most necessary is another matter, however. The emphasis has been on rural roads, while in the cities, both large and small, the inadequacy of roads was and is a much more serious problem. Yet in terms of vehicle miles urban traffic is about as important as rural traffic. This comparative neglect of urban traffic congestion can, however, not necessarily be interpreted as a misallocation of resources, because the cost of road construction and improvement is so much higher in cities than in the country. It does, nevertheless, raise a fundamental question: What is the basis for the decision to build certain roads and not to build others?

Which roads are to be built?

In the old and unlamented days of private toll roads, the decision which roads to build was made by the ordinary standards of private enterprise. The turnpike operators had to decide for which roads there would be sufficient demand, for if traffic proved to be insufficient, they would go bankrupt and, if the traffic was more than expected competition, at least ideally, would satisfy the excess demand. Under that system, a close adjustment of supply to demand was therefore possible, though the high cost of collection was an impediment. The financing of local roads by means of property taxes also leads to a fairly good adjustment for that particular type of road, because residents will vote for the roads they need and against those which they do not need.

With indirect types of taxation, such as license fees and gasoline taxes, the problem becomes more difficult. The mere equality of expenditure on roads and receipts from user charges does not provide definite criteria for selection of roads to be built. In principle, the voters retain control, but this control is only of a very general nature. The States, which are now the principal agents of road construction, will not go bankrupt if they build roads whose cost exceeds the contribution made by their users provided they also build other roads where the contributions exceed the cost or can draw upon general revenue. There is consequently no direct test whether the roads actually built are those that are most necessary.

It is true that the States, by means of traffic surveys and similar methods, have tried to meet the needs of traffic as best as possible, but traffic forecasting is a difficult art, and the techniques followed, though

often ingenious, do not always inspire complete confidence. Thus there is no agreement among experts as to the valuation of time saved by road users on better roads; yet there can be little doubt that time-saving is the most important criterion by which to compare alternative road projects. The result is that, in a desire to be conservative in their estimates, engineers tend to use a much lower value for time than would seem to be economically justified. A typical figure used in planning calculations is \$1 per car per hour, whereas the willingness of drivers to pay relatively high tolls for faster travel suggests that \$4 or \$5 would be more realistic. Hence, it would seem that current methods of traffic planning do not put sufficient emphasis on time-saving; this might mean, for instance, that the construction of a bypass around a congested city is rejected because it would add too much to travel mileage, while in fact users would consider the saving in time more important than the additional mileage. However this may be, a thorough investigation of current traffic forecasting procedures, based mainly on a comparison of anticipated and actual traffic volumes on existing roads, should have high priority in highway research. New devices for forecasting traffic are continually being proposed, but attempts to test the validity of existing methods are hard to find. A study of this kind might cost as much as quarter of a mile of new roads, and would probably produce greater benefits in the long run.

The difficulty of estimating traffic needs is not the only objection to current highway planning. Further problems arise from the predominance of State governments in this area. The State is not necessarily the best planning unit; for the some purposes it is too small, for others it is too large. If the cost of every single road were paid for by the traffic that uses it, as is the case with contemporary toll roads, the size of the planning unit would be a question of minor importance. When revenue from several roads is pooled, however, and the tie between cost and traffic is loosened, the problem becomes more acute. A difficulty arises, in the first place, from out-of-State traffic. A State may be reluctant to build a road on which much of the traffic comes from other States, because it may not be able to collect sufficient gasoline tax revenue from this traffic. With truck traffic this difficulty is sometimes overcome by special levies, but this is less practicable in the case of passenger cars. If there were interstate highway authorities, the difficulty could be largely resolved; as it is, out-of-State traffic provides one of the main arguments for toll roads and Federal intervention.

The problem of city traffic

The opposite case, where the State is too large as a planning unit, arises particularly in the case of city traffic, already referred to above. In principle, the States are concerned with through traffic rather than local traffic, though in practice this principle is sometimes interpreted generously. Even so, State aid to city traffic is probably inadequate. It seems significant, for instance, that since 1941 (the earliest year for which adequate statistics are available), urban travel in terms of vehicle-miles has risen much less than rural traffic, even though the population living in urban areas has increased much more than that living in rural areas. An important aspect of this problem may well be that gasoline taxes are not a very suitable way of financing traffic

facilities in cities. The "stop and go" driving common in cities leads to a high gasoline consumption; if congestion were removed, gasoline consumption might therefore fall, instead of rise as is usual on rural roads. Improvements in city traffic could, therefore, be paid only by relatively high gasoline taxes, which might meet with rural opposition. City gasoline taxes or city license fees sometimes provide an answer, but the obstacle of out-of-area traffic is even more serious here than it is for the States.

Later on I will indicate why Federal assistance might be justified for urban traffic facilities. It should not be inferred from this, however, that the cities could not do more themselves to solve their problems. License fees and gasoline taxes certainly cannot provide the whole answer, but other possibilities are still open. In the first place, property taxes, the traditional means by which city streets have been financed, could be used to a greater extent for major urban roads than has been done so far. The value of all city property depends upon its accessibility, and there are already plenty of examples of cities whose centers are declining because people cannot go or park there. Higher property taxes would of course be unpopular, and an educational campaign might be necessary to overcome the shortsightedness which so often rules in those matters. Parking fees provide a further means of collecting the cost of urban traffic facilities from their users. When all costs of city streets are properly taken into account, it is evident that the parking rates now customary are much too low. Since nearly all the vehicles that enter the business districts will ultimately park there, parking fees need not be regarded merely as a device for rationing parking space. In fact, the difficulty of finding vacant parking space in most cities is a sufficient indication that, even for rationing purposes, the meter rates are not high enough. Unfortunately, a full discussion of urban traffic problems would require an analysis of much wider scope than can be undertaken in the present context; these brief remarks must therefore suffice.

Although gasoline taxes and license fees have made a very considerable contribution to the provision of more and better roads, the defects outlined earlier are at the root of the present crisis in road finance. For city traffic, an alternative partial solution has just been put forward. For rural traffic, there are two alternatives; namely, toll roads and Federal intervention, which I will take up in that order.

Modern toll roads

The revival of the toll-road movement since about 1940 must mainly be attributed to the reluctance of States to increase gasoline taxes, particularly to build roads which serve much out-of-State traffic, and to the unwillingness to exceed constitutional debt limits. It cannot be ascribed, as is sometimes done, to the technical characteristics of toll roads, for in some States toll-free roads have equally excellent characteristics. Most toll roads are operated by independent State agencies and are financed by revenue bonds, which are covered only by toll and concession receipts. The toll rates are typically between 1 and 2 cents per mile per passenger car; for trucks they are considerably higher. Expenses of collection and administration are typically around 5 percent of gross receipts, which is approximately the same proportion as for gasoline taxes and license fees. Net toll receipts are reserved for payments of interest and redemption on the

bonds originally issued to construct the toll; this is true even in those cases where the State has pledged its general revenues to bondholders. The users of toll roads are not exempt from ordinary taxes and license fees.

Though traffic experience on the toll roads has, on the whole, been fairly satisfactory, they have come in for considerable criticism. The early complaints about high accident rates are no longer heard, and most users seem to find the charges reasonable enough. Nevertheless many people, rightly or wrongly, still see an incongruity in the fact that facilities built by Government agencies are not available to everybody without further admission charges. I do not think this attitude deserves much sympathy; it is hardly consistent with economy in government.

Only slightly more respectable is the argument, relentlessly advanced by the United States Bureau of Public Roads, that toll revenue bonds are an expensive method of financing highways. Proponents of this idea argue that such bonds carry a higher rate of interest than those backed by the full credit of the States, but they fail to realize that this arrangement also takes the risk from the shoulders of the States. Thus the people of West Virginia struck a good bargain when, for an interest rate higher by a fraction of 1 percent, they induced bondholders to take over the risk of insufficient traffic. This risk has proved only too real, and the bonds are now at about half their par value. Comments previously made about the present state of the art of traffic forecasting are appropriate at this point. Now it might be objected that if the West Virginia Turnpike had been financed with the State's full backing no financial crisis would have arisen. In that case, however, the loss to the citizens of West Virginia, though less obvious, would have been equally real, for they would have paid gasoline taxes for a road which is not justified by traffic needs.

Although the argument about high rates of interest is, therefore, fallacious, there are nevertheless some arguments against financing by toll revenue bonds and against basing toll charges on the need to service those bonds to the full extent. Taking the last point first, it is clearly anomalous that toll-road users should pay not only for the roads they use, but also, through their gasoline and license fees, for the roads they do not use, and on which they consequently diminish congestion. From this point of view, it would seem that tolls from self-supporting turnpikes are normally too high. This means that the traffic on turnpikes is less than would be socially optimal, and that there is more traffic on parallel free roads than would be justified. It would, therefore, be better if turnpikes were subsidized by the State to the extent of gasoline taxes consumed by the vehicles that use them. Another solution, recently adopted in Massachusetts, is to give motorists refunds equivalent to the tax on the motor fuel they used on the turnpike.

In principle, however, there is nothing wrong with the idea of tolls as such. Toll roads may be regarded as offering premium travel, for which travelers may be expected to pay extra just as they do on airlines and railroads.

The conception, implicit in the above, that tolls are a means of enabling motorists to select the traffic facility which they prefer, does

not agree entirely with the usual view of tolls. The latter are commonly regarded not from an allocative, but from a purely financial point of view. Thus, tolls are normally based on the historical cost and not on the replacement cost of the facilities to which they apply, and it is commonly stipulated that when bonds have been redeemed, the facility shall become free. The absurdities to which this view can give rise may be illustrated from the example of the San Francisco-Oakland Bay Bridge. This gigantic structure was built during the depression at a relatively small cost. The toll is consequently only 25 cents for passenger cars and traffic is so heavy that serious congestion prevails during long periods of the day. Although only a fraction of the useful life of the bridge has been spent, the bonds have been nearly paid off. If the toll were to be removed, the congestion would undoubtedly become still worse. Plans for a second crossing have been approved, but construction costs have risen so much since the 1930's that the toll would have to be higher than the present rate, which would lead to underutilization of the second bridge, and is apparently also a major psychological obstacle in the minds of those concerned. These plans have therefore not yet been put into effect. At present, it would be more economical to discourage traffic on the old bridge by raising the toll, but it is perhaps too late for that, because the development of commuting from the East Bay to San Francisco, encouraged by the low tolls, has created powerful vested interests. If the tolls had been based on replacement cost rather than historical cost, these difficulties might never have arisen, and the second crossing would probably not be necessary.

The San Francisco-Oakland Bridge provides an example where historical cost-pricing leads to an unduly low toll rate. We need not go far to find an example where it leads to too high a toll. A few miles to the north is the San Raphael-Richmond Bridge, which was opened in 1956, and on which the passenger car toll is 75 cents for a shorter distance. Traffic has so far been much below the estimates on which the project was based. This may conceivably be no more than a temporary phenomenon since some types of traffic—particularly commuter traffic—may need several years to reach their normal volume. For the sake of argument let us assume, however, that traffic will continue to fall short of original expectations, as now seems probable. There can be no doubt that reducing the toll would go some way toward curing the situation, and it is even conceivable that at a lower toll rate, total receipts might be larger. This remedy has indeed been proposed, but it had to be rejected because the agreement under which the revenue bonds were issued fixed the toll rate at 75 cents. That these agreements contain provisions about minimum toll rates is in itself inevitable, since otherwise the States might be tempted to satisfy bondholders' interests in order to curry favor with the voters. Nevertheless, it is clear that if the traffic projections on which the road or bridge has been based turn out to be too optimistic, its historical cost, as indicated by the size of the bond issue, is quite irrelevant from an allocative point of view. After the road or bridge has been built, the only thing that really matters is that it is used to the fullest extent without creating an unnecessary demand for additional facilities.

Examples of the two kinds of anomaly noted can be easily multiplied and, as time goes on, more and more examples will no doubt

appear. Their principal implication is that toll revenue bonds are not a suitable means of financing highway facilities. We may illustrate this from the first-mentioned case, where the actual toll was too low; this is perhaps the more common case. If, as would be economically rational, the toll were raised, toll receipts would increase even more beyond what is necessary for servicing the bonds. The excess revenue cannot be paid out to bondholders, for their claim does not extend to anything beyond principal and interest. Under existing procedures, the only result of the higher toll would be that the bridge would become toll free even earlier than is the case already, and we have seen that this would be economically undesirable. The users of the bridge did not undertake to bear the risk of insufficient traffic; hence there is no reason why they should profit from greater traffic; the same argument applies to the State. Although a higher toll would therefore be economically desirable because it would improve traffic conditions on the bridge and would prevent the building of a possibly unnecessary second bridge, under the existing system there is no one who would be entitled to the additional revenue.

The statement of the difficulty at the same time suggests a solution. The problem is one of risk bearing, the risk being that of insufficient or excessive traffic. The institution which has been specifically created to bear risks on a large scale is the corporation. If toll roads or bridges were operated by corporations, the difficulty here outlined would disappear. Certain new problems would arise instead, and these we must now consider.

The first possibility that probably comes to mind is that these corporations should be privately owned. Unfortunately, this is difficult for two reasons. In the first place, particularly where highways are concerned, the private corporations would compete with toll-free roads provided by the government. Moreover, we have seen that a rational coordination of toll roads and free roads required that some gasoline tax funds be turned over to the toll road or refunded to its users. It is clear that, in the case of a private corporation, such transfers would cause major administrative problems. The second obstacle in the way of private corporations is the opposite of the first and is perhaps more likely to occur in the case of bridges or tunnels. If the toll facility has no competition from toll-free facilities, and does not require any gas tax funds, there will inevitably be a tendency to operate the facility as a monopoly. The problems raised thereby are similar to those encountered in public utilities, such as electricity or the railroads. In other words, government regulation would be necessary, and the advantages of private enterprise would be largely lost. Perhaps a better solution would be to have toll facilities operated by government corporations, of which there are several precedents in the Federal domain. There would be no reason why these Federal corporations should not sell stock to the public, but their charter would specifically require that they set tolls on the basis of replacement cost and the demand for traffic. Any gains or losses they might make in following this policy would accrue to, or be borne by, the shareholders. They would be entitled to such tax moneys as are necessary to maintain a proper traffic balance between toll roads and free roads.

The Federal highway program

A toll system modified in this manner might make an important contribution toward solving the present crisis in road finance. In

fact, however, another outlet seems to have been chosen. The Federal Government, which only until recently had a minor part in the planning and financing of road facilities, has now accepted a major responsibility, particularly with regard to the so-called interstate highway system. The Federal Government will now reimburse States for 90 percent of the cost of that system; for this purpose, it has reserved the full Federal excise tax on motor fuels, including the part which previously belonged to general revenue, and one-half of the yield of the Federal excise tax on motor vehicles and parts, which formerly went entirely into general revenue. Since this program implies a considerable addition to the Federal budget, the current concern over big government makes it particularly important to examine whether it is really necessary.

We observe, to begin with, that of the funds to be dedicated to Federal highway aid the major part, namely the gasoline tax receipts, is not different in nature from that levied already by the States. At first sight, it might seem therefore that the Federal Government is not doing anything which might not have been done by the States themselves. Indeed, one cannot help but suspect that the Federal program is attractive to the States mainly because the psychological burden has been removed from them, even though the total burden on taxpayers is exactly the same. If this suspicion is correct, the program, at least in part, would be an attempt to remove highway finance from the constant scrutiny of the taxpayers; such an attempt would hardly merit the sympathy of those interested in economy of government or in the autonomy of the States. If the voters in the separate States do not consider new roads sufficiently urgent to be willing to pay higher gasoline taxes for them, it is not clear what would be gained by forcing them to do so through Federal levies whose connection to particular expenditures is inevitably less direct. As Professor Arthur Smithies has pointed out in his authoritative work on the Federal budget, congressional budget procedures date back from a time when the Federal Government had a chronic surplus of revenue; consequently, Federal control may not be strict enough to prevent expenditures whose benefits fall short of the burden of the taxes by which they are financed.

There are, however, two additional arguments that have been advanced in favor of the Federal program. The first one concerns interstate traffic, of which we have already spoken previously. It is correct that the State gasoline taxes may fail to provide adequately for out-of-State traffic, but it is doubtful whether this justifies Federal gasoline taxes on a large scale. As far as truck traffic is concerned, the States already have means of charging out-of-State traffic. In those States where out-of-State traffic is really heavy, toll roads have provided a solution which could be further improved along the lines indicated above. Although adequate statistics are not easily available, it does not seem that in the other States interstate traffic is really sufficiently important to warrant Federal intervention, except in a few isolated instances. Few of the highways that form part of the so-called Interstate System are in fact used to a large extent by interstate traffic.

The second argument in favor of the present program relates to civil defense needs. In case of war it may be necessary to evacuate

most cities, and the capacity of the highways around many cities is not nearly large enough for this purpose. In fact, most urban traffic systems are already quite inadequate for peacetime traffic needs, and the States have probably not done enough to improve those systems, most State legislatures being dominated by rural elements. It would seem that if urban roads were brought up to the requirements of peacetime needs, they would also go far toward meeting civil defense needs; however, if security arguments have to be invoked in order to obtain something which can also be defended on less dramatic grounds, it would be churlish to criticize. Since, moreover, the financial problems of urban traffic facilities are so much more serious than those of rural facilities, a case could be made for Federal intervention.

A further argument for Federal highway aid, based on the different income levels of the different States, appears to be less sound. Whatever one thinks about equalization payments among States in general, it must be doubted whether better highways are among the principal needs of the poorer States. If it is felt that the latter need more Federal money, it would be better to let them decide for themselves for what purposes it is most urgently needed.

The upshot of our discussion of the Federal highway program is that, for urban traffic facilities, it has considerable justification, but that for rural facilities, there is a distinct danger of wasteful expenditures. The 90 percent-10 percent formula in itself is hardly likely to lead to a careful evaluation of projects on the part of the States. The most important thing is, however, that those responsible should not think in global figures of billions of dollars of highway needs to be matched against billions of revenue, but that they should ask themselves whether each specific road project is justified by the taxes contributed by the users of that particular project.

From the point of view of employment policy, the Federal highway program also contains some dangers. Economists are now unanimously agreed that the Federal Government can help to even out business fluctuations by spending more (relative to revenue) during a depression than during a boom. Moreover, public works have been the traditional means by which the Federal Government has increased its expenditures when this was needed for cyclical purposes. It has been recommended that, as a measure to implement the Employment Act of 1946, the Federal Government maintain a list of projects which could be put into operation when a depression threatens or is underway. It is not clear whether such a list has ever been drawn up, but if it has, highway projects now incorporated in the Interstate System would no doubt figure prominently in it. The wisdom of undertaking those projects irrespective of general economic conditions must therefore be seriously questioned, for if a depression really comes about, the Government might then only be left with relief projects of very questionable usefulness. Another argument goes in the same direction. By undertaking major capital expenditure in a time of full employment, the Government drives up prices and wages and makes the whole project even more expensive than it need be. Although the present program is hardly underway, these tendencies have already become manifest. It might be argued that, since the present program is being financed by current revenues, there is no danger of such an inflationary development. Unfortunately, this is

not so, for some of these current revenues are, in effect, merely a transfer from general revenue, and the matching between receipts and expenditures during the life of the program is by no means exact. It would have been much better if expenditures under the Federal highway program were to be regulated with reference to general economic conditions, which was the intent of the Employment Act of 1946.

HIGHWAY EXPENDITURES FOR ECONOMIC GROWTH AND STABILITY

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On the basis of rather broad estimates, it appears that annual expenditures for transportation in the United States were about \$70 billion in 1955—a figure that approximated 18 percent of the gross national product. The annual expenditure for highway transportation was on the order of \$55 billion, representing about 80 percent of total expenditures for the movement of persons and goods. Expenditures for the movement of persons alone were in the neighborhood of \$44 billion, of which 95 percent was expended for automobility.

These few figures give some notion of the current role of transportation generally and highway transportation particularly in the American economy.

I can claim no special competence as a forecaster. But using what appear to me to be reasonable and perhaps the more conservative estimates of those who have ability in predicting population and economic trends, I can suggest that total expenditures for transportation will be on the order of \$140 billion in 1975 (at 1955 prices). Of this amount, perhaps \$112 billion will be spent for highway transportation of goods and persons.

If these figures are approximately correct, in dealing with transportation we are dealing with about one-fifth of the total economy and highway transportation alone will represent about one-sixth of our economy. It is not unlikely that we will have 100 million motor vehicles traveling 1,000 billion vehicle-miles on highways by 1975.

FACTORS AFFECTING FUTURE HIGHWAY TRANSPORT DEMAND

Forecasting total transportation movements is hazardous at best. Certain factors may be noted that might increase our demand for travel at a faster rate than general economic trends would indicate. Among these I would note:

1. With increased incomes and changes in income distribution the share we can devote to services including transportation is likely to increase.

2. Widely predicted increases in leisure time (extended vacations or shorter workweeks) may increase travel demands.

3. Urban decentralization and industrial dispersal are likely to increase the need for transportation.

4. The high rate of family formation to be expected in the 1960's should cause a substantial upsurge in demand for travel, especially on the highways.

5. An increase in the relative number of women drivers and the amount of driving they do may be anticipated.

Considerations of this nature appear to bolster the recent forecast of the Aeronautical Research Foundation, in which it was indicated that expenditures for personal transportation would increase 108 percent in 20 years, while population would increase only 34.5 percent and gross product 92.5 percent.¹ As an important sidelight here, it should be noted that this group estimated that expenditures for automobile transportation would increase at a faster rate than expenditures for other forms of personal transportation. Also significant is their conclusion that "air carrier activities will, in the future as in the past, center largely about the transportation of passengers."² In short, with respect to freight movements, air activity, while expected to grow, is not expected to make serious inroads into the demand for surface transportation of goods during the next 20 years.

It is concluded that highway transportation will more than hold its own in the next 20 years or so. In analyzing forces supporting this conclusion it is convenient to break highway transportation into segments. With respect to rural, rural-city, and intercity movements, both of goods and persons, it seems rather clear that present trends will continue and perhaps be accentuated. With respect to intraurban movements, no effective substitute for the transportation of property on highways is contemplated in any quarter.

Perhaps the largest question involving the future of highway transportation concerns the movement of persons in our larger heavily concentrated urban areas. A considerable body of respectable opinion believes that urban transportation problems cannot be solved by highway improvements. Some in this school hold that freeway development merely compounds problems by pouring more vehicles onto already congested streets and into inadequate terminal areas. The extremists would go so far as virtually to ban automobile traffic or to make it so costly as to curtail drastically its use in larger central cities. At the other extreme are those who visualize an almost complete rebuilding of our urban economies around an improved system of highway transportation, including (not to hopefully) improved mass transit in buses.

A middle course is more likely. It is my view that we are not dealing with an "either-or" proposition in the large majority of cases. In many cases decentralization and suburbanization will continue and we will have increasing dependence on highway transportation. In other cases, the need for mass transit to take care of peak-hour commuting traffic, especially in larger metropolitan concentrations, will become so apparent that improvements will have to be made, but not to the exclusion of highway improvements which will be needed to accommodate freight movements, essential personal movements at all times, and substantial volumes of nonpeak hour movements. If I interpret recent comprehensive studies of urban transportation problems correctly, they do not deny the need for the highway improvements in contemplation. They indicate the need for rapid mass transit in addition and raise concern about the apparent preference and priority currently given to highway programs.

All in all, forecasts of 100 million vehicles and 1,000 billion vehicle miles in 1975 are on the conservative side in my opinion. But for

¹ U. S. Office of Aviation Facilities Planning, *National Requirements for Aviation Facilities: 1958-75: Vol. IV, Forecast of Aviation Activity*, June 1957, pp. 1-3.

² *Op. cit.*, p. 4.

what they are worth they represent an increase of 58 percent in motor vehicles and 71 percent in highway travel in 20 years. They suggest the large demands that will be placed on a highway plant that is even now widely regarded as woefully inadequate. They suggest also that our highway problem is not merely a matter of "catching up" on accumulated deficiencies as is often thought to be the case, but is also one of meeting the demands of our economic growth.

As a matter of fact, predictions of this sort put the cart before the horse in a sense, because the number of vehicles and the amount of travel we will have will depend in considerable measure on the kind of highway plant that is provided and perhaps also on the kind of vehicles that are produced. Improved highways and improved vehicles may lead to considerable increases in the demand for highway travel.

HIGHWAY NEEDS

In recent months much has been said about our \$101 billion highway program. Actually, no such program was considered by the Congress either in 1955 or 1956. The \$101 billion figure refers to an estimate of "needs" made by the Bureau of Public Roads in cooperation with the States in 1954, with projections only to 1964 for all highways, roads, and streets of the Nation, except for the Interstate System (then 40,000 miles) for which needs were projected to 1974 and which it was hoped might be met within 10 years. Congress actually provided for an increase in Federal financing of approximately \$25 billion to be spread over 16 years.

It is not our purpose here to evaluate the new Federal program in detail nor to appraise "needs" estimates. It should be observed, however, that a new estimate which will shortly be before the Congress will show highway needs that undoubtedly will be considerably higher than any previous estimates for a number of reasons. Since 1954, (1) highway costs have increased and continuing increases are in prospect, (2) the standards finally adopted for the Interstate System were higher than most of the States had used in previous estimates, (3) the Interstate System was increased by 1,000 miles (and pressures continue for further enlargement), (4) many States that had little experience with freeway and expressway development in 1954 will now provide more realistic estimates, and (5) needs on highway systems other than the Interstate System are being more carefully made and are being projected to 1971.

The highway needs estimates with which we are now becoming familiar are often thought to be rather precise engineering determinations. It is only fair to say, however, that such estimates are based on projections of traffic which in turn are dependent on population and economic trends with which this committee is concerned. They are also based on economic assumptions as to the standards of highway service for which the people are able and willing to pay. Such assumptions are unavoidable. It is clearly necessary to establish certain standards for the design and construction of highway facilities. These standards are self-continuing in large degree. When a long-range highway program is undertaken it is not possible to materially change design speeds or structural standards to accommodate faster or heavier vehicles, without rendering recently completed segments of the highway plant functionally obsolete.

It seems probable that the engineers in establishing standards which can be used for highway design and as a basis for establishing highway needs have made a shrewd estimate of the effective demand for highway service. Their judgment may be fortified by calculations of savings in vehicle operating costs, time, and accidents resulting from highway improvements, which may be set off against the costs of the improvements. A word of caution is indicated however. To the extent that intangible savings (or benefits), such as comfort, convenience, or even savings of personal (noncommercial) time are included in benefit-cost equations, we are dealing not with engineering findings, but with value judgments which are proper subjects of economic determination when possible and legislative consensus when not.

These notes of qualification on needs estimates do not dispel the fact that vast highway improvement is necessary if motor-vehicle travel is to be made convenient, safe, and economical.

Nor should anyone be under the illusion that the Federal highway program of 1956 has once and for all solved the Nation's highway problems. Even as an approximate goal the \$101 billion figure of 1954 was probably low. Moreover, the assumed Federal share (about 30 percent) of the burden was stretched out from 10 to 15 or 16 years during which time additional "needs" will accumulate. Then, too, the States have responded rather slowly in increasing their levels of highway financing, and some have made reductions in view of the increased Federal funds. We are led, therefore, to reconsider some of the issues that will tend to cut out the nature and size of the highway job we have to do.

HIGHWAY-USER FINANCE

One of the major issues of highway finance, involving both tax and expenditure policy, involves the conceptual nature of highway-user charges. In some circles they are regarded simply as selective excises adopted primarily as an expedient to get revenues for highways.

Objectives of user taxation

User taxation, properly regarded, is something more than a popular and convenient vehicle of highway finance. In large measure, it is the outgrowth of a conscious decision to distribute the burden of highways along lines that prevail in the private sector of the economy. User charges are a crude form of pricing services which are distributed unevenly through society in a roughly measurable fashion. In the light of the modern function of highways—that is, to serve traffic—society does not deem it necessary or desirable to underwrite this uneven distribution of services through normal tax channels. Owen puts the question as whether it is desirable to include transportation facilities in the same category with general governmental services such as education and defense, or whether transportation should rather be looked upon as similar to the supplying of food and clothing, of which it is a part, and therefore, financed by the user.³ It may be added that highway users are expected to pay for their vehicles, fuel, and the like, and there seems little reason why they should not also

³ Owen, Wilfred, *Transportation and Public Promotional Policy*, in *Transportation and National Policy*, issued by U. S. National Resources Board. Washington, D. C., Government Printing Office, 1942, p. 257.

pay directly for the highway services which constitute but a small fraction of total highway-transportation costs.

There is a rather more compelling ground for distinguishing the highway function from many other governmental functions. Government is furnishing one element of a full-scale transportation service competitive in major respects with other transportation mediums that are privately managed and financed. In the absence of overriding considerations to the contrary, ordinary economic prudence dictates that each transportation alternative bear full economic costs so that traffic may be allocated among them in relation to the economy and fitness of each. The assessment of user charges is a direct means of recovering the costs of highway service. Thus, user charges may be designed to remove all or the major subsidy elements involved in government provision of highways, thereby promoting the economic allocation of resources.

Although equity among taxpayers and neutrality among transportation alternatives are the more obvious objectives of user taxation, its rational use may serve other purposes. Government is faced constantly with difficult expenditure questions, with respect (1) to the level of all governmental services and (2) to the allocation of funds among its various functions. In most areas, the decisions must be sociopolitical rather than economic in nature, for there is no direct connection between those called upon to pay the bill and those enjoying the services. Highway-user taxation tends to establish a direct connection between the costs of supply and the effective demand for highway services.

Not only is it possible to establish in a general way the relation between benefits or savings to users from a given highway program for which they will be expected to pay, but the users themselves will react to proposed programs through the legislative channels. Taxation that bears directly upon those who demand services furnishes a test of their willingness to pay. It provides a built-in restraint to highway demands that might well be absent if only general taxation were used for highway support. Highway-user groups themselves, by following their self-interest, will play an active part in highway management and investment programs, and thereby aid in the development of enlightened highway policy.

Division of the highway burden

In general, there is wide acceptance of the idea that user taxation should be used to defray some part of the costs of highway programs, at least for the major facilities. The main argument concerns the extent to which others may be called upon to share in the burden through either general taxation or special levies of one kind or another.

On the one side are those who, reflecting on the traditional patterns of highway finance and on the continued wide diffusion of highway benefits through the economy, believe that user taxation should be used rather sparingly. Everybody benefits, it is argued, so everybody should pay.⁴

⁴ One danger of benefit analysis receiving increasing recognition lies in the fact that benefits often accrue to highway users but are subsequently shifted to others. Not infrequently in the past such benefits have been counted twice. For example, highway improvements may lower motor-vehicle operating costs which may be regarded as a user benefit, but the lower costs may be reflected in lower freight charges and thus, ultimately, be shifted to consumers.

At the other extreme are those who would have users bear the full burden of highway provision, perhaps excepting new roads and streets in subdivisions. They would embrace a public-utility-system concept of the highway function. They would argue that wide diffusion of benefits is no more relevant to the highway pricing problem than is the fact that investments in other undertakings may have sequential effects that benefit others than the customers of the products produced. They point out that many other products and services supported entirely by prices aid in the performance of governmental functions, enhance our capacity for defense, and promote the development of land and other resources.

Many students of the problem take a position between the extremes. They base an allocation of highway costs between users and others on observations of the nature of the plant and the services provided by it. The key lies in classification of highways and services.

Those who lean toward the benefit argument observe that the purpose of major arterials is service of traffic, in the main, while the purpose of local roads and streets is primarily the provision of access to land. Roads between the extremes serve community purposes. Based on such classifications of the highway plant, reasonable, if somewhat arbitrary, assignments of cost responsibility may be made. Generally, all or most of the costs of major traffic facilities are assigned to users. Generally, all or most of the costs of less traveled local roads and streets are regarded as the responsibility of property owners or other general taxpayers.

Another approach to the assignment of costs is advanced by those not entirely persuaded by the benefit-diffusion analysis but still bothered enough by the weaknesses of user taxes themselves that they cannot embrace the public-utility concept in its entirety. It is observed that while user taxes as now employed must be uniform throughout the taxing jurisdiction, the costs of highways vary considerably. When comparisons are made between highway costs per vehicle-mile and user payments per vehicle-mile, it is found that many roads, aggregating a large mileage, particularly those whose main purpose is the provision of access, do not generate enough in user taxes to defray their costs. In short, they either have to draw earnings from other segments of the highway plant or receive support from general taxes or special levies.

Such a line of reasoning might lead to the establishment of levels of user charges which would enable the major highway systems to be fully self-supporting from earnings; other road systems would be credited with their earnings, and the deficiencies would be met from other taxes, if at all. The decision to make up the earnings deficiencies would be predicated on the interests of those directly concerned with the roads in question; for example, the affected property owners.

Whatever the theory, the general trend of recent years is to require ever-increasing share of the highway burden to be paid by the users themselves. While rural governments continue to get larger allocations for their roads, cities are making headway, not only in securing larger direct user-tax allocations, but also in getting more and more State participation in State highways within their borders. The most dramatic move in recent times was the decision of the National Government in 1956 to follow the pattern established by the States and

finance its greatly expanded highway program by taxes specifically recognized and earmarked as highway-user charges.

Expenditure of user-charge proceeds

A major issue of expenditure policy is whether it is appropriate to use taxes levied on highway users for nonhighway functions of government. The so-called diversion controversy has often engendered bitter debate. In general, specialists in public finance regard the earmarking of public revenues as inimical to sound budgetary policy for obvious reasons that need not be repeated here.

In my view, additional considerations are involved in the case of true highway-user charges. A bona fide user-tax structure is superimposed on the general-tax structure, and users are expected to defray all general-tax obligations. That is to say, they will be subject to general sales, property, and income taxes without consideration for the fact that they pay user charges. In such case, the user charge is justified only in its relation to the highway function. In the absence of cost pricing much more sophisticated than we have yet developed, the proceeds should be used for highways, as a general rule.⁵

Two notes of qualification may be made. If it is deemed by legislative consensus that a larger share of aggregate income should be channeled to certain governmental functions other than highways, it may be found appropriate in some circumstances to reduce user taxes (or not raise them as high as the interests of users might indicate), thereby increasing the taxable capacity of the people and making it easier for them to contribute to such other functions through normal tax channels.

A second issue involves the appropriateness of selective excises that bear on highway users as an element of the general tax structure. It may be found advisable to impose such taxes rather than any of the possible alternatives. But in this event the taxes should be appraised solely on their merits as general excises with no consideration given to the highway function. Such taxes would be imposed in addition to user charges. On the one hand, questions may be raised (1) as to the desirability of singling out the particular commodities or activities for additional taxation, and (2) as to the effect of such taxation on competitive transportation alternatives. On the other hand, it may be argued that selective taxes on gasoline and the like for general purposes may be less regressive or have less effect on incentive or capital formation than possible alternatives. When the issues are decided forthrightly, the use of proceeds of taxes so imposed for general purposes is quite a different matter than the imposition of user charges as compensation for highway service and subsequent use of the proceeds for nonhighway purposes.

CREDIT FINANCING OF HIGHWAYS

An important issue of highway finance involves the use of credit as against pay-as-you-go financing. Much may be said for the use of credit in the financing of capital facilities of long lives. There is equity in spreading out the costs over the useful lives of the projects.

⁵ If user charges were geared to costs rather than to expenditure requirements, a case could be made for diversion of interest and possibly property-tax equivalents included in the user-tax structure of the general revenues.

Neutrality of public policy for competing carriers is also promoted when the users of a publicly provided facility are required only to meet the economic costs rather than the burdens of a particular expenditure program which may be more or less than costs in any particular year. The tax requirements for financing a credit program are likely to be closer to cost than tax requirements for a pay-as-you-go program.

When there is need for a crash program to overcome accumulated deficiencies the use of credit may permit a larger program than would be possible with current taxes, with the result that the savings associated with highway improvements will develop at an earlier time. Larger available sums may also eliminate the need for interim or stopgap improvements which are uneconomic in the long run.

Certain practical arguments against the use of credit deserve recognition. There is always question as to our ability to predict future highway needs and rates of obsolescence. In numerous cases States and local governments have found themselves paying for capital facilities long after they have outlived their usefulness. In recent experience every estimate of future needs seems to be considerably higher than the previous one. People are led to wonder whether by using credit to pass to the future a part of the burden, they will not compound problems by requiring future users, not only to pay for past improvements, but also to meet burdens of even greater magnitude in providing for their own needs.

Highway finance is still closely tied, and properly so, to general fiscal considerations. The use of credit by State and local governments may depend on the general financial positions of such governments. Constitutional and statutory debt limits may be involved. It may be thought necessary to reserve whatever margin of credit may be available for other purposes (school construction, for example), for which ready sources of current revenue are not available. In short, credit financing may be rejected for highways if it is at all feasible to finance a reasonable program from current revenues, so that credit may be used for other purposes without encountering legal debt limits or practical limitations of the bond market.

The use of credit at the Federal level involves other thorny problems. Here involved is a potential conflict between general economic policy, including the important matter of stabilization, and a neat theory of user financing.

It may be noted that the Clay committee in 1955 proposed financing the recommended expansion in the Federal highway program with bonds, apparently thinking primarily of equity among users. Shortly thereafter, the Commission on Intergovernmental Relations, among others, urged that the expanded highway program be financed substantially on a pay-as-you-go basis.

An interesting compromise was suggested by the research and policy committee of the Committee on Economic Development. The committee "rejected immediate payment out of user charges for the Federal share of improvements on the Interstate System in favor of balancing construction costs and revenue from user charges over a period of about 20 years."⁶ But to permit acceleration of the program during

⁶The research and policy committee of the Committee for Economic Development, *Modernizing the Nation's Highways*, January 1956, p. 15.

the initial catching-up years, it proposed use of general taxes. In effect, general taxes would be borrowed temporarily but would be repaid to the General Treasury out of user charges collected in the later years of the program. This intermediate approach, the committee felt, would be a means of reconciling the case for credit for highways with "a stabilizing budget policy—a policy of setting tax rates so that the Government's cash expenditures are balanced each year at a high level of employment."⁷

INTERGOVERNMENTAL RELATIONS

Prior to 1954 there was considerable debate over the role of the National Government in the highway function. There is no question as to the constitutional authority of the National Government to engage in highway activities, either directly or indirectly. There is little question but what the National Government has some degree of interest in highways. In recent years, there has been rather general agreement that substantial acceleration of the rate of highway improvement throughout the Nation was required in order to overcome accumulated highway deficiencies and to accommodate the future growth of highway traffic. The only real debate concerned the ability and willingness of the States and their subdivisions, with or without repeal of the Federal gasoline tax, to make needed improvements at a rate that would satisfy national objectives at the same time. The ultimate decision is recorded in the expanded Federal highway program of 1956.

By no means does the adoption of this particular piece of legislation end our concern with intergovernmental relations in highway affairs. In fact, there is not yet agreement as to its significance. It is taken in some quarters to be nothing more than a crash program to meet an immediate crisis; others see it as a new departure in Federal-State relations whose full dimensions are not now clear; while still others believe it may be the first step toward a truly National System of Highways which ultimately will be administered and financed entirely by the Federal Government. Certainly, there will be arguments to contain the Federal program within its present confines, if not to cut it back. Just as surely, there will be counterarguments to enlarge the Federal role both in administration and financing, perhaps as a first step by enlarging the Interstate System.

Classification for division of responsibility

In the opinion of many students of the problem, the key to division of responsibility for highway provision between the National Government and the States, and indeed between the States and their subdivisions, lies in classification of the highway plant in accordance with its service characteristics. The highway study committee of the Commission on Intergovernmental Relations expressed it this way:

When highways are classified according to purposes served, the allocation of responsibilities becomes quite involved. We can envision a system of major highways in which the national interest is exceedingly strong because of defense and interstate commerce requirements, pass through a penumbra

⁷ Loc. cit.

in which national interest gradually dims, and finally arrive at those local roads and streets in which the national interest is so remote, if it exists at all, that it may be completely overshadowed by other considerations.⁸

Following this line of reasoning, the Committee concluded that "the greatest national responsibility for highways centers in expeditions development of the designated National System of Interstate Highways of some 40,000 miles (both urban and rural), not only now but in the future."⁹ The President's Highway Advisory Committee, headed by General Clay, found also that "the interstate network is preponderantly national in scope and function."¹⁰

It must be recognized that there may be wide disagreement over the composition of any given highway systems designed to establish degrees of interest of the several levels of government; also that established systems need not remain static. "Over time," said the highway study committee, "the segment of the highway plant in which national interest is strongest may increase as highway transportation develops and needs for interstate commerce and national defense increase."¹¹ Even so, reasonable classification of highways is an important step toward the rational division of highway responsibilities. It is a useful toll for determining where each level of government should concentrate its energies and resources. This is especially true because of the somewhat reciprocal interests of governments in different classes of highways.¹²

Even after classification of the most discerning kind, many real problems of administration involving important policy decisions remain.

In the highway field, the course of cooperation with the States rather than direct performance by the National Government has been accepted. Moneys are made available as grants-in-aid to the States for specified purposes under stipulated conditions. Both purposes and conditions are spelled out to assure that the National Government's objectives in making the grants are fulfilled. There is always a problem, however, as to how far conditions and controls should be carried.

On the one hand the government making the grant is responsible to the people, not only for attaining the objective but also for doing it efficiently and economically. It might therefore be tempted to provide extensive controls, particularly if, as is widely believed, there is a tendency to exercise less care in expenditure of outside funds than of funds raised by taxes imposed by the spending government. Yet excessive detail may be stultifying to the receiving government, sapping its initiative, and perhaps undermining the very motive of choosing the cooperative path in the first place: Building up local responsibility while relieving the higher level of some of the burdens of administration. The dilemma is not easily resolved and is likely to be subject to continuing experimentation.

⁸ Federal Aid to Highways, June 1955, p. 21.

⁹ Op. cit., pp. 22-23.

¹⁰ President's Advisory Committee on a National Highway Program, A Ten-Year National Highway Program, January 1955, p. v.

¹¹ Op. cit., p. 1.

¹² "We have suggested that the national interest diminishes as we proceed from highways of interstate importance to local access roads and streets. Local and State interests increase in the opposite direction." Highway Study Committee of the Commission on Intergovernmental Relations, op. cit., p. 24.

Some immediate problems

A few immediate problems in connection with the new Federal program warrant comment.

1. The National System of Interstate and Defense Highways for which the Federal Government is providing 90 percent of the funds (and more in some States) is to be built to freeway and expressway standards with full control of access. Clearly such requirement is imperative if the huge investment in highways is to be protected. But the location of such superhighways, especially in urban areas, involves extremely delicate matters of intergovernmental relations since considerable disruption of established communities is inevitable. Not infrequently the community interest will appear to be, and in some cases may actually be, in direct conflict with the State and the national interests which may be confined primarily to the most expeditious movement of traffic. A high order of statesmanship will be required to steer a proper course between the Scylla of abject capitulation to local pressures and the Charybdis of utter disregard of community values, either of which may lead to a scuttling of the highway program.

2. Entry of the National Government into the user-tax field introduces new complications in highway financing. Not only is the familiar question of tax overlapping involved, but a problem arises in meshing of tax-policy decisions between Nation and States so as to recover fair and reasonable compensation for highway use. Should each level act independently of the other or can a way be found to coordinate the user tax structures of the States and the Federal Government? Is there an opportunity for development of one or more tax-sharing schemes, particularly in regard to the taxation of commercial vehicles in interstate operation?

3. The basis of apportionment of Federal-highway grants among the States deserves additional attention. The highway-aid programs of the Federal Government have not been designed with equalization, as the term is strictly defined, as a primary objective. That is to say, fiscal capacity in relation to needs of the recipient governments is not considered. The objective of an equalizing grant would be to equalize local tax efforts. In principle, that unit of government that could meet its needs with the least tax effort would get no grant at all. The grant to all others would be calculated by deducting from their estimated needs the amounts which a tax effort equivalent to that of the first would produce. The formulas used in highway finance are not directed to this end. Whatever equalization is achieved is incidental and largely accidental.

If we accept the national decision that the Federal Government should be responsible for financing 90 percent and more of construction of the Interstate System, the proper basis of apportionment would seem clearly to be estimated needs of the system in each of the States. Any other formula, unless its factors are so selected and weighted that they too accurately reflect relative needs, would provide an uneven rate of development of the Interstate System. Congress has wisely provided that needs will become the basis of apportionment for 1959 and subsequent fiscal years. It is to be hoped that principle will prevail when the new needs estimates are presented to Congress for approval in 1959.

4. Congress will also be faced in 1958 with reconsideration of grant programs for other eligible highways—the Federal-aid primary and

secondary systems and their urban extensions. One can hope that these programs will be reappraised critically. Perhaps in this area there lies an opportunity for readjustment. For example, these programs might be scaled back and turned in the direction of true equalization, thus increasing the responsibility of the States and their subdivisions for all but the National System of Interstate and Defense Highways. Continuation of these programs at present or, what is more likely, increased levels, will slow up development of the Interstate System—that system in which the national interest is greatest. The alternative is an increase in levels of Federal highway financing which again would adversely affect the abilities of the States to meet their highway problems.

ECONOMIC STABILIZATION

Our discussion of highway issues to this point has been predicated on assumption of a high level of employment of men and other resources. What has been said, it is hoped, demonstrates that efficient highway transport, which depends in turn on adequate highways, is so intimately related to economic growth of the Nation that it is fair to assert that basic highway programs cannot be turned on and off at will for purposes of economic stabilization. To question the frequent but casual shelf-of-public-works concept of the problem, however, is not to say that potentials for adjustment to meet stabilization objectives do not exist.

A certain paradox is evident. The type of national highway program we have envisioned as most nearly meeting the appropriate Federal role in a high-level economy, that is to say, a program confined primarily, if not exclusively, to a very limited system of highways of interstate and defense importance, is the very program that is least susceptible to adept manipulation for purposes of general economic stabilization. This sort of highway program involves hard and careful planning. It involves long lead times between authorizations of funds and actual beginning of work.¹³ It involves disruption of established communities and dislocation of thousands of homes and businesses. Currently in California, public hearings are being held involving as many as a dozen or more alternatives for location of comparatively short stretches of freeway. Many months will be required before some of these locations will be finally determined. Only then can the precise engineering design of the project begin, after which the acquisition of rights-of-way and removal or demolition of buildings can get underway. As the easier projects are completed the problems will become increasingly complicated and time consuming. They would be further compounded in times of economic stress when the disruption of communities and dislocation of people and businesses will create greater economic hardships.

Further limitations of this type of program for quick economic stimulation are to be found in its concentration in comparatively few locations within each of the States and also in the rather high skills of labor involved in high-standard highway construction.

¹³ Lead times are currently reported to average 21 months for Federal-aid projects. American Road Builders' Association, *The Highway Construction Industry in a Long Range National Highway Program*, July 1957, p. 6.

This rather pessimistic view should be tempered in some respects. Continuation of the basic program at a high level will be a stabilizing force in itself. Moreover, there will be limited opportunities for acceleration. These may be availed of (1) by increasing Federal authorizations, (2) by reducing or eliminating matching requirements so that State resources may be directed to other highways, and (3) by using the Federal credit to finance the increased authorizations with the provision that the debt incurred ultimately be recovered from user-charge earnings.

In addition, consideration may be given to a broader type of Federal highway program which is specifically designed for purposes of economic stimulation. This might be a program that would temporarily extend to work on county roads, city streets, and lesser State highways. It would be concentrated on relatively simple projects that do not require involved planning and engineering, that would have comparatively short lead times, that would not disrupt communities nor require extensive relocation of businesses and families. If National and State effort is concentrated primarily on major highway facilities during high level employment, a considerable backlog of simpler highway, road, and street work projects is likely to be available throughout the country at all times in the foreseeable future.

Obviously expansion of Federal expenditures for highways in this direction will be less concerned with interstate commerce and defense requirements (and with the primary interests of highway users) than it will be with the objectives of the Employment Act. Credit financing might appropriately be used, but users should not be expected to repay the full costs. The program should be discounted as an employment-providing measure.

If a supplemental and rather distinct highway program of this sort does become necessary the nation may seize upon the opportunity to catch up and in some cases even to get ahead of its overall highway needs. Every possible effort should be made to insure that work of lasting quality is provided.

Many of us have been rather critical of the fact that much of the emergency highway work made possible by the Federal Government during the 1930's completely bypassed the Bureau of Public Roads. It is recognized that the Bureau is primarily an engineering force dedicated to high-standard construction, for which it is to be commended. But if the need for a broad-based highway program for economic stimulation arises, it is to be hoped that the Bureau will be flexible enough in its thinking and in its operations to give effective direction to such a program, while at the same time carrying on with the regular program of providing high-standard major arterials within the National Highway System.

CONCLUSION

Prospective growth of the national economy will need, as well as depend on, efficient highway transport which of course requires an adequate highway plant. A considerable economic effort which can be furnished only through government channels will be required to catch up and to keep up with our highway needs.

The heavy reliance on user charges currently practiced in financing the National and State highway programs now underway makes considerable sense in our competitive economy, from the standpoint of tax equity and neutrality. User charges also furnish a rough test of effective demand for highway service.

Concentration of national effort on a limited system of highways of prime importance to interstate commerce and defense can best fulfill the national interest in time of high-level employment. An early critical reappraisal of other Federal-aid highway programs seems to be in order.

Attention should be given (1) to the resolution of potential conflicts between community interest, on the one side, and State and National interest, on the other; (2) to National-State coordination in the development and administration of highway-user charges; and (3) to the bases of apportionment of Federal funds among the States.

In event of need for economic stimulation, the suggested Federal program, with high concentration on the Interstate System, has limited potential for expansion but consideration may be given to higher authorizations, the use of credit backed by user charges, and reduction or elimination of matching requirements. In addition, a broad-based program of project stimulation on county roads, city streets, and lesser State highways may be indicated. Such a program not only may provide employment opportunities, but, properly managed, can produce improvements of lasting quality.

XV. FEDERAL EXPENDITURES FOR RESEARCH
AND DEVELOPMENT

FEDERAL EXPENDITURES FOR RESEARCH AND DEVELOPMENT

ATOMIC ENERGY COMMISSION PROGRAMS, ECONOMIC GROWTH AND STABILITY

UNITED STATES ATOMIC ENERGY COMMISSION

Statement submitted by K. E. Fields, General Manager

In response to your request of August 2, 1957, we are glad to provide the following information and hope that it will prove helpful to the work of your Subcommittee on Fiscal Policy in exploring the relationship of Federal spending programs to the extent and character of the Nation's economic growth and to the problem of maintaining economic stability.

Under the Atomic Energy Act, the paramount objective of the programs of the Atomic Energy Commission is to make the maximum contribution to the common defense and security. AEC programs are formulated primarily to carry out national security policies, and considerations of national defense are necessarily overriding. Nevertheless, the act further directs that "the development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living, and strengthen free competition in private enterprise." The objectives established under these criteria for nonmilitary atomic-energy programs, such as the development of economical civilian electric power from nuclear energy, are of necessity long range in character, but are nevertheless essential for the future growth of the economy. In practice, the substance of atomic-energy programs, including those primarily directed to peaceful purposes as well as those for military purposes, is almost wholly determined by national security policies and technological advances in the field. Thus, there is but limited latitude for selection of implementing measures on the basis of the influence that could be exerted by AEC expenditures on short-term economic trends.

Expenditures of the Atomic Energy Commission were approximately \$1,964 million in fiscal year 1957, or about 2.8 percent of total Federal spending. In the period from the beginning of World War II through fiscal year 1957, Federal expenditures on the atomic-energy program amounted to \$15,811 million, of which \$13,578 million represents payments after the transfer of operating responsibilities from the Manhattan Engineer District to the Atomic Energy Commission on January 1, 1947. The AEC balance sheet shows plant and equipment assets of \$6,908 million on June 30, 1957.

These amounts connote a scale of activity which could not fail to have an important impact on private sectors of the economy. The novelty of many of the major atomic-energy undertakings and the fact that the entire growth of the enterprise has occurred in such a brief period have accentuated this impact. The varied nature of this impact is indicated by the following examples:

REGIONAL IMPACT OF AEC ACTIVITIES

The nature of the activities to be performed has required placing a number of atomic-energy installations in areas of low population density, thus magnifying their relative impact on the economies of those regions. Leading examples of such installations are the following:

Installation	Plant investment	Region
Hanford works.....	\$1,053,000,000	Southeastern Washington.
Oak Ridge.....	1,437,000,000	Eastern Tennessee.
Savannah River plant.....	1,235,000,000	Western South Carolina.
National Reactor Testing Station.....	150,000,000	Eastern Idaho.
Albuquerque and Los Alamos.....	317,000,000	Northern New Mexico.

URANIUM PRODUCTION

Similarly, the purchase of domestic uranium ores and concentrates and the establishment of guaranteed prices have had a major impact on uranium producing areas, primarily the Colorado Plateau area of Colorado, Utah, New Mexico, and Arizona, and to a lesser degree certain sections of Wyoming, Washington, and other Western States. Uranium mills in operation at the end of fiscal year 1957 represented more than \$50 million of private capital investment, and new mills coming into operation over the next 2 years represent an additional \$60 million investment of private capital. These amounts do not include the cost of mine development. AEC purchases of domestic ores and concentrates were in excess of \$150 million in fiscal year 1957, and are expected to exceed \$200 million in 1958, and \$250 million in 1959.

The procurement of uranium concentrates from foreign sources involved expenditures of more than \$190 million in fiscal year 1957. The projected growth of uranium imports from Canada is expected to bring shipments from that country during the next few years to an annual value of more than \$250 million, and total uranium imports to an annual value of about \$350 million. Exchange payments of this magnitude are a significant factor in creating markets for United States exports.

ISOTOPES

A recent survey of the use of radioisotopes in industrial operations indicated that such applications are reducing industrial costs by an estimated \$400 million or more per year. The medical profession uses radioisotopes in the treatment of probably more than 1 million patients a year. The economic significance of such industrial and medical uses is expected to increase several times over during the next few years. In addition, the extension of agricultural applications of

radioisotopes is expected to produce annual savings of several hundred millions of dollars.

COAL PRODUCTION

Because the development of atomic energy is sometimes represented as being inimical to the best interests of coal producers, it is pertinent to comment on this relationship. To generate the electric power used in the gaseous diffusion plants at Oak Ridge, Paducah, and Portsmouth, approximately 20 million tons of coal are purchased annually and more than 2 million tons of coal are consumed annually in providing heat and electric power for other atomic energy operations. Payments for this coal amount to about \$100 million dollars per year. Looking ahead to the period when generation of electric power from nuclear energy becomes competitive in cost with generation from the burning of coal, AEC estimates of the growth of nuclear power production are based on the expectation that only a portion of the increase in electric power consumption will be met by nuclear powerplants. In other words, it is expected that annual consumption of coal for electric power generation in the United States will continue to increase for many years.

SMALL BUSINESS

The typical pattern by which the Atomic Energy Commission provides for the operation of the Government-owned installations which carry out the major part of AEC-financed activity is by cost-type contracts. The scale of these undertakings largely precludes effective participation of small-business concerns at this level of responsibility. Rather, the opportunities for small-business participation in atomic-energy activities lie primarily in the area of providing materials and services under subcontracts. The long-established policy of the Atomic Energy Commission is that small-business concerns should receive a fair share of available work, and programs undertaken in cooperation with the Small Business Administration are believed to have contributed significantly to the AEC's success in meeting this objective. AEC contract actions with small-business concerns during fiscal year 1957 included prime-contract awards of \$108 million and subcontract awards of \$224 million, or 39 percent of the total value of all subcontract awards by AEC cost-type prime contractors.

DEVELOPMENT OF PRIVATE ATOMIC ENERGY INDUSTRY

A growing atomic-energy industry with expanding opportunities for investment could serve as a major stimulant to our economy. A primary purpose of the Atomic Energy Act of 1954 was to remove barriers to the participation of private enterprise in the growth of the atomic-energy industry. Assumption of increased responsibility by private industry offers the long-range prospect of major reduction of Federal expenditures for atomic energy.

Numerous Commission programs serve to encourage such private participation. For example, all technical information necessary to the design, construction, and use of reactors for civilian power and research has been removed from the category of classified information. AEC technical information is being made available to the pub-

lic by various means, a quarter million technical publications on atomic energy having been sold by the Government during fiscal year 1957. The growing list of Government-owned patents held by the AEC and released for royalty-free licensing now totals 1,269. In the general area of materials and services required for its atomic-energy operations, the Commission has urged private industry to take responsibility for supply, and, today, private industry is fabricating reactor-fuel elements and preparing to manufacture uranium feed materials which heretofore have always been provided by Government-operated plants.

Instances of private investment in developmental projects have been particularly notable in the area of power-reactor development. Two large-scale reactors, financed exclusively with private capital, are under construction and are expected to be completed in 1960. A smaller, privately financed, reactor plant, built to furnish technical data for development of one of the large projects, is already operating under license.

A key program in the Commission's efforts to advance reactor technology and to promote private participation is the power demonstration reactor program. By inviting industry to submit proposals for the development, construction, and operation of demonstration reactors, at the same time offering specified types of technical and financial assistance, the Commission is obtaining from industry substantial contributions of talent and funds to the development of promising reactor concepts. Such partnership arrangements substantially reduce the Federal expenditures required to accomplish these program objectives.

Accompanying these major developments is a broad undercurrent of private industrial activity concerned with the development and manufacture of radiation instruments, reactor components, and research reactors, and with provision of the wide range of materials and services associated with the use of radioisotopes and reactors. Growth of such activity is in keeping with the American tradition, in which new processes and products bring about a steady increase in the standard of living.

RESEARCH AND TRAINING

The Nation's fund of scientific knowledge and its reservoir of skilled people are among its most precious resources. Their development is no less essential to the long-range objectives of the atomic-energy program than the development of other resources, such as raw materials or technology. In this sense, the Commission's expenditures for research can properly be regarded as investment.

A large part of the funds devoted to support of research also contributes directly to training. In its support of basic research projects performed at universities, the Commission seeks to strengthen the established institutional framework upon which the success of advanced education in the United States depends. This objective is also promoted by the granting of fellowship awards, by special training offered by AEC for faculty members, and by financial grants for the purpose of enabling universities to acquire specialized equipment for teaching purposes. Special courses in reactor technology

are also offered to graduate students at certain AEC installations, but are regarded as interim arrangements which will no longer be required when universities have developed their own capabilities in this field.

Certain types of modern research require capital investment in equipment and facilities which is beyond the capacity of private institutions to provide. A major role of the Commission will continue to be the building of complex research instruments, such as particle accelerators, and the staffing of research projects involving their operation.

The foregoing examples are intended to show some of the more important relationships between Federal atomic-energy expenditures and the processes of economic growth in the private sectors of the economy. You have also requested comment on the usefulness or limitations of atomic-energy programs for purposes of stabilization. For the reasons indicated in the second paragraph, the policy considerations which determine atomic-energy programs afford little latitude for varying either the substance or the timing of implementing measures with a view to exerting compensatory influence on either local or general economic trends. In appropriate situations, such considerations would enter into program decisions, but would seldom be of determining weight. Within the framework of governmentwide policy, the Commission would again take an active part in such ameliorative programs as the effort to make it possible for business concerns in labor-surplus areas to obtain a larger share of AEC procurement awards.

Finally, you have requested comment on the standards employed by the Atomic Energy Commission in determining the kind and size of its requested programs. Approximately 85 percent of the Commission's annual operating costs are directly related to military requirements. The remaining 15 percent is concerned largely with basic research, development of civilian power reactors, regulatory responsibilities involving public health and safety, and other supporting activities of the nature of administrative overhead.

Relative priorities within the military portions of the program determine the main outlines for most of the Commission's appropriation request. The broad nonmilitary objectives of the atomic-energy program are also established as matter of national policy and generally reflect the status of atomic-energy technology. For basic research in the physical and life sciences and the development of civilian power reactor, these objectives serve to define numerous technological problems and areas of ignorance in which the need for increased understanding is critical and urgent. Programs proposed are focused on these needs, subject to such overall limitations as may be established by budgetary ceilings and the availability of qualified technical personnel.

FEDERAL RESEARCH EXPENDITURE POLICY AND ITS RELATION TO ECONOMIC GROWTH AND STABILITY

Ralph E. Burgess, economist, American Cyanamid Co.¹

The fruits of the pioneering studies of the Joint Economic Committee in the area of government fiscal policy will, in my opinion, be recorded as important milestones in the Nation's progress toward continued economic growth and a greater measure of business stability. I am grateful for the opportunity again to participate in your explorations.

HISTORICAL DATA

I should like first to present a capsule review of some of the pertinent historical data concerning the Federal research program in order that we may have some notion of the magnitude of the figures with which we are dealing. I must add that I have gathered the data from a number of sources. While they may differ slightly from others at your disposal, I feel sure that they reveal much the same story.

The universe of statistical data with which we are to deal is actually split into two parts by the advent of World War II. Over the pre-war years, 1929 through 1940, Federal research expenditures increased at a rate such as to double every 7 years (11.2 percent per year). They grew at a somewhat slower rate than overall Federal expenditures (12.9 percent per year) but faster than research outlays from other sources (2.8 percentage points per year faster on the average). During these years Federal research expenditures amounted to about 20 percent of all research spending. The overall price change between the year 1929 and the year 1940 (during the 11 years involved prices fell and rose again to about the same level) was not extreme and growth rates for research expenditures stated in constant dollars fall only slightly below those just mentioned. While there was, to be sure, an increase in the complexity of research projects, it is our feeling that the current dollar series pretty well reveals changes in the volume of Federal research activity.

As a result of the enormous demands of the defense effort for World War II, Federal research outlays more than tripled in the single year 1941. This had the effect of shifting the base of the Federal research effort to a new level, after which it reverted to a more normal rate of growth. Price changes have been sufficiently large during the years 1941 through 1956 to distort materially our notions of the amount of Federal research being carried on. Thus, almost half the growth seen in the dollar series for research activities is accounted for by rising prices. For the period 1941-56 the annual rate of increase in Federal research spending drops from 18 percent in current dollars to

¹The opinions expressed herein do not necessarily reflect the views of American Cyanamid Co.

about 11 percent after adjusting for price changes. What this tells us is that the Federal research effort—from a high, defense-swelled level—is continuing to expand at about the prewar rate. It is still growing somewhat faster than the private research effort (11.2 percent per year compared to 8.3 percent per year) and significantly faster than the rate of expansion in the economy as a whole (11.2 percent per year compared to 3.4 percent per year).

Other interesting changes have occurred. First, the rate of increase in total Federal spending has fallen off sufficiently that research spending within the Federal budget is now growing faster than total expenditures (11.2 percent per year compared to 1.9 percent per year) and, consequently, is claiming a larger proportion of total Federal outlays (3.6 percent in 1956 compared to about 2.5 percent in early postwar years).

Second, the private research effort has also been expanding rapidly and since in peacetime it tends to be much larger than the Federal effort, the relative contribution of Federal spending to total research spending has declined from nearly 70 percent in 1945 to perhaps a third in 1956. Clearly, however, government still occupies a position of strategic importance in the area of research.

Finally, the rate of expansion for the economy as a whole has been nearly three times as great in the postwar period as between 1929 and 1940. (In 1956 dollars, growth rate for 1929–40 was 1.2 percent per year compared to 1941–56 rate of 3.4 percent per year.) This increase in rate of growth results directly from the massive changes of the war period and, as we shall see, also from the contributions of our aggregate research effort.

The historical performance of Federal research expenditures during the general business fluctuations covered by the data bears brief note. Research spending tends to be much less sensitive to cyclical fluctuations in general business than most of the economic series with which we deal. Private research expenditures, with the attrition of profits, tend to fall somewhat more than Federal expenditures but, again, neither declines much.

FEDERAL RESEARCH EXPENDITURES AND ECONOMIC GROWTH

It is difficult to forge a clear causal link between a given research outlay and its ultimate impact upon the economy—or indeed, even upon the business of a single firm. Sometimes research results are striking. We can see a new industry emerge. But how much of the obvious gain may be attributed to research; how much to the other aspects of economic activity and how much to chance alone? Truly, about all that can be said with confidence is that economic growth has definitely been associated with research activity, private as well as government-sponsored, that our research findings, particularly in the areas of applied research have made a vital contribution to our economy. Research has served as the initiating factor or catalyst in almost every major industrial development.

At present, the defense category claims nearly two-thirds of both total Federal expenditures and Federal research outlays. Together with research expenditures for the Atomic Energy Commission it accounts for 82 percent of recognized Federal research spending. Findings of defense-oriented research result in constant and rapid obso-

lescence of ordnance and are clearly tied to spending for procurement of military materiel. According to one qualified student of the subject, about half of our current \$38 billion defense spending really ought to be classified as for research rather than for procurement. There have been instances in which aircraft have become obsolete before producers could complete delivery of a full shipment. Thus, the defense research budget plays a very important role in current levels of business activity. Imagine if you can what defense spending would be if it were limited solely to the replacement of worn out military equipment, or if when desired strength had been reached no attempt were made to maintain technological superiority. Except over a protracted period of time, it would be impossible to bridge with private business activity the economic gap created by any drastic reductions in the defense effort. However, the defense effort and the research effort connected with it do not contribute per se to the material well-being of the people and, inasmuch as goods are not destined for ultimate consumption (if strictly defined military spending amounts to economic waste) the impact of such outlays is inflationary in a period of full employment such as we enjoy today.

Defense research spending bears two outstanding characteristics. The first is that it is removed from the reach of normal standards of evaluation by its veil of secrecy and its vital necessity. The second is that its real impact upon economic growth is so oblique as utterly to defy measurement in the aggregate. We can cite, however, specific cases. For example, the synthetic rubber industry, which has been described as a "government-spawned war baby" has grown up largely in the postwar period and will presently be supplying more than 60 percent of our domestic needs for new rubber. And metallurgical research has materially contributed to the appearance of the new so-called rare metals which are finding a place as parts in computers and many other electronic devices. Defense research and its products enter into our lives in many less obvious ways. The superpremium gasolines of today were the aircraft fuels of World War II; and jet propulsion will probably soon be extended to commercial air transport. Thus, breakthroughs for military purposes have many civilian applications.

It is all important to our economic growth and stability that this sort of transfer should occur. For today, more than one-fourth of one of our most dynamic and yet limited resources—the inventive genius of research engineers and scientists—is being devoted to defense. Indeed, this is perhaps a better measure of our defense effort (and sacrifice) than our cash outlays for this purpose. The Federal Government currently maintains a large number of research laboratories staffed with scientific employees. These men devote their full time to government projects. But the effort accounts for only about one-third of total Federal spending on research. The bulk of the balance of federally sponsored research is performed by private industry under contracts with the Government. In 1952 nearly one-half of the trained scientific personnel in private concerns was involved with government research, and while the proportion thus engaged is certainly smaller today, it is manifest that the role of government as a consumer of research time—hence an allocator or director of technological innovation—is one of strategic importance.

The other 18 percent of the Federal research outlay is scattered over 31 research budgets administered by the remaining major Federal agencies. Again, the growth results are illusive, but it is certain that phenomenal mileage is obtained from every research dollar under a most unique set of circumstances. Most of these ventures are entirely unprofitable from a business standpoint—hence, in all likelihood, but for Federal funds, they would not be undertaken. Progress toward the point where their commercial exploitation can begin is aided by Government through the free dissemination of knowledge gained in the areas of both basic and applied research. One need only cite the remarkable gains in agricultural output and efficiency to highlight the growth contributions of these programs in the economic use of resources.

While the amount of Federal money spent on research is sufficiently large in itself to have some stimulating effect upon the economy, the timing in the past has not been such as to indicate its use for that purpose. The most persuasive argument for maintaining research expenditures is that, despite the lacking quantitative link, it is certain that today's research produces the growth of tomorrow. The nature of research spending (hence, the allocation of research funds to alternative projects) and the results from research are its vital features, rather than the sheer magnitude of the amount spent. For some types of Federal programs it is possible to estimate the aggregate impact, in the form of a flurry of economic activity, of a given amount of Federal spending as it flows throughout the economy, but, because the amounts are relatively small, this is not particularly revealing in the case of research spending. Many, perhaps most, research projects end in failure. Investment in these induces a small amount of consumption, and this is about all. It is the few successful projects which must carry us forward, and their importance escapes measurement.

FEDERAL RESEARCH SPENDING AND ECONOMIC STABILITY

Do Federal research expenditures have the economic consequence of minimizing the violence and frequency of business fluctuations?

New spending in an amount as large as Federal research outlays could have some pump-priming effects, and discontinuing such spending could be deflationary. But the immediate goals of research spending; namely, (*a*) inducing obsolescence, (*b*) creating new products, and (*c*) increasing efficiency, are essentially divorced from overt efforts to stabilize the economy through compensatory Government spending.

Much Federal research expenditure falls into a category that may be characterized as one of continuing necessity. Many of the activities of the Bureau of Standards, the Department of Health, Education, and Welfare, and the Department of Defense are examples from this group. Funds for these programs support the economy in a small way, but they do not show profound cyclical fluctuations, and they are not likely to be cut off for the purposes of economy. Slashing the budget for defense research would certainly not reduce our defense needs, but it might have the ultimate effect of cutting defense spending, both now and later. Commonsense tells us that any drastic cuts in the latter program could cause short-term havoc in the econ-

omy, because offsetting extradefense and especially extragovernmental forces of parallel magnitude are uncommon. But defense research and attendant defense spending seem to have grown into our economy since 1940, and they are likely to be with us for some time. Hence, any threat to stability arising in their discontinuance would seem rather remote. Furthermore, should the defense effort slacken, the scientists would presumably transfer to nondefense research and, after a difficult period of adjustment, the economy could go on as before.

PUBLIC VERSUS PRIVATE RESEARCH

Research other than for military purposes, as we have seen, constitutes a relatively small part of the overall program. As to its vitality, its importance, and its contribution, it speaks for itself. There is, however, a "no man's land" which borders on many segments of the Federal research program. It is into this area that I wish briefly to tread. I refer to a number of questions the answers to which defy quantification and rather, lie in the areas of theory or even conjecture. Because of this, I shall, where possible, present both sides of the issues for your consideration in the hope that an economist's approach may cast some new light upon them.

What effect has the existence of Federal research had upon private research, and how is this relationship reflected in economic growth and stability? One view holds that private industry, in the area of research, competes with government just as among its members; that government's entry into a field of interest to business stimulates private, competitive efforts to beat government to the punch in order to gain exclusive benefits. By this means, research effort is multiplied, the likelihood of success increased, and growth hastened.

The other opinion holds that government research activity in a given field discourages private industry from entering it, largely because government findings might be made public; hence, no certain, competitive advantages would accrue to the discoverer. If this opinion prevails, there is considerably less activity in fields entered by government research than there would be without it. Fewer research attempts reduce the chances of success and, in the end, progress is delayed.

Is too much emphasis in the Federal program placed on applied research, and how does this distribution of funds affect economic growth? If government reduced its applied research effort, would private industry fill the gap? Ninety-one percent of Federal research expenditure currently goes for applied research, i. e., finding new applications for old basic-research findings.² The same distribution of funds appears to prevail, on the average, for all industry. It has been suggested³ that "our current technological advances are based on the application of accumulated basic knowledge which is, perhaps, 20 to 30 years old." And it is generally agreed that basic research is poorly supported and lacking in vigor and quality.

² The Federal Research and Development Budget, Federal Funds for Science, vol. V, National Science Foundation, p. 16.

³ Report of Committee on Social Aspects of Science, the Council of the American Association for the Advancement of Science, as published by the New York Times, December 31, 1956, p. 6.

One side argues that basic research is as much the responsibility of business as of government, since business stands to reap many of the gains. There is, therefore, no reason why government should do more than required to fill the gaps in its known requirements and to compete effectively with other nations' defense efforts. Federal activity in applied research likewise exists because of the immediate need for the research results, which we have no assurance would be forthcoming from private enterprise of its own initiative, so the argument runs. Need is sufficient reason for entering a new area. It makes very little economic difference who pays for research, as long as it is done. In the end, most of it is done in the laboratories of private industry, anyway; therefore, efficiency is unchanged. It is said, let the government buy research to suit the needs only it is able to assess.

The other side holds that basic research is the responsibility of government—that it is the appropriate agent for remedying our deficiency in this area. This group suggests that there are broad areas in the Federal research program which could be and would be taken up by private enterprise if abandoned by government and if government communicated its needs; that, where private profit provides a sufficient incentive, there is no need for subsidy. For example, these critics include in this group portions of such activities as research in metals, chemicals, electronic devices, and areas of medical research. They contend that, in undertaking many of its applied-research projects, the Government performs an allocation function not necessarily delegated to it. When government concentrates its limited funds on applied research in natural sciences, basic research in general, and applied research in social sciences suffer. The capstone of this argument is that, while the growth contributions from the Federal research effort are already great, they would ultimately be even greater if more emphasis were placed on basic research.

I do not mean to resolve any of these disputes—and, to be sure, there are a great many more. But I do wish to suggest by discussing them that some distribution of funds other than that which prevails might prove to be more satisfactory and might better help us to attain our objective in progress. The efficiency of our Federal research effort would probably increase if it were carried out within the framework of a clearly defined policy rather than being the net result of small projects meeting many small needs.

SUMMARY

Federal expenditures for research and development have been rising rapidly. They provide an important stimulus to economic growth and are of minor assistance in achieving business stability.

The role of government as a consumer of at least one-third of our research talent and, therefore, as an allocator or director of technological innovation is of strategic importance. A fairly strong case can be made for a redistribution of Federal research funds with more emphasis to be placed on basic research. Basic research findings would then serve as a basis for the applied research of the future, and the conduct of the latter might be left more to the initiative of private business.

TABLE I.—Growth rates for gross national product, Federal expenditures (total and research), research expenditures other than Federal, total national research expenditures, 1929–40 and 1941–56

Item	Current dollars				1956 dollars			
	1929	1940	Increase or decrease, 1940/1929	Average annual compound rate of growth]	1929	1940	Increase or decrease, 1940/1929	Average annual compound rate of growth
Gross national product.....	<i>Billions</i> \$104.4	<i>Billions</i> \$100.6	<i>Percent</i> -4.0	<i>Percent</i> -----	<i>Billions</i> \$187.1	<i>Billions</i> \$213.7	<i>Percent</i> +14.2	<i>Percent</i> 1.2
Federal expenditures:	<i>Mil-lions</i>	<i>Mil-lions</i>			<i>Mil-lions</i>	<i>Mil-lions</i>		
Total.....	2,645	10,089	+281.4	12.9	6,890	25,868	+275.4	12.8
Research.....	23	74	+221.7	11.2	60	190	+216.7	11.1
Research expenditures other than Federal.....	120	271	+125.8	7.7	313	695	+122.0	7.5
Total national research expenditure.....	143	345	+141.3	8.4	373	885	+137.3	8.2

Item	Current dollars				1956 dollars			
	1941	1956	Increase or decrease 1956/1941	Average annual compound rate of growth	1941	1956	Increase or decrease 1956/1941	Average annual compound rate of growth
Gross national product.....	<i>Billions</i> \$125.8	<i>Billions</i> \$412.4	<i>Percent</i> +227.8	<i>Percent</i> 8.2	<i>Billions</i> \$247.2	<i>Billions</i> \$412.4	<i>Percent</i> +66.8	<i>Percent</i> 3.4
Federal expenditures:	<i>Mil-lions</i>	<i>Mil-lions</i>			<i>Mil-lions</i>	<i>Mil-lions</i>		
Total.....	20,539	71,400	+247.6	8.6	53,751	71,400	+32.8	1.9
Research.....	198	2,538	1,181.8	18.5	518	2,538	+390.0	11.2
Research expenditures other than Federal.....	602	5,213	+765.9	15.5	1,576	5,213	+230.8	8.3
Total national research expenditures.....	800	7,751	+868.9	16.4	2,094	7,751	+270.2	9.2

Sources: Gross national product, Economic Report of the President, 1957, p. 126.

Total Federal expenditures—National Income 1953; Survey of Current Business, July 1957, p. 11.

Federal research expenditures—1929, Vannevar Bush, *Science, the Endless Frontier*, 1945, p. 80; The Budget of the United States for Fiscal Year Ending June 30, 1958, p. 1134.

Total national research expenditures—1929 and 1940, Bush, *ibid.*; 1941 Applied Research in United States, National Academy of Science, p. 7, 1956—U. S. Budget, *ibid.*, and McGraw-Hill survey.

FEDERAL RESEARCH—STIMULATOR OF PROGRESS

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INTRODUCTION

Physical and social progress today depend upon the systematic process of research and development. Research, whether sponsored by government or private agencies, can leaven our economy and society. It can have effects spreading far beyond the research act or finding, just as one neutron can trigger a great explosion—but a way must first be found to start the reaction. It is therefore fitting that the Joint Economic Committee of the Congress should devote part of its study of Federal expenditure policy to the topic of research and development. On behalf of my colleagues at Stanford Research Institute, I am happy to take this opportunity to present our views on this subject under the title of "Federal Research—Stimulator of Progress."

It is our view that we cannot live indefinitely in a world where social progress advances arithmetically and technical progress advances geometrically. Because of our belief, this paper presents three main points of view:

1. Research and development have long since proved their unique value in advancing our technical prowess in the realms of defense, industry, and business.

2. Research, under the leavening sponsorship of the Federal Government, can be equally effective in the realms of human relations, social affairs, and other public problems.

3. Research in this Nation must be coordinated and analyzed and its meaning and capabilities profoundly understood if we are to derive from our research and development efforts the full benefits intrinsic to the scientific approach.

First, however, let us define "research" as the term is used in this paper. Most research in industry and government is of an applied character, and it is this applied type of research that is under discussion here. Applied research has a number of distinct facets. In the field of health, for example, applied research may create an antibiotic having specific properties—a tangible material. It may evolve a course of treatment for a particular disability—a method or process. Research may also, however, provide information on the probable consequences of following any of several courses of preventive action—a management aid.

The terms "research" and "development" have become stylish in both private and government circles. The securities analyst, for example, tends to put a premium on the stock of companies that report large research and development budgets. Because of the glamour of the term "research," however, an unfortunate tendency has emerged to label some activities as research which really do not deserve the

name. Some of the criteria that distinguish true research from the activities that masquerade as research are therefore worth mentioning.

Inherent in true research is the use of the scientific method. At the heart of the scientific approach is the analyst's interest not only in what happens, but in how and why it happens. He seeks an understanding of phenomena through certain basic steps:

1. He states the objective of his study as best he can and asks himself the pertinent questions.

2. He makes observations and measurements and records data.

3. He develops trial ideas or "hypotheses" which relate his various observations. In research dealing with policymaking and decision-making, this step requires making a "model" of the operations. The model is an analog, often mathematical, of the real system under study.

4. He devises experiments or other tests to determine relationships among the measured elements of the problem, gathers information to round out the picture, modifies his original hypothesis as necessary, and selects the hypothesis that best expresses the relationships involved.

5. Finally, he applies his refined hypothesis to the problem.

This approach can be used to achieve either of the two principal aims of science or management: (1) To control the phenomenon or operation or (2) to predict future events.

Unless an investigative activity utilizes the scientific approach it cannot fully express the potential of research and it therefore does not properly earn the designation "research."

This paper deals with applied research in the sense just defined. Its domain is applied research, supported or conducted by the United States Federal Government and, more particularly, that segment of the Federal program devoted to nondefense research. The important areas of industrially supported research and governmental defense research are well recognized and are treated herein only for comparison. It is one thesis of this paper that nondefense applied research, under government leadership, can produce a great variety of basic national benefits that can never be attained without conscious and concentrated effort.

To develop our viewpoints we first discuss the place of research and development in the Federal Government today. Of particular interest are current trends and the nature of the research process—what to hope for from research, how research influences the economy, and the significance of attitudes toward research.

That general discussion is followed by a number of illustrations of directions which Federal effort could take to utilize the full potential of research in nondefense areas. It is our purpose to show that many vexing problems of national concern can be made to yield to the research attack, if only the proper approach is selected.

The paper concludes by proposing a plan which gives promise of improving research and development efficiency throughout the Nation. At the same time this plan could give rise to major advances in our understanding of the fundamental capabilities of research as a tool able to help bring about a world more at peace with itself.

THE PLACE OF FEDERAL RESEARCH

However measured, research and development work supported by the Federal Government is big business—and is growing bigger. About \$3 billion a year, or 4.6 percent of the total Federal budget of some \$65 billion, is currently spent on research and development. It is perhaps more meaningful that the two activities consume roughly 6.4 percent of the amounts spent for the purchase of goods and services—mainly, equipment and payrolls.

Trends in research and development

The national defense program absorbs a very large fraction of total research and development expenditures. Of the \$3 billion, about \$2.7 billion is used by the Department of Defense, the Atomic Energy Commission, and the National Advisory Committee for Aeronautics.

Expenditures for defense and for nondefense purposes are increasing at about the same rate. In both fields obligations in 1957 were 2.5 times the figure for 1947, measured in constant dollars. In absolute terms funds obligated for defense research rose from \$712 million in 1947 to \$1,806 million in 1957, again stated in 1947 dollars. On the same basis, nondefense obligations during the decade increased from \$112 million to \$281 million. Appendix I contains details on Federal research and development obligations and expenditures, analyzed in several ways.

It is pertinent to examine the ratio of research expenditure to the value of the product and activity it supports. The goods and services that national defense research affects will, of course, actually be purchased at different times in the future. Nevertheless, the current ratio is revealing. In recent years this ratio has hovered around 5 percent, the 1956 figure being 5.2 percent.

An exactly analogous comparison cannot be made for nondefense research expenditures because much of the research and its products relate to activities outside the governmental sphere. To provide an indication of the relation between defense research activities costs and nondefense research activities costs, nondefense data on Federal research and purchases have been combined with research and products in the private-business field. The research cost to activities value ratio for all nondefense purposes has climbed from about 1.3 percent in 1947 to 1.7 percent in 1956.

The difference between these two ratios for defense and nondefense states that more than three times as much is spent on defense research per unit of product or activity as is spent in the nondefense realm.

Trends within national defense research expenditures are interesting in that the concept of methods research, especially that of research on matters affecting decisions and policies, is taking hold rapidly. Although research on physical problems is still overwhelmingly predominant, the whole field of operations research is receiving much special attention. Many branches of the armed services, together with special groups such as the Rand Corp., Operations Research Office, and Operations Evaluations Group (acting for the Air Force, the Army, and the Navy, respectively), are pressing this aspect of research effort with particular vigor.

Because the Government's present expenditures for nondefense research and development are comparatively so small, trends are more

difficult to isolate. It nevertheless seems reasonable to suppose, in view of the characteristic spreading habit of research methods, that similar trends are active within nondefense research. Certainly they are pronounced in industrial research, and give every indication of becoming more so.

Research, economics, and society

It always has been and always will be pertinent to ask what we want for our research dollars.

One classic answer is profit. That answer has motivated and still motivates almost all industrial research. Another answer is national security. That, of course, is why this country spends some 90 percent of its research and development funds on defense research. But there are other answers, too, and they are the answers that constitute the reason for this paper.

Research can be a stimulator of progress, with all that that connotes. Innovation—generated largely through research—is one of the great dynamic forces in an economy. Innovation is not only a matter of providing that human needs are more fully and better fulfilled. It is also a matter that vitally affects the economic health of the complex civilization in which we live. Our whole economic and social structure is such that if we do not continually press forward, we are in serious danger of falling back.

In their impact upon society, innovations are like waves. Once a series of discoveries has been initiated, it finds response in many fields, first those closely associated and then those more remote, until, like ripples in a still pond, everything within reach is touched. A kind of spirit of adventure pervades all endeavors, not alone those of the innovators, but those of business leaders, social leaders, and all other members of the community. In some respects and in some degree, exactly this has been happening in the past few years. In this case, military research and development has provided one of the important originating forces.

We need examine only 1 or 2 of the technical developments started during World War II to see the multiplying effect that research and development can have upon the Nation's technology and economy. Progress in developing fire direction systems for air and naval weapons later led to the electronic computer and to factory automation and control equipment—major businesses today. Improvements in military aircraft and their powerplants led to rapid expansion of the air transportation industry, with its inherent ability to knit the Nation and the countries of the world in to closer and more harmonious communication.

If innovation is a key to economic and social progress, we must ask how innovation is fostered. Any such consideration must take into account the impact of the technological, methodological, or policy-making breakthrough.

Barriers to further progress in a particular field crop up from time to time and advances are slowed until the barriers are penetrated. Once the barrier is penetrated, repercussions often fan out in all directions, leading to gains in a host of allied and distant fields.

The past has seen many such breakthroughs. As a rule they have come about rather gradually and their effects have spread slowly. In recent years we have learned, however, that under pressure of war or

other great need, a breakthrough can be forced much more rapidly than would occur in the natural course of events. The spectacular example, of course, is the creation and control of the chain reaction of atomic fission. Other examples can be found in the field of electronics, high-temperature metallurgy, computers, polio vaccines, and mathematical models for decision making in military strategy and tactics.

We must realize that each type of investigation—if appreciable progress is to be made—requires its own appropriate threshold level of activity below which little contribution can be expected. The principle involved is not entirely understood. Nevertheless, comparisons between research activities that yielded spectacular success and those of only mediocre fruitfulness seem to suggest that disappointing results may stem from the project that fails to mount a sufficiently high overall level of effort, no matter how ably staffed and administered. It is conceivable, for instance, that the effort of keeping abreast of current literature in a given field may require the full attention of the project team. Under such circumstances no new contributions can be expected. Such an explanation is certainly no full answer to the problem of evaluating the appropriate level of effort on a project. Until the phenomenon is better understood we can say only that problems differ greatly in the threshold level of effort they require for resolution.

If we identify a critical roadblock, and if we conclude that it must be removed, and if we mount a concerted effort to or greater than the threshold effort required to break through, we usually accomplish valuable results. We always take the calculated risk that the results will not be worth the effort. Nevertheless, whenever means exist for attacking a problem, we may anticipate eventual reward if enough directed effort is put forth. Some attempts will fail; some will be only partly successful; others will achieve triumph.

The significance of the breakthrough principle to the Federal Government is that the Government often is the only agency that can mount an attack that holds promise of success.

By its nature, then, research thrives only in an atmosphere that believes in its widest potentials—in an atmosphere conducive to progress. Through research the group or nation believing in progress will achieve its ends. We must remember, too, that pathfinding research does not operate in a vacuum, but has an infinitude of beneficial side effects. Progress spearheaded by the Federal Government will inevitably lead to far faster progress by State and local agencies, by private enterprise, and even by the initiator, the Federal Government.

RESEARCH AND DEVELOPMENT POTENTIAL IN NONDEFENSE FUNCTIONS OF THE FEDERAL GOVERNMENT

We have already seen that nine times as much is spent on defense research as is spent in the nondefense realm. Perhaps nondefense activities, then, represent undeveloped opportunities for useful research, because in them there is more virgin territory untouched by the effect of either an appropriate threshold level of research, or, in some cases, of any research at all. It is the purpose of this section to examine a few of the key nondefense activities in which the Federal Government has an interest, as a means of suggesting research opportunities of unusual promise.

Most of the research supported in the past by Government and private agencies emphasized products and physical phenomena. In the future, however, research on social phenomena can lead to an era of social invention perhaps comparable to the great era of technical innovation we are now witnessing. The results of undertaking research on the large and pressing problems of public policy will be manifested mainly in social adjustments, policy determination, and aids to administrative decision-making. It is likely, however, that some solutions will suggest combinations of equipments and humans into new systems that are more productive or beneficial than any we now know about.

The public problems that illustrate research opportunities in non-defense activities fall under three major groupings of Federal Government interests: (1) National human resources, (2) national material resources and public facilities, and (3) international relations. No attempt is made to group these problems according to responsibilities of departments of the executive branch of the Federal Government. Indeed, in nearly every case the scope of the problem cuts across functional departmental lines. While most of the problems listed in these three groupings are directly related to Federal Government responsibilities, others are only indirectly related. Even in the latter situation a case can be made for Federal expenditures for research to take leadership in promoting the general welfare of the Nation and in sponsoring exploratory and pathfinding efforts which can stimulate activities in the private sector of our economy.

National human resources

No area is more important to our national welfare than that of human resources—people. Their happiness and their effectiveness are involved. Education is one important domain of human resources. Health, crime, management-labor relations, and racial problems are others, to name a few. All of these are prime subjects for innovative research.

The preservation of our democratic heritage and the development of our human and natural resources are attributable in no small degree to our system of universal education.

Informed citizens agree that education today is confronted with many varied and complex problems resulting from our phenomenal increase in school population, our changing technology, and our new role of leadership in world affairs. The problems center around teaching staffs, curriculum and guidance, organization, and financing. Solutions are not likely to be found without major research studies. It is not easy to say to what extent the Federal Government should finance research on education. It may be sufficient to note that many problems of nationwide importance lack solutions as well as sponsors for adequate research on them.

We need answers to questions about teacher supply; about how we can staff schools and colleges for doubled enrollments when the supply of new teachers is actually declining; about how we can increase or stretch the effectiveness of capable teachers; about how we can finance a scale of teacher compensation that is competitive enough with other professional rewards to reverse the trend away from the teaching profession.

One particular aspect of education and training of paramount concern to the Federal Government directly is the need to determine what competencies will be required of the men and women in the Armed Forces of the future. This problem is a major one in view of the growing technical complexities of military weapons and equipment. Much serious and imaginative study should be directed toward providing competent technical manpower through farsighted education and training.

The Federal Government is the largest single sponsor of medical and health research. In this case the total amount spent for research is less open to criticism than the way expenditures are allocated. For example, despite an annual operating expense of \$900 million for Federal hospitals, little research has been done on ways of making hospitals more efficient.

Crime as a public problem takes a multibillion dollar economic toll. It represents an immeasurable blight in human anguish. Despite heavy spending by all levels of government to prevent and control crime, scarcely any pathfinding research is underway to seek new approaches to corrective and preventive measures. Organized applied research by qualified social scientists and physical scientists could well give rise to social inventions helpful in this national problem.

Another barrier to economic and social progress is the continuing problem of industrial management-labor union relations. The public interest in achieving a greater degree of harmony and equity in these relations is so important that this topic deserves attention in an organized research effort.

In these troubled times of racial integration of schools, our public officials must make decisions and policies without an adequate understanding of the consequences of alternative programs and without a sufficient knowledge of attitudes and how to change them constructively. Despite our past failure to undertake adequate research on this problem, it is still not too late to launch an inquiry into problems of race relations and to gather experimental data from the diverse methods that are being used to comply with the Supreme Court ruling on desegregation of schools.

National material resources and public facilities

Many problems in managing the Nation's natural resources and the Nation's public facilities are potentially researchable. Research on these topics can guide planning and the allocation of future expenditures.

The field of agriculture illustrates how research activities in industry and Government have cooperated to push productivity to ever-higher levels, in recent years advancing even faster than in manufacturing as a whole. The farm-equipment manufacturers are bringing out better and better machines; the chemical companies are introducing improved fertilizers and insecticides; the Department of Agriculture is developing new strains of animals and plants, new methods of cultivation, new marketing procedures, and new means of helping farmers decide on what to grow and how to utilize the natural resources of the land to the best advantage. As a nation we can be proud of our success in increasing productivity in agriculture, but at the same time we should strive for a better balance that will distribute the remarkably high agricultural output. Research efforts now

should be directed at determining policies which will enable the Nation to reap fully the advantages of increased productivity.

Opportunities for research exist in discovering greater industrial uses of farm products. Here, as in other problems, the Federal Government should try to sponsor research that will stimulate private industry to carry on its own studies of industrial uses of agricultural products.

Water has assumed new importance as a national resource because of rapid regional developments in population, industry, and agriculture. Actual or threatened shortages may endanger the means of many people to make a good living and the growth and economic health of whole regions. A special reason for Federal interest in water and initiative on water research is that the economic units for water supply and use are not coextensive with State boundaries or sometimes even with national boundaries.

There is need to formulate unified policies for entire water basins flexible enough to meet local conditions but clear enough to guide the Congress in such things as judging between competing functional and regional demands for water, means of financing water development, and the proper degree of Federal participation in development and control.

Research is needed especially on means of securing adequate supplies of water of the proper quality for domestic, municipal, industrial, and agricultural uses. Such research must be undertaken in coordination with study of problems in pollution, flood control, hydroelectric generation, navigation, and recreation, including the propagation of fish and wildlife. The research should deal extensively with projections of population and industry growth and with areas yet to be developed. Much more attention is needed on getting the highest economic use out of scarce supplies, better correlation of benefits and costs, and on more equitable financing of improvements by beneficiaries.

The Paley Commission has made a number of constructive suggestions for research and development on materials and energy resources. They need not be repeated here. However, one field for research deserves a high priority, namely, the use of western coals and of certain low-grade mineral deposits. Western coal is an abundant energy resource which seems much nearer to utilization than most others. Even so, its potential is not being realized because of unsolved technical and economic problems centering around getting the coal to market or converting it at the mine or elsewhere into electrical, gas, or liquid energy. The fact that the Army is supporting a modest research effort on these problems indicated the Federal interest in it. The growing dependency of the United States on imported petroleum and the increasing petroleum deficiency of the Western States accent the need for a stepped-up effort. This effort should be coordinated with the research and development on the chemical and industrial uses of coal for other than energy purposes. Since there are many well-financed private enterprises with an interest in research on coal, and which have done major work on it, the Federal Government should focus on leadership and coordination rather than replacing private responsibility, initiative, or financial support.

Technological advances and improved organization of mining and processing industries, accompanied by the ever-growing needs for

minerals of many types, has increased the incentive to discover and improve ways of using mineral deposits which may have been classed as uneconomic in the past. Many deposits were discovered when the circumstances for utilizing them were far less conducive to success than they are today or as they seem to be in the future. Production of copper from low-grade ores, iron from taconite, aluminum and uranium from deposits considered worthless only a few years ago, are dramatic examples of the process. As the higher-grade deposits become worked out, the need and economic opportunity for successfully working with low-grade ores are increased.

As the principal owner of the undeveloped mineral domain, as a major buyer and user of mineral products, as the guardian of the national security, and as the principal regulator of economic policy in the mineral field, the Federal Government has a preeminent interest in better utilization of low-grade mineral resources. Here, too, the Federal Government should sponsor research designed to catalyze private study of mineral deposits.

In its report, the President's Materials Policy Commission pointed out that development of effective means of highway transportation, coordinated with land and resources use planning, is essential to the utilization of resources. Highway planning is also connected with urban development and housing in that there should be coordination of plans for moving people into, within, and out of city centers. Moreover, highway construction that is compatible with master metropolitan planning can be used to clear slum areas. The Federal Government is actively interested in redevelopment of urban centers, in housing, and in its \$50 billion Federal highway program. Research to guide planning and decisionmaking in these interconnected topics is a vital national need.

International relations

Any consideration of Federal expenditure policy for economic growth and stability must respect the impact of the outside world. The strength of our economy not only influences the condition of other nations and our relations with them but has a material effect on a significant portion of our own economy. With the stakes in international relations so high in terms of national survival and with ever-changing conditions, our relations with other countries require a greater degree of creative study than ever before.

Although research on problems of international affairs is now a major occupation in government and elsewhere, Federal expenditures in this crucial field are minute in comparison with those on military research and development. For example, the Department of State spent about \$351,000 on research in fiscal 1957. It is time to ask whether a much more intensive effort on behalf of peace through research on political, social, and economic measures to reduce international tension is not now in order.

No less an expert than the United States Ambassador to Egypt, Raymond A. Hare, stated recently:

I would venture to suggest to you that no small amount of the grief and frustration encountered in both the framing and understanding of foreign policy could be avoided if foreign policy were approached more as a science and less as a politi-

cal rough-and-tumble with esoteric overtones. For, as a result of some reading on foreign affairs and some slight personal experience in that field, I have been increasingly impressed by the recurrence, in greatly changing circumstances, of identifiable phenomena which lend themselves to analysis, classification, and the drawing of basic and subsidiary conclusions. Whether these conclusions can yet be classed as laws in the scientific sense is debatable and it is not my purpose to press that particular point to conclusion with you today. There is no question in my mind, however, that such deductions do prove that the study of foreign policy can be pursued beyond mere action and reaction and also beyond the evoking of historical precedents, immensely valuable as that may be.

How, then, can research aid the official who makes decisions in international affairs? As a general guide, foreign policy should be anticipatory rather than reactive, wherever possible. This implies the possession of adequate facts and analyses in advance of probable events, at the least, and of some important possible events in addition. From this information consistent policies should be distilled in advance of emergencies, and courses of action formulated in event of need.

In the light of tensions between our country and the Soviet Union we know that it is prudent to spend large sums for research on new weapons systems. This same motivation suggests that it might also be wise to conduct more research on means of changing the spirit and attitudes of Soviet leaders. This would be part of finding a really feasible way of dealing with the Soviet bloc without the continuous succession of crises and palliatives.

As we succeed in finding means of easing tension we need to undertake research that can guide negotiations for limitations of armaments. Political, military, technical, psychological, and economic factors are intricately interwoven in this problem. The interdisciplinary team approach of applied research may succeed in penetrating this barrier and hence ease international tensions. It is difficult but nonetheless essential for our representatives in arms-limitation discussions to assess the implications of arms-limiting proposals. These proposals may be symmetrical or asymmetrical, but before they are advanced or accepted by us the clearest understanding possible of their probable consequences is necessary. Even if the likelihood of a research breakthrough in this area is slim, the risks of not understanding are so great that research should be given a chance to illuminate this problem area.

Should international tensions lessen, our policymakers need to be better prepared with facts and analyses than they are today to deal with the adjustments that would be required. It is likely that national-defense expenditures could be cut drastically in such a contingency. We need research to discover all the major impacts of such a situation and to devise means by which the transition can be accomplished without undue hardship to any sector of our people.

Another potential change to which our economic system may be called upon to respond is the possible widespread reduction in tariff barriers among many countries. Europe's common market is just getting into operation, resulting in regional adjustments in import duties that will modify the character of economic enterprises there and in other countries with whom European firms trade. It is con-

ceivable that an effective means of achieving the foreign-policy objectives of our country may require sharp reduction in parts of our own tariff structure. At present our knowledge of economic dynamics allows us neither to anticipate with any certainty the consequences of changes nor to establish the corrective measures that would make for a successful transition. Research can illuminate this contingency.

In spending vast sums on foreign economic aid, the United States has been rewarded with both successes and disappointments. Some of the disappointments are attributable to failure to establish criteria of economic development for each country where an attempt is made to create something which has never before existed. Better results could be obtained by a more searching analysis and comparison of patterns of economic and social development.

Not only are the resources of the United States finite, but any program of foreign aid will operate, like all other governmental activities, within the budget limitations imposed by domestic political and economic considerations. Research is needed here, too, to establish priorities among foreign-aid goals and to determine the effects that different levels of American foreign aid might produce.

Fully recognizing that foreign aid and economic development are complicated by the broader aspects of political relations among nations, we nevertheless believe that relatively small increases in expenditures on research will yield an appreciably greater payoff in the success of the foreign-aid program and in its benefits to the United States than most other comparable expenditures of funds.

Summary

Some say that work today is progressing satisfactorily on most of these important problems and that solutions will appear in the course of time. We agree with such a viewpoint, but we also contend in the strongest terms that progress is so slow as to make it unlikely that the solutions will emerge before the most serious damage has been done to our society and our economy.

Others say that research on these important topics is not a function of the Federal Government and would be too expensive. To these we reply that if the Federal Government does not take the initiative, no action is likely, and that the cost would be so small relative to the cost of not solving the problems that the comparison is not even relevant.

What is proposed is research that will come up with feasible answers to questions of vital public, social, and national concern. Each answer would have a number of alternatives with respect to procedures and approaches. What answers are considered best, what alternative procedures are deemed most favorable—indeed whether any action should be taken at all—is, of course, a matter for the Congress and the American people.

RESEARCH COORDINATION

In view of the large and increasing volume of research now being undertaken by and for the Federal Government, and the large and increasing volume being undertaken by private business and other agencies, the need is evident for coordination in these efforts. This need will grow more rapidly than research volume grows, because

the pattern of interdependent and overlapping investigations will become more complex.

Because the capabilities of research are most widely recognized in the Department of Defense, research coordination is more advanced in that Department than in other parts of the executive branch.

There, an Assistant Secretary of Defense for Research and Engineering performs valuable coordinative functions on a staff basis for all the military services. The effectiveness of this office is being further enhanced by the creation of positions of Assistant Secretary for Research, or Directors of Research, in each of the three services. This pattern of research coordination is in keeping with the best practices in corporate research management. Most research-minded companies do have a vice president of research who has advisory and coordination powers over several decentralized research groups in the corporation.

It is our recommendation that a sound immediate step for achieving better research coordination and for stimulating the research approach in nondefense activities would be to extend this aspect of the Defense Department's organizational structure to the other executive departments. In short, there should be created Assistant Secretaries for Research in the Departments of Agriculture; State; Commerce; Interior; Health, Education, and Welfare; Justice; Post Office; Labor; and Treasury. These officers would give appropriate stature to research in each Department. Together they would form a group through whom interdepartmental research coordination could begin, just as interservice coordination is now occurring within the Department of Defense.

At the present time, some of the functions of overall coordination and evaluation of the Government's research programs are assigned to the National Science Foundation, the National Research Council, Interdepartmental Committee on Scientific Research and Development, and the Bureau of the Budget. The Nation's total research effort could be more effective if, as a second step, one of these agencies were authorized to extend its coordinative role and to take an active as well as a passive approach in research matters that cut across departmental boundaries.

For neither the departmental nor the central research coordinating groups does this paper advocate setting up a whole new agency. Neither do we suggest the creation of entirely new powers of control in any group. We do urge strongly that the Congress encourage the executive branch to organize itself to do what will be described in succeeding paragraphs, and then make sure that necessary funds are provided, that qualified specialists are employed, and that they get about the job.

Before describing the central, interdepartmental coordinating functions that are needed, this paper can possibly put to rest some misapprehensions that arise inevitably when this subject is brought up for consideration. It is not proposed that any agency, board, commission, or committee be established to decide what research shall and what research shall not be undertaken by the Federal Government. It is not proposed that the central body do any research of its own, except a special kind of research on research that will be outlined at a later point. It is not proposed that every new Federal

research project necessarily be submitted to this body for review before adoption. It is not proposed that this body delve into every detail of every Federal research program.

What is proposed is a body that will provide a management-aid service to the Congress and to the executive department as a whole to help them in making decisions on authorizations, appropriations, and programs. In addition, it is proposed that this same body be a representative of the Federal Government in contact with research activities outside the Government to bring about more effective cooperation in the whole research community. In this latter respect it would supplement, not supplant, the contacts now in existence at many levels of research. Finally, it is proposed that this agency constantly seek to stimulate and catalyze private organizations to sponsor and perform research that is inspired by or derived from the initiative of federally sponsored research.

The first task of such a body would be to make an inventory of Federal research programs, their objectives, their plans of approach, their staffing, and their schedules. This would be a perpetual inventory kept just as current as it may turn out to be feasible to maintain, but certainly brought up to date more frequently than once a year.

The second task of such a body would be to examine the inventory to determine what duplications and inconsistencies may exist, so that a full report can be made periodically to affected agencies on the nature and extent of these aspects. It is not suggested that all duplications and inconsistencies be eliminated, for progress in research can often be accomplished expeditiously only by exploration of several approaches simultaneously. We nevertheless think it important that all persons involved know what is going on, so that no more of this kind of thing exist than is consistent with a vigorous and comprehensive attack on the problems which are being examined. The reports should contain comments on those features which are considered to be clearly of questionable value in this sense.

The third task of such a body, and the most important, would be a function that will be called evaluation—for want of a fully descriptive term. It is here that research on research comes into the picture. What is required is an examination of each research program to discover how well its plan of attack matches the objectives set forth for it and, more basically, to discover how well its objectives fit into the dynamic nature of the economy and society it is expected to affect. This examination in turn is dependent upon a well-worked-out concept of what the set of programs as a whole is expected to accomplish for the Nation.

From the foregoing evaluation it should be possible for the coordinating agency to make the following kinds of contribution to the effectiveness of Federal research efforts: (1) advise higher levels of effort for programs that are below the required threshold or moving too slowly to meet projected needs of a dynamic technology and economy; (2) recommend removal of support for projects involving unnecessary duplication or for which changing conditions will eliminate the need; (3) identify gaps that justify new projects; (4) interconnect projects that can benefit from interaction of methodology or observations.

Some progress in research evaluation of this type is being made in connection with certain military research programs. It has been

found that the unifying principle in many cases is time. In any consideration of our military offensive and defensive posture and the weapons systems, strategy and tactics required, we must look at these matters in a time frame. It may be of little importance to us to develop a manned atomic bomber of indefinite cruising range if, by the time we can expect to have such an aircraft operational, it would be likely that a potential enemy would have defense weapons easily capable of knocking such a bomber out of the air a long way from its target. If we look at our probable offensive and defensive posture in the future as a moving picture—actually as in the case of the moving picture a series of stills at intervals of time—we will be able to see more clearly where efforts are being made that can't possibly be of much help, when gaps are likely to show up that are not now being worked upon, and, in general, how best to match the research conducted to the military requirements.

Needless to say, the nonmilitary problems are not necessarily the same as the military. The time-frame idea may not be appropriate in some cases. But many of these nonmilitary problems do have a time reference; for example, the waves of persons expecting to enter the labor force in the future or the exhaustion of supplies of fossil fuels. Others cannot be pinned down so precisely, but are still in some way time phased, so that part of the degree of urgency can be established by reference to the period of time which will elapse before the problem becomes serious and by reference to the period of time (called lead time in military parlance) in which it might be expected that a solution could possibly be achieved and implemented.

Another fairly significant task for the research coordinating body would be the making and maintaining of an inventory of research efforts outside the Federal Government which bear upon problems of national interest. This inventory would be useful not only as information available to all research workers, but it would lead to efforts by the Federal Government and by the outside organizations to bring about cooperation in some fields of mutual concern. There is a place for an organization within government which could encourage cooperative research activities among governmental agencies, the private foundations, and private industry.

The research coordinating body described in this paper would have no direct power to control research. It can be effective only to the extent that its findings and recommendations are so well worked out and supported by evidence that its work received recognition in the deliberations of the Congress and the executive departments. Fundamentally, the outcome of its efforts will depend on the prestige it generates by the quality and independence of its work.

But good work would depend rather significantly at the outset upon the standing and support it is given. Not much good can be accomplished by assigning duties and providing a small budget and then throwing the group onto its own. If it is concluded that the objectives outlined here are desirable, then the sponsor, the Federal Government, would have to do what is required in all effective research programs—have the confidence to back the efforts strongly from the beginning both with funds and recognition.

Such action would have its risks, as in all research; not every investigation would pay out. But the need is so very great that, in the

view of this paper, it must come eventually if not immediately. If delayed, there will be corresponding loss to the welfare of the country.

In this connection, there is every reason to believe that the coordinating body would save its cost and, indeed, lead to research results or current programs at less expense than now contemplated. At the same time, we do not take the position that research expenditures after the establishment of the coordinating group would be likely to be lower than at present. The work of the group would inevitably bring to light fields in which more research would bring about advances of very great worth to the operating of the Federal Government and to the public at large.

Through the creation of Assistant Secretaries for Research in each of the nondefense departments and through interdepartmental research coordination as described above, an acceleration of research on pressing public problems would be bound to occur. This would help to correct the serious disparity between social and technical progress, bringing the former's straight-line progression more nearly into conformity with the geometrical rate of technical advance.

APPENDIX I. TRENDS IN FEDERAL RESEARCH AND DEVELOPMENT OBLIGATIONS

For an appreciation of the increase of research and development activity supported by Federal funds, it is necessary to look at obligations for the conduct of current work and for the provision of additional research and development plant, without consideration of the pay and allowances of military personnel or certain expenditures financed through military procurement contracts. The latter two items are included in the current rate of expenditure for research and development of \$3 billion, but no estimates are available for them except for the last few years. The obligations for which data are available more than tripled in the years since 1947, growing from \$793 million in that year to an estimated \$2,880 million in fiscal 1957, as shown in table I. Even if account is taken of probable underreporting in earlier years and of the decline in the purchasing power of the dollar, obligations in real terms have in all likelihood more than doubled.

Most of the statistical information given here is based on data from the annual issues of Federal Funds for Science compiled by the National Science Foundation and from the annual Federal budgets. These data, however, have been supplemented by estimates of unreported data, have been reworked, and have been presented in different ways to highlight some of the issues which are emphasized in this paper. No attempt is made to separate applied from basic research in these analyses, as the latter is relatively small in amount.

While the source figures are indicative of the general position of Federal research and development and some of its aspects, it must be admitted that the accuracy is something less than might be desired. As the Foundation remarks in its reports, the data were obtained from the agencies concerned and in many cases were estimates based on judgment determinations of what should or should not be included. Many difficulties of definition exist, and accounts are not kept in such form that even approximations can be obtained without considerable effort. If the view taken by this paper is correct—that much of the

effectiveness of decisions relating to the selection of equipment, methods, and policies depends upon the adequacy of the research that precedes such decisions—it would appear that even more effort should be made to find out what research is going on. The difficulties, and indeed they are formidable, should not be allowed to deter the making of a major effort. It is conceivable that what is needed is not more funds but a better allocation of the amount currently being expended.

The following set of comparisons deals with defense research (termed "national security" research and development by the Bureau of the Budget). The data refer to obligations by fiscal years for the conduct of current work and for increase in plant. Military pay and activities financed by procurement contracts are not included.

Table I shows Federal research and development obligations for each year from 1947 through 1957. Table II shows obligations for research and development related to national security and compares them with national defense expenditures for goods and services. Information on nondefense agencies is summarized in table III. Table IV provides data on Federal and private nondefense research expenditures and compares them with the value of the activities they support.

TABLE I.—Federal research and development obligations,¹ fiscal years

[In millions of dollars]

Year	Conduct of work	Plant	Total	Total in 1947 dollars
1947.....	722	71	793	793
1948.....	781	91	877	873
1949.....	854	167	1,121	1,082
1950.....	1,041	203	1,244	1,170
1951.....	1,521	330	1,851	1,625
1952.....	1,909	307	2,216	1,854
1953.....	1,919	248	2,167	1,845
1954.....	1,762	156	1,918	1,629
1955.....	1,927	207	2,134	1,757
1956.....	2,231	350	2,581	2,124
1957.....	2,520	360	2,880	2,210

¹ Included in these figures are the amounts obligated for general-purpose statistics which have been excluded by the National Science Foundation in its last 2 reports. They have been restored for purposes of this paper because (1) they provide important data for the making of management decisions both by Government and industry; (2) they have at least as much research content as many of the programs still included; and (3) while there is some variation from year to year, other programs still included vary much more. The National Science Foundation appears to have included no obligations for the Manhattan Engineer District in 1947. This was the transition period to the Atomic Energy Commission. No doubt this treatment is strictly accurate from the point of view of obligations, but it makes the AEC figure in 1947 appear very small. Half the reported expenditures for MED are added to AEC obligations. Deflation is by the implicit deflator for Federal Government purchases of goods and services as published by the National Income Division, Office of Business Economics, Department of Commerce.

TABLE II.—National security (defense) obligations for research and development, fiscal years

[In billions of dollars]

Year	Conduct of work	Plant ¹	Combined plant and conduct	Combined in 1947 dollars	National security purchases	Ratio, research and development to national security purchases
1947.....	0. 629	0. 083	0. 712	0. 712	13. 3	5. 4
1948.....	. 662	. 081	. 743	. 740	13. 7	5. 4
1949.....	. 802	. 080	. 882	. 859	18. 4	4. 8
1950.....	. 813	. 088	. 901	. 847	17. 9	5. 0
1951.....	1. 327	. 098	1. 425	1. 250	25. 7	5. 5
1952.....	1. 726	. 127	1. 853	1. 550	45. 2	4. 1
1953.....	1. 730	. 152	1. 882	1. 601	51. 5	3. 7
1954.....	1. 560	. 171	1. 731	1. 471	47. 6	3. 6
1955.....	1. 668	. 179	1. 847	1. 520	41. 3	4. 5
1956.....	1. 930	. 196	2. 126	1. 679	41. 2	5. 2
1957.....	2. 125	. 233	2. 358	1. 806]	44. 7	5. 3

¹ Obligations to increase plant have been amortized over a period of years. The adjustment was very rough because little is known of the appropriate depreciation rate and, in any event, only a few years' data are available. The plant obligations were spread on a straight-line basis over the 8 years following the year of obligation. Nothing was known of the accumulation in 1947 and it was assumed that, at that time, plant bore the same relationship to obligations for conduct of work as in 1955. The figure so obtained was reduced by $\frac{1}{4}$ in 1948, $\frac{2}{8}$ in 1949, etc., until elimination in 1955. The real objective of this process was to spread the plant obligations so they would not be bunched, and the only justification of the process is that it gave what appeared to be reasonable results.

TABLE III.—Federal obligations for research and development agencies other than national security agencies, fiscal years

[In millions of dollars]

Year	Conduct of work ¹	Plant ²	Combined plant and conduct	Combined in 1947 dollars
1947.....	104. 6	7. 6	112. 2	112. 2
1948.....	134. 3	7. 9	142. 2	141. 7
1949.....	156. 0	8. 5	164. 5	162. 0
1950.....	184. 8	10. 4	195. 2	183. 6
1951.....	179. 2	13. 8	193. 0	169. 3
1952.....	185. 9	15. 1	201. 0	168. 1
1953.....	197. 0	16. 4	213. 4	181. 6
1954.....	213. 0	17. 5	230. 5	195. 8
1955.....	249. 6	18. 2	267. 8	220. 2
1956.....	304. 9	17. 7	322. 6	244. 7
1957.....	350. 0	17. 8	367. 8	281. 3

¹ Obligations for periodic census programs do not show any time trend and have been evened out over the years by attributing to each year the average for the years 1945 to 1957.

² Amortized by the same process employed for national security research plant.

TABLE IV.—*Federal and private business expenditures for nonsecurity research compared with selected Federal and private production activities, fiscal years*

[In millions of dollars]

Year	Federal research	Private business research	Total	Product ¹	Ratio, re- search and develop- ment to product (percent)
1947.....	90	1, 410	1, 500	112, 200	1. 34
1948.....	120	1, 650	1, 770	132, 300	1. 34
1949.....	140	1, 620	1, 760	139, 100	1. 26
1950.....	160	1, 640	1, 800	143, 900	1. 25
1951.....	170	1, 870	2, 040	161, 900	1. 26
1952.....	180	2, 050	2, 230	177, 200	1. 26
1953.....	190	2, 220	2, 410	187, 500	1. 28
1954.....	190	2, 450	2, 640	189, 100	1. 39
1955.....	220	2, 800	3, 020	192, 500	1. 57
1956.....	270	3, 230	3, 500	207, 500	1. 69

¹ Gross product in agriculture, mining, manufacturing, transportation, communications, public utilities, and medical health plus Federal nondefense purchases of goods and services.

FEDERAL EXPENDITURE POLICY FOR RESEARCH AND DEVELOPMENT

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The accelerated advance of science and technology plays an increasingly crucial role in the prosperity and continued growth of the American economy. This basic fact, now well recognized, rises in significance as the Nation's research and development expenditures continue to mount. These expenditures quicken the pace of scientific and technological progress, which in turn increases the rate of economic growth. This dynamic process yields new and improved commodities, new industries, increased interindustry competition, and new and cheaper processes and methods of production. In consequence, new investment opportunities appear, labor and capital become more productive, and the gross national product rises.

The funds devoted to research and development may equal one-fourth to one-third of the average annual increase in the gross national product. These expenditures now fall between 1 and 2 percent of the gross national product. Many large industrial firms spend from 2 to 5 percent of their net sales proceeds on research and development. About 5 percent of all Federal expenditures are allotted to this work.¹

Research and development expenditures of these proportions have become of great consequence for economic growth and stability. How large should they be for the Nation as a whole, and how large for the Federal Government? How should these expenditures be distributed among different purposes, scientific fields, and Federal and non-Federal research organizations? How should research and development activities be conducted to increase their efficiency and usefulness? These and related issues must be examined in any effort to derive criteria for expenditure policy. These questions also bear on the more central problem of the part research and development can play in a general strategy of sustained economic growth.

LONG-RUN TRENDS IN GOVERNMENT SUPPORT OF SCIENCE

It is helpful to consider Federal research and development activities in a longer historical setting and in terms of a broader governmental function.² The Federal Government has a basic responsibility for promoting the discovery and dissemination of new and useful knowledge. President John Quincy Adams enunciated this responsibility

¹ The National Science Foundation has been compiling detailed estimates of Federal and non-Federal expenditures for research and development; see in particular its series of reports on Federal funds for science.

² On this subject see the recent valuable study by A. Hunter Dupree, *Science in the Federal Government*, Harvard University Press, Cambridge, Mass., 1957.

some 130 years ago. Adams and all his predecessors advocated the establishment of a national university in Washington, D. C., which would cultivate the sciences as well as literary studies. Indeed, they visualized it as a research center at which Government bureaus with scientific interests, such as the Patent Office and a national observatory, could locate and share their findings and problems.

This function of acquiring and spreading useful knowledge was by no means insignificant during the Nation's early history. Under the Constitution, the Government had to issue patents, mint or coin money, and standardize weights and measures. The decennial census was required to provide the basis for allotting representation in the Lower House of Congress. Provision for the common defense and general welfare, as well as interstate and foreign commerce, necessitated a widening range of activities of a scientific or technical character. The coasts were surveyed in the interest of naval defense and merchant shipping. The present Bureau of Standards grew out of the early coast survey, as a consequence of its knowledge of instruments. The West was explored and surveyed to facilitate its defense, settlement, and agricultural development. The roots of the present Department of Agriculture, Geological Survey, Weather Bureau, and other agencies with similar technical functions could be traced back, in principle at least, to the Lewis and Clark expedition. This exploring party, as well as the many western expeditions which followed, collected data on the plants, animals, topography, natural resources, and climate of the West.

As the 19th century progressed, data gathering in geography, mineralogy, geology, botany, zoology, and meteorology increased at a substantial rate. Much of this information was made available through published Government reports; and it was used by the Smithsonian Institution, created in 1846. By the 1840's the Patent Office was making chemical analysis of soils, fertilizers, and plants—work which the new Department of Agriculture assumed during the Civil War. At that time the Morrill Act was passed to aid the founding of State agricultural and mechanical colleges. Twenty-five years later, further legislation initiated Federal support of agricultural experiment stations.

Not long after the Civil War the Coast and Geodetic Survey was reorganized and the Geological Survey created, with the help of the National Academy of Sciences. Those two agencies expanded and systematized the surveying and mapping of the country and the cataloging of its natural resources—activities in which western explorers, Army engineers, and Navy officers had been pioneering for half a century. This scientific surveying not only increased geographical, mineralogical, and geological knowledge, it also promoted transportation, agriculture, navigation, and the extractive industries. The Government continued to increase its support of research in agricultural science, and by the turn of the century it became active in the conservation movement. In more recent decades these many activities have been expanded much further and supplemented by research in public health, medicine, social welfare, and related fields.

The Federal Government for over 150 years has promoted diffusion of scientific knowledge through the functions of the Military Establishment. From its founding in 1802, the Military Academy was operated as an engineering school, the first in the country. It stressed

the teaching of mathematics and engineering, which its graduates used extensively in their duties of exploration, the survey of the coast, and the survey and construction of roads, canals, river and harbor improvements, and even early railroads.³ The Naval Academy, created in 1845, offered technical work in such fields as navigation and naval architecture. Naval officers made contributions in hydrography, meteorology, astronomy, and ordnance. Even before the Civil War they made several hydrographic explorations and surveys in distant parts of the world. The Naval Observatory evolved from their work in this period.

Commencing with the American Revolution, every major war led the Federal Government to seek ways of applying science to problems of warfare.⁴ During the Revolution and the War of 1812 these efforts centered primarily in ordnance and military engineering. The Civil War prompted work on a variety of military-scientific problems, extending into physics, chemistry, and astronomy. The Smithsonian Institution and the Coast Survey as well as the Army and Navy ordnance bureaus carried on research and experiments to improve military techniques. To coordinate this work, a special commission of Government scientists was created. More importantly, the National Academy of Sciences was chartered as a device for bringing scientists together and securing their advice on major scientific problems confronting the Government.

Little need be said here about the heavy reliance placed upon scientific research in recent wars. In World War I the National Research Council was created, and World War II produced the wartime Office of Scientific Research and Development. Following the war, the Atomic Energy Commission and the Office of Naval Research played major roles in promoting research of both fundamental scientific and applied military value. The Korean war and the intensified "cold war" ushered in the present high level of research and development spending.

This historical review shows that the Government has supported science from the beginning, that this function has continuously grown in scope, and that its growth has been most rapid in recent years. The Government has promoted the discovery, systematic collection, and dissemination of useful knowledge as a component part of its normal operations. Consequently, its scientific interests have been mainly of a practical or applied character. The Nation depended until recently upon Europe as its primary source of fundamental knowledge. Beginning with Thomas Jefferson's tenure as first Secretary of State, the State Department has facilitated this transfer of scientific knowledge to America. Some 80 years ago this inflow commenced to help the American universities develop graduate instruction and research in basic science. Their work in this area has now matured and is greatly aided by Government research programs. Except for basic research in a few large industrial laboratories, American industry has conducted little work in fundamental science. Under the pressure of military needs, Government research and de-

³ See Forest G. Hill, *Roads, Rails, and Waterways: The Army Engineers and Early Transportation*, University of Oklahoma Press, Norman, Okla., 1957.

⁴ See I. Bernard Cohen, *American Physicists at War: From the Revolution to the World Wars*, *American Journal of Physics*, XIII (1945), pp. 224-235.

velopment expenditures have been mainly for applied or practical work. Balance has been partly restored by the National Science Foundation, created in 1951. It seeks to aid basic research through grant and fellowship programs, which are increasing in volume.

Federal research and development expenditures in their present volume and complexity inevitably pose many issues relating to their distribution by fields, the efficiency of their application, and their overall coordination and evaluation. Hardly any other function of Government raises more serious issues of the proper criteria for policy formulation.

CRITERIA FOR FEDERAL RESEARCH AND DEVELOPMENT EXPENDITURES

With the evolving character of Federal research and development activities in mind, we may now examine the major criteria which seem applicable to them. Since these expenditures have a pronounced multiple-purpose character, the relevant criteria for evaluating them are highly interdependent. The appropriate volume of these expenditures, for instance, depends in part upon their internal structure—the type, size, and quality of individual research programs. These considerations are closely linked with the questions of how and by whom these programs are conducted. All these factors are influenced by the climate of research—the extent to which freedom or secrecy, initiative, cooperation, and communication of results are brought into play. Of considerable relevance, too, is the contribution of research and development to other functions of government, in terms of the economy and efficiency of governmental operations.

The criteria examined in this section are related to the problem of economic efficiency in the allocation of research funds and in the conduct of research. These criteria have a direct bearing on the problems of economic growth and instability, which will be discussed in the two sections following this one.

Volume of research and development expenditures

The volume of Federal research and development expenditures must be ultimately judged in terms of their adequacy for meeting existing and expected military and economic needs. When the current level of economic activity, the rate of economic growth, or the state of military technology or preparedness is inadequate, these expenditures may be too low. Both Federal and non-Federal research spending must be taken into account, together with other types of spending which could help overcome the economic or military deficiencies. Additional spending on final products and on the facilities for producing them may suffice for short periods. If not, research and development spending could be increased.

When the gross national product is rising, prices are fairly stable, and the supply of scientific manpower is reasonably adequate, research and development spending can be materially increased. The size of the annual increment of gross national product, the availability of research skills,⁵ and the possibility of inflation thus place broad limits on the volume of research activities. Past trends in the ratios of Federal (and non-Federal) research spending to gross national prod-

⁵ On the issue of the current scarcity of scientific manpower, see David M. Blank and George J. Stigler, *The Demand and Supply of Scientific Personnel*, National Bureau of Economic Research, New York, 1957.

uct (and to its annual increment), to net investment, and to total Federal expenditures may help suggest what level of research spending is feasible or appropriate. It would also be very helpful to know more about the behavior of these ratios under differing instability conditions and rates of growth.

Technological as well as economic needs and conditions affect the amount of research spending which is in order. Technologically, large innovations or breakthroughs may be within reach. If major technical changes are expected, greatly enlarged expenditures on applied and developmental research might soon be required. Increased spending for the design and construction of plant facilities and for the procurement of new final products would probably ensue. The question would then be whether or not the economic situation would permit these increased expenditures. Current research work is capable of producing a chain reaction in future economic activity, with major consequences for economic stability and growth. These effects of research spending would need to be weighed carefully to determine the desired level and character of Federal research spending.

Federal research and development expenditures involve an allocation problem; they must be judged against all competing or alternative expenditures (Federal or non-Federal) in terms of their relative costs and benefits. They must be regarded, in principle, as investments which must be compared with alternative investments or resource uses with respect to their relative benefit or expected rates of return.

Current research must provide a sufficiently large backlog of technical innovations and investment opportunities to assure continued economic growth. Both technical and economic judgments are required here. The permissible level of research spending can be gaged in part by its relation to the gross national product, the volume of investment, and similar economic variables. The availability of scientific personnel and the behavior of the price level provide further indicators of the amount of research that is possible. But to determine the appropriate volume of research expenditure would seem to call for use of a reliable theory of technological-economic development.

Structure of research and development expenditures

The types and relative sizes of different research programs have a direct bearing on the question of the appropriate volume of research. As noted above, the selection and scope of these programs raise difficult problems of resource allocation. In principle, all suggested research programs and projects must be compared with each other and with all other possible investments or expenditures in terms of their productivity or expected returns. The quality or efficiency of individual research projects is most significant, for the distribution of research activity according to type and purpose of research has important technological and economic consequences, both in the short and long run. Research efforts must be apportioned among the physical, biological, and social sciences and their constituent disciplines, among the problems lying between or across as well as within individual fields, and among the basic, applied, and developmental phases of research. Division of effort must also be made between problems which are large or small, urgent or less pressing, concerned immediately with military or with civilian needs, related mainly to

production or to consumption, and considered capable of early or distant and of certain or uncertain solution.

Questions have been raised repeatedly as to whether Federal research expenditures overstress the physical and engineering sciences at the expense of the biological and social sciences, and applied and developmental research to the detriment of basic science. Similarly, there have been questions about the stress placed on military needs, immediate firepower, and ready military hardware. Desire for quick, practical results and immediate military application create pervasive biases in the pattern of research. This pattern clearly runs the risk of developing serious imbalance. Pressures of immediate need and utility prevent balanced judgment of long-run technological and economic needs and possibilities. Resulting overemphasis and gaps in the general research pattern impede a unified, across-the-board advance of the frontier of scientific knowledge.

Financing versus conduct of research

The problem of where or by whom the actual research should be done has a direct bearing on the volume and pattern of Federal research and development expenditures. Private industry can be relied upon to conduct or finance applied research and development for improvements possessing fairly certain commercial feasibility.⁶ Firms equipped to do research actively seek new or improved products, processes, and techniques which will increase profits by raising sales or lowering costs. Industry is little inclined, however, to conduct or support fundamental research. Few firms see fit to do basic work, although some of them financially support this work in cooperative or nonprofit research institutes or universities. These research organizations, especially the universities, must rely mainly on the Government for financial support of basic research.⁷

Circumstances such as these force the Government to finance most research which is not immediately practical and profitable for private industry. In addition to fundamental science, this growing category of research includes military technology, agricultural science, health, and the collection of general-purpose data of many kinds. These data-collecting activities include economic and demographic statistics, meteorological records, geological and mineralogical surveys, and other useful data. The benefits of this government-financed research are often widely diffused and long range in character; they cannot be specifically allocated to or reimbursed by ultimate beneficiaries. Yet this work is costly and must be pursued on a more or less permanent and systematic basis. It must, therefore, be supported by government as a social-overhead expenditure. This financing of scientific work may be regarded as an investment in the Nation's future defense, resource development, and material welfare.

These considerations obviously apply to the creation of major new weapons, such as atomic and hydrogen bombs, guided missiles, and jet

⁶ The administration of industrial research has received considerable attention in recent years. Illustrative of this study are the following: Clifford C. Furnas, editor, *Research in Industry, Its Organization and Management*, D. Van Nostrand Co., New York, 1948; David B. Hertz, *The Theory and Practice of Industrial Research*, McGraw-Hill Book Co., New York, 1950; and the published proceedings of the annual conferences on industrial research (commenced in 1950), sponsored by the department of engineering of Columbia University.

⁷ Many of these problems are analyzed in comparative terms in *The Organization of Applied Research in Europe, the United States, and Canada*, 3 vols., published by the Organization for European Economic Cooperation, Paris, 1954.

aircraft. The diverse scientific inquiries required to create and improve these weapons often contribute handsomely to fundamental knowledge and industrial technology. Scientific and technological advances in the military and industrial sectors are highly interdependent; progress in one sector nearly always benefits the other. Although this basic fact may be used to justify more military research, it may equally well justify research designed to secure large industrial innovations or to extend fundamental knowledge.

Basic scientific research aptly illustrates the social-overhead character of Federal research and development spending. Fundamental inquiry is directed toward advancing the Nation's general store of knowledge.⁸ It is usually too costly, too risky, and, in the short run, too unprofitable for private enterprise. It must be pursued continuously on many fronts in a comprehensive, coordinated manner. Its possible benefits may be huge, yet uncertain, indirect, and delayed in their realization. These are weighty considerations in current research to secure new sources of energy, cures for major illnesses, or fresh water and minerals from sea water. For similar reasons, most research to improve consumer welfare, agricultural productivity, and the efficiency of small business must be underwritten by the Government. Consumers, farmers, and most businessmen are barred from undertaking research by cost and uncertainty considerations. Lacking the incentive, organization, and means to conduct or finance needed research, they inevitably depend upon the Government to supply this need.

The Government must determine not only the character and amount of research it will support, but also the proper agencies for conducting it. On this question of how and by whom research will be conducted, many alternatives are, fortunately, available. The relative abilities of different types of research organizations influence—and properly so—the volume and pattern of Federal research expenditures. The Government has recently been financing roughly one-half of the Nation's research and development. It conducts in its own laboratories approximately one-half of the work it finances. The remaining half is secured extramurally, principally by contract. A few agencies, notably the National Science Foundation and the Public Health Service, make use of research grants. Roughly two-thirds of this extramural research is done by industry, and the remainder by educational and other nonprofit institutions.

Over one-fourth of all extramural research and development is performed by Federal research centers operated on contract by industrial firms, universities, and other nonprofit organizations. These Government-financed research centers are a postwar development, used mainly by the Atomic Energy Commission and a few military agencies. They provide a good deal of autonomy and administrative simplicity, compared to research laboratories in the operating agencies. They may be an effective way of handling large-scale, complex research projects requiring systematic execution and rapid progress.

These different types of organizations performing research have their unique resources and abilities. Their characteristic advantages must be given due weight in appropriating and allocating Federal

⁸ Cf. Vannevar Bush, *Science, the Endless Frontier*, U. S. Government Printing Office, Washington, D. C., 1945, pp. 13-17.

funds for research and development. The strength of industrial laboratories in research along applied and developmental lines has been noted. So has the capacity of the universities, along with a few industrial laboratories and nonprofit institutes, for carrying on fundamental research.

The nature of the research contract and the way it is administered merit attention. Proper allowances for overhead or indirect costs of research are necessary, particularly for universities. Their financial situation demands that contract research contribute to the support of staffs and facilities employed jointly in contract work and in teaching and nonsponsored research, the traditional functions of the university. The accounting for funds and other regulations and paperwork which contracts involve can be quite burdensome. There have been complaints that contract officers lack training and discretionary power and are subject to large turnover, especially among Defense Department officers subject to frequent reassignment. These difficulties with contract research have led to demands for greater use of research grants when at all appropriate.

Many interrelated judgments must obviously be made as to the kinds of research to be financed by government, the appropriate research organizations to be employed for particular projects, and the efficacy of the relationship, contractual or otherwise, between the sponsoring agency and the research unit. These judgments must include careful assessment of the efficiency with which research resources are employed.

Climate of research

One of the most important, yet intangible, factors affecting the efficiency of research is the intellectual environment in which it is performed. The research climate greatly influences motivation, objectivity, intellectual exchange and cooperation during research, communication of research findings to other scientists, and application of the new knowledge to other problems. The intellectual climate thus goes far to determine the speed, quality, and usefulness of research. This work, especially in its more fundamental reaches, places a high premium upon free inquiry, intellectual detachment, abstract reflection. Considerable play must be left for curiosity and the individuality and interests of the researcher. If these conditions are not fulfilled, the quality of research cannot help but suffer.

These requisites for effective research are most pertinent to the organization and administration of research units. The individual researcher must have freedom and opportunity and incentive to communicate. Under these conditions teamwork can be developed by bringing individuals together who have interests in a common research problem. To force an individual into work at variance with his interest and curiosity would lessen his usefulness. The type of research unit, its autonomy, its administration, and its relationship to the sponsoring agency are therefore strategic considerations bearing on the efficiency of research.

Difficulties with the form and supervision of research contracts have already been noted. Research grants may frequently be preferable to contracts for augmenting research already underway or initiating projects which coincide with the purposes and interests of a research unit and its members. Grants require less supervision and accounta-

bility than contracts, thereby permitting greater freedom and flexibility. With certain types of research, grants may therefore be more productive than contracts, in that costs and interference are lessened and the possibilities of creative and fruitful results are increased.

No doubt the greatest single problem concerning the climate of research stems from the necessity for secrecy and loyalty or security systems in military research and development. Although strategic knowledge about the design and performance of new weapons must be withheld in the interest of national security, scientific communication and advancement are thereby retarded. Declassification and release of knowledge which has lost its original strategic value must not be long delayed, for many areas of science and industry may be hindered in the meantime. Both military and industrial superiority depend upon the rapid advance and application of scientific knowledge. Consequently, the painful compromise between secrecy and security on the one hand and free inquiry and communication on the other must not be allowed to get very far out of balance for very long. The consequences of imbalance and delay are less scientific advance at a slower place and a greater cost.⁹

Economy and efficiency in government

One of the chief benefits of Federal research and development work is its direct and indirect aid to Government operations. Practically every large department or bureau conducts some research to improve its economy and efficiency of operation. Each agency also benefits from research performed elsewhere.

Government research has become very pervasive in its extent and effects. It has become a common denominator for the various functions of government, in that it is so necessary to and complementary with other functions. Without research an agency may achieve an accepted level of performance at a certain cost; with adequate research it can often reach this performance level at a smaller total cost. In a sense research is substituted for other kinds of expenditure, with a net gain in cost or efficiency. Of course, the upshot may be that the public demands greater services from government.

The actual or potential benefit of government research to other functions may be suggested by a few illustrations. The outstanding example is national defense, which has recently accounted for well over one-half of all Federal research and development expenditures. Confronted by the cold war, the country demanded a higher level of military preparedness. This called for radically new and improved weapons. Manpower and budgetary restraints necessitated greater military strength or firepower with fewer men in uniform. Recent budgetary limitations require that this be achieved at even lower cost than was previously anticipated. These needs are being met, or at least approached, by increased research and development to obtain the techniques and hardware which will provide greater military might per dollar of military budget.

Scientific research plays much the same role in other government functions or spending programs. In foreign aid a major place has been given to technical assistance, since it facilitates the transfer of the knowledge and techniques required to improve productivity and to

⁹ Cf. Bush, *op. cit.*, p. 7.

make better use of foreign investment. Not only does technical assistance render outside funds more useful; it also substitutes in part for this investment in countries where economic conditions, particularly the threat of inflation and consequent dissipation of funds, do not warrant much foreign investment.

Natural resource development involves, among other things, expensive conservation and stockpiling measures.¹⁰ Research and development will often render these measures less costly. In many cases this work should produce methods to replenish certain resources, locate new domestic or foreign reserves, render their extraction more efficient or complete, process low-grade resources economically, economize on the use of resources in final products, and create substitutes for scarce resources. To the degree that these efforts succeed, conservation may become less urgent or less costly, while stockpiling may sometimes prove unnecessary.

Federal spending on housing and urban redevelopment is obviously affected by improvements in construction techniques and in the availability and quality of building materials. The development of human resources is contingent upon advances in nutrition, sanitation, medicine, the biological and social sciences, and education and specialized training. Transportation and public works likewise depend for their improvement upon many scientific and technological advances. Research and development expenditures should aid the government to perform all these functions more effectively, and often at lower real costs in manpower and other resources.

Multiple-purpose evaluation of research and development

Federal research and development activities are designed to accomplish various interrelated purposes, as suggested in the foregoing discussion. In the broadest sense, this complex of goals includes national defense, general welfare, and economic growth and stability. These goals manifestly incorporate the purposes set forth in the Employment Act of 1946—to promote employment, production, and purchasing power in a manner designed to foster competitive enterprise and the general welfare. These multiple purposes also include the promotion of fundamental knowledge and its wide dissemination. The education and training of scientific manpower are thus very relevant norms.

This multiplicity of purposes served by research and development greatly complicates the evaluation of costs and benefits. This is true for specific research projects as well as broad programs. Ideally, the cost of research should be allocated to its different purposes, such as defense, industrial growth, the advance of science, and the support of scientific training. Even if these cost allocations are not possible in practice, they should be kept in mind when decisions are made about Federal research expenditures.

A large fraction of this spending, for instance, should be regarded as allocable to the tasks of promoting scientific education and training scientific personnel. Today about one-fourth of all degree-holding scientists and engineers are engaged in research and development. There is much concern about the relative shortage, actual or potential,

¹⁰ This subject receives comprehensive treatment in the President's Materials Policy Commission, *Resources for Freedom*, 5 vols., U. S. Government Printing Office, Washington, D. C., 1952; see especially vol. I, pp. 131-171.

of scientific manpower. Educational institutions face great financial difficulty in improving scientific education, training more scientists, and conducting enough research. These problems of training specialized manpower affect the amount and quality of scientific research the Nation can afford. Wherever conducted, government-financed research provides on-the-job training, and sponsored research aids universities in carrying on their traditional functions of teaching and basic research.

All of these purposes and benefits must be kept in view when assessing the value of Federal research expenditures. Many different benefits must be traced and evaluated. They often run far into the future and aid many national interests and industries. Benefits are thus broadly diffused, largely indirect, difficult to measure or predict, and often intangible or unquantifiable in nature. The costs of individual research projects may be incurred within a period of 1 to 5 years; whereas the main benefits may be realizable only 5 to 10 years from now, and may continue long thereafter. Nevertheless, a rational research policy requires detailed study of benefits and costs, whether they are direct, indirect, or intangible.

Comparable difficulties confront decisionmaking for Federal investment expenditures on multiple-purpose water or resource development projects. For these large public works, benefit-cost analyses are made to facilitate more rational decisions looking to a better allocation of the Nation's resources. These analyses involve major problems of allocating joint costs among different project functions, determining indirect benefits, and giving adequate qualitative weight to intangible benefits. These issues arise in applying the benefit-cost approach to an entire project, to individual elements or incremental parts of the project, and to the larger program of which the project is an organic part.

These problems seem to be even more complex or insoluble in efforts to make rational benefit-cost judgments of Federal expenditures (or "investments") for research. Yet, direct research costs can be roughly allocated to relevant functions; classes of benefits can be specified; and certain direct and indirect benefits can be measured, estimated, or predicted. The remaining costs and benefits can be stated in qualitative terms, with their relative, strategic importance specified.

Industrial firms attempt in some degree to determine costs and benefits of individual research projects, or to derive expected rates of return. They typically use simple indexes of value or minimum payout periods to select projects according to their expected value or profitability. Although these rough rules-of-thumb are of aid in making specific research decisions, they may typically understate the profitability of industrial research. Rarely do firms determine a precise expected rate of return by estimating all future net gains from a research project, discounting these to get their present value, and thus finding the rate of return over project cost. Instead, they use simple profitability estimates for each project and then rely heavily, sometimes exclusively, upon their judgment regarding the competitive position of the firm and its strategic research needs, the technical feasibility of each suggested project, and the financial and research resources available for research and development. Strategic, techni-

cal, and economic judgments thus enter into the research decisions of firms.

Similar considerations must guide decisionmaking for Federal research expenditures. Strategic factors have to do with military defense, the international situation, and the larger national "strategy" for scientific and industrial advance. Technical judgments must be made regarding the general advance of science and technology and the technical feasibility and value of individual research programs and projects. Economic judgment, of course, involves the benefit-cost evaluation discussed above. Fairly precise estimates of benefits and costs may be possible with certain research projects. In such cases the allocation of research funds among alternative projects can be put on a more rational basis. However, even with these specific projects—and certainly with the overall allocation of funds among major research programs and the various fields and types of research—a comprehensive analysis of broader strategic, technical, and economic factors is essential.

RESEARCH AND DEVELOPMENT EXPENDITURES AND ECONOMIC INSTABILITY

Among the major criteria by which Federal research and development expenditures must be judged are their effects upon economic growth and stability. These expenditures influence stability and growth in many ways. Their effects on growth are largely positive or favorable. Furthermore, they can be manipulated somewhat to alter the rate and character of economic growth. The same can hardly be said, however, for their effects on economic stability. Their influence here is often largely negative, and there is small leeway for manipulating them in order to reduce or combat instability.

These Federal expenditures should not be changed greatly or suddenly. They are not particularly variable in the short run, largely because research and development must be conducted continuously for best results. Individual research projects often take several years to complete, and expenditures may actually mushroom as a project advances from fundamental and exploratory to applied and developmental phases of research. Worthwhile projects should not be dropped in midstream; and cuts in annual funds can easily reduce the effectiveness and current value of the research, postpone its ultimate completion, and increase its final cost. Technical as opposed to financial considerations thus affect the timing and control of research already underway.

A close parallel to this is found in the issues and difficulties beclouding the problem of contracyclical variations in public works expenditures. With both public works and research, technical and long-run economic considerations predominate in decisions to institute new or continue going projects. The level of expenditure in both cases must also be governed by a careful regard for its multiple-purpose character. A reasonably rapid advancement of science and technology requires that research organizations and personnel be kept intact, that fundamental work be continued, and that innovations in techniques and products become available to stimulate further industrial growth.

These long-run considerations provide strong reason for stabilizing Federal research and development expenditures regardless of the fiscal needs or cyclical tendencies of the moment. They also justify variation of these expenditures to offset any large changes in industrial research spending.¹¹ If research in industry should decline during a recession, Government-sponsored research might well be augmented. Although this measure would beneficially increase total spending in the short run, its primary merit would lie in the long-run benefits from fuller utilization of research personnel to produce further scientific, technological, and industrial innovations.

The need for a fairly stable level of research expenditures should not pose a major problem for general stabilization policy. This type of spending is only a small fraction of total Federal spending. It would not provide much leverage for contracyclical or compensatory spending, even if long-run considerations could be ignored. The Government possesses far more powerful stabilization measures in the form of monetary and fiscal policy, including transfer payments and public works. These stabilization weapons should be used to the full before research expenditures are dragged onto the contracyclical firing line.

The current level of Federal research spending has a great bearing on future stability or on short-run changes in the rate of economic growth. Major shifts in research expenditure can induce instability in future years. The bulge in military research and development following the Korean war has no doubt contributed to the inflationary trend of the past 2 or 3 years. Such a major increase in applied research soon leads to a spurt in developmental activity, followed by new investment in production facilities and increased output. This sequence of events, which may take 5 to 10 years in different product lines, has accompanied the improvement and production of military weapons. Military research, development, and procurement have stimulated many industries directly through enlarged demands for military equipment. They have also induced a sequence of product and process improvement, increased investment, and expanding sales in civilian production. These indirect effects of post-Korean war military research and development have been only partly realized to date. This is for the reason that the military sequence of product, demand, and investment expansion had a several years' headstart over the induced sequence in most industrial lines of production.

Many scientists and industrialists fear that any large cut in military research and development at the present time will impede these sequences. They feel that curtailment of research now will reduce advances in weapons and industrial applications during coming years. Their concern is that less basic research today will dampen future technological and industrial progress.

Federal research and development spending cannot be employed as a convenient contracyclical weapon. However, large variations in them may well set in motion powerful cyclical tendencies. The conclusion seems to be that both in terms of stability criteria and long-range considerations of scientific, technological, and industrial progress, current research spending should be kept reasonably stable.

¹¹ Industrial research activity, however, does not seem to be very closely related to current sales. Cf. Blank and Stigler, *op. cit.*, pp. 12-13, 66-68.

RESEARCH AND DEVELOPMENT EXPENDITURES AND ECONOMIC GROWTH

The essence of this argument is that sustained economic growth constitutes the primary criterion for evaluating Federal research and development expenditures. The economic efficiency and stability criteria discussed in the two previous sections may be regarded as secondary or subservient to this objective. In a fundamental sense research and development activities constitute an investment in future growth. This allocation must be rational or efficient if high-level growth is to result. It must also meet the requirements of stability if the resulting growth is to be sustained or continuous.

These Federal expenditures fundamentally shape the rate and character of economic growth. They bring scientific and technological advances which result in new and improved products and processes, new tastes and demands, and new industries and investment opportunities. These innovations in turn increase productivity, national output, and living standards. These changes cumulatively reinforce each other in a dynamic process of growth. Scientific research is in effect a powerful starter of pump primer of economic development.

Of course, research has to be large enough in volume and effective enough in character to achieve this stimulating or multiplying effect. Research must have a powerful enough leverage to counterbalance growth-depressing factors such as underemployment, inadequate purchasing power, and restrictionism or inflexibilities built into market structures. Research can offset the effects of these barriers. Furthermore, it can indirectly but effectively weaken or eliminate them. Research and development work by government and industry often creates new commodities or new industries, resulting in a healthy growth of interindustry competition. Established firms lose their protection from the rigors of competition, and restrictive practices in various markets lose much of their force.

Research activities no doubt can be strategically directed at certain bottlenecks, with good effect. Research can be promoted which aids small business, just as it has helped agriculture. Research can be aimed at raising productivity in areas of low incomes and underemployment. It can be used to increase consumer knowledge and the quality of consumer goods, thereby expanding demand. The Government may of course pursue other policies to increase income and remove market restrictions. It can improve social-security programs, raise minimum wages, aid public education, and improve patent and antitrust laws. These policies will in turn increase the leverage of research for promoting economic growth.

A review of American economic history reveals that every major war boosted the American economy to a higher plateau of economic activity. Joseph Schumpeter and other economists have shown how the appearance of a group of new industries produced an industrial revolution periodically. Wars and bunched innovations, however, produce an irregular or jerky pattern of economic growth. A large, sustained volume of research and development should convert this stairstep pattern into an inclined plane by fostering a continuous industrial revolution.

The needs of military defense and general welfare alike require that periods of underemployment or stagnation be avoided. These periods breed social unrest and economic waste; devices of protection, restric-

tion, subsidy, and made work take hold and thrive. Depression conditions place a premium upon product differentiation and style obsolescence as means of artificially creating a modicum of new demand and investment opportunities. The resources wasted under these circumstances could be much better used to expand research, technology, and industrial innovation. Material welfare and economic growth may be greatly promoted when unused or marginal resources are used for research instead of advertising, product improvement rather than differentiation or style obsolescence, and investment in new industries instead of subsidies or made work. The backlog of new knowledge and techniques should always be great enough to make investment opportunities abundant and product innovation easy. Under these conditions, firms will be forced by competition to make real rather than spurious improvements in quality. This technological backlog should prevent secular stagnation of investment opportunities and preclude restrictive, wasteful devices to protect limited markets or create demand and jobs artificially.

To make investment opportunities plentiful and to force efficient resource allocation may entail a costly volume of scientific research and acute inflationary pressure. These conditions might put monetary and fiscal policy to a severe test. Stabilization would become as much a long-run as a short-run problem. Stabilization policy would then have economic growth rather than just stability as its prime objective.

FORMULATION OF POLICY FOR RESEARCH AND DEVELOPMENT

The formulation of policy for Federal research and development expenditures poses a wide array of complex problems. Some of these problems have been discussed above, especially those bearing on the allocation and evaluation of these expenditures. Vital national interests are involved in a fundamental but imperfectly understood manner. The purposes of these expenditures must be grasped and their multiple benefits assessed if there is to be effective social control and use of these expenditures. Proper evaluation and control must run in terms of what these expenditures contribute to the grand strategy of advancing military strength, material welfare, scientific knowledge, industrial technology, and scientific education and training.

Judgment of the efficacy and adequacy of Government research must assure that effort is properly allocated between military and civilian needs, between fundamental and applied research, and between the social, biological, and physical sciences. This research must give adequate stimulus to each industry and to the various educational and research organizations in the private sector. Care must be taken that enough research effort is devoted to the needs of farmers, small business, and consumers. Research must also contribute adequately to the economy and efficiency of the Government's own operations.

More than a score of Federal agencies now have substantial research and development budgets. About half of this research is conducted intramurally, and half extramurally by industrial, educational, and nonprofit organizations. How can all this work be evaluated, coordinated, and administered for the greatest possible benefit? How can duplication and blind spots be avoided? How can the

work be made more productive, more efficient, more economical, more appropriate to national needs? Speaking more broadly, how can Federal research and development expenditures be handled within the framework of a comprehensive national science policy?¹² Tentative criteria for research expenditure policy have been discussed above. They need to be carefully studied and formulated, then effectively geared into the budgetary, legislative, and administrative processes of government. Most important of all, these criteria and processes must be clearly understood by the general public, as well as by Congress and the Executive. Only in this way can a worthwhile national science policy be evolved, sanctioned, and effectively applied.

Research and development expenditures now involve a plethora of agencies, programs, scientific advisory committees,¹³ budget estimates, administrative reviews, congressional committees, piecemeal appropriations, and expenditure decisions. The citizen or outsider, if not the public official, has extreme difficulty in discerning any unity or order in this confusing situation. Indeed, he may not even be able to grasp the primary national needs and policy issues which are at stake. There seems to be a pressing need for governmental machinery to assure proper congressional and Executive review of these expenditures, to guarantee their effective coordination, and to facilitate their understanding by the public.

The Employment Act of 1946 may actually provide the model of what is needed for the effective formulation of research and development policy. Public understanding, discussion, and support of national economic policy have been greatly facilitated by the machinery set up under this act. This machinery has strengthened the capacity of the Executive and Congress to review and coordinate the economic activities of many Federal agencies. It has also elicited greater understanding, support, and voluntary cooperation from non-Federal agencies and private groups. Through the President's Council of Economic Advisers, the Joint Economic Committee, and the annual economic report, this act provides essential machinery for the continual, purposeful, publicly understood evaluation of economic trends, problems, programs, and recommended policies.

Much of the same machinery seems appropriate in the area of national science policy. A National Science Act might set up a Council of Scientific Advisers in the Office of the President. This Council would make an annual appraisal and report concerning the trends, problems, long-run needs, and desirable policy changes in Federal research and development activities. This report, along with the President's recommendations for new legislation, would then go to Congress for examination before a Joint Committee on Science Policy. This Committee would suggest general legislative changes

¹² The broad question of national science policy is discussed in Bush, *op. cit.*; Dupree, *op. cit.*; National Resources Committee, *Research—a National Resource*, vol. 1, U. S. Government Printing Office, Washington, D. C., 1938; *The Organization of Applied Research in Europe, the United States, and Canada*; Don K. Price, *Government and Science*, New York University Press, New York, 1954; *President's Materials Policy Commission*, *op. cit.*; *President's Scientific Research Board, Science and Public Policy*, U. S. Government Printing Office, Washington, D. C., 1947; and various publications of the National Science Foundation.

¹³ See the National Science Foundation reports on *Advisory and Coordinating Mechanisms for Federal Research and Development, 1956-57*, U. S. Government Printing Office, Washington, D. C., 1957, and *Organization of the Federal Government for Scientific Activities*, U. S. Government Printing Office, Washington, D. C., 1956.

which would then go to the appropriate committees for detailed study and action. Both the Council and Joint Committee would maintain liaison with other public agencies and with scientific, educational, and industrial groups. In addition, a standing President's Advisory Committee on Science, broadly representative of these groups, might meet 2 or 3 times a year to advise on short-run and long-run needs in national science policy.

The proposed Council and Joint Committee would have to maintain particularly close liaison with the Bureau of the Budget and the National Science Foundation. The Budget Bureau already performs important functions of budgetary and administrative review over research and development activities conducted and financed by Federal agencies. The Foundation administers a growing volume of research support in the form of grants and fellowships. It also makes detailed studies of research progress and needs in the various scientific fields. These studies are designed to provide a more adequate factual basis for formulating national science policy. These two agencies and the proposed Council and Joint Committee, through consultation with operating agencies and private groups, might work out a tentative 5-year research and development budget. It would, of course, be subject to frequent revision and should be of great value to the agencies, the President, and the Congress in framing and reviewing the annual budgets. The substantive review of scientific trends and needs by the National Science Foundation and the administrative and budgetary review of the Bureau of the Budget, when brought together in a comprehensive policy framework, should greatly facilitate the understanding, formulation, and coordination of national science policy.

A promising way to secure this clarification and cohesiveness in the framing of science policy would seem to be passage of a National Science Act setting up policy-recommending machinery generally paralleling that instituted by the Employment Act. The two acts should supplement one another in a very logical and constructive manner. They would provide the means of study, deliberation, and evaluation required to develop comprehensive policies for promoting the Nation's long-run technological advance and economic growth.

ISSUES OF FEDERAL SCIENCE POLICY

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The main burden of the following paper is that if there is to be developed a sensible set of Federal expenditure policies for scientific research and development a change is required in the organization of the executive branch with respect to the locus of responsibility for the development of national science policies. The rationale for making such a presentation to the Subcommittee on Fiscal Policy is that in the absence of effective organization for science policy development it is impossible to get issues clearly defined, analyses made of the issues, and recommendations formulated which can be transmitted to appropriate political officials for their consideration. Organizational arrangements which serve a useful purpose act as the means of focusing, integrating, and releasing knowledge and judgments of informed persons. Ineffective organization of the kind which exists for the development of Federal science policies results in inadequate attention to important issues, the discouragement of the serious study of such issues, and a vitiating of the Government's capacity to deal with them.

THE BACKGROUND

Federal expenditures for scientific research and development have shown a spectacular growth. In 1940, they amounted to \$74 million; in 1958, under definitions used by the National Science Foundation, over \$3,100 million. During the past decade, there has been more than a threefold increase in research and development expenditures—a greater increase than in the Federal budget for all purposes during this period. As a percentage of total budget expenditures, research and development expenditures have risen from about 1 percent in 1940 to over 4 percent in 1958.

If somewhat broader definitions are used, the current Federal research and development budget is considerably more sizable, being about \$3.2 billion higher. The increase occurs if one includes defense procurement programs in support of research, development, test, and evaluation activities. These programs included, the total Federal outlay for research and development in fiscal year 1958 may be well over \$6 billion.

Under either the narrow or broad definitions as to what should be counted in the Federal research and development budget, it can be seen that expenditures for research and development are big business and have been for some time.

However, sheer dollar volume alone has not been the principal cause of interest in Federal expenditures for research and development over the years. Even in the 1930's, when the outlay was small, there was recognition of the importance of research to the national economy.

For example, the National Planning Board produced a report, *Research—A National Resource*, as well as a separate study of industrial research, which emphasized the stimulating influence of research and innovation on the economy.

The Second World War resulted, of course, in a tremendous rise in Government expenditures for defense-related research. It is safe to say that most, if not all, of the problems which have since risen in connection with the Federal research and development effort had their origins in the war years—problems of allocation of Federal moneys for research among functional activities, among fields of science, among the broad categories of research; namely, basic, applied, and development. Equally, the questions of appropriate allocation among the performers of the Federal research effort—the universities, industrial laboratories, and the Government's own laboratories—were sharpened by the war experience. Needless to say, problems of education for the sciences, the supply and demand of scientific talent, and indeed, the organization of the Government itself with respect to research matters, were all deeply influenced by the war.

There was barely time for the Government's wartime research effort to subside before the cold war and the Korean crisis were upon the country. The new expansion of federally financed research and development which then began has continued since, with the same problems of allocation of resources demanding attention.

THE ISSUES

While it is true that diffusion of responsibility characterizes many, perhaps most, Government functions (e. g., natural-resource programs are administered principally by the Department of the Interior, but the Corps of Engineers, the Department of Agriculture, and the Federal Power Commission, among other agencies, also have important resource management or development responsibilities), in recent years there has been improved coordination and/or centralization in many functional areas. This has permitted a readier identification of policy issues, and better coordinated programing and budgeting.

In the case of the Government's scientific research and development programs, however, diffusion of responsibility is a built-in and essential phenomenon. About 92 cents out of every Federal research dollar in fiscal year 1958 is being spent for applied and developmental work—research designed to meet the practical public problems which are the responsibility of roughly 40 different agencies having research programs. It is obvious that if research is to be kept relevant to the problems it is attempting to solve, it must be carried on in association with the responsible agencies.

But this is not to say that decisions about research made in one agency—decisions as to the volume of research to be carried on, the types of research programs, the locus of these programs, and so on—are not of great importance and interest to several parts of the Federal Government.

The principal interest in these questions lies, of course, with those centers of decision making which must act in consideration of the widest possible range of facts and the broadest political and public interests—the White House and Executive Office of the President (including, among others, the Bureau of the Budget, the Council of

Economic Advisers, and the Office of Defense Mobilization) and the Congress, especially in appropriations subcommittees. The most trenchant questions which are raised about the issues of allocation of Federal resources for research and development come not from the individual research agencies and not from those bodies having statutory or Executive authority for the development of national-science policies, such as the National Science Foundation and the Interdepartmental Committee for Scientific Research and Development, but rather from those at the apex of responsibility in the Government. In such quarters, the identification of issues, of the problems of coordination, of merging fact and judgment, and of deciding finally how resources will be allocated are ever pressing.

As for the specific issues surrounding the Federal research and development programs, six can be identified as of major importance for the present purpose:

- (1) *What is the appropriate distribution of research and development funds among and within functional fields? Is there an imbalance between outlays for military-oriented and nonmilitary research? Are we spending too much for health-related research as compared, for example, with research on education? Are functional areas of less dramatic appeal than health, such, perhaps, as transportation, resources development, or communications, being undersupported in terms of research? Within specific functions, e. g., public health, are the Federal emphases in research satisfactory? Should more or less go into mental-health research than into research on heart disease and cancer, etc.?*

At present these questions are at best rather uncritically considered at the highest levels. Summary expenditures and obligations data for research and development, functionally organized, are contained in special analysis I of the Budget of the United States. The factual information offers no guides for judging adequacy, however. Each department and agency presents its case to the Executive Office of the President, where for the most part decisions are made on an individual agency basis. Too often the guideline for research and development programs is no more than a comparison with whether a budget is up or down from the preceding year. The Department of Defense has on occasion set up special ad hoc committees or task forces composed of disinterested persons to appraise the status of given research programs. In the not too distant past the National Science Foundation, at the request of the Department of Health, Education, and Welfare and the Bureau of the Budget set up a committee to review the medical research programs of the former agency. In this case the committee, drawn largely from the universities (and subsequently criticized on that score) produced a report which in the main affirmed the appropriateness of the existing levels and nature of HEW's medical research programs. The report was apparently not seriously taken by either the Secretary of the Department in question or by Executive Office of the President in that the next budget requested sums for medical research far beyond those which the committee had indicated were adequate.

While it is obvious that inter- and intraprogram comparisons of research activities by functional field are extremely difficult to

make and will always involve a substantial measure of judgment, some sensible efforts are possible under proper conditions of leadership and direction such as are not now available. Program-budget proposals for research and development should (a) identify the segments of program which are particularly in need of research and, generally, the nature of this research as well as the anticipated values to be derived from it; (b) estimate the approximate technical manpower requirements for accomplishing the research program; (c) identify areas of related research being carried on elsewhere in and outside the Government and the coordination which has taken place, if any, with these areas; and (d) assess the demands on large and/or scarce research facilities which new programs will entail.

Such an exercise in program-budget preparation would do two things: First, it could force more thoughtful and better coordinated research programming; and second, it would provide, at the highest levels in the Government information which could be used for more critically informed allocations among research programs.

- (2) *To what extent should the Federal research effort seek to counteract the cultural tendency toward utilitarian research, and the normal governmental requirement for research of an applied and developmental character? Is the mandate to the National Science Foundation to support basic research an adequate or an excessive one? Are we taking sufficient advantage of the fact that in some friendly western nations, particularly Great Britain, the national research bent is to fundamental research rather than to applied and developmental work?*

The several studies of Federal research activities which have been made during the past 15 years have all acknowledged the extreme importance of basic research. The Steelman report urged that the Federal outlay for basic research be increased to, at least, \$250 million by 1957 (an arbitrarily selected figure). The National Science Foundation was established in good measure for the purpose of supporting basic research. The Foundation has for the most part had increasing budgets, and other agencies too have had additional money in recent years for basic research. Federal obligations for basic research have doubled from fiscal year 1952 to fiscal year 1958, being estimated at \$233 million. The National Science Foundation, which is looked on as the Government's leader with respect to basic research has always maintained that more funds are needed than in the past. It has never taken a strong position as to the optimum ratio between basic research and the rest of the Federal or national research effort, the Federal budget, or the gross national product, undoubtedly to its credit.

One may question the capacity of the National Science Foundation, however, for disinterested appraisal of the Federal needs for basic research in view of its own deep involvement as a major dispenser of Federal basic research moneys. An agency whose staff is almost entirely devoted to making grants of Federal funds for a given purpose will understandably find it difficult to institute studies or inquiries which might reach conclusions unfavorable to the expansion of its program.

There is, at present, need to seek out some guides for use in deciding at what levels, dollarwise, basic research should be supported. Are there, as has sometimes been contended, sizable numbers of scien-

tists in the universities who would like to be doing basic work, but who have been lured away by the flood of Federal dollars for applied and developmental investigation? Or is there a scarcity of true talent which should put a ceiling on Federal moneys for basic work, and should perhaps suggest a more extensive and intensive talent hunt for the very bright youngster who is not planning to go to college? Is it true that we have to do some basic research in Government research installations in order to keep and attract able people, and is enough or too much being done in such labs at present?

These and several other similar problems need top-level study if we are to have sounder judgments brought to decisions regarding the allocation of Federal moneys among the various types of research.

- (3) *Is the Federal and the national research effort appropriately distributed among the fields of science, life, physical and social, and among the many subfields within each, e. g., within the life sciences, the medical, agricultural, and biological sciences? Does imbalance exist in the fact that out of \$964 million obligated for research alone in 1957 (virtually all of the \$1,671 million on the developmental side was in the physical sciences) \$647 million was for physical science research; \$281 million for life science research and only \$35 million for social science research? What are the criteria for judgment? Are they the opinions of scientists? Are they found in the need for research moneys as evidenced by scholars and ideas seeking funds to support their own scientific efforts? Are they the views of social and political leaders who have accepted the responsibility of trying to assess very broadly, research requirements as related to human and national needs?*

At present the distribution of Federal research by fields is for practical purposes determined in the "market place." Agencies prepare their programs with little concern for achieving an appropriate balance. In the National Science Foundation, where some attention has been paid to the matter, it would appear that the only guide of any real substance which is followed is the number and dollar volume of meritorious basic research proposals which are received or stimulated by the agency. Since more support is requested for basic research in the physical sciences more funds are requested by the NSF for that field.

An interesting attempt has been made to appraise the status of knowledge in selected subfields by the NSF. For example broad studies have been made of the fields of psychology and physiology with a view to identifying both the promising areas for future research and the resources available to do research. Whether such studies have, in fact, proved useful in programing research by the NSF is not known, but the idea is undoubtedly a useful one. The question may be asked as to whether this approach could profitably be pursued for other subfields.

- (4) *Is the present pattern of allocation of Federal research funds among the various performers of research in the Nation, principally, the universities, industry, and the Government's own laboratories a satisfactory one? Are the universities as social institutions with responsibilities for education and research being strengthened or weakened by the Government's research practices and policies? Are the Government's own laboratories effective producers of research? Should more or less research go to industrial labs? What are the criteria for allocation? Are these criteria found in the nature of the work (e. g., some research for security and safety reasons, such as chemical and biological warfare research, is conducted in good measure within Government installations); the character of the work (it is sometimes argued that all basic research supported by the Government should be allocated to the universities). Is the criterion the prevailing political philosophy of a given administration? Should the Government use more industry- or university-managed research centers of the Los Alamos type in lieu of establishing new labs of its own?*

There has been some continuing interest at highest levels in the Department of Defense in, at least, observing the patterns of distribution among the performing components, presumably because of a desire to make allocations in such a way as to strengthen the several types of research institutions as well as to get the best research possible per dollar expended. The National Science Foundation also regularly develops data on the distribution of Federal Research and Development moneys by performers in its Federal funds for science series. But no critical studies have been made which could provide guides as to the conditions under which the Government should conduct its research in-house or have it conducted elsewhere.

The National Science Foundation, in 1954, appointed a committee, largely of university people, to study Government-university research relations. If the report of that committee produced useful information on this problem it has not yet been made available. From time to time the National Science Foundation has considered looking into the Government's past decisions about where research should be conducted with the thought that some guides might be culled from this experience. However, such inquiries have not moved forward. Nor have proposed studies of the research center and its values and limitations as an organizational arrangement for the conduct of the Government's research. It is clear that in this area some reasonably useful guides could be developed given sufficient interest and leadership at appropriate levels. Since the welfare of vital institutions such as the universities are at stake, as well as the efficient and economical conduct of Government research, it would appear that this allocation problem should have a high priority.

- (5) *What is the impact on the stability and future growth of the national economy of the Government's research and development programs? Are there ways in which the Federal research effort can be used to strengthen the economy at times and places when soft spots appear? Are there measures, e. g., changes in tax and patent laws perhaps, which the Government can take to encourage the sound development of industrial research?*

While the Council of Economic Advisers acknowledge the importance of science to the economy and is deeply interested in the subject, and similarly the National Science Foundation has expressed an interest and indeed at one time made a minor effort to inaugurate some studies, this whole area is at present badly neglected. To understand the relationship between research and economic stability and growth is admittedly extremely difficult. Definitive studies need to be made on an industry or subindustry basis, and to approach a useful level of sophistication such studies would in all likelihood become quite complex. Interesting speculative writing has been done on the subject, but it has not met the requirements for more definitive knowledge upon which the Government could base action. It is apparent that funds must be provided for a research program on this subject, probably to be carried on by economists not now in the Government, but under the guidance of the Council of Economic Advisers, the National Science Foundation, or some other highly placed agency.

- (6) *What is the role of the States in research? Should the States be encouraged by the Federal Government to undertake more research and development or different types of research and development than they now characteristically carry on? Should the Federal Government employ the grant-in-aid device or other forms of incentive to encourage the States in their research endeavors? Behind these questions lie ones which relate to the diversification of scientific activity; the wisdom of encouraging lesser-known and less well-staffed and equipped public educational institutions to strengthen their scientific research and training activities; and the problem of centralization of financial responsibility and control for a very great segment of the national research economy in the Federal Government.*

A unique study of scientific research activities in six States, selected for their differing economies and regional locations, has been prepared, under contract, for the National Science Foundation. This study reveals that considerable research, largely of an applied character, and running into millions of dollars in value, is carried on by some of our more populous States. The President's Commission on Intergovernmental Relations refrained from deeply exploring the research relationships between Federal Government and States on the grounds that the National Science Foundation is moving in this area. A number of the conclusions of the aforementioned study, as, for example, that the grant-in-aid has acted as a strong stimulus to the States to undertake research, warrant careful attention in the formulation of Federal policies affecting science.

The six issues considered above are only a few of the problems confronting the Government in its scientific endeavors—perhaps the most important in terms of the allocation of scientific resources. One may

simply note that, in addition to these, are urgent questions with respect to the organization and programs of the Federal Government for international science; the problem of adequately informing the American public about the Government's scientific research programs; the scientific manpower problem and the supply-demand situation with respect to skilled personnel; the training of scientists and engineers and the burdens placed on our educational facilities by the requirements for more and more such persons. The list could be considerably expanded.

Having identified issues of science policy calling for high-level attention, we may now look briefly at the agencies or committees within whose responsibility falls the development or furtherance of national science policies.

THE SCIENCE POLICY AGENCIES

At present there are four organizations which have statutory or executive authority to provide broad policy direction to the Government's research and development effort. They include the quasi-governmental National Academy of Sciences-National Research Council, the National Science Foundation, the Interdepartmental Committee for Scientific Research and Development, and the Science Advisory Committee of the Office of Defense Mobilization.

The National Academy of Sciences was created by act of Congress during the Civil War as a nonprofit organization devoted to the furtherance of science. Its charter requires it to act as an adviser to the Federal Government on scientific matters when requested to do so. It is compensated for services rendered to the Government but is not otherwise federally supported. The National Research Council was organized by the Academy in 1916 to bring to bear the talents of the scientific community on the technical problems generated by the First World War. The Academy-Research Council operates largely through boards and committees. It does not usually engage directly in research but makes its contribution through conferences, surveys, the sponsorship of research, and so forth. As a policyguiding body, the Academy-Research Council cannot be said to play a vital role since it is generally more concerned with arranging for the solution of specific technical problems than in advising on broad scientific issues. An illustrative exception to this situation, however, occurred when the Academy was asked by the White House in 1955 to provide counsel on the Government's loyalty policies in relation to Federal support of unclassified research. The subsequent report was in most respects a policy-oriented document.

The National Science Foundation was created by act of Congress in 1950. Its responsibilities include, among others, the development and encouragement of a national policy for the promotion of basic research and education in the sciences; recommending to the President policies for the Federal Government which will strengthen the national scientific effort; appraising the impact of research upon industrial development and the general welfare; and reviewing the scientific research activities of the Government in order to improve their coordination and administration. The nonpolicy responsibilities of the Foundation which consume most of its fiscal and staff resources include the making of grants for basic research, largely to colleges

and universities; the furtherance of education in the sciences through fellowship programs, science teacher-training programs, and so forth; and the dissemination of scientific information through a variety of activities designed to improve communication throughout the scientific world.

The National Science Foundation has, to date, played a modest role with respect to national science policies. It has advised on Government policy for the payment of overhead to colleges and universities in connection with research grants and contracts; has developed advisory papers on selected other issues; and has indirectly implied policy through the sorts of decisions it makes in connection with its own grant and other ongoing programs.

The Interdepartmental Committee on Scientific Research and Development (ICSRD) was established by Executive order in 1947. Its membership is made up of persons designated by the heads of the principal departments and agencies having research and development activities. Its secretariat is located in the National Science Foundation. Among other duties it is directed to recommend steps to make the Government's research programs effective in promoting the national welfare; to make recommendations on administrative policies and procedures affecting Federal research; and to study and report on current policies and administrative practices related to Federal support of research.

In practice the ICSRD has concerned itself largely with administrative problems affecting Federal research and has tended not to be a policy forum.

The Science Advisory Committee of the Office of Defense Mobilization offers policy advice on scientific matters affecting the national security. It is made up of several non-Federal and four Federal members. Its secretariat is located in the Office of Defense Mobilization and it reports to the Director of that organization. Its advisory responsibilities cover guidance on effective utilization for security purposes of scientific resources in the Nation. It also advises on scientific aspects of the ODM program, and, as requested, undertakes special studies on problems of science and the national security.

The organizational problem

With such an array of agencies to deal with science policies, query can be made as to why so many major issues lie virtually unattended. Clearly if as suggested above, the issues of science resource allocation are to receive governmentwide consideration they must be handled at a level which will provide this perspective. And they must be handled at a level which is close to the ultimate decisionmakers, if considerations of a parochial nature are to be avoided. An organization like the National Academy of Sciences-National Research Council, since it is outside of the governmental structure is not able to take the governmentwide view with ease. In addition, as it has evolved over the years it is a body especially capable of seeking out technical competence for the solution of specific scientific problems, rather than an organization adopted to handling broad policy issues.

The National Science Foundation, which was created amid high hopes that it would provide policy leadership, has in fact done so in a most limited manner. Why is this the case? One may find the answers in several directions. First the agency was given not only

a policy job to do but also several "operating" tasks such as administering a basic research grant program, maintaining a national roster of scientific personnel, administering a fellowship program, developing programs and projects to aid science teachers and to improve the teaching of science, etc. The operating tasks were relatively clear and were naturally tackled first. The staff which was recruited for these purposes was oriented to specific fields of science, to universities and to university teaching. The interests of the National Science Board seem to have been in similar directions. Both staff and Board continue to make an admirable contribution to the Government's scientific responsibilities through expertly administering the foundation's "operating" tasks.

It must be observed, however, that the perspectives needed for the successful performance of such work are quite different from those needed for working out the leadership role which the Government's central science agency will play. The knowledge of how Government works, of the value of conflict in the political environment, of strategy in stimulating interagency consultation for ultimate resolution of policy problems, tend to be foreign to the university-minded scientist.

Second, the foundation in its policy mandate under the act creating it (Public Law 507, 81st Cong.) was provided with vague language. The subsequent Executive order (No. 10521, dated March 17, 1954) which was intended to clarify the foundation's policy responsibilities, hardly did so. Nonetheless, in fairness to the situation it must be observed that understanding and firm leadership on the part of the foundation could have made good use of the policy authority under the act and Executive order, despite some lack of clarity.

Third, the foundation as a policy agency was misplaced in the organizational structure of the Government. A policy body should not be a peer among agencies for which it is formulating policy. Coupled with this is the fact that as an operating agency the foundation competes for research talent in its grant and fellowship programs with many other Federal organizations. Its objectivity naturally comes under suspicion. (For an excellent appraisal of the National Science Foundation see *The National Science Foundation: The First Six Years*, by Dael Wolfe, in *Science*, August 23, 1957, vol. 126, No. 3269, pp. 335-343.)

The limited policy role of the ICSR D is yet another story. The committee came into being as a result of a recommendation in the 1947 Steelman Report. In theory it was to go out of existence when and if a National Science Foundation were created. There is some evidence that certain agency research heads who were fearful that the National Science Foundation might become too strong a force, were instrumental in keeping the ICSR D alive after 1950. In addition, the Bureau of the Budget has tended at times to talk of a built-up role of the ICSR D to fill the vacuum left by the National Science Foundation's inaction in the public policy area.

Whatever other reasons there may be for the continued existence of the ICSR D, this much is certain: It is invaluable to have in Government research councils the kind of advice which can only be obtained from the collective judgment of the research heads of Government agencies. The ICSR D has tended over the years to deal with administrative problems rather than with broad issues of science policy. Its sessions increasingly have been attended by persons in second- and

third-level positions rather than by agency research heads themselves. The consequence is that the policy guidance which Government needs from its own research directors has not been forthcoming—or at least has been available only sporadically.

The greatest success story among the science policy agencies is to be found in the Science Advisory Committee of the Office of Defense Mobilization. However, it must be remembered that the Science Advisory Committee in advising on scientific matter related to the national security is influenced by several factors. It has had a reasonably clear sense of purpose, a firm and imaginative leadership, good support from the Director of the Office of Defense Mobilization and, through him, access to the highest councils in the Government. It has shown ingenuity in the arrangements developed for the conduct of some of its policy-oriented studies and it has given evidence of sophistication in its manner of operating in the administrative-political environment of the Executive Office of the President.

POSSIBLE DIRECTIONS FOR THE FUTURE

Over the past century numerous proposals have been developed with respect to organization which could be created to give the Federal Government top policy leadership in science. (See A. Hunter Dupree's *Science in the Federal Government*; the Belknap Press, 1957.) For example, that there be a Department of Science has from time to time been suggested. It seems safe to say that no one today who is cognizant of the complexity of Federal research, and of its need to be kept close to the functional problems it is attempting to solve, gives serious attention to the idea of placing all scientific activities within a single department.

Such current thinking as exists on the problem of reorganization for improved science policy leadership runs in fairly obvious directions. There is some argument for attempting to strengthen the role and the hand of the National Science Foundation. However, to do this would require a separation from the Foundation of the operating program which it handles so effectively, since otherwise the basic dilemma of the Foundation would remain. It would also call for elevating the Foundation to a position in the Executive Office of the President.

At least limited sentiment has existed for attempting to create of the Interdepartmental Committee for Scientific Research and Development of the ODM's Science Advisory Committee, a central science policy body. In the case of the former, its stature as a committee created by Executive order and as a spokesman for the Government's own research establishment would seem to raise serious doubts. A science policy body should have congressional sanction. Its composition should be such as to make it a spokesman for the national interest in science and not solely for the interests of the Government's own laboratories. As for the Science Advisory Committee, its mandate to be concerned with scientific problems related to the national security precludes it from the generality of interest which is essential to a science policy body.

While the various defects noted above could be corrected through legislation (theoretically even the National Academy of Sciences' National Research Council could be transformed into a Federal agency

and made the central policy body) much would be lost in each case. The National Science Foundation has important operating work to do, especially in supporting basic research and in aiding the development of new scientific talent. The ICSRD, as a forum for the research heads of government agencies, is needed; indeed, its role in this respect should be greatly strengthened. The Science Advisory Committee, in the science-national security area, is invaluable. It should not be reoriented to deal with all the issues of science and government since its present work might then become secondary to the handling of more general issues.

The answer rather clearly seems to lie on the creation of either an Office of Science Adviser to the President or a small Council of Science Advisers in the Executive Office of the President. In view of the oft-repeated fear of the scientific community that no one man should be allowed to represent science, the council concept, which has worked so admirably on the economic front, is probably more tenable.

Such a Council of Science Advisers should be appointed by the President, who also should designate a chairman from among the committee members. The importance of the issues at stake not only those problems of allocation which have been discussed above, but the many more which have been alluded to, suggest that the Council should be a full-time body and that therefore the membership should be limited to perhaps three persons. These individuals must, of course, have the respect of the scientific community. But of even greater importance than, for example, past evidence of creative scientific ability, would be present evidence of a capacity to elevate the interests of the Nation above specific issues of a technical character, an awareness of the tremendously important, if sometimes submerged, role which science plays in contemporary life; a capacity for working effectively in the political environment, and a willingness to assume the risks which leadership implies.

The Council should be supplied with funds for a small staff; funds for some research on problems of science and government probably to be done under contractual arrangements; and authority to request the assistance of the National Science Foundation, the Science Advisory Committee, and other Federal agencies with research programs and responsibilities, in the analysis of the many unresolved issues related to science and government.

In addition, the Council should have regular access to the ICSRD, probably through some formal association in order that it be kept privy to both technical and administrative problems arising in the Government's own research endeavors.

To complement this strengthened arrangement in the executive branch, it would appear wise for the Congress to create a Joint Committee on Science. The problems of diffusion of responsibility for scientific affairs which characterize the Executive have their counterpart in the Congress, where scientific programs and problems must ordinarily be viewed piecemeal rather than in relationship one to another.

The issues of science are frequently undramatic. If, as a nation, we are failing to educate substantial numbers of our most talented youth to careers in science, or if we are insufficiently encouraging basic research or research in certain fields of science, the losses to society are

not now easily discernible. The failures will become apparent in the future, perhaps the distant future, when consequences are felt in ways now unpredictable. Should the national economy seriously falter, should the national defense prove disastrously inadequate, citizens of a later time could look back to fix the blame.

In a sense, we are at a fortunate moment in history to be considering this problem. We have recently learned what a society—one long considered backward—can do, even under fearful conditions of political control, when it wishes to further science. Given all of the favorable attributes of the American environment, freedom of thought and freedom for dissension, educational and physical resources in abundance, and a cultural climate of great vigor, it would seem astonishing if we cannot get our house in order in the interest of strengthening science for the Nation.

FEDERAL EXPENDITURES FOR RESEARCH AND DEVELOPMENT

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MAGNITUDE OF RESEARCH AND DEVELOPMENT ACTIVITY

The National Science Foundation Annual Report for 1956 gives Federal Government obligations for research and development for 3 fiscal years, as shown in exhibit I.

EXHIBIT I

[Millions of dollars]

	Department of Defense	All other	Total Federal
1954 (actual)	\$1, 379	\$539	\$1, 918
1955 (estimated)	1, 532	655	2, 187
1956 (estimated)	1, 550	739	2, 289

These figures for the Department of Defense do not include the several billions of planned obligations of development programs that are funded by "Procurement and production" appropriations which are discussed in a later paragraph of this paper.

A recent survey of industry expenditures for research and development made by the McGraw-Hill Publishing Co. and presumably including work done by industry for the Federal Government with government funds, developed these figures for 3 calendar years:

	<i>Millions</i>
1955	\$4, 767
1956	6, 096
1957 (planned)	7, 319

Going back to earlier years, research and development activity has shown still greater increases. According to the National Science Foundation, Federal expenditures in 1940 accounted for only 1 percent of the Federal budget, while in 1955 Federal outlays accounted for 3 percent of a much larger total budget.¹

Private-industry expenditures for research and development increased at a slow, annual rate of approximately \$15 million between 1920 and 1939. But between 1939 and 1953 these expenditures increased at an annual average rate of roughly \$300 million a year.²

It is not permissible to combine the above figures for government and industry expenditures, because the figures are not mutually ex-

¹ National Science Foundation Sixth Annual Report, 1956, p. 4.

² These annual rates are calculated from a chart in Special Reports on Major Business Problems, The New World of Research, McGraw-Hill Publishing Co.

clusive. Also, figures compiled by different organizations are based, usually, on different definitions of development and research. In some cases, research figures include expenditures for product development, and development figures may not include total development. The Department of Defense has been, until recently, a flagrant offender in this respect. Figures of planned obligations or expenditures for military research and development, given out as total obligations or expenditures, have been limited to the budget or expenditure figures funded by the budget category of "Research and development." These figures have omitted a major part of military development activity which is funded by "Procurement and production" appropriations.

At the congressional hearings on the fiscal year 1957 budget, real total figures were presented by the Department of Defense, as shown in exhibit II.

EXHIBIT II

(Millions of dollars)

	Fiscal year 1955	Fiscal year 1956	Fiscal year 1957	Fiscal year 1958 (estimate)
Included in research and development appropriations.....	1,221.1	1,493.5	1,747.0	1,701.1
Included in procurement and production appropriations.....	1,826.4	1,830.1	2,804.5	3,067.8
Activities supporting research and development (largely military payroll not included above).....	344.3	445.5	639.4	549.7
Total.....	3,391.8	3,769.1	5,190.9	5,318.5

On this more complete basis Department of Defense planned obligations amounted in fiscal year 1955 to more than 5 percent of the total Federal budget instead of the 3 percent stated by the National Research Foundation.

For the reasons given, it is difficult to do more than guess at the real total of private and Government expenditures for research and development in the United States. A conservative guess for the calendar year 1957 would be a rounded figure of \$9 billion. Possibly a better figure can be arrived at through panel discussion.

On the basis of this \$9 billion, 55 percent of total research and development activity is accounted for by the Department of Defense.

Magnitude of basic research activity

There is a general impression that in the United States too small a part of total expenditures for research and development is devoted to basic or fundamental research. Available figures justify this impression.

The National Science Foundation reports that private industry spent \$150 million for basic research in calendar year 1953, and that the Federal Government spent \$117 million for basic research in fiscal year 1954.

The Hoover Commission report to the Congress on research and development, issued May 1955, stated:

Out of about \$2,400 million Federal expenditures proposed by the budget for fiscal year 1956 on research and development work, probably less than \$130 million is to be devoted to basic research.

The total figure of \$2.4 billion obviously does not include development funded by Department of Defense procurement and production appropriations.

EFFECT OF PRICE INCREASE ON MILITARY RESEARCH AND DEVELOPMENT EXPENDITURES

There has been considerable emphasis on price increases over the past few years as a reason for increasing expenditures by the Federal Government. It may be of interest to look at the size of this factor in the field of military research and development.

The Department of Commerce price deflators which are used to reduce the several categories of gross national product to a constant price base may be used to reduce military research and development expenditures to a constant 1947 price level, and so eliminate the factor of price increase.

In exhibit III the price deflator used is the deflator for Federal Government purchases of goods and services. The deflators shown for fiscal years are the average of the deflators for the two appropriate calendar years.

EXHIBIT III.—*Military research and development programs*

[Millions of dollars]

Fiscal year	At current prices	Price deflator	At 1947 prices	Ratio at constant prices
1955.....	3,392	121.4	2,790	100
1956.....	3,769	126.7	2,980	107
1957.....	5,191	131.0	3,960	142

¹ Estimated.

The price increase from 1955 to 1957 was about 8 percent. Using the same method of measurement, the price increase from fiscal year 1953 to fiscal year 1957 was 11.4 percent.

Department of Defense research and development planned programs increased 42 percent from 1955 to 1957 at constant prices and an additional 8 percent because of price increase.

ORGANIZATION FOR RESEARCH AND DEVELOPMENT IN THE DEPARTMENT OF DEFENSE

This discussion of the organization of research and development activity will be confined to the organization in the Department of Defense because military research and development is much the largest research and development activity in the Federal Government, because it presents the most difficult problems, and because it offers the greatest opportunity for remedial action.

The historical development of the organization of advanced types of research and development within the Military Establishment may be divided conveniently into three different organizational periods:

(1) 1941-45: The period of the Office of Scientific Research and Development

- (2) 1946-53: The period of the Research and Development Board
- (3) 1953-57: The period of the Assistant Secretaries of Defense under Organization Plan No. 6

Office of Scientific Research and Development, 1941-45

Research and development for general military application within the Military Establishment started with the organization of the National Defense Research Committee in June 1940, with Dr. James Conant, then president of Harvard University, as Chairman. Within a year, in June 1941, the NDRC was superseded by the OSRD—the Office of Scientific Research and Development—with Dr. Vannevar Bush as Chairman.

Significantly, OSRD was organized as a part of the Office of Emergency Management of the White House. It was not a part of the Military Establishment, but coordination with the War Department and the Navy was provided for by military representation on the official board and on the numerous committees and panels of the Board. Also, Dr. Bush was Chairman of the Joint Committee on New Weapons and Equipment of the Joint Chiefs of Staff, and was expected to coordinate the related activities of JCS and OSRD.

The OSRD produced a remarkable record of achievement under conditions that prevailed during the war years of 1941-45, but which no longer prevail. Two illustrations may be cited: The OSRD was given authority—and funds to go with it—to initiate research projects and development projects independently of the military departments. This was an important factor in the success of OSRD. Under the conditions then existing there was no competition or conflict between the OSRD and the military in this new activity of applying scientific principles and information to the development of radically new types of military equipment.

By the end of the war OSRD had over 2,000 contracts with industrial and academic organizations, and was spending funds of its own at the rate of \$175 million a year, a truly modest sum considering its accomplishments and the size of current expenditures.

Research and Development Board, 1946-53

With the end of the war, OSRD rapidly disintegrated. Personnel hurried back to more congenial civilian tasks; appropriations ceased. At the initiative of the Navy, a Joint Research and Development Board was established in June 1946 by joint action of the Secretary of War and the Secretary of the Navy. Interestingly, the structure of this Joint Board did not grow out of the structure of OSRD; it was patterned on the Joint Chiefs of Staff Committee on New Weapons and Equipment—a military rather than a civilian agency.

This Joint Research and Development Board was granted broad authority. By its charter, the Board could decide important questions without recourse to higher military authority, and could issue its decisions as “orders” of the two Secretaries. But before the Joint Board could get into operation and could test this broad authority, it was superseded by an agency with more limited powers, under the provisions of the National Security Act of 1947.

The National Security Act of 1947 and its revision in 1949, created and strengthened the Department of Defense. The act created two boards—the Research and Development Board and the Munitions

Board. Broadly, the Research and Development Board was responsible for research and development activities up to the point of the availability and approval of the equipment for service use. The Munitions Board, among other duties, was responsible for the procurement, production, and supply of equipment for service use and for inventory stocks.

Although the act provided that the two boards were "subject to the authority of the Secretary of Defense," the Boards operated, largely, as independent agencies. Partly because of this attempted independence and, more importantly, because of a complicated committee structure, lack of prompt action, even when the Chairman of the Board had the necessary powers, and lack of cooperation by the military departments, the Research and Development Board never realized the hopes of its sponsors.

Near the end of its career in 1953 the Research and Development Board had over 100 active committees, panels and working groups, on which over 2,000 names were listed. The full-time staff of the Board consisted of 260 civilians and 16 military personnel and over 350 part-time consultants.

Under the complicated and rigid committee structure of the Research and Development Board, and lack of cooperation of the military departments, effective coordination of military department development programs and the elimination of unnecessary development projects proved to be well-nigh impossible.

The military departments dominated the committees of the Board. The military representatives on committees, panels and working groups were expected to sit in judgment on the acts of their superior officers: To sit in judgment on projects previously approved by their departments. This is not done in a military organization; and programs and projects submitted to Research and Development Board committees for review were seldom disapproved. When a new Secretary of Defense came into office in 1953, the Research and Development Board and the Munitions Board had been discredited by their records and were on the way out.

The Assistant Secretaries of Defense, 1953-57

In February 1953 a committee was appointed by Secretary Wilson to review the organization of the Department of Defense and to make recommendations. Nelson A. Rockefeller was Chairman. The report of this committee was approved and became effective June 30, 1953, as Organization Plan No. 6.

Among other major changes, the plan abolished the Research and Development Board and the Munitions Board and substituted additional Assistant Secretaries of Defense to take over the duties of the two Boards.

The President in his letter transmitting Organization Plan No. 6 to Congress, emphasized two objectives of the new organization:

The first objective is clarification of lines of authority within the Department of Defense so as to *strengthen civilian responsibility*. Our second objective is effectiveness *with economy*. [Italic added.]

Under Organization Plan No. 6 an Assistant Secretary of Defense for Research and Development took over the major part of the func-

tions, organization structure, and personnel of the superseded Research and Development Board. The plan also provides an Assistant Secretary of Defense for Applications Engineering—a new position.³ Unfortunately, neither the Rockefeller Committee nor the Secretary of Defense clearly defined the division of responsibilities between these two offices, in the field of review and approval of development programs and projects; and this uncertainty remained a cause of controversy and confusion until the two offices were consolidated, during the spring of 1957 into one office of "Research and Engineering."

From June 1955 until the time the two offices were consolidated, in the spring of 1957, the following division of responsibility for the review coordination and approval (or disapproval) of research and development programs and projects was established by the Secretary of Defense:

Part 1. Responsibility for the review and approval of all research programs and projects rested with the Assistant Secretary of Defense (Research and Development).

Part 2. The review and approval of development programs and individual projects funded by research and development appropriations was the joint responsibility of the two Assistant Secretaries of Defense (for Research and Development and for Engineering).

Part 3. The review and approval of development programs and individual projects funded by procurement and production appropriations was the sole responsibility of the Assistant Secretary of Defense (Engineering).

This division of responsibilities was by no means ideal but it was the best arrangement on which agreement could be reached, and was far better than previous arrangements. It was not until the above arrangement was established in June 1955, that the major part of the military development program that was funded by procurement and production appropriations was officially recognized and subjected to technical program review by either the Assistant Secretary of Defense (Research and Development) or by the Assistant Secretary of Defense (Engineering).

The two Assistant Secretaries followed different policies and established different procedures for carrying out their review responsibilities.

It was stated that when the new Office of Assistant Secretary of Defense (Research and Development) was organized in 1953, this Office took over the major part of the functions, organization structure, and personnel of the superseded Research and Development Board. And an important part of this RDB organization structure was the structure of committees and technical advisory panels of the RDB. The policy of military representation on the committees set up for review and coordination of military programs was continued. In this matter, little attention was paid to carrying out the President's expressed desire "to strengthen civilian responsibility" and to "increase effectiveness with economy" in the new organization.

In the first two parts of review responsibility listed above, for which the Assistant Secretary of Defense (Research and Develop-

³ Later this title was changed to Assistant Secretary of Defense (Engineering). This shorter title will be used in this paper.

ment) was either solely or jointly responsible, the Research and Development Office took the lead and the coordinating-committee structure with military representation was employed.

In connection with the third part of this review responsibility for which the Assistant Secretary of Defense (Engineering) was solely responsible, a new procedure was worked out in cooperation and agreement with the three military departments. In this procedure there were no committees and no voting by military department representatives. Action was entirely within and by the staff of the Assistant Secretary of Defense (Engineering) and of other interested Assistant Secretaries of Defense. This procedure was designed to carry out the President's policy of stronger civilian responsibility, and effectiveness with economy.

This past history is important and pertinent only because of what has happened since in the recent organization of the combined Office of Research and Engineering. With only one Office of Research and Engineering, the need to distinguish between development funded by research and development appropriations and development funded by procurement and production appropriations exists no longer. One review and approval procedure can now be used for all development programs and individual projects. But both procedures are being used with continued duplication of effort.

Experience over the past 10 years has demonstrated the futility of expecting effective and economical control of research and development programs and expenditures if the military departments are permitted to sit as judge and jury in the review and approval procedure of their own military programs.

The relative success of the completely civilian review procedure developed by the former Office of the Assistant Secretary of Defense (Engineering) shows that military representation in an official form as it exists in the coordinating committees is not necessary for effective reviews.

Another example of the comparative success of a completely civilian review and approval agency is provided by the organization and operation of the Ballistic Missile Committee of the Office of the Secretary of Defense. This Committee has no military representatives. The Chairman is the Special Assistant for Guided Missiles and the membership consists of the interested Assistant Secretaries of Defense.

If the Assistant Secretary of Defense (Research and Engineering) desires to retain the existing coordinating committees as advisory committees to consider questions of a general nature or for any purpose other than the review of research and development programs and projects, the existing charters of the committees should be changed to specifically exclude voting action on research projects and development projects. This review function should be the sole responsibility of the appropriate office directors within the office of the Assistant Secretary of Defense and should be carried out according to existing office procedure.

Another practical requirement for effective control of research and development programs and expenditures is close cooperation between the Assistant Secretary of Defense (Research and Engineering) who is responsible for technical or program approvals, and the Assistant Secretary of Defense (Comptroller) who is responsible for all fund-

ing approvals. Funds for a program or project should be approved by the Assistant Secretary of Defense (Comptroller) only after a program or project has received technical approval, or approved conditionally, subject to such approval.

THE PREPARATION OF THE MILITARY BUDGET

The effective control of military research and development is only a part—although a very important part—of the larger problem of the control of total military expenditures. And much of the difficulty of the problem has been centered in the way in which the military budget has been determined in the past.

The usual way of establishing the size of the military budget has been for each military department to determine its own needs, invariably on the high side, and to submit these estimates to the Secretary of Defense for approval. There follow months of negotiation and revisions to bring the military estimates down to some lower figure which the President will accept. Even when “guidelines” have been announced in advance by the Secretary of Defense, the military departments have not accepted such limiting figures as final.

The results of this procedure are an excessive waste of time, effort, and money, and a final budget figure that is usually higher than really desired by the Secretary of Defense and the President.

The British procedure in this matter is much more sensible. The size of the military budget is determined jointly by the Chancellor of the Exchequer and the Minister of Defense and when this ceiling figure is announced work on the budget is started. This figure is then accepted as final and binding by the Military Establishment.

The Secretary of Defense announced recently that in the preparation of the fiscal year 1959 budget the military departments will for the first time have an “obligational authority” appropriation and budget expenditure ceiling set in advance.

This step represents a major improvement in the determination of the size of the budget and in the more effective control of military expenditures.

A PROGRAM FOR BASIC RESEARCH

When pressure is applied to reduce military research and development expenditures, as during the recent session of Congress, there is danger that basic research programs will suffer unduly. It is only natural that when funds are reduced the military departments will give preference to equipment development; and then to applied research having near-term application to military needs.

The amount of funds that can be sensibly used for basic research projects is relatively small. How much money is spent by the Department of Defense on basic research projects is not known with accuracy. The amount has been estimated at something between \$20 million and \$50 million. Even this higher amount is a minor sum when compared with the more than \$5 billion that was available for research and development during fiscal year 1957.

I propose that the Secretary of Defense have a basic research fund that can be used only for basic research projects. A fund of from 80 to 100 millions would be ample and need not appreciably affect applied research or development programs.

The Secretary of Defense now has a separate fund called an emergency fund that is supposed to be used only for unforeseen emergency research or development projects. Actually this fund is used as a supplemental fund for any kind of research or development project that appears to be desirable.

Without any change, except in name, this emergency fund could be used as a basic research fund, or an additional restricted fund could be established. An added feature of considerable value would be authority delegated to the Assistant Secretary of Defense for Research and Engineering to initiate basic research projects, that might not be of immediate interest to any one of the military departments. The important objective of this plan is to preserve reasonable activity in basic research under conditions of limited research and development funds.

An adequate basic research program can be assured only by setting up a restricted fund that can be used only for funding basic research.

