SPECIAL STUDY ON ECONOMIC CHANGE

HEARINGS

BEFORE THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

NINETY-FIFTH CONGRESS

SECOND SESSION

PART 2

JUNE 8, 9, 13, AND 14, 1978

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SPECIAL STUDY ON ECONOMIC CHANGE

THURSDAY, JUNE 8, 1978

PRODUCTIVITY PROSPECTS AND PROBLEMS

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to recess, at 10 a.m., in room 345, Cannon House Office Building, Hon. Richard Bolling (chairman of the committee) presiding.

Present: Representatives Bolling and Brown of Ohio.

Committee staff present: John R. Stark, executive director; Louis C. Krauthoff II, assistant director; Kent H. Hughes and L. Douglas Lee, professional staff members; Mark Borchelt, administrative assistant; and Charles H. Bradford and Stephen J. Entin, minority professional staff members.

Special Study on Economic Change staff present: Charles S. Sheldon II, research director; Robert Ash Wallace, research director; George D. Krumbhaar, Jr., counsel; Richard D. Bartel, staff economist; and Paula J. Dobriansky and A. A. "Chip" Sayers, research assistants.

Also present: Everett M. Kassalow, Congressional Research Service, Library of Congress.

Representative BOLLING. The committee will be in order.

By way of a nonopening statement, in the beginning of the hearings I made a very long opening statement, including suggestions as to how we would like to proceed. We would like to turn these events into conversations rather than hearings in the classical sense. So we asked each participant to summarize his prepared statement as briefly as he can. I say 10 minutes, and I mean really 10 to 15, and sometimes our participants run 20 to 30, and then we all riot a little bit, but we don't interrupt. It is entirely the honor system. We hope you can hold it to 10 or 15 minutes each.

I have a particular problem, as you might expect. The House is in session today, and the Rules Committee is in session. We have all kinds of problems over there. If I leave and there is no Member here, Mr. Sheldon will take over, because we do want the conversation, and, after all, Members of Congress can read.

I hope to be able to stay, but if they suddenly have a vote on whether we are going to aid New York or not, I will have to go. [Laughter.] So with that, we will begin.

Our first witness, Jerome Mark, is Assistant Commissioner for Productivity and Technology, Bureau of Labor Statistics. His office

measures the trends in productivity of the national economy and its component industries and studies their relationship to other factors such as employment, wages, costs, and economic growth.

Mr. Mark joined the Bureau in 1951 and has worked in various capacities in the field of productivity research. He has also participated in international conferences on productivity serving as the U.S. delegate at meetings of the International Labour Organization and the Economic Commission for Europe. He received his B.S. degree in engineering from Carnegie Institute of Technology and his M.A. in economics from the University of Chicago. He is a Fellow of the American Statistical Association.

We are glad to have you, Mr. Mark.

STATEMENT OF HON. JEROME A. MARK, ASSISTANT COMMISSIONER, OFFICE OF PRODUCTIVITY AND TECHNOLOGY, BUREAU OF LABOR STATISTICS, DEPARTMENT OF LABOR

Mr. MARK. Thank you, Mr. Chairman. I appreciate your invitation to appear today to discuss developments in productivity. As you know, in addition to developing information on prices, wages, and employment, the Bureau of Labor Statistics also provides data on changes in productivity for the private business economy, major economic sectors and for many specific industries. In response to your request, I would like to review for you what has been happening to productivity, particularly labor productivity, with most emphasis on longer term movements. I will then examine some of the factors associated with the productivity trends and explore the outlook for these factors with their possible impact on productivity growth.

Trends in productivity reflect, among other things, changes in technology, changes in the quality and composition of the work force, changes in the rate and kind of capital investment, and changes in the industrial composition of employment and output.

Important also is the impact of short-term cyclical influences such as changes in the degree of capacity utilization. The complexity of these factors and their interactions, as well as the limitations of the data concerning them, make it difficult to assess the impact of each of these on productivity and create uncertainties about any productivity projections with regard to the productivity movements over the last three decades. In part, assessing the outlook for productivity growth becomes an exercise in examining current and historical movements in order to separate the transitory factors from the more permanent ones and, with some evaluation about the outlook for the long-term factors, come up with judgments on the changes in productivity.

PRODUCTIVITY MOVEMENTS

Over the last three decades productivity, as measured by output per hour of all persons, grew 2.8 percent per year for the private business sector of the economy. However, this average reflects a much sharper rate of gain during the first two decades—3.2 percent—than during the last decade.

During the last 10 years, the rate has fallen by 0.5 to 1.6 percent per year and the question of whether this fall-off reflects a new

pattern of productivity growth or a temporary phenomenon is of great importance in assessing the prospects for the future growth of the economy.

Although in the last 2 years productivity in the business sector has shown strong increases—4.1 percent in 1976 and 2.6 percent in 1977, a good part of these gains reflect cyclical influences.

REASONS FOR SLOWDOWN

Much attention has been focused on the reduction in productivity growth and many explanations have been advanced for the slowdown. These have included the effects of shifts in the industrial composition of the economy, changes in the composition of the labor force, an apparent slowdown in improvements in the capital-labor ratios, the leveling off of research and development expenditures in the 1960's, the diversion of investment to pollution abatement expenditures, the maturation of many industries with little new technology and changes in attitudes toward work.

There is no simple explanation for the decline and there is no general agreement as to the quantitative impact of these various factors. Today, I would like to review more fully a few of these factors, recognizing that they do not explain completely the downturn. The three that I will cover are the changes in the composition of the work force, the effects of industry shifts and the changes in the capital-labor ratio.

CHANGING COMPOSITION OF THE WORK FORCE

Changes in the age-sex composition of the work force have been substantial in the period 1966 to 1976 and, as I mentioned, many researchers have attributed a good part of the decline in productivity growth to this shift. The rate of growth of the labor force rose sharply in the late 1960's with a great number of new entrants, as the persons born during the "baby boom" era began to enter the labor force. Also, labor force participation by women rose significantly after 1966 and abruptly in more recent years.

New entrants typically are less productive because they lack experience; and women—traditionally, at least—have been predominately in less productive occupations because of barriers to entry into more productive jobs, lack of opportunity for training, et cetera. Depending on the assumptions made and estimating techniques followed, measures of the effects of the age-sex compositional changes vary somewhat. In general, the incremental effect of these changes on reducing productivity average from 0.2 to 0.3 percentage points per year or approximately 12 to 18 percent of the decline in the productivity growth rate.

Over the next decade the expected changes in the composition of the labor force should have a positive influence on productivity growth relative to the last decade. As a result of the sharp drop in the birth rate in the 1960's, fewer youths will be reaching working age in the 1980's. On the other hand, the prime age group, composed of persons 25–54, should grow more rapidly.

Also, the continued increase in the participation rate of women will be primarily in the central age groups. Moreover, the proportion of women entering semiskilled, skilled and professional occu-

pations is expected to increase as entrance barriers are reduced over the next decade.

SHIFTS IN INDUSTRIAL COMPOSITION

Over much of the last three decades, there was a marked shift of labor from the farm to the nonfarm sector. Because the level of farm productivity was much lower than nonfarm, this shift contributed to the overall rise in productivity. Most of the shift occurred before 1966 and contributed more than 12 percent to the overall productivity growth rate—0.4 percentage points.

Since 1967, very little additional movement has taken place and accounted for less than 0.1 percentage point to the growth rate. Because agriculture now represents a small and relatively stable proportion of the work force and because productivity levels for the farm and nonfarm sectors are now much closer than they had been, no future gains in productivity growth from this shift, can be expected from the source.

Within the nonfarm sector, there has been virtually no impact on productivity change of shifts among the sectors. The shift of employment to services as a whole has been cited as a major source of the productivity slowdown because services have been increasing in importance and are characterized by lower-than-average productivity. There are, however, various ways of defining service activities—either very narrowly, to include only business and personal services or very broadly to include all non-commodity-producing sectors such as trade, transportation, communication, untilities, finance as well as business and personal services. In either case, the shift to services can be viewed only as a minor source of the slowdown in the rate of productivity growth in the private sector.

CHANGE IN THE CAPITAL-LABOR RATIO

Historically, a major source of the growth in output per hour has been the increase in the capital stock which the labor force has had available to generate increased output.

The slowdown in productivity growth since the mid-1960's has been partially attributed by some investigations to a slow-down in capital formation. The conventional argument states that the rate of capital formation in the last decade failed to keep up with the growth in labor input, resulting in a decline in productivity growth. Upon close examination—and our investigation of this important proposition is continuing—the evidence is mixed, and any effect between 1966 and 1973 is likely to have been slight.

The growth rate of employment in the private business sector rose almost 1.3 percent from the earlier to the later period, while hours grew about 1 percent. The gross stock of nonresidential business fixed investment—plant and equipment—rose about 2.8 percent per year from 1947 to 1966 and about 3.8 percent from 1966 to 1973—again, about 1 percentage point—so that the rate of growth in the capital-labor ratio was virtually unchanged, 2.46 percent as against 2.43 percent. In terms of the net capital stock, the picture is slightly different—the growth in the capital-labor ratio slows from about 3 percent per year to about 2.8 percent per

year. This gap is further widened by adjusting for capital expenditures for pollution abatement expenditures.

However, comparison with the nonfarm business sector shows that investment in the farm sector accounts entirely for the slowdown in growth of the capital-labor ratio in this 1966-76 period. Consequently, on either a gross or net basis, the growth of the capital-labor ratio actually accelerates in the 1966-73 period. Even after adjustment for pollution abatement expenditures there is a slight acceleration.

For the period 1973-77, however, the growth of the capital-labor ratio slows down whether capital is measured in gross or net terms. The recession of 1974-75 clearly had a major negative impact on business investment. Also, since 1973, the price of capital goods, measured by the investment price deflator has risen sharply, and raw materials and energy prices have risen dramatically.

The reduced growth of the capital-labor ratio may have contributed to the slowdown in productivity growth from 1966-73 to 1973-77 by as much as 0.2 percent per year. However, since 1977 was a year characterized by continuing recovery from the 1974-75 recession, conclusions about the latter period must be regarded as tentative.

With regard to the future, the outlook for the capital-labor ratio is uncertain because of the difficulties in projecting investment. John Kendrick, in an assessment of the outlook for tangible capital information for this committee, concluded that the rate of increase in real stocks of capital after the 1973-75 contraction should approximate past trends, if after-tax rates of return are restored to normal range.

If this is correct, the expected labor input changes should lead to acceleration of the capital intensity in private business. The labor force is projected to grow at a lower rate than it has over the last decade. Consequently, the ratio of capital to labor would accelerate.

At the same time, an increase in the amount of investment related to meeting some governmental requirements has taken place and will continue. These investments can reduce the immediate positive effect of capital investment on productivity growth as measured. This measurement does not take account of the objectives of these expenditures, such as improving the quality of life.

CONCLUSION

In summary, there has been a substantial slowdown in productivity growth over the last decade which in part was the result of cyclical influences. However, longer term factors were operative, some of which contributed to the slowdown such as changes in the composition of the work force and changes in the industrial composition of the private sector. On the other hand, several factors often cited as sources of the slowdown such as the role of the shift to services, and changes in the capital intensity of the economy in my view have not played a large role.

I believe that the outlook for productivity growth points to an increase at a somewhat lower rate than over the past 30 years, but at a higher rate than in the most recent decade. Some of the factors reflected in the continued slowdown are the end of the shift

in employment from the farm to the nonfarm sector and initially at least, the impact of additional investment set aside to meet increased governmental regulations and the need to invest in energy saving or conversion facilities because of higher energy costs. Some of the factors contributing to accelerated growth are an expected increase in the more experienced age groups in the labor force and further improvements in the capital-labor ratio in the private sector.

Thank you.

[The prepared statement of Mr. Mark follows:]

PREPARED STATEMENT OF HON. JEROME A. MARK

Productivity Trends and Prospects

Mr. Chairman and members of the committee, I appreciate your invitation to appear today to discuss developments in productivity. As you know, in addition to developing information on prices, wages, and employment, the Bureau of Labor Statistics also provides data on changes in productivity for the private business economy, major economic sectors and for many specific industries. In response to your request, I would like to review for you what has been happening to productivity, particularly labor productivity, with most emphasis on longer term movements. I will then examine some of the factors associated with the productivity trends and explore the outlook for these factors with their possible impact on productivity growth.

Trends in productivity reflect, among other things, changes in technology, changes in the quality and composition of the workforce, changes in the rate and kind of capital investment, and changes in the industrial composition of employment and output. Important also is the impact of short-term cyclical influences such as changes in the degree of capacity utilization. The complexity of these factors and their interactions, as well as the limitations of the data concerning them, make it difficult to assess the impact of each of these on productivity and create uncertainties about any productivity projections. In part, assessing the outlook for productivity growth becomes an exercise in examining current and historical movements in order to separate the transitory factors from the more permanent ones, and, with some evaluation about the outlook for the long-term factors, come up with judgments on the changes in productivity.

Productivity movements

Over the last three decades productivity, as measured by output per hour of all persons, grew 2.8 percent per year for the private business sector of the economy. However, this average reflects a much sharper rate of gain during the first two decades—3.2 percent—than during the last decade.[1] During the last ten years, the rate has fallen by one-half to 1.6 percent per year and the question of whether this fall-off reflects a new pattern of productivity growth or a temporary phenomenon is of great importance in assessing the prospects for the future growth of the economy.

Although in the last two years productivity in the business sector has shown strong increases—4.1 percent in 1976 and 2.6 percent in 1977, a good part of these gains reflect cyclical influences. They resulted from the recovery from the severe 1974-75 recession with the lagged adjustments in employment to output growth. Even with these increases, productivity growth has not as yet recovered sufficiently to reach the level that could have been reached had the 1966-73 (pre-recession) trend been extrapolated.

The pervasiveness of the slackening in productivity growth since 1966 is evident from examining the movements for specific industries. More than two-thirds of the specific industries for which productivity measures are presently available had lower rates of productivity growth in the last decade (table 1).

Reasons for slowdown

Much attention has been focused on the reduction in productivity growth and many explanations have been advanced for the slowdown. These have included the effects of shifts in the industrial composition of the economy, changes in the composition of the labor force, an apparent slowdown in improvements in the capital-labor ratios, the leveling off of research and development expenditures in the 1960's, the

[1] These rates were calculated on the basis of the least squares of the logarithms of the indexes of productivity.

diversion of investment to pollution abatement expenditures, the maturation of many industries with little new technology and changes in attitudes toward work.

There is no simple explanation for the decline and there is no general agreement as to the quantitative impact of these various factors. Indeed, if they were aggregated in some fashion they would probably overexplain the slowdown. Moreover, it is difficult to separate the effects of these longer term factors from the short-term cyclical factors which impacted during the period.

Today, I would like to review more fully a few of these factors, recognizing that they do not explain completely the downturn. The three that I will cover are the changes in the composition of the workforce, the effects of industry shifts and the changes in the capital-labor ratio.

Changing composition of the workforce

Changes in the age-sex composition of the workforce have been substantial in the period 1966 to 1976 and, as I mentioned, many researchers have attributed a good part of the decline in productivity growth to this shift.

The rate of growth of the labor force rose sharply in the late 1960's with a great number of new entrants, as the persons born during the "baby boom" era began to enter the labor force. Also, labor force participation by women rose significantly after 1966 and abruptly in more recent years. New entrants typically are less productive because they lack experience; and women have been predominately in less productive occupations because of barriers to entry into more productive jobs, lack of opportunity for training, etc. Depending on the assumptions made and estimating techniques followed, measures of the effects of the age-sex compositional changes vary somewhat. In general, the incremental effect of these changes on reducing productivity average from 0.2 to 0.3 percentage points per year or approximately 12 to 18 percent of the decline in the productivity growth rate.

Over the next decade the expected changes in the composition of the labor force should have a positive influence on productivity growth relative to the last decade. As a result of the sharp drop in the birth rate in the 1960's, fewer youths will be reaching working age in the 1980's. On the other hand, the prime age group, composed of persons 25–54, should grow more rapidly, and is expected to increase from 61 percent of the labor force in 1975 to 65 percent in 1985. As a greater proportion of workers enter the more experienced age group, it should help productivity growth.

Also, the continued increase in the participation rate of women will be primarily in the central age groups. Moreover, the proportion of women entering semi-skilled, skilled and professional occupations is expected to increase as entrance barriers are reduced over the next decade.

Shifts in industrial composition

Over much of the last three decades, there was a marked shift of labor from the farm to the nonfarm sector. Because the level of farm productivity was much lower than nonfarm, this shift contributed to the overall rise in productivity. Most of the shift occurred before 1966 and contributed more than 12 percent to the overall productivity growth rate—0.4 percentage points. Since 1967, very little additional movement has taken place and accounted for less than 0.1 percentage point to the growth rate. Because agriculture now represents a small and relatively stable proportion of the workforce and because productivity levels for the farm and nonfarm sectors are now much closer than they had been, no future gains in productivity growth can be expected from the source.

Within the nonfarm sector, there has been virtually no impact on productivity change of shifts among the sectors. The shift of employment to services as a whole has been cited as a major source of the productivity slowdown because services have been increasing in importance and are characterized by lower than average productivity. There are, however, various ways of defining service activities—either very narrowly, to include only business and personal services or very broadly to include all noncommodity producing sectors such as trade, transportation, communication, utilities, finance as well as business and personal services. In either case, the shift to services can be viewed only as a minor source of the slowdown in the rate of productivity growth in the private sector.

Under the narrow definition, the effect was very slightly negative—about 0.1 percent. Although there is substantial difference in the measured productivity levels of business and personal services and the other sectors, the relative importance of the sector is small, so the impact was small.

Using the broad definition, the effect was also small but in this case positive, and still less than 0.1 percent. Although the importance of the service component by this

definition was large, the difference in the productivity level of the service versus the nonservice components was not large.

Change in the capital-labor ratio

Historically, a major source of the growth in output per hour has been the increase in the capital stock which the labor force has had available to generate increased output.

The slowdown in productivity growth since the mid-1960's has been partially attributed by some investigations to a slowdown in capital formation. The conventional argument states that the rate of capital formation in the last decade failed to keep up with the growth in labor input, resulting in a decline in productivity growth. Upon close examination—and our investigation of this important proposition is continuing—the evidence is mixed, and any effect between 1966 and 1973 is likely to have been slight. To analyze the recent period, we have separated it into two periods—an earlier period beginning in 1966, the approximate onset of the slowdown, to 1973, the most recent peak in the business cycle, and a later period 1973 to 1977, which is characterized by a sharp recession, energy shortage, and more rapidly increasing prices.

As table 3 shows, productivity growth slowed from an annual rate of over 3 percent per year in 1947–66 to about 2.1 percent per year in 1966–73, and 1.6 percent in 1973–77. As I have already noted, substantial parts of the slowdown are explained by the end of the farm-to-nonfarm shift in labor input, and by changes in labor force composition. What remains is a decline of perhaps 0.6 to 0.8 percent per year for the period 1966–73.

The growth rate of employment in the private business sector rose almost 1.3 percent from the earlier to the later period, while hours grew about 1 percent. The gross stock of nonresidential business fixed investment—plant and equipment—rose about 2.8 percent per year from 1947–66 and about 3.8 percent from 1966–73, so that the rate of growth in the capital-labor ratio was virtually unchanged, 2.46 percent as against 2.43 percent. In terms of the net capital stock, the picture is slightly different—the growth in the capital-labor ratio slows from about 3 percent per year to about 2.8 percent per year. This gap is further widened by adjusting for capital expenditures for pollution abatement expenditures.

However, comparison with the nonfarm business sector shows that investment in the farm sector accounts entirely for the slowdown in growth of the capital-labor ratio.[2] Consequently, on either a gross or net basis, the growth of the capital-labor ratio actually accelerates in the 1966–73 period. Even after adjustment for pollution abatement expenditures there is a slight acceleration. We have, therefore, concluded that in the nonfarm business sector there has been no slowdown in growth of the capital-labor ratio, and hence that an investment shortfall has not caused the decline in productivity growth in 1966–73.

For the period 1973–77, however, the growth of the capital-labor ratio slows down whether capital is measured in gross or net terms. The recession of 1974–75 clearly had a major negative impact on business investment. Also, since 1973, the price of capital goods, measured by the investment price deflator has risen sharply, and raw materials and energy prices have risen dramatically. The reduced growth of the capital-labor ratio may have contributed to the slowdown in productivity growth from 1966–73 to 1973–77 by as much as 0.2 percent per year. However, since 1977 was a year characterized by continuing recovery from the 1974–75 recession, conclusions about the latter period must be regarded as tentative.

With regard to the future, the outlook for the capital-labor ratio is uncertain because of the difficulties in projecting investment. John Kendrick, in an assessment of the outlook for tangible capital information for this Committee,[3] concluded that the rate of increase in real stocks of capital after the 1973–75 contraction should approximate past trends, if after-tax rates of return are restored to normal range.

If this is correct, the expected labor input changes should lead to acceleration of the capital intensity in private business. The labor force is projected to grow at a lower rate than it has over the last decade. Consequently, the ratio of capital to labor would accelerate.

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[2] The period 1947–66 saw heavy capital investment in the farm sector, the same period when the shift in labor from the farm to the nonfarm sector gave a boost to overall productivity growth. Farm investment subsequently slowed down, as the substitution of capital for farm labor completed.

[3] John W. Kendrick, "Productivity," in U.S. Economic Growth from 1976 to 1968: Prospects, Problems and Patterns. Volume 1. Joint Economic Committee. Committee of the United States. October 1, 1976. p. 14.

At the same time, an increase in the amount of investment related to meeting some governmental requirements has taken place and will continue. These investments can reduce the immediate positive effect of capital investment on productivity growth as measured. This measurement does not take account of the objectives of these expenditures, such as improving the quality of life.

Conclusion

In summary, there has been a substantial slowdown in productivity growth over the last decade which in part was the result of cyclical influences. However, longer term factors were operative, some of which contributed to the slowdown such as changes in the composition of the workforce and changes in the industrial composition of the private sector. On the other hand, several factors often cited as sources of the slowdown such as the role of the shift to services, and changes in the capital intensity of the economy in my view have not played a large role.

I believe that the outlook for productivity growth points to an increase at a somewhat lower rate than over the past 30 years but at a higher rate than in the most recent decade. Some of the factors reflected in the continued slowdown are the end of the shift in employment from the farm to the nonfarm sector and initially at least, the impact of additional investment set aside to meet increased governmental regulations and the need to invest in energy saving or conversion facilities because of higher energy costs. Some of the factors contributing to accelerated growth are an expected increase in the more experienced age groups in the labor force and further improvements in the capital-labor ratio in the private sector.

TABLE 1.—AVERAGE ANNUAL RATES OF CHANGE IN OUTPUT PER EMPLOYEE-HOUR FOR SELECTED INDUSTRIES, 1947–66 AND 1966–76

SIC Code	Industry	1947–66	1966–76
	Mining:		
1011	Iron mining, usable ore	3.8	0.8
1021	Copper mining, recoverable metal	3.6	−.2
111; 121	Coal mining	6.6	−3.5
121	Bituminous coal and lignite mining	6.8	−3.6
14	Nonmetallic minerals	[1] 4.1	2.3
142	Crushed and broken stone	[2] 3.9	3.6
	Manufacturing:		
203	Canning and preserving	2.7	3.2
204	Grain mill products	[3] 4.0	[4] 2.9
2041	Flour and other grain mill products	4.0	2.0
2043	Cereal breakfast foods	[3] 2.0	[4] 1.2
2044	Rice milling	[3] 8.5	[4] 1.3
2045	Blended and prepared flour	[3] 4.7	[4] 1.4
2046	Wet corn milling	[3] 2.1	[4] 5.3
2047, 2048	Prepared feeds for animals and fowls	[3] 4.1	[4] 3.4
20	Bakery products	2.0	1.8
2061, 2062, 2063	Sugar	4.6	1.5
2065	Candy and confectionery products	3.5	4.7
2082	Malt beverages	4.3	6.7
2086	Bottled and canned soft drinks	[2] 2.2	3.2
2111, 2121, 2131	Tobacco products—total	3.7	1.7
2111, 2131	Cigarettes, chewing and smoking tobacco	1.4	1.3
2121	Cigars	6.6	2.7
2251, 2252	Hosiery	4.8	8.7
2421	Sawmills and planing mills, general	[2] 3.5	2.1
2611, 2621, 2631, 2661	Paper, paperboard and pulp mills	3.9	3.5
2653	Corrugated and solid fiber boxes	[2] 3.2	4.5
2823, 2824	Synthetic fibers	[5] 4.1	8.1
2834	Pharmaceutical preparations	[3] 5.0	4.8
2851	Paints and allied products	[2] 3.7	2.5
2911	Petroleum refining	5.9	3.1
3011	Tires and inner tubes	4.2	2.3
314	Footwear	1.9	.4
3221	Glass containers	1.3	2.2
3241	Hydraulic cement	4.7	1.7
325	Structural clay	[2] 3.3	3.5
3251, 3253, 3259	Clay construction products	[2] 3.1	3.5
3255	Clay refractories	[2] 4.0	3.3
3271, 3272	Concrete products	3.2	[4] 1.9
3273	Ready-mixed concrete	[2] 2.3	[4] 1.4
331	Steel	1.7	1.8
3321	Gray iron foundries	[1] 2.4	2.6
3324, 3325	Steel foundries	[1] 1.8	1.9
3331, 3332, 3333	Primary copper, lead, and zinc	2.6	2.3
3334	Primary aluminum	5.3	1.2
3351	Copper rolling and drawing	[2] 6.7	−.5
3353, 3354, 3355	Aluminum rolling and drawing	[2] 6.6	5.8
3411	Metal cans	2.5	1.7
3631, 3632, 3633, 3639	Major household appliances	[2] 6.8	4.6
3651	Radio and television receiving sets	[2] 6.1	3.2
371	Motor vehicles and equipment	[5] 4.8	3.4
	Other:		
401 class I	Railroads, revenue traffic	4.6	3.4
4213 PT	Intercity trucking	[1] 2.8	[4] 2.3
4213 PT	Intercity trucking (general freight)	[1] 2.4	[6] 2.0
4511	Air transportation	7.9	4.4
4612, 4613	Petroleum pipelines	[2] 9.6	6.0
4811	Telephone communications	[7] 7.2	5.6
491, 492, 493	Gas and electric utilities	7.3	3.6
54	Retail food stores	[2] 3.1	.8
5511	Franchised new car dealers	[2] 2.5	2.5
5541	Gasoline service stations	[2] 2.8	4.3
58	Eating and drinking places	[2] .9	.5
7011	Hotels and motels	[2] 2.7	1.3

[1] 1954–66.
[2] 1958–66.
[3] 1963–66.
[4] 1966–75.
[5] 1957–66.
[6] 1966–74.
[7] 1951–66.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 2.—EFFECT OF SHIFTS IN INDUSTRY COMPOSITION

[Average annual percent change [1]]

Period	Total productivity change	Effect of productivity growth within sectors	Effect of shifts in hours among sectors
	Private business sector farm-to-nonfarm shift only		
1947 to 1977	2.81	2.47	0.34
1947 to 1966	3.36	2.91	.45
1966 to 1977	1.86	1.74	.12
	Nonfarm business sector shift to services—narrowly defined [2]		
1947 to 1976	2.36	2.37	−0.01
1947 to 1966	2.80	2.80	0
1966 to 1976	1.52	1.54	−.02
	Shift to services—broadly defined [3]		
1947 to 1976	2.36	2.35	0.01
1947 to 1966	2.80	2.80	0
1966 to 1976	1.52	1.48	.04

[1] Growth rates calculated on basis of compound rates over terminal periods.
[2] Business and personal services only.
[3] Broadly defined series include transportation, communications, public utilities, finance-insurance and real-estate, wholesale and retail trade, business and personal services; and government enterprises. Nonservices then consist of mining, construction, and manufacturing.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

TABLE 3.—PRODUCTIVITY AND RELATED MEASURES, SELECTED PERIODS, 1947–1977[1]

[Average annual rates of growth]

				Gross capital stock basis[3]			Net capital stock basis			
	Labor productivity	Employment[2]	Hours of labor input[2]	Gross stock	Capital/labor ratio	Capital productivity	Net stock	Capital labor ratio	Capital/labor ratio adjusted for pollution[3] abatement expenses[3]	Capital productivity
Private business sector:										
1947 to 1966	3.44	0.73	0.39	2.81	2.46	1.02	3.33	2.98	2.97	0.50
1966 to 1977	1.91	1.69	1.09	3.39	2.34	−.35	3.42	2.36	3.09	−.37
1966 to 1973	2.15	2.00	1.36	3.78	2.43	−.24	4.11	2.76	2.54	−.56
1973 to 1977	1.49	1.14	.61	2.71	2.17	−.55	2.20	1.66	1.31	−.05
Nonfarm business sector:										
1947 to 1966	2.83	1.30	1.13	2.86	1.79	1.10	3.40	2.31	2.30	.57
1966 to 1977	1.66	1.95	1.35	3.48	2.17	−.42	3.50	2.19	1.90	−.43
1966 to 1973	1.87	2.31	1.67	3.91	2.23	−.32	4.25	2.58	2.35	−.65
1973 to 1977	1.30	1.32	.77	2.74	2.06	−.60	2.19	1.50	1.12	−.06

[1] Growth rates calculated on basis of compound rates over terminal periods.
[2] Output, employment and hours for government enterprises are excluded from this analysis because corresponding capital measures are not available.
[3] BEA estimates of pollution abatement capital available on net basis only.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

Representative BOLLING. Thank you very much.

Next, Mr. Edward Denison, who has been a senior fellow of the Division of Economic Studies at the Brookings Institution in Washington, D.C., since 1962, except for a year at the University of California—Berkeley—as Ford Rotating Professor of Economics. The Brookings Institution is a private, nonprofit organization devoted to objective, policy-oriented research in the social sciences.

Mr. Denison's extensive background in economics also includes 15 years with the Office of Business Economics of the Department of Commerce, the last 8 as Assistant Director; and 6 years as a member of the research staff of the Committee for Economic Development.

He has written numerous articles, and four books: "The Sources of Economic Growth in the United States and the Alternatives Before Us"; "Why Growth Rates Differ"; "Postwar Experience in Nine Western Countries"; "Accounting for United States Economic Growth, 1929-69"; and—with William K. Chung—"How Japan's Economy Grew So Fast."

STATEMENT OF EDWARD F. DENISON, SENIOR FELLOW, THE BROOKINGS INSTITUTION, WASHINGTON, D.C.

Mr. DENISON. Thank you, Mr. Chairman.

The growth of American productivity was rapid by historical standards during most of the postwar period. About a decade ago the rate began to slacken. However, until 1974 this slackening was not particularly disturbing from the standpoint of long-term growth. In part it was associated with short-term fluctuations, notably the drop in the intensity of use of employed labor and capital from a peak reached in 1966. The remainder resulted from developments that were inevitable or even welcome. The transfer of surplus workers from farming to nonfarm jobs in which they produce output of greater value diminished as the pool of such labor approached exhaustion. Changes in the age distribution of the population and increases in the ratios of employment to population in the young age groups boosted the proportion of inexperienced young workers among the employed. Costs of regulations that Congress must have felt had benefits in excess of their costs began to impinge upon productivity.

This comfortable characterization of the productivity slowdown is not applicable to more recent years. Beginning in 1974, the situation became more disturbing and also more puzzling.

To quantify my discussion, I shall measure output by national income in constant prices, and confine the measure to the nonresidential business sector, which includes agriculture but excludes services provided by the existing housing stock. In evaluating this sector, I shall introduce a somewhat wintry acronym—NIPPE—for national income per person employed.

The years 1974 and 1975 witnessed a sharp and rare decline in NIPPE. Although part of the decline is attributable to the recession with which it coincided, most is not. In 1976, output per worker increased, but not more than is usual in a cyclical recovery of the 1976 magnitude. Preliminary indications are that the 1977 experience was about the same. As a result, output per worker is now much lower than it would have been if the past trend had

continued. To regain the old growth path would require a productivity jump far greater than can be anticipated from the remainder of the current cyclical recovery.

Although the effects of two of these factors—weather and work stoppages—are rather minor, the third is often important. This is the effect of changes in the intensity with which employed labor and capital are utilized that result from fluctuations in the pressure of demand. These changes are related to the business cycle, but the cycle in productivity usually is substantially ahead of that in unemployment.

With the effects of the three irregular factors eliminated, national income per person employed grew 2.7 percent a year from 1948 to 1969 and 2.1 percent from 1969 to 1973 and increased appreciably every single year in these periods.

Drops in 1974 and 1975 in NIPPE so adjusted, which totaled 3.8 percent, thus were without postwar precedent. The 1973–76 growth rate was −0.6 percent. I am using 1976 in a number of places because I don't have 1977 data.

The dip in adjusted NIPPE has had a strongly adverse impact upon living standards, business costs, inflation and Government revenues. The dip has also clearly intensified the stagflation dilemma. It seems important to explore its causes.

Estimates of the sources of NIPPE growth in nonresidential business in the 1948–69 period are available from my 1973 book, "Accounting for United States Economic Growth, 1929–69." They are shown in condensed form in the first column of table 1 of my prepared statement. The adjusted growth rate was 2.7 percent. This growth rate can be broken down by its determinants, as is done in the table.

The first three sources of growth are changes in hours of work and in characteristics of the people working. Hours changes subtracted 0.2 percent from NIPPE growth in 1948–69, mainly because of rising part-time employment and minor reductions in the average hours of full-time, nonfarm wage and salary workers.

The effect of changes in age-sex composition of labor was a negative 0.1 percentage points because the proportion of total hours worked by highly weighted groups, particularly males 35 to 64 years of age, declined.

An individual's education decisively conditions both the types of work he is able to perform and his proficiency in any particular occupation. The educational distribution of employed persons moved steadily and strongly upward, which added an estimated 0.5 percentage points to the growth rate of NIPPE.

The contribution of capital is divided between structures and equipment, which amounted to a positive 0.3 percentage points, and inventories, 0.1 points. The estimates represent the contribution of increases in the capital stock of each type per person employed. Capital contributed more to the growth of total national income, but much of the increase in the capital stock was matched by increased employment.

The land available per worker declined as employment increased so its contribution was negative, but the figure rounds to zero.

The estimate that 0.4 percentage points were contributed by improved resource allocation covers gains from reducing the per-

centage of the labor in the business sector that was over-allocated to farming or misallocated to self-employment and unpaid family labor in nonfarm enterprises too small for efficiency.

The gain from economies of scale, put at 0.4 percentage points, refers to the rise in output per unit of input that is made possible by changes in the size of markets that business serves. It covers the beneficial effects of increased specialization of all sorts.

Five of the growth sources enumerated so far contributed a positive 1.8 percentage points, while three made negative contributions totaling −0.4 points—based on unrounded data.

Since the adjusted growth rate was 2.8 percent, other output determinants must have made a net positive contribution of 1.4 points. This residual is labeled advances in knowledge and not elsewhere classified. The contribution of advances in knowledge includes gains in measured output that result from the incorporation into production of new knowledge of any type, regardless of the source of that knowledge, the way knowledge is transmitted to those who can use it, or the way it is incorporated into production.

"Not elsewhere classified" refers to the effects of a large number of determinants that are thought to have been individually small, and on average as likely have been favorable as unfavorable in this period.

Thus I believe that the residual estimate provides a reasonable approximation to the contribution made by the incorporation of advances in knowledge during the 1948–69 period. My annual index for this series rose without interruption, and at a rather steady rate, from 1948–69. The index continued to do so until 1973.

The adjusted growth rate in national income per person employed fell from 2.7 percent a year in 1948–69 to −0.6 percent in 1973–76, a drop of 3.3 percentage points. My current research makes it possible to examine the sources of this change.

Why has NIPPE turned negative? A drop of 1.6 percentage points can be specifically allocated.

Governmental controls have required the diversion of a growing share of the labor and capital employed by business to pollution abatement and to the protection of employee safety and health. Also, rising crime has forced business to divert resources to crime prevention, and thefts of merchandise have directly reduced measured output. These particular changes in the legal and human environment in which business operates are estimated to have retarded the 1973–76 growth rate of NIPPE by 0.4 percentage points.

Another 1.2 percentage points of the drop in the growth rate of NIPPE is attributable to six determinants discussed earlier: 0.3 points to a steeper drop in working hours, 0.1 to an accelerated shift in the age-sex composition of employed labor, 0.1 to slower growth of fixed capital per worker, 0.1 to slower growth of inventories per worker, 0.4 to resource reallocation as the gain from this source completely disappeared, and 0.2 points to economies of scale as market growth slackened.

In contrast, the contribution of education increased by nearly 0.4 percentage points as the educational distribution of persons employed by business moved upward to an accelerated rate. Among reasons were the facts that Government stopped absorbing a dis-

proportionate part of the increase in the highly educated, and that the average age of adult workers declined—young adults have more education than older workers.

The figures just cited would have been different, but not much different, if unemployment had been the same in 1976 as in 1973. However, some determinants would have contributed more, others less, and the net difference would not have been large.

Some 2.1 percentage points out of the 3.3 point drop in the growth rate of NIPPE remain in the residual series for advances in knowledge and not elsewhere classified. Its contribution fell from a positive 1.4 points to a negative 0.7 points. After rising steadily until 1973, the series dropped sharply in 1974 and 1975; then in 1976 made a more or less normal gain from the lower level.

Why the sudden change? I am going to stop here, because I don't know why. [Laughter.]

[The prepared statement of Mr. Denison follows:]

PREPARED STATEMENT OF EDWARD F. DENISON[1]

The Drop in Productivity After 1973

The growth of American productivity was rapid by historical standards during most of the postwar period. About a decade ago the rate began to slacken. However, until 1974 this slackening was not particularly disturbing from the standpoint of long-term growth. In part it was associated with short-term fluctuations, notably the drop in the intensity of use of employed labor and capital from a peak reached in 1966. The remainder resulted from developments that were inevitable or even welcome. The transfer of surplus workers from farming to nonfarm jobs in which they produce output of greater value diminished as the pool of such labor approached exhaustion. Changes in the age distribution of the population, and increases in the ratios of employment to population in the young age groups, boosted the proportion of inexperienced young workers among the employed. Costs of regulations that Congress must have felt had benefits in excess of their costs began to impinge upon productivity.

This comfortable characterization of the productivity slowdown is not applicable to more recent years. Beginning in 1974 the situation became more disturbing and also more puzzling.

To quantify my discussion, I shall measure output by national income in constant prices, and confine the measure to the nonresidential business sector, which includes agriculture but excludes services provided by the existing housing stock. In evaluating this sector, I shall introduce a somewhat wintry acronym—NIPPE (for national income per person employed).

The years 1974 and 1975 witnessed a sharp, and rare, decline in NIPPE. Although part of the decline is attributable to the recession with which it coincided, most is not. In 1976, output per worker increased, but not more than is usual in a cyclical recovery of the 1976 magnitude. Preliminary indications are that this was again true in 1977. As a result, output per worker is now much lower than it would have been if the past trend had continued. To regain the old growth path would require a productivity jump far greater than can be anticipated from the remainder of the current cyclical recovery.

NIPPE dropped 4.9 percent in 1974, and a further 0.7 percent in 1975. Even after the 1976 increase, NIPPE was still 1.6 percent lower than it had been three years before; its 1973–76 growth rate was −0.5 percent.

This experience can be better interpreted by removing the effects on output per unit of input of three factors that affect it erratically, so as to obtain an "adjusted" NIPPE.

Although the effects of two of these factors—weather and work stoppages—are rather minor, the third is often important. This is the effect of changes in the

[1] This statement draws mainly upon the writer's article, "Where Has Productivity Gone?", Basis Point, vol. 3, No. 1. Some of the material was developed with financial support of National Science Foundation Grant 75-23131. Views expressed are the author's and should not be ascribed to the Brookings Institution, its trustees, or other members of its staff, or to the National Science Foundation.

intensity with which employed labor and capital are utilized that result from fluctuations in the pressure of demand. These changes are related to the business cycle, but the cycle in productivity usually is substantially ahead of that in unemployment.

The cyclical position was less favorable for productivity in 1976 than in 1948 or in an average postwar year, but slightly more favorable than in 1973. With the effects of the three irregular factors eliminated, national income per person employed grew 2.7 percent a year from 1948 to 1969 and 2.1 percent from 1969 to 1973 and increased appreciably every single year in these periods.

Drops in 1974 and 1975 in NIPPE so adjusted, which totaled 3.8 percent, thus were without postwar precedent. The 1973–76 growth rate was −0.6 percent. Although not all effects of the business cycle are removed from this measure, the biggest ones are.

In 1976, national income per person employed in nonresidential business would have been 2.5 percent higher than it actually was if the three irregular factors (chiefly, the state of demand) had been as favorable as in the average year from 1948 through 1973. Though substantial, this amount is swamped by the 10.1 percent by which NIPPE in 1976 would have been higher if its adjusted growth rate from 1973 to 1976 had been the same as from 1948 to 1973. This percentage remained about 10 percent in 1977.

The dip in adjusted NIPPE has had a strongly adverse impact upon living standards, business costs, inflation, and government revenues. The dip has also clearly intensified the stagflation dilemma. It seems important to explore its causes.

TABLE 1.—SOURCES OF GROWTH OF NATIONAL INCOME PER PERSON EMPLOYED, NONRESIDENTIAL BUSINESS SECTOR[1]

[In percentage points]

	1948–69 (1)	1969–73 (2)	1973–76 (3)	Change from 1948–69 to 1973–76 (1–3) (4)
Growth rate	2.6	1.6	−0.5	−3.1
Less: irregular factors	−.1	−.5	.1	.2
Adjusted growth rate	2.7	2.1	−.6	−3.3
Changes in labor characteristics:				
Hours at work	−.2	−.3	−.5	−.3
Age-sex composition	−.1	−.4	−.3	−.1
Education	.5	.7	.9	.4
Changes in capital and land per person employed:				
Nonresidential structures and equipment	.3	.2	.2	−.1
Inventories	.1	.1	.0	−.1
Land	.0	−.1	.0	.0
Improved allocation of resources[2]	.4	.1	.0	−.4
Changes in legal and human environment[3]	.0	−.2	−.4	−.4
Economies of scale from larger markets	.4	.4	.2	−.2
Advances in knowledge and not elsewhere classified	1.4	1.6	−.7	−2.1

[1] Detail may not add to totals because of rounding.

[2] Includes only gains resulting from the reallocation of labor out of farming and out of self-employment in small nonfarm enterprises.

[3] Includes only the effects on output per unit of input of costs incurred to protect the physical environment and the safety and health of workers, and of costs of dishonesty and crime.

Source: 1948–69 from Edward F. Denison, "Accounting for United States Economic Growth, 1929–69," The Brookings Institution, 1974, with minor changes resulting from the measurement of output in 1972 prices in place of 1958 prices and from revisions in data. 1969–73 and 1973–76, preliminary estimates by Edward F. Denison.

Estimates of the sources of NIPPE growth in nonresidential business in the 1948–69 period are available from my 1973 book, Accounting for United States Economic Growth, 1929–1969. They are shown in condensed form in the first column of Table 1. The adjusted growth rate was 2.7 percent. This growth rate can be broken down by its determinants, as is done in the table.

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The land available per worker declined as employment increased so its contribution was negative, but the figure rounds to zero.

The estimate that 0.4 percentage points were contributed by improved resource allocation covers gains from reducing the percentage of the labor in the business sector that was overallocated to farming or misallocated to self-employment and unpaid family labor in nonfarm enterprises too small for efficiency.

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Why has NIPPE turned negative? A drop of 1.6 percentage points can be specifically allocated.

Governmental controls have required the diversion of a growing share of the labor and capital employed by business to pollution abatement and to the protection of employee safety and health. Also, rising crime has forced business to divert resources to crime-prevention, and thefts of merchandise have directly reduced measured output. These particular changes in the legal and human environment in which business operates are estimated to have retarded the 1973–76 growth rate of NIPPE by 0.4 percentage points.[2]

Another 1.2 percentage points of the drop in the growth rate of NIPPE is attributable to six determinants discussed earlier: 0.3 points to a steeper drop in working hours, 0.1 to an accelerated shift in the age-sex composition of employed labor, 0.1 to slower growth of fixed capital per worker, 0.1 to slower growth of inventories per worker, 0.4 to resource reallocation as the gain from this source completely disappeared, and 0.2 points to economies of scale as market growth slackened.

In contrast, the contribution of education increased by nearly 0.4 percentage points as the educational distribution of persons employed by business moved upward to an accelerated rate. Among reasons were the facts that government stopped absorbing a disproportionate part of the increase in the highly educated, and that the average age of adult workers declined. (Young adults have more education than older workers.)

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[2] For further explanation see Edward F. Denison, "Effects of Selected Changes in the Institutional and Human Environment Upon Output Per Unit of Input," Survey of Current Business, January 1978.

The figures just cited would have been different if unemployment had been the same in 1976 as in 1973. However, some determinants would have contributed more, others less, and the net difference would not have been large.

Some 2.1 percentage points out of the 3.3 point drop in the growth rate of NIPPE remain in the residual series for advances in knowledge and not elsewhere classified. Its contribution fell from a positive 1.4 points to a negative 0.7 points. After rising steadily until 1973, the series dropped sharply in 1974 and 1975; then in 1976 made a normal gain from the lower level.

Why the sudden change? Some suggest that advances in knowledge have contributed less to recent growth. There could be a delayed reaction to the end in the mid-Sixties of the previous long rise in research and development spending. As a mere happenstance, important new developments may not have come along recently.

Managerial talent ordinarily devoted to developing means of cutting costs may have been absorbed by the need to adapt to a flood of new controls over the conduct of business. Requirements for a variety of government approvals and permits could have delayed implementation of productivity-advancing decisions that were reached.

But we cannot answer the question of why the impact came suddenly in 1974, rather than gradually over an extended period. This fact persuades me that lack of advances in knowledge was probably not responsible for the bulk of the drop.

The same problem is encountered if one resorts to most popular explanations that would affect components of "not elsewhere classified"—such as the allegation that people "don't want to work anymore," that inflation has caused misallocation and uncertainty, or that the impact of a flood of paperwork and new regulations has boosted overhead costs.

One suggestion is that the sudden rise in energy prices and in government controls to conserve energy is responsible. This suggestion conforms nicely to the time pattern. But I do not believe the effect on the 1973–76 growth rate exceeded 0.1 or 0.2 percentage points, at most.

What of the future? Whether NIPPE will regain its old growth path, resume something near its old rate of growth at a new lower level, or—disastrously—follow a new and much lower growth path is yet to be determined. But it behooves us to seek explanations, and to act if and when action seems appropriate.

Representative BOLLING. Thank you very much.

Next is Mr. Solomon Fabricant.

I was reminded by Mr. Sheldon that quite a long time ago you were a witness before a subcommittee that I chaired in the 1950's.

Mr. Fabricant was born in Brooklyn, N.Y., and received degrees in economics from New York University, City University, and Columbia University.

He served for many years as professor of economics at New York University, and as a member of the senior research staff and for a decade also as director of research at the National Bureau of Economic Research. During the Second World War he was on the staff of the War Production Board here in Washington, and the United Nations Relief and Rehabilitation Administration in London.

He has also served as chairman of the first—1948—Productivity Conference, and as consultant to the National Commission on Productivity, the Asian Productivity Organization in Tokyo, and the European Association of National Productivity Centers in Brussels, and is currently a member of the National Research Council's Panel on Productivity Statistics—to limit the list to those of his activities in which the word "productivity" appears.

He is the author of "Primer on Productivity" and the articles on productivity in the Encyclopedia of the Social Sciences, as well as many other books and articles dealing with productivity and related questions, the titles of which would take too much time to read.

STATEMENT OF SOLOMON FABRICANT, PROFESSOR OF ECONOMICS EMERITUS, NEW YORK UNIVERSITY

Mr. FABRICANT. Thank you, Mr. Chairman.

Productivity growth is not only a source, it is the major source of a higher standard of living for our people, and it is vital to the maintenance of the economic and political position of the United States among nations. I am pleased to join in the discussion of so important a subject.

Productivity is also a complex subject. To judge the prospects ahead, and what policy can do to improve these prospects, we must understand the meaning of productivity and the process by which it grows. It is precisely with this in mind that I undertook a study at the request of the National Center for Productivity and Quality of Working Life. In this study I would like to say, I have made use of the work of Mr. Mark and Mr. Denison. With your permission, I would like to submit the study for inclusion in the record.

Representative BOLLING. Without objection, it will be included with your prepared statement.

Mr. FABRICANT. The charts and tables, which I trust will be helpful, are not all up to the last minute, but the story would not be significantly altered if they were.

My prepared statement covers those points in the larger study on which I wish to place particular emphasis, together with such additions as seem appropriate for inclusion in our discussion. In an effort to keep within my allotted time, I have tightened it up a bit and will summarize.

Concern about productivity was heightened by the halt in its growth during the recession of 1973–75. For the first time since the BLS quarterly record began in 1947, the average volume of goods and services produced in an hour of work by an employed person, which is what I mean by productivity, aided by the capital, technology, business direction and organization, and still other of the advantages with which American labor is supplied, declined for as many as six out of seven consecutive quarters.

The cyclical upswing that began early in 1975 has already brought productivity back to and then above its previous peak level, but not yet up to the level it would have reached had it grown since 1973 at the average rate to which the American economy had become accustomed during the post-World War II period, or even, I might add, at a rate that allows for some gradual retardation over the period, such as a statistical analysis suggests might characterize the trend since the war.

We may expect that the cyclical increase in productivity will continue as the business expansion proceeds, but at the less rapid rate characteristic of the later stages of business recovery. Whether the advance will raise the productivity level up to the long-term trend line by the time full-capacity production is reached, and whether productivity advance will then continue, on the average, in accordance with that trend line, is therefore a serious question.

In considering this question, it is of prime importance to recognize, at the outset, some fundamental facts:

One: Productivity reflects the influence of many factors joined together—plant and equipment, of course, but also education and training, technology, organization and scale of business establish-

ments and markets, and relations between labor and management and between government and the private sector. These factors vary in relative importance, but none of them may be neglected in trying to explain the recent slowdown in productivity or to judge its future prospects.

Two: Back of these factors are the actions of all groups in the economy—in the private sector, not only business enterprises, but also, to a substantial degree, the enterprise and commitments of labor as well as management, savers as well as investors, families and philanthropic institutions as well as business concerns; and outside the private sector, also government—Federal, State, and local. In a word, growth in output per hour is the result of the energy, ingenuity and skill with which all of us, individually and together, manage our resources of production. How well we manage these resources depends on the freedom and opportunity we have to choose the best alternatives, and on the strength of the incentives that impel us to seek out the various alternatives and make the choice among them.

Three: Everybody in the economy stands to gain, directly or indirectly, from higher productivity; or to lose from lower productivity. There is a lot of misinformation about that. Some people think it all goes to profits, and some think it all goes to labor. Everybody gets some share.

Four: Developments abroad, whether in markets for our exports or in sources of our imports, also significantly affect our productivity—favorably or unfavorably—just as developments here influence other economies. And given reasonably free trade, the world as a whole sooner or later shares in the gains, or bears some of the losses, from growth or decline in productivity wherever it occurs.

Five: Productivity growth is not the only national objective. Greater economic stability with fuller employment, a better distribution of income, and wider opportunity for leisure, are also important economic objectives. And there are still other goals, of which a better physical and social environment, a further decline in racial and sexual discrimination, national defense and political freedom are not the least.

What the future rate of productivity growth will be, then, will depend on how strongly productivity growth is desired, taking into account the costs and benefits of reaching for other—and, to some degree, competing—worthy objectives. And these costs and benefits will depend—as they have in the past—on the haste and care with which resources are diverted to the desired objectives.

We can go too far, too fast and with too little understanding of the costs entailed. This is coming to be recognized. Indeed, signs of a revulsion are already appearing. If this revolt grows and snowballs, that also could go too far and too fast. We should not be switching from one extreme to the other. We need to search for a better tradeoff and take the various costs and benefits into account, precisely in order to attain a better balance among our objectives. Progress would be gradual, it is true, but it would not be slower than it has been, and I expect it would be faster.

Further, efforts to raise productivity need not always be inconsistent with efforts to reach the Nation's other goals. To the extent possible, therefore, those policies to raise productivity should be

chosen that serve also to meet the other goals—or, at least, conflict minimally with them—and vice versa.

This is one reason that a 5-year budget, or something approximating it, might be useful in the Federal Government.

Six: Foresight and patience are essential, for efforts to raise productivity generally require time to reach fruition.

Seven: Much has been learned about the facts and the interrelationships among the facts bearing on productivity. Nevertheless, this knowledge still falls short of what is needed to make the choice among policies as clear and confident as is desirable. Investment in better information and in more research on productivity would be worthwhile.

We can be reasonably confident that the future rate of productivity growth will be positive, although, as I have just indicated, just how high it will be is uncertain. It depends in part on certain developments in the economy that have already taken place—such as changes in the age distribution of the population and the rise in the price of petroleum—about the effects of which we know something, though not everything.

It depends in part on future developments over which we have some considerable control, such as the rate of capital formation—if we choose to exercise that control, although just how it can be exercised continues to be a subject of debate.

The speed of productivity growth depends, finally, on future developments over which we have little or no control—changes in the weather here and abroad, of course, to which Ed Denison referred, and in economic and political changes in other countries—but we can try harder to offset any dampening tendencies the changes could have on our productivity growth, and we can try to get cooperation with other countries.

Of all the possible futures for productivity growth—admitting the uncertainties—I would judge that it is the possibility of a continued slow rate of growth that needs to be emphasized.

This most likely outcome is by no means the only possible outcome, however. A heightened awareness of the possibility, a clearer understanding of the factors involved, and appropriate action to deal with them could reduce the probability we now attach to that outcome, and increase the probability of doing in the future as well as, if not better than, what we have done since World War II. In fact, the objective of the committee's study is to serve this purpose.

But even if the outlook were for a continuation of the postwar rate of productivity growth, we could not escape asking whether a still higher rate of productivity growth—even at the expense of a slower approach to some other national objective—would not, on net balance, improve the welfare of our people.

I now focus more sharply on four specific factors that I believe contributed to the productivity slowdown and will affect the outlook ahead. This is not to deny that there are other factors. Those I want to comment on are (1) the spate of laws and regulations aimed at goals other than growth; (2) the cartel-induced rise in the price of petroleum; (3) the high, and unsteady, rate of inflation, together with the rather erratic—and inept—governmental efforts to deal with it; and (4) the shock produced by the recession that began in 1973, coming as it did after a series of relatively mild

fluctuations. I consider these factors in their bearing on business decisions to invest, surely a major source of productivity growth, not only in itself but also in the technology it embodies, as well as being a major source of the aggregate demand that calls labor and capital into production. The factors I have in mind, it should be stressed, affect also other sources of productivity growth.

Growth in capital assets between 1969 and 1973 was somewhat slower than in the earlier postwar years. During the recession of 1973-75 there was a sharper and longer decline in nonresidential fixed investment—in constant prices—than in earlier postwar recessions. And the recovery since 1975 has been no more rapid, and perhaps less rapid, than in the earlier expansions.

In searching for an explanation of the lag in capital formation, I point, first, to the flood of laws and regulations aimed at national goals other than growth. In addition to diverting investment to these purposes, to the extent indicated by Mr. Denison's recent useful estimates, there is diversion also of management's time in order to learn what the regulations mean and how to adjust to them, and of research and development personnel to cope with the problems. Businessmen find it necessary to roam the halls of government in Washington, to the neglect of opportunities to develop new and better products and cut production costs.

As for the rise in the price of petroleum, its immediate effect, in 1973, was to force us to deliver more exports to obtain a given amount of imports—which came down to a reduction—not covered by the official statistics—of something like 1 percent in our real national income and productivity.

One could also say that the price hike brought a good deal of our stock of business and consumer capital goods closer to the point of being obsolete. In effect, we incurred a capital loss of substantial magnitude. In this case, also, investment of funds and of time has had to be devoted, and will have to be devoted, to learning how to adjust to the radically new set of relative cost prices, and then in making the adjustment. This task has not been made easier, with businessmen—and consumers also—having to worry about the energy policy that will eventually come out of Washington.

In the meantime, productivity is lower than it would otherwise be—and we are losing valuable time in attaining the energy independence we ought to have. Nor does the policy package now being discussed look as if it would serve our needs as well as it should and could.

With regard to inflation, in many industries it has complicated labor-management relations and negotiations, and raised the effective profits-tax rate; and it has confused people trying to make sense of conventional accounting statements and financial reports when planning their investments, which means it keeps productivity lower than it otherwise would be.

A striking indication of the extent of uncertainty and its effect is the low rate at which the net worth of all business corporation—calculated at replacement costs, with account taken also of the gain from decline in the purchasing power of debt—is being valued in the stock market, according to a calculation soon to be published by Philip Cagan of the National Bureau of Economic Research.

Also generating caution in investment is the shock produced by the recent recession. It led to a financial squeeze of many firms, and the failure of some; and it may take some time to recover fully from the shock. Restoration of confidence is not being made easier by the problems businessmen are having with regulations, energy and inflation. Thank you.

[The prepared statement of Mr. Fabricant, together with the study referred to, follows:]

PREPARED STATEMENT OF SOLOMON FABRICANT

The Committee was wise to devote some of the deliberations in its Special Study on Economic Change to the important subject of productivity. Productivity growth is not only a source, it is the major source of a higher standard of living for our people; and it is vital to the maintenance of the economic and political position of the United States among nations. I am pleased to be able to join in the discussion.

Productivity is a complex subject. To judge the prospects ahead, and what policy can do to improve these prospects, we must understand the meaning of productivity and the process by which it grows. It is precisely with this in mind that some months ago I undertook a study at the request of the National Center for Productivity and Quality of Working Life. With your permission, I would like to submit the study for inclusion in the record. The charts and tables, which I trust will be helpful, are not all up to the last minute, but the story they tell would not be significantly altered if they were.

The present, briefer, document covers those points in the study on which I wish to place particular emphasis, together with such additions as seem appropriate for inclusion in our discussion this morning. In order to keep within my allotted time, I will only skim over it. You have the document in your hands; and this also, with your permission, I offer for inclusion in the record.

Concern about productivity was heightened by the halt in its growth during the recession of 1973–75. For the first time since the BLS's quarterly record of productivity change began in 1947, the average volume of goods and services produced in an hour or work by an employed person—aided by the capital, technology, business direction and organization, and still other of the advantages with which American labos is supplied—declined for as many as six out of seven consecutive quarters.

The cyclical upswing that began early in 1975 has already brought productivity back to and then above its previous peak level. However, productivity is not yet up to the level it would have reached had productivity grown since 1973 at the average rate to which the American economy had become accustomed during the post-World War II period; or even at a rate that allows for some gradual retardation over the period, such as a statistical analysis suggests might characterize the trend since the War. We may expect, on the basis of earlier experience, that the cyclical increase in productivity will continue as the business expansion proceeds, but at the less rapid rate characteristic of the middle and later stages of business recovery. Whether the advance will raise the productivity level up to the long-term trend line by the time full-capacity production is reached, and whether productivity advance will then continue up, on the average, in accordance with that trend line, is therefore a serious question.

In considering this question, it is of prime importance to recognize at the outset some fundamental facts:

1. Productivity reflects the influence of many factors joined together—plant and equipment, of course; but also education and training, technology, organization and scale of business establishments, and relations between labor and management and between government and the private sector. These factors vary in relative importance, but none of them may be neglected in explaining the recent slowdown in productivity or in judging its future prospects.

2. Back of these factors are the actions of all groups in the economy—in the private sector, not only business enterprises but also, to a substantial degree, the enterprise and commitments of labor as well as management, savers as well as investors, families and philanthropic institutions as well as business concerns; and outside the private sector, also government, Federal, State and local. In a word, growth in output per hour is the result of the energy, ingenuity and skill with which all of us, individually and together, in groups and as a Nation, manage our resources of production. How well we manage these resources depends on the freedom and the opportunity we have as individuals or groups to choose the best

alternatives, and on the strength of the incentives that impel us to seek out the alternatives and make the choice among them.

3. Everybody in the economy stands to gain, directly or indirectly, from higher productivity; or to lose from lower productivity.

4. Developments abroad, whether in markets for our exports or in sources of our imports, also significantly affect—favorably or unfavorably—the output we obtain from an hour of work, just as developments here influence other economies. And given reasonably free trade, the world as a whole sooner or later shares in the gains or bears some of the losses from change in productivity wherever it occurs.

5. Productivity growth is not the only national objective. Greater economic stability with fuller employment, a better distribution of income, and wider opportunity for leisure, are also important economic objectives. And there are the so-called noneconomic goals, of which a better physical and social environment, national defense, and political freedom are not the least. What the future rate of productivity growth will be, then, will depend on how strongly productivity growth is desired, taking into account the costs and benefits of reaching for other—and, to some degree, competing—national objectives. And these costs and benefits will depend—as they have in the past—on the haste and care with which resources are diverted to the desired objectives. Efforts to raise productivity need not always be inconsistent with efforts to reach the nation's other goals. To the extent possible, therefore, those policies to raise productivity should be chosen that serve also to meet the other goals—or, at least, conflict minimally with them—and vice versa.

6. Foresight and patience are essential, for efforts to raise productivity generally require time to reach fruition.

7. Much has been learned about the facts and the interrelationships among the facts bearing on productivity. Nevertheless, this knowledge still falls short of what is needed to make the choice among policies as clear and confident as is desirable. Investment in better information and in more research on productivity would be worthwhile.

We can be reasonably confident that the future rate of productivity growth will be positive, although, as I have just indicated, just what it will be is uncertain. It depends in part on certain developments in the economy that have already taken place—such as changes in the age distribution of the population and the rise in the price of petroleum—about the effects of which we know something, though not everything. It depends in part on future developments over which we have some considerable control, such as the rate of capital formation, the pursuit of other objectives, and the support provided education and R. & D.—if we choose to exercise that control, although just how it can be exercised continues to be a subject of debate. The speed of productivity growth depends, finally, on future developments over which we have little or no control—changes in the weather here and abroad, of course, and in economic and political changes in other countries—although we can try harder to offset any dampening tendencies the changes could have on our productivity growth, and to get cooperation with other countries.

Of all the possible futures for productivity growth—given the uncertainties—I would judge that it is the possibility of a continued slow rate of growth that needs to be emphasized.

The most likely outcome is by no means the only possible outcome, however. A heightened awareness of the possibility of a slower rate of productivity growth, a clearer understanding of the factors involved, and appropriate action to deal with the factors, could reduce the probability we now attach to that outcome, and increase the probability of doing in the future as well as, if not better than, we have since World War II. In fact, the objective of the Committee's study is to serve this purpose.

But even if the outlook were for a continuation of the postwar rate of productivity growth or something better, rather than something worse, we could not escape facing a further question. We would still need to ask whether policy to favor a still higher rate of productivity growth would serve, on net balance, to do more for the welfare of our people, and therefore be worth trying to devise and follow—as I suspect it would be—even if it were at the expense of a slower approach to some other national objectives.

I now focus more sharply on four specific factors that contributed to the slowdown in productivity growth and affect the outlook ahead. I do so by considering what is surely a major source of productivity growth, not only in itself but also in the technology it embodies; as well as being a major source of the aggregate demand that calls labor and capital into production. This is decisions to increase the tangible capital assets of business—that is, plant and equipment, rolling stock and inven-

tories. (The factors I have in mind, it should be stressed, affect also other sources of productivity growth).

Regarding fixed capital assets, it is important to realize that growth between 1969 and 1973 was somewhat slower than in the earlier years going back to World War II. Further, this slowdown between 1969 and 1973 was followed by the recession of 1973–75, during which there was a sharper and longer decline in nonresidential fixed investment (in constant prices) than in earlier post-war recessions, and the recovery since 1975 has been no more rapid, and perhaps less rapid, than in the earlier expansions.

In searching for an explanation of the lag in capital formation, I would point, first, to the recent spate of laws and regulations aimed at national goals other than growth, including protection of the environment and the health and safety of workers. In addition to diverting investment to these purposes, to the extent indicated by Denison's recent estimates, there is diversion also of management's time in order to learn what the regulations mean and how to adjust to them, and of R. & D. personnel to cope with the problems. Businessmen find it necessary to roam the halls of Government in Washington, at the cost of neglecting opportunities to develope new and better products and cut production costs, and thus expand their markets.

A second factor I would point to as tending to depress investment commitments is the cartel-induced rise in the price of petroleum. The immediate effect, in 1973, was to force us to deliver more exports to obtain a given amount of imports—which came down to a reduction of something like 1 percent in our real national income and in productivity, when the latter is defined to mean the goods and services we obtain for final consumption and investment, per hour of labor. One could also say that the price hike brought a good deal of our stock of business and consumer capital goods closer to the point of being obsolete; in effect we incurred a capital loss of very substantial magnitude. In this case, also, investment of funds and of time has had to be devoted, and will have to be devoted, to learning how to adjust to the radically new set of relative cost prices, and then in making the adjustment. This task has not been made easier, by businessmen—and consumers also—having to worry about the energy policy that will eventually come out of Washington. In the meantime, productivity is lower than it would otherwise be—and we are losing valuable time in attaining the energy independence we need to have. Nor, I am sorry to say, does the policy package now being discussed in the Congress look as if it would improve efficiency in the use of energy as much as it could and should be improved.

A third factor depressing investment—and causing misallocation of investment funds—is inflation. No less important are the uncertainties caused by fluctuations in the rate of inflation, and by governmental policies to control inflation, that blow hot and cold. In many industries, also, inflation has complicated labor-management relations and negotiations, and raised the effective profits-tax rate; and it has confused people trying to make sense of conventional accounting statements and financial reports when planning their investments. A striking indication of the extent of uncertainty and its effect is the low rate at which the net worth of all business corporations (calculated at replacement costs, with account taken also of the gain from decline in the purchasing power of debt) is being valued in the stockmarket, according to a calculation soon to be published by Philip Cagan, of the National Bureau of Economic Research.

While the issue of inflation, and what can and will be done about it, is pertinent to the future prospects of productivity growth, I can take the time only to say that there is considerable confusion about it. The choice confronting us is not between unemployment and inflation. It is between gradual reduction of the present high rate of inflation, accompanied by a temporary, hopefully modest rise in unemployment, on the one hand; and on the other—if we try to stretch out the expansion—accelerated inflation, bound to be followed—sooner rather than later—by a slam on the brakes severe enough to bring on the sharp recession everyone wants to avoid. But what the choice will be, and how it will affect investment and productivity, is another question.

A fourth factor, one that also has led to uncertainty and generated caution in investment is the shock produced by the recession that began in 1973. Coming as it did when much optimism had been generated by the relatively mild experience with postwar recessions prior to 1973, it lead to a financial squeeze for many firms, and the failure of some. It may take some time to recover fully from the shock. Restoration of confidence is not being made easier by the problems businessmen are having with regulations, energy, and inflation.

Finally, to avoid misunderstanding of my views, let me return to the question of national goals that compete with growth. I have been suggesting that the policies and procedures used to reach for these goals may have imposed too great a cost in growth. This is coming to be recognized. Indeed, signs of a revulsion are already appearing. If this revolt grows, and snowballs, it could go too far. Fuller and stabler employment, a better distribution of the nation's income, further decline in discrimination, betterment of the way we take care of the helpless, cleaner air and water, and further reduction in the health and accident hazards to which our workers are subjected—these are worthy objectives. I do not suggest we go from one extreme to another. We need to search for a better trade-off and take the various costs and benefits into account, precisely in order to attain a better balance among our objectives and move ahead. Progress would be gradual, it is true, but it would not be slower.

Productivity Growth: Purpose, Process, Prospects, and Policy

(Prepared by Solomon Fabricant for the National Center for Productivity and Quality of Working Life Washington, D.C., June 1978)

PREFACE

Under Public Law 94-136, one function of the National Center for Productivity and Quality of Working Life is "to inform the public of the meaning and importance of productivity and productivity growth."

Economists are in general agreement that productivity growth is essential to a rising standard of living as well as to the maintenance of the economic and political position of the United States in a hazardous world. However, productivity is not always given the consideration it should have in national and private decisions. A reason is the lack of adequate understanding on the part of the public of the meaning and value of productivity improvement.

This document was prepared to meet the need to inform the public on the important subject of productivity. It provides a succinct historical overview of productivity growth and fluctuations in the United States, examines the process by which productivity changes, and considers the prospect of productivity growth. It also discusses the broad range of policies for improving productivity and why national policies must allow for the specific problems of individual industries.

The report was written for the National Center for Productivity and Quality of Working Life by Dr. Solomon Fabricant, who has been associated with the National Bureau of Economic Research and New York University for many years. Dr. Fabricant is an internationally recognized scholar whose pioneering studies of American industry helped to lay the foundation for much of the research on productivity growth.

Dr. Fabricant submitted the contents of this study as part of his testimony before the Joint Economic Committee of the Congress of the United States on June 8, 1978. Those interested in additional copies should contact the Joint Economic Committee.

George H. Kuper,
Executive Director, National Center for Productivity and Quality of Working Life.

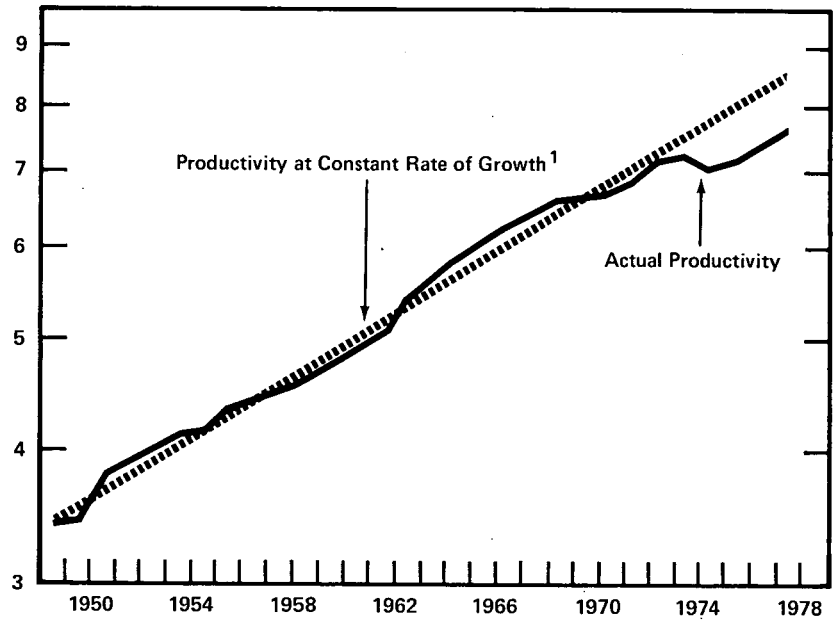
IMPORTANCE OF PRODUCTIVITY

Concern about productivity was heightened by the halt in its growth during the recession of 1973-75. For the first time since the quarterly record of productivity change began in 1947, the average volume of goods and services produced in an hour of work by an employed person—aided by the capital, technology, business direction and organization, and still other of the advantages with which American labor is supplied—declined for as many as six out of seven consecutive quarters.[1]

[1] Productivity is measured here by the average output per hour worked by all persons employed, including the self-employed as well as wage and salary workers. The term used by the Bureau of Labor Statistics, the official source of current productivity statistics, is "output per hour of all persons." We will abbreviate this to "output per hour" and use the term interchangeably with "productivity." When the statistics on number or hours of all workers are incomplete, productivity is measured (to a reasonable degree of approximation for most purposes) by output per employee hour, or output per production-worker hour, or simply output per employee. When this is the case, it will be so indicated. Reference will be made to what economists term "total factor (or multi-factor) productivity." Total factor productivity is measured by "output per unit of labor and capital combined"; it stands for just one of the three major groups of factors among which the determinants of output per hour may be classified. Clearly, output per hour and output per unit of labor and capital are related, but they are not alternative measures of the same thing.

Chart 1
Productivity in the Private Business Economy

1972 Dollars Per Hour (Ratio Scale)



[1]Growth rate of 3.2 percent per year
Source: Department of Labor, Bureau of Labor Statistics

The cyclical upswing that began early in 1975 has already brought productivity back to and then above its previous peak level. However, productivity is not yet up to the level it would have reached had growth during 1973-77 continued at the average rate to which the American economy had become accustomed during the post-World War II period. (Chart 1.) On the basis of this earlier experience, we may expect that the cyclical increase in productivity will continue as the business expansion proceeds, but at the less rapid rate characteristic of the middle and later stages of business recovery. However, it is still a question whether the advance will raise the productivity level up to the long-term trend line by the time full-capacity production is reached, and whether productivity advance will then continue up, on the average, in accord with that trend line.

That productivity growth might in fact slow down is a question which troubled observers of the economic scene even before the recent recession began. During the decade or so preceding the recession of 1973, the rate of productivity growth was already fluctuating at a level below the average of the earlier years of the post-World War II period. Indeed, over the period since 1946, taken as a whole, productivity growth had been showing signs of retardation.

Further, apart from these unfavorable developments, the average rate of productivity advance in the United States since World War II has been below that of most other industrial countries. It is true that the current level of productivity in our country is still above the level of these other countries, but not nearly as far above as in earlier years.

Concern over productivity these days is especially intense because urgent new problems have been added to the older problems of maintaining a satisfactory rate of economic and social progress:

Higher productivity is essential to our economic growth and a key to a higher standard of living for all our people.

Higher productivity is vital to the maintenance of the economic and political position of the United States among nations.

Higher productivity can help to meet the Nation's advancing standards of energy independence, physical environment quality, health, and safety.

Higher productivity can also help to ease inflationary pressures on the prices of goods and services.

This is why the National Center for Productivity and Quality of Working Life was established under Public Law 94-136, late in 1975, when the continuing policy of the United States was declared to be "to use all practicable means and measures * * * to stimulate a high rate or productivity growth."

For insight into appropriate current and future action, careful consideration should be given not only to the purpose but also to the process and the prospects of increasing productivity. Therefore, the following subjects will be discussed:

The role of productivity in promoting economic growth.

Long-term productivity trends as related to both the past and the future, and in comparison with trends in other industrial nations.

Recent short-term changes in productivity as they relate to business contraction and expansion, along with problems of business recovery and inflation.

Sources of productivity change, including both the immediate and the more fundamental sources.

Distribution of the gains of productivity among our people.

Productivity in relation to employment.

Policies for improving the productivity outlook.

The discussion will try to make clear that:

Productivity reflects the influence of many factors joined together—plant and equipment, of course, but also education and training, technology, organization and scale of business establishments, relations between labor and management and between government and the private sector. These factors vary in relative importance, but none may be neglected.

Back of these factors are the actions of all groups in the economy—in the private sector, not only business enterprise but also, to a substantial degree, the enterprise and commitments of labor as well as management, savers as well as investors, families as well as business concerns; and outside the private sector, government—Federal, State, and local.

Everybody in the economy stands to gain, directly or indirectly, from higher productivity.

Efforts to raise productivity need not always be inconsistent with efforts to reach the Nation's other goals. To the extent possible, therefore, those policies to raise productivity should be chosen that serve also to meet the other goals—or, at least, conflict minimally with them.

Foresight and patience are essential, for efforts to raise productivity generally require time to reach fruition.

While much has been learned about the facts and the interrelationships among the facts bearing on productivity, knowledge still falls short of that needed for making clear choices among policies. Investment in better information and more research on productivity would be worthwhile.

PRODUCTIVITY THE MAJOR FACTOR IN ECONOMIC GROWTH

Productivity growth is the dominant source of the economic growth which enables us to raise our standards of living.

To concentrate on the present generation's experience, during the post-World War II period, the Nation's private business product rose at an average annual rate of 3.3 percent, according to the U.S. Bureau of Labor Statistics.[2] Some of the increase reflected a rise in the number of persons at work, but this was at a rate of only about 1.0 percent per year. Further, almost half of the increase in numbers employed was offset by an average annual reduction in hours per worker of somewhat under 0.5 percent per year. Total hours worked by all persons therefore increased by around 0.5 percent per year. The measure of growth in productivity—output per hour—then, is the difference between 3.3 and 0.5, or 2.8 percent per year. We may say, with some qualification for interaction between employment and productivity, that by far the big factor in increasing output was more productivity, not more or harder work.

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[2] Third quarter 1976 relative to first quarter 1947. The private business product, which is over eight-tenths of the Nation's total product as conventionally measured, excludes government and owner-occupied housing; for these, unfortunately, adequate measures of output or employment are not available. Since our primary concern is with productivity—the ratio of output to employment—we limit the measurements to the private business sector, when these are available separately. Mention should be made of current efforts, at all levels of government, to measure (and improve) government productivity.

When the calculation is aimed at accounting for increase in output per capita (instead of total output), and put in terms of output per hour and of hours of work per capita (instead of total hours), the importance of productivity becomes even more prominent. For, as the Census figures tell us, population rose over the period at an average annual rate of 1.4 percent. Private output per capita—or what is essentially the same, real income originating in the private sector, per capita—then rose 1.9 percent per year. Worker hours in the private economy per capita actually fell by 0.9 percent per year. It follows that as a result of increased productivity the hours each person worked were able to be reduced on the average at the same time the average output produced by each person was raised.

The contribution of increased productivity to economic growth—measured either by total national output or per capita output—differed somewhat in periods preceding World War II from what it was in the period after the war. However, in every earlier period of similar length—one long enough to average out cyclical and other fluctuations—productivity was a major factor. Further, in the majority of periods for which reasonably adequate estimates are available (mainly since 1889), it was the preponderant factor. Only in the first century of our country's existence, when population grew much more rapidly than in the second century—2.9 percent per annum, almost double the more recent rate—was increase in total hours of work the dominant component of the growth of national output. But in the first as in the second century of our existence, productivity was the dominant factor in the growth of output per capita. The latter multiplied some fifteen- or twenty-fold over the two centuries.

A growing fraction of the population entered the labor force, it is true, mainly because the rise in the relative importance of women in the labor force exceeded the decline associated with the virtual elimination of child labor. Yet the rise in number of workers per capita was no greater, and probably smaller, than the decline in hours each worked on the average: there was little change in hours of work per capita.

RECENT CHANGES IN PRODUCTIVITY

The recent decline and revival

Between 1973 and 1974 the average output yielded by an hour of work in the private business sector fell by 3.4 percent. Only once before in the past 30 years was there a decline in productivity from one calendar year to another—and this was during the exceptional period of rapid reconversion to civilian production immediately following the end of World War II.

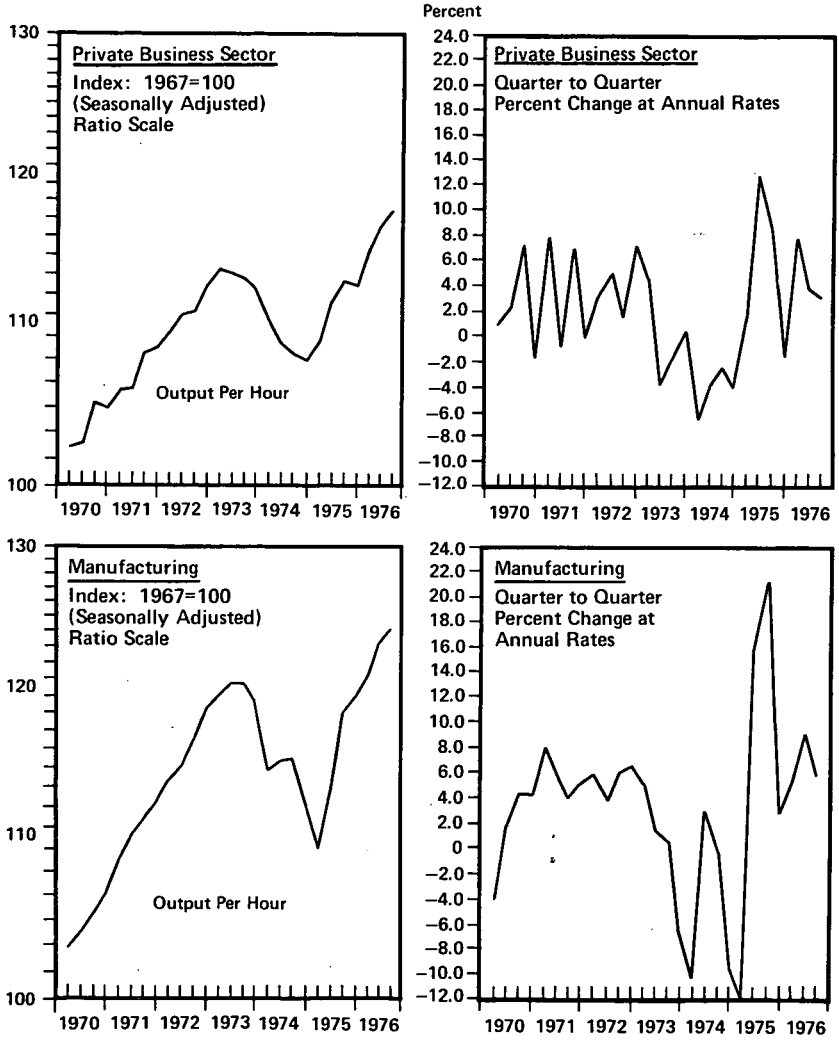
On a quarterly basis, the drop in productivity began early in 1973 and continued, with some hesitation, through 1974, as shown in Chart 2. The series of unfavorable changes during 1973–74 cumulated to the point where output per hour in the fourth quarter 1974 was down from the first quarter 1973 by as much as 5.6 percent. This was the longest, the steepest, and therefore the largest decline since 1947, the earliest date for the quarterly series. However, since the low experienced late in 1974, productivity in the private business sector has been rising. By the fourth quarter of 1977, it was 10.7 percent above the low and 5 percent above the previous high—an annual rate of increase over the nearly five years, since the high in 1973, averaging only 1.2 percent.

Corresponding estimates by quarters are available for major sectors of private business. The patterns of fluctuations during 1973–76 are roughly the same.[3] In manufacturing as a whole, for example, productivity continued to rise until the third quarter of 1973, although more and more slowly. It then dropped, also with some hesitation, during the next six quarters. The low point, which was not reached until the first quarter of 1975, was 9 percent below the previous high in the third quarter 1973. During the rest of 1975 and to the third quarter of 1976 productivity rose in manufacturing until all of the preceding drop had been recovered and then somewhat exceeded. The latest figure is 5 percent above the previous high—a rate of increase over the past three years of about 1.5 percent per annum. In nonmanufacturing (other than farming), the peak came a little earlier than in manufacturing; the drop, to the fourth quarter 1974, was less, only 5.9 percent; and the recovery, to the third quarter 1976, brought productivity to a level 1.7 percent above the previous peak. The average rate of increase over the past three and a half years was only about 0.5 percent per year.

[3] Except for farming, the quarterly figures of which are erratic.

Chart 2

Productivity Dropped Sharply from 1973 to 1974 But Reversed in 1975 and 1976



Source: Bureau of Labor Statistics, U.S. Department of Labor.

Available information for a number of individual industries on annual changes through calendar year 1975 indicates a degree of general conformity to the recession and revival in national productivity. This is to be expected. The main lesson provided by the details for individual industries, a few of which are given in Table 1, is the variety of changes among them between 1973 and 1974 and between 1974 and 1975. In some industries, the recession meant a decline in rate of growth to a negative level, while in others it was a decline to a lower but still positive level. Also, the amplitude or degree of change among the several industries varied a good deal. Further, in some industries, circumstances peculiar to them were strong enough to overpower any response to changes in general business conditions.

TABLE 1.—ESTIMATED PERCENTAGE CHANGE IN OUTPUT PER EMPLOYEE-HOUR IN SOME INDIVIDUAL INDUSTRIES, 1973-74 AND 1974-75, AND AVERAGE ANNUAL RATE, 1970-75

	Percent change		Average annual change
	1973-74	1974-75	1969-75
Synthetic fibers	−1.9	3.9	8.3
Air transportation [1]	1.3	1.2	4.2
Corrugated and solid fiber boxes	5.6	3.3	5.0
Paper, paperboard, and pulp mills	−.2	−6.7	2.5
Tires and inner tubes	−.1	.2	1.6
Steel	−.3	−11.6	2.8
Railroads (revenue traffic)	−1.0	−3.3	3.5
Intercity trucking	−.8	−1.7	2.8
Petroleum refining	−8.4	.6	3.3
Gas and electric utilities	−1.8	2.5	2.1
Bituminous coal and lignite mining [2]	−1.6	−10.3	−4.8
Motor vehicles and equipment	−4.5	7.6	3.7
Iron mining, crude ore [2]	−6.8	−1.3	.2
Copper mining, crude ore [2]	−.1	9.6	1.4
Telephone communication	7.2	10.7	6.6
Gasoline service stations [3]	−.6	−2.3	2.0
Nonmetallic minerals [2]	.8	−4.4	.8

[1] Output per employee.
[2] Output per production worker hour.
[3] Output per hour all persons.

Source: Bureau of Labor Statistics, U.S. Department of Labor.

Of course, these departures from the general pattern can be of vital concern to persons involved or especially interested in a particular branch of industry. Notable, in Table 1, are the drop in productivity in petroleum refining between 1973 and 1974, only the second decline experienced by the industry in the last 25 years; the sharp decline of almost 12 percent between 1974 and 1975 in the basic steel industry; the sharp rebound of productivity in the automobile industry in 1974-75, after the decline of 1973-74; and the continuation of a rapid rate of increase in productivity in telephone communications throughout the recession. These sharp differences in the behavior of productivity mean sharp differences also in the movement of labor cost per unit of output and therefore also in total unit cost, and, as a consequence, either in selling price or unit profits or both.

Perspective on the recent changes

The decline in productivity in the United States between 1973 and 1974—or, on a quarterly basis, from the first quarter 1973 to the fourth quarter 1974—and then the subsequent rise were associated with economic recession and recovery.

Similar cyclical changes in the rate of change in output per hour have occurred in earlier periods, when the rates varied in accordance with changes in general business conditions. A review of past cyclical patterns is helpful in trying to anticipate what might happen in the current business cycle.

The rate of change in output per hour tends to be higher during business expansion than contraction. With one exception, this is evidenced by Table 2. Not so familiar is the systematic difference between the first and second halves of expansion. In all five complete expansions listed in the table, productivity rose much more rapidly during the initial than the later stage of expansion.

TABLE 2.—AVERAGE ANNUAL RATES OF CHANGE IN OUTPUT PER HOUR DURING BUSINESS CYCLE EXPANSIONS AND CONTRACTIONS, PRIVATE BUSINESS SECTOR

Business cycle					
Expansion			Contraction		
	Rates of change (percent)			Rates of change percent	
Period	First half	Second half	Period	First half	Second half
4th quarter 1945 to 4th quarter 1948		4.8	4th quarter 1948 to 4th quarter 1949	−2.5	5.1
4th quarter 1949 to 3d quarter 1953	6.0	3.1	3d quarter 1953 to 2d quarter 1945	−1.0	1.0
2d quarter 1954 to 3d quarter 1957	3.5	2.0	3d quarter 1957 to 2d quarter 1958	3.5	3.5
2d quarter 1958 to 2d quarter 1960	4.9	1.3	2d quarter 1960 to 1st quarter 1961	−1.5	2.9
1st quarter 1961 to 4th quarter 1969	4.5	2.1	4th quarter 1969 to 4th quarter 1970	1.6	2.5
4th quarter 1970 to 4th quarter 1973	3.5	1.2	4th quarter 1973 to 1st quarter 1975	−4.8	−1.5
4th quarter 1974 to 4th quarter 1977 [1]	3.4				

[1] Not yet terminated.

NOTE.—Cycle dates are according to the National Bureau of Economic Research revised chronology and are terminal dates. The rates of change are on an annual basis. The original data on output per hour are from the U.S. Department of Labor, Bureau of Labor Statistics.

The difference between the first and second halves of contraction is also surprising. While productivity rose slowly, or even declined, during the first half, the rate of change in productivity rose sharply or declined less rapidly in the second half in five of the six contractions listed. In fact, the second-half rates of productivity increase were higher than those which occurred during the second half of the preceding expansion in four of the six cycles.

In the recent contraction, which is now over, productivity dropped more sharply than in any other postwar contraction. However, the current revival of productivity has not been exceptional, rising slightly less rapidly than in five other business expansions. If the pattern of the other postwar expansions is repeated, output per hour will continue to rise in the months ahead, but less rapidly than between the first quarter of 1975 and the fourth quarter of 1977.

However, it is difficult to project just how fast productivity will continue its recovery in the second half of the business expansion. The historical record shows considerable variation in the rate of increase from cycle to cycle. The course of events in business cycles which influence changes both in output and output per hour will be traced in a later section to help understand current developments and implications for productivity improvement policy.

PRODUCTIVITY OVER THE LONG TERM

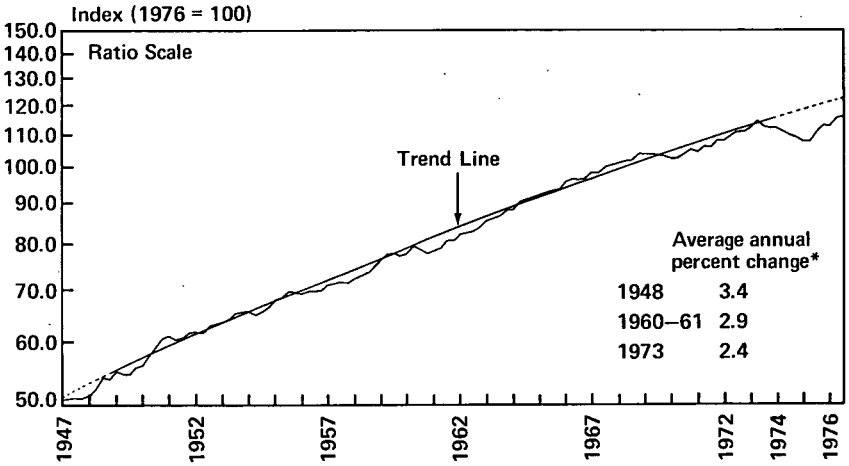
U.S. productivity performance over the long term is of first-rate importance because it is the major factor determining the growth of real earnings and the standard of living. Further, maintaining or increasing the economy's productivity growth rate is a principal way to offset the impact of drastic increases in the prices of energy and other basic materials, and to meet the costs of protecting and improving the physical environment within and outside the home and the workplace.

Postwar retardation

Productivity in the private business sector grew over the postwar period at a rate of 2.8 percent per year. But this is an average for the entire period. Chart 3 reveals a higher rate in the earlier postwar years and a lower rate in the more recent years (even after allowing for the slowdown during the recent recession). In other words, there is evidence of retardation: the rate of growth has tended to decline from decade to decade.

Chart 3

Output per Hour Growth Rate in the Private Business Sector Has Tended to Slow Down Over the Post-War Period



*Computed from trend line fitted to quarterly data for the private business sector, fourth quarter 1948 to fourth quarter 1973.

Source: Based on data from the Bureau of Labor Statistics, U.S. Department of Labor.

Because the cyclical fluctuations already discussed are considerable, it is necessary to smooth them out before the degree of retardation can be determined. This was done by fitting to the quarterly data a trend line which moves up gradually between the peaks and troughs, and is therefore not distorted by either set of extreme points. To be doubly sure that the effects of cyclical changes had been removed, the trend line was fitted to the data beginning with the peak quarter in 1948 and ending with the peak quarter in 1973. This prevents the cyclical rise between 1947 and 1948 and the cyclical decline between 1973 and 1974 from biasing determination of the existence and degree of retardation in the long-term trend over the postwar period.

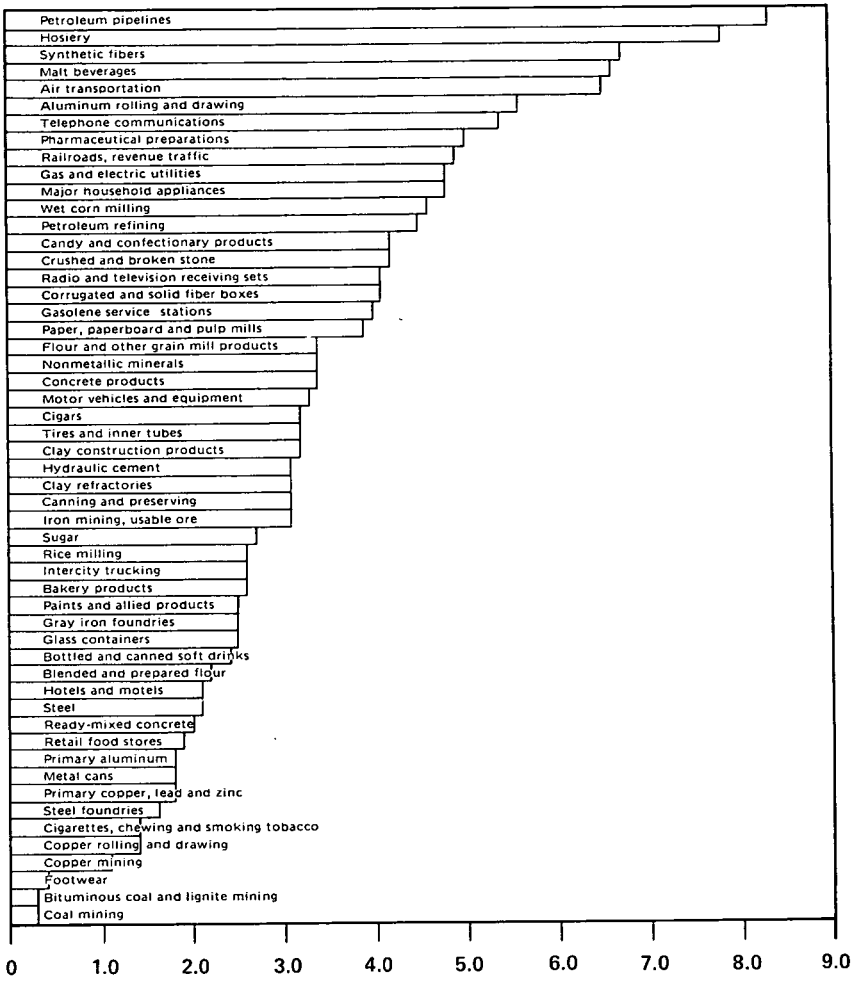
The average rate of growth so determined is about 3.4 percent per year around 1948, near the beginning of the postwar period. It is about 2.9 percent per year in 1960–61, about equal to the 2.8 percent over the whole postwar period. It is about 2.4 percent in 1973, when the recent recession began. The average rate of retardation, then, is about 0.04 percentage points per year over the 25-year period covered.

The industries which make up the total private economy experienced widely varied rates of productivity increase since 1960. (See Chart 4.) The average rate of growth in the total was closely matched by relatively few industries. In fact, nearly half the industries for which separate information is available increased their productivity at annual rates that exceeded or fell short of the rate for the private business economy by as much as a full percentage point—a considerable difference. However, the majority of individual industries show long-term rates of productivity growth with some degree of retardation during the postwar period. According to the BLS, two-thirds of the industries had lower rates of productivity gain during 1966–76 than during the earlier post-World War II years.

Perspective on the postwar trend

The significance of this apparent retardation becomes clearer when the whole postwar trend is viewed against a broad historical background. Annual estimates available on a calendar-year basis as far back as 1889 provide the longer perspective. (See Chart 5.)

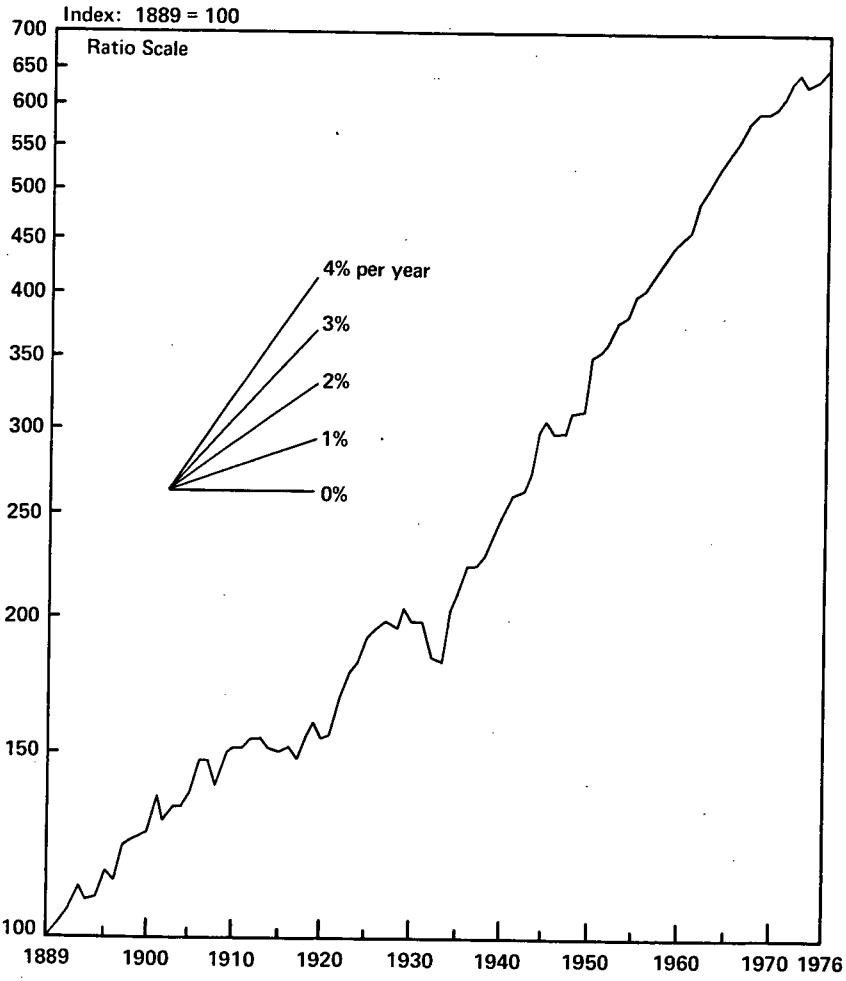
Chart 4
Growth in Output per Employee Hour Varies Widely Among Industries



Note: For a few industries dates are calculated from 1958; also a few end by 1975.
Source: Bureau of Labor Statistics, U.S. Department of Labor

Chart 5

Output per Hour Has Risen Persistently Over the Past 87 Years



Source: National Bureau of Economic Research (J. W. Kendrick) for 1899–1909, real gross product per unweighted man-hour worked, private domestic economy; Bureau of Labor Statistics for 1909–47, real gross product per man-hour worked, private economy, establishment basis; Bureau of Labor Statistics for 1947–76, output per hour of all persons, private business sector. All figures are annual averages, except the 1976 figure, which is for the third quarter.

The first feature of this history is the pronounced upward sweep of productivity. Output per hour did decline from time to time, but the declines took place in only a fifth of the years covered. These, together with the occasional slowdowns in other years, do not change the impression of a strong upward trend in productivity. On the average, output per hour rose at a rate of as much as 2.4 percent per year (compounded annually). By 1976 output per hour was six or seven times that of 85 years earlier.

A second outstanding feature is the greater stability in the rate of increase in productivity in the post-World War II period. Although fluctuations in the rate of growth are found in all periods, they were far more pronounced in the period up through the middle 1930's than in that following the reconversion period after World War II, or even in the longer period which includes the 1940's. Except for the decline during 1973 and 1974, the upward sweep of productivity in recent decades seems marred by a mere ripple when viewed against the background of the strong fluctuations characteristic of earlier years. The 1973–74 decline stands out so clearly precisely because it is an exception.

A third prominent feature is the speedier rate of growth since World War II than in any of the earlier periods of roughly corresponding length and phase of business cycle, namely, 1890–1907, 1907–29, and 1929–48. In fact, a similar upward shift in the rate of productivity growth following World War II seems to have been a worldwide phenomenon. However, the shift was even greater in many countries abroad, which rose from a prewar rate below that of the United States to a postwar rate above the United States.

The postwar U.S. output per hour trend has often been interpreted as indicating a tendency of productivity to accelerate. However, projections into the future of changes in trends are dangerous. We know that during the past quarter-century there has been no pronounced tendency to a gradual speeding up of the rate of productivity growth; instead, the evidence indicates some retardation since World War II.

The historical record also shows that in addition to the short-term fluctuations in productivity growth, there were, as well, longer-term fluctuations, extending over a decade or more. The statistics suggest five long waves in the trend rate of change in productivity. The rates of increase ranged from a low of about 1 percent growth per year during the 10- or 15-year period centered around 1910 or 1915, to a high of about 3.5 percent per year during the decade immediately following World War II.

In the most recent decade the annual rate of increase in productivity has fallen to below 3 percent—indeed, down to around 2.4 percent, allowing for the cyclical fluctuation. This is still above the average of 2.2 over the whole period since 1889. But it could go lower, and drop below that long-period average. However, in the light of historical experience it would be risky to extrapolate a further decline in the rate. The current period of slow growth in productivity—slow only by comparison with the earlier postwar rates, not with the pre-war experience—may well be succeeded by a period of higher growth. In fact, the objective of productivity policy is to do what is possible to ensure that this does happen.

Comparison with productivity trends abroad

Comparisons of productivity changes in the United States with those in other countries are hazardous because of gaps and incomparabilities in the available statistics. However, studies by international and domestic agencies as well as by individual scholars have made one thing quite clear: during the post-World War II period, output per hour in the U.S. economy as a whole rose less rapidly on the average than in most other industrial countries.

During the more recent period between 1970 and 1974, according to the BLS's compilation of productivity in manufacturing of 12 non-Communist industrial countries, output per hour in U.S. manufacturing also rose less rapidly than in any of the other countries. (See Table 3.) Between 1974 and 1975, however, the decline in the U.S. was accompanied and exceeded by declines in four of the eight countries for which preliminary data are available. In three of the other four, productivity continued to rise, though less rapidly than during 1970–74. For the period 1970–75, productivity in U.S. manufacturing rose, but less than in the other countries. This was true also in comparison with industrial productivity in Soviet Russia, for which a rough estimate is available for 1971–75.

TABLE 3.—MANUFACTURING OUTPUT PER EMPLOYEE-HOUR IN 13 COUNTRIES, AVERAGE ANNUAL PERCENT CHANGE, SELECTED PERIODS, 1970–75

Country	1970–74	1974–75	1970–75
United States	2.3	−0.7	1.3
Canada	3.3	1.5	2.7
Japan	7.1	−3.0	5.4
Belgium	8.1	NA	NA
Denmark	6.9	NA	NA
France	5.0	−4.3	3.4
Germany (F.R.)	5.8	3.3	5.4
Italy	7.6	−3.9	5.8
Netherlands	7.2	NA	NA
Sweden	5.8	0	5.0
Switzerland	4.9	NA	NA
United Kingdom	4.3	−1.5	3.1
U.S.S.R.	[1] 4.5	NA	NA

NA = Not available.
[1] Industrial output per hour of 1971–75.

Source: For all countries except U.S.S.R., Bureau of Labor Statistics. For U.S.S.R., Office of Economic Research, C.I.A.

The level of output per hour in the United States has been higher than in other countries for a very long time, both in manufacturing and most other industries, and in the economy at large. (See Table 4.) This output per hour continues to be higher. But our productivity lead has been substantially diminished during the postwar period, even after allowance for the recovery in the early postwar period from the distortions and other severe effects of the war in Europe and Japan. Other countries have been catching up and closing the gap.

TABLE 4.—LEVEL OF U.S. PRODUCTIVITY REMAINS HIGH RELATIVE TO MAJOR COUNTRIES, BUT THE GAP IS CLOSING

Country	Gross domestic product per employed civilian			
	1950	1950	1970	1975p
United States	100	100	100	100
Canada	81	86	89	90
France	42	54	71	81
Germany	[1] 35	50	66	73
Japan	16	24	48	60
United Kingdom	51	52	54	58
Italy	27	36	54	57
U.S.S.R.	21	27	32	[2] 34

[1] Excluding the Saar and West Berlin in 1950.
[2] An alternative estimate that may be derived from data in the source mentioned is 37, U.S.S.R. relative to U.S.A.

Source: For all countries other than U.S.S.R., Bureau of Labor Statistics. For U.S.S.R. derived from GNP data of Herbert Block and R. V. Greenslade, published by the Joint Economic Committee, Oct. 14, 1976.

SOURCES OF LONG-TERM GROWTH IN PRODUCTIVITY

The factors that directly or immediately impinge on productivity—the "proximate" sources of productivity growth—fall into three main groups. One is increase in tangible capital per worker. Another is improvement in the quality of labor. A third is increase in the efficiency with which capital and labor are put to use in production. Back of, or underlying, these proximate factors are the factors that account for the saving and investment which increase tangible capital, the education and training which improve the quality of labor, and the technological and other advances which raise output per unit of labor and capital. Following the discussion of the proximate factors these basic sources will be considered as well as the developments during business cycles that help explain the postwar fluctuations in productivity, along with their bearing on the current business recovery and inflation.

Proximate factors affecting productivity growth

It is natural for people who are concerned about productivity to be concerned about capital, and tangible capital is the first to come to mind. No record, statistical

or otherwise, of any country fails to show an upward trend in productivity that is not accompanied by an upward trend in tangible capital per worker. This is by no means a coincidence. There are good economic reasons why the two would move up together. Increase in productivity and the income it brings generate capital formation. And capital formation helps to increase productivity. Tools, machines, rolling stock, buildings of all sorts, farm and timber lands, roads and dams, stocks of materials and of other goods have even been called the "means of production." Whatever the merit of this designation, the more of these means supplied each worker, the higher tends to be the product obtained from an hour of work.

But tangible capital is not the only "means of production." The improvements in the quality of labor, the second group of productivity growth factors, also represent a form of investment, not in tangible goods but in human beings, made through education, on-the-job training, and in the provision of better health facilities. This type of investment is not usually recognized as capital formation, and the families and governments which make expenditures for these purposes have objectives other than enlarging the productive and earning capacity of labor. But they have that purpose also, and whatever the purpose, the expenditures have that effect, on the whole. In this way "human capital," as economists term it, is built up. Growth in this stock of human capital has been a major source of the rise in output per hour of work.

A second type of change in the quality of labor consists of shifts in the age-sex composition of the labor force. The economic quality or capacity of labor is measured by its market-value, which differs, on the average, according to age and sex. The market-value measure of quality is imperfect, it is true, to the extent that there is discrimination, but it is not an unreasonable if rough approximation. The shifts in the age-sex composition may have a negative as well as positive effect on productivity growth, depending on the direction and degree of change in the composition of the population, and in the labor-force participation rates and employment rates of the various age sex groups. Over the postwar period the effect of these changes appears to have been, in fact, negative, on net balance.

A third group of factors which contribute to the rise in the efficient use of labor time combined with the services of tangible and human capital (adjusted for quality), is measured by the "total (or multi-) factor productivity" of which economists talk. Included in the group is a heterogeneous variety of items.

Most prominent are advances in technology. A separate factor is the speedier diffusion of advances in technology within and between countries, as transportation, communication, and education improve. Another is the finer division of labor and greater degree of specialization of machines made possible by the general increase in the size of business establishments, industries, and countries, as well as by improvements in transportation and communication and reductions in the obstacles to trade.

Government economic policy is also a factor affecting efficiency. Government policy—more exactly, the policy actually pursued—influences the factors already mentioned, as indicated by the reference to education and the diffusion of advances in technology. There are also direct effects on efficiency. And whether direct or indirect, the effects of government policies on efficiency, and thus on productivity growth, can be negative as well as positive. Protectionist policies, inept tax codes, and regulatory "interference" can impede efforts to increase or even to maintain efficiency.

Also to be counted as a source of productivity growth is the improved efficiency associated with reduction in the length of the work day and week. So, too, is the better allocation of resources reflecting, for example, a shift from farm and nonfarm self-employment to more productive activity elsewhere, as measured by market values. There are also the trends of labor-management relations, and of labor and management attitudes toward discipline and competition, along with a host of still other proximate sources of positive or negative productivity growth.

Beyond these, there are such short-run factors as changes in the weather, strikes, or lockouts, and the various developments associated with business cycles. But these play a stronger role in influencing the year-to-year changes in productivity than its long-term trend.

Difficult problems of concept and measurement accompany efforts to quantify the various proximate sources of productivity growth. For example, economists have not yet come to complete agreement even on the measurement of tangible capital that is most relevant to determining its effect on productivity growth. Available estimates must therefore be considered only as suggestive of the relative magnitudes of the several different sources. But even suggestions are worthwhile, when they are based on careful analysis.

Most complete and up to date are the estimates of tangible capital prepared by the Bureau of Economic Analysis. These are shown in Table 5 for years in which activity reached a peak, when capital is more fully utilized and more validly compared with number of employed workers. First, workers in this country were supplied, on the average, with very substantial quantities of capital—far more, indeed, than in other countries. The total, net of depreciation and obsolescence reserves held against plant and equipment, per person, ranged from $14 to $22 thousand, in 1972 prices. Second, every form of capital set out in the table rose more rapidly than did the number of persons employed; and since hours per worker declined over the period, the rise was even more rapid relative to hours, with the exception only of land. Third, there was some tendency for capital per person to rise at a rate that declined over the postwar period. In any case, per person, every form of capital rose significantly less rapidly during 1969–73 than in earlier postwar periods bounded by business cycle peaks. It should be noted, however, that the retardation in the rate of growth in capital per person reflected not so much a tendency towards retardation in the rate of growth of the capital stock as some acceleration in the growth of the number employed.

Over the 1948–73 period as a whole, tangible capital rose at a rate of about 2.9 percent per year after deducting depreciation reserves on fixed assets, 3 percent before such deduction. A portion of the resulting increase in the stock of tangible capital was used to outfit, so to speak, the growing labor force employed by business enterprises—a labor force growing at the rate of 1.1 percent per annum, in terms of number of persons employed, 0.7 percent in terms of hours. Tangible capital per hour available for raising productivity, then, rose at a rate of 2.2 to 2.3 percent.

TABLE 5.—CAPITAL PER EMPLOYED PERSON, PRIVATE BUSINESS SECTOR

Peak year or period	Gross fixed assets [1]	Net fixed assets [1]	Inventories	Land	Total capital	
					Gross	Net
	Thousands of 1972 dollars					
1948	12.6	6.5	2.4	5.1	20.2	14.1
1953	14.6	7.9	2.8	5.0	22.3	15.6
1957	16.4	9.1	3.0	4.9	24.3	16.9
1960	17.8	9.9	3.0	4.9	25.9	17.9
1969	21.9	12.9	4.1	4.2	30.2	21.2
1973	23.8	13.9	4.4	3.9	31.9	22.2
	Average annual percentage rate of change					
1948 to 1953	3.0	3.8	3.0	−0.8	2.1	2.0
1953 to 1957	2.9	3.6	1.6	−.5	2.1	2.0
1957 to 1960	2.8	2.9	2.1	.2	2.2	1.9
1960 to 1969	2.3	3.0	2.9	−1.6	1.7	1.9
1969 to 1973	2.1	1.9	1.5	−1.8	1.4	1.2
1948 to 1973	2.6	3.1	2.4	−1.1	1.9	1.8

[1] Structures and durable equipment; exclude land.

Source: Capital, Bureau of Economic Analysis, nonresidential business; employment, Bureau of Labor Statistics, private business sector; land, E. F. Denison, nonresidential business; peak years, according to the business-cycle chronology of the National Bureau of Economic Research.

However, it should not be presumed that the percentage increase in productivity would equal, or even come near to equaling, the percentage increase in tangible capital per hour. The resulting increase in output per hour depends on what each additional unit of tangible capital adds to output, given the other factors of production (including intangible capital), as well as on the increase in the number of units of capital. On the assumption that tangible capital is compensated in accordance with what it adds to output—an assumption reasonable in the circumstances, that is, under competition and with regard to long-term changes—the marginal product of tangible capital may be inferred from its rate of compensation recorded in the income statistics compiled by the Department of Commerce. According to these figures, during the postwar period, the net income received for the use of tangible capital net of depreciation and obsolescence approximated 20 percent of the national income. Each 1 percent increase in tangible capital per hour may then be expected to raise output per hour by two-tenths of 1 percent. The contribution to productivity growth of the increase in tangible capital, so measured, is 2.3 multiplied by 0.2, or a bit under 0.5 percentage points. This is about a sixth or seventh of the 3 percent per

year increase in productivity over the period under consideration. The rest, 2.5 of the 3 percent rate of increase in productivity, is attributed to other sources.

The identification and weighing of the other sources depends on the availability of data and the willingness of the estimator to use his judgment when the evidence is less than adequate. Although necessarily rough, private estimates made by E. F. Denison are more detailed than most, and deserve the attention they have attracted. They have in fact been used in preparing the list of sources reported above. With some adaptation for the present purpose, the estimates, which cover the period 1948–69, are summarized in table 6.

TABLE 6.—*Sources of productivity growth, 1948–69, nonresidential business sector*

	Contribution to rate of growth of output per hour, percentage points (per annum)
Output per hour of all persons	3.15
Tangible capital per hour:	
Inventories	.11
Structures and equipment (net of depreciation and obsolescence)	.37
Land	−.02
Labor quality:	
Education	.50
Age-sex composition	−.12
Output per unit of labor and capital:	
Advances in knowledge, and not elsewhere classified	1.44
Improved resource allocation:	
Farm	.29
Nonfarm self-employment	.08
Economies of scale	.51
Offsets to reduction in hours	.16
Irregular factors	−.18

Source: Adapted from estimates of Edward F. Denison.

Improvement in the quality of labor brought about through formal education is one source for which an estimate has been made. Another, negative in sign, resulted from a shift in the age-sex mix of the labor force towards less qualified workers. Together, these changes in the quality of labor yielded a net contribution to growth of productivity of about 0.4 percentage points. Economies resulting from increase in the scale of operations, an entirely different type of factor, provide another 0.5 points. Offsets to reduction in hours per person at work, resulting first, from the improved efficiency associated with the reduction and second, from shifts of workers out of self-employment and its attendant long hours, contributed almost 0.2 percentage points. Better resource allocation, also reflecting the shift of employment from farm and nonfarm self-employment to more productive activity elsewhere (as measured by market values), contributed another 0.4 percentage points.[4] Working in the other direction was a net decline in the intensity of demand, resulting in differences in the extent to which full capacity was reached in 1948 and 1969; this tended to reduce productivity growth by 0.2 percentage points.

The total of these contributions so far is 1.8. The remaining 1.4 percentage points are accounted for by Denison under the heading of advances in technology and other sources "not elsewhere classified," with technology presumably the major component of this residual.

Education and technology could, of course, be classified as intangible capital. Combined with tangible capital, then, it would appear that the bulk of the sources of productivity growth consist of capital. It is tangible capital held by business firms, but also skills and other intangible capital held by workers and management; and in the case of technology, largely by the economy as a whole. The remaining sources distinguished by Denison, apart from capital, may then be said to be the factors accounting for the efficiency with which tangible and intangible capital and labor time are utilized.

Questions arise, of course, about the accuracy of the data and of the assumptions—questions of which Denison is well aware and takes the trouble to discuss. Some sources of productivity growth have been omitted or, more accurately, lumped together in the "n.e.c." category. One of these is the health of the labor force, which has presumably improved, but no measure is available. There are also questions

[4] For the longer period, 1947–75, an estimate has been prepared by the BLS. It is 0.3 percentage points, lower because the rate of shift declined after 1969.

about interrelationships among the various sources and the extent to which their separate contributions can be determined. To some degree, the several types of labor and capital input are substitutes for one another. Thus, for example, were the rates of increase in other inputs to remain constant, doubling the rate of increase in capital would not double capital's contribution because of diminishing returns as the proportion of capital to the other inputs increased. Also, to some extent, inputs complement one another. Technological change is, in some degree, embodied in tangible capital in order to be put to use in production. On this reasoning, the contribution of technology depends in part on the rate of increase in capital as well as on its own rate of increase. On the other hand, the contribution of tangible capital, in the form of analysis represented by table 6, is being credited with some of the contribution of technology (and other factors) that reduces the real cost of capital goods. However, in either case, the question is largely one of how to classify some of the contributions to productivity growth between types of capital—technology, an intangible form, or plant and equipment, a tangible form. But the question also has important implications for policy to raise productivity.

It is also interesting to ask how estimates of the sort in Table 6 lend themselves to analysis of the postwar retardation in productivity growth described earlier. In addition to the tendency for capital per worker to grow at a retarded rate, there is evidence that change in the age-sex composition of the labor force played a role. Between 1948–53 this factor contributed .16 percentage points to the growth of output per worker. However, between 1953–64, the contribution was negative, −0.17 percentage points; and between 1964 and 1969, still more negative, −0.27 percentage points.

At present, it is not possible to do more than speculate about such other factors as deterioration of workers' attitudes, a tendency toward slackness on the part of management (presumably only up to the recession), the cumulation of imperfections of competition in labor and commodity markets, and increased government interference. There is little reliable and broadly based information about these on which agreement might be secured.

Another factor often said to have caused a slowdown in productivity growth is the relative rise of employment in the service industries, which are presumed to contribute less to national output per worker, and to increase their productivity less rapidly than the commodity-producing industries. But the differences are not great. In fact, some service industries yield more output per worker and have increased levels of output per worker more rapidly than some commodity-producing industries. It should also be remembered that the retardation in productivity growth described earlier is restricted to the private business sector. Government, the major service "industry," has been excluded from the estimates because of inadequate data, as has, for the same reason, household production of housing services.

Basic factors underlying productivity growth

The proximate sources of productivity growth are proximate only because they are rooted in more fundamental sources that account for them. To understand why productivity in the national economy has tended to rise persistently over the years and in the long-run in virtually all sectors of the economy, it is necessary to identify these factors and to appreciate the process by which they raise productivity. Public and private policies relating to productivity will be better if they are based on what is known about these forces and this process.

Consider, then, the key question of why the increase in output per hour has been so widespread.

A basic reason can be found in the incentives which impel people everywhere in our economy to strive constantly to advance themselves and their enterprises. To raise their standard of living, they tax themselves for their own and their families education and training. They save to increase the tangible capital of their own businesses or professions or their investment in businesses in which they can acquire shares. They devise new techniques and shortcuts in old methods. They improve old products and invent new products. They seek better sources of old materials and develop new materials. Improved technology affords not only opportunities to increase income; it also serves to satisfy each person's instinct of workmanship.

Some of the forces making for a general increase in tangible and intangible capital per worker and efficiency operate through the markets for labor and capital. Thus, when savings make tangible capital plentiful in relation to labor and when the services of labor become more expensive than the services of tangible capital, managers in all industries—and also in governmental enterprises and bureaus—find it profitable or economical to increase the volume of tangible capital per worker. When education levels rise as the result of higher private expenditures on education

because of higher incomes and expanded government support, the relative prices of high-quality labor tend to fall and industries everywhere find it profitable to seek ways to put the improved labor to use.

Another widespread source of growth is diffusion of new products by the market system. When technological developments are potentially versatile enough to be put to use in different industries, sooner or later the profit motive and competitive pressures see to it that they are used in different industries. In all these industries, technology, wherever it may originate, helps to raise efficiency in the use of labor and capital. Because many technological developments—the steam engine, the computer—must be embodied in equipment or other tangible capital and operated by trained people, these developments also add inducements to increase capital per worker and employ better educated workers or train them on the job.

Other knowledge—of innovations in production layout, or materials, or marketing methods, or business organization—which initially appears to be of use only in a few industries may sooner or later be adapted to the peculiar conditions of other industries. This is the history of the principle of interchangeable parts, scientific management, and plastics. Further, the results of R. & D., whether done privately or by government, are disseminated widely by an active diffusion industry made up of firms and consultants whose business it is to convey and adapt new knowledge, as well as by various governmental agencies.

The forces that make for an increase in labor productivity operate broadly across the entire economy. They may affect different industries at different times and in different degrees. The revolutionary changes in this or that industry will stand out and become well-known. But in every industry a host of small technological innovations, which are often unnoticed by outsiders, crop up almost continuously over the full range of economic activity and exert their cumulative effects.

In short, the high productivity of the American economy is the end result of a great many different activities involving decisions by millions of scientists, engineers, and technicians in laboratories and industry; educators in schools, universities, and training centers; managers and owners of production facilities; workers and their families and unions; and government officials. Increase of this country's output per hour over the long run is the result of the energy, ingenuity, and skill with which all of us, individually and as a Nation, manage our resources of production.

FACTORS IN THE SHORT-RUN CHANGES OF PRODUCTIVITY

The factors that account for long-run changes in productivity also have a role in the short-run changes. However, the process of short-run change has some special characteristics which are important to understanding the patterns of productivity change during business cycles, to appreciating the changes in productivity which the business expansion underway may be expected to bring in the months ahead, and to seeing the bearing of these changes on the problem of business recovery and inflation.

Productivity and business cycles

During the initial stages of a typical business expansion, the rate of capacity utilization rises rapidly as output increases, substantially contributing to greater labor productivity. One reason is the "overhead" or "fixed cost" character of a substantial fraction of the labor employed. When output rises during business expansion, the greater volume is spread over the "fixed" work force, and output per hour therefore increases sharply.

However, as expansion proceeds, the percentage of capacity utilized may exceed the most efficient level of use. Obsolete equipment may be brought back into use to meet the pressure of orders. Hours of labor may exceed the normal length of the workday, with overtime straining workers, management, and equipment. Absenteeism and turnover also increase when overtime is prevalent. Labor shortages may necessitate the recruitment of less experienced candidates to fill open jobs. Shortages of labor, materials, and transport may occur. Deliveries of materials, parts, and supplies may experience longer and more frequent delays. If productivity continues to rise, it tends to do so less rapidly than in the early phase of the expansion.

Eventually the typical business expansion approaches its end and business activity slows down. Because postwar recessions have usually been mild and short-lived, employers have tended to retain their work force at full strength as long as possible in expectation of an early upturn. While the "overhead" fraction of labor has grown over the years, this pattern of behavior also means less than full use of plant and labor and lower productivity.

However, as the contraction continues, conditions which are particularly favorable to raising productivity begin to emerge. New and technologically superior capac-

ity is put into operation—in fact, the high point in new equipment installations, resulting from orders placed during the previous expansion, occurs sometime after the beginning of contraction. Time becomes available for shaking down and "debugging" the new equipment. The available work is shifted from old standby to new equipment, which usually has higher productivity. Management's adjustments to falling output and labor's adjustments to falling employment finally result in cost reductions. When the upturn begins and output is expanded, the increase in productivity, which is already as a rule underway, is accelerated.

Productivity and the problems of business recovery and inflation

If the rapid increase in output per hour which occurs in the beginning of a new expansion can be prolonged, the expansion phase will tend to be extended. To a degree, the forces which tend to depress productivity as the recovery continues can indeed be resisted. Some that tend to improve productivity can be bolstered. Therefore, it is important that management, labor, and government be alert early in the expansion to opportunities for joint action to strengthen productivity growth.

The continuation of productivity growth is especially important in the later stages of the expansion, for just at this time shortages of labor and other inputs tend to raise costs and the rate of increase in output per hour usually drops off. This combination of more rapidly rising costs and less rapidly rising productivity usually results in costs per unit of product rising more rapidly than before and more rapidly than prices. In turn, this acceleration tends to depress profit per unit of output.

Maintenance of a high level of productivity growth during the later stages of expansion would tend to sustain increased output. Although production is rising, it is usually rising less rapidly than in the middle and early stages. When growth in output per hour is seriously retarded, the decline in unit profits may be sufficient even to push down aggregate profits before the peak in volume of business is reached.

Such developments in costs, profits per unit, and aggregate profits have obvious effects on the expectations of businessmen and investors generally. They contribute to the decline in investment commitments which generally helps to bring on a recession. At this stage of business expansion, vigorous efforts to counteract the tendencies to depress productivity would help to maintain a high level of production and employment.

With regard to inflation, a higher rate of productivity gain can help reduce the pressure of rising hourly compensation on unit labor costs, and thus also on prices. Many factors besides productivity—such as monetary and fiscal policies, material shortages, cartel pricing, and the volume of world demand—determine the general price level and the rate at which it moves up, with productivity hardly the most important of these. Nevertheless, through its effects on costs and, through costs, on prices, the influence of productivity is not negligible. By helping to lessen inflation, higher productivity could also contribute favorably to the morale of both labor and management.

DISTRIBUTION OF THE GAINS FROM HIGHER PRODUCTIVITY

The dominant factor in the 75 percent increase in average real income per capita between 1948 and 1973 was productivity growth. This does not necessarily mean that the increase was widely distributed among the people. That depends on what happened to the distribution of families by size of income during the same period. The crucial additional fact is that the size distribution of income changed but little over the postwar period. (If anything, it became somewhat less, rather than more, widely dispersed.) Combining the two facts, we may conclude that on the average the real incomes of families at *all* levels of income also rose by something like 75 percent. We may say, therefore, that in this general rise in income, the dominant factor was also growth in productivity. The gains from higher productivity in the form of per capita income—and also more leisure—were indeed very widely distributed among our people.

This distribution may also be expressed in terms of the conventional categories of income going to labor and to capital. Put in these terms, the gains from productivity growth reached workers in the form of higher real wages and better fringe benefits, to which may be added something for net improvements in working conditions. The gains from productivity growth reached investors and savers in the form of a more or less sustained rate of return on their capital—a rate that would otherwise have been pushed down as capital became relatively more plentiful and therefore cheaper in relation to the number of people in the labor force. The gains from productivity reached the public at large, including those in the lower-income groups possessing neither capital nor able to perform remunerative labor, as higher government tax revenues from increased real national income enabled the Federal, State, and local

governments to provide more and better public services and to alleviate the lot of the poor.

Productivity and the real compensation of employees

The process by which the gains from higher productivity are distributed is part of the same process through which productivity itself is raised, and the same factors play a role in both. This may be seen by tracing the links between productivity and labor income.

A person who reads about large-scale negotiations in the newspapers or who walks by a picket line might suppose that the major market forces which affect real wages are labor unions, which try to raise wages; business people, who try to keep wages down; and government, which sometimes seems to be trying to do both. Although all market forces operate through people—workers, employers, government officials—it would be wrong to think of them as influencing earnings only when they are involved in activities that get into the news.

In the long run, workers influence the real wages and salaries they receive, mainly by devoting time and effort and money to improving the quality of the labor services they can offer and by moving from jobs that pay less to those that pay more. Unions are important in labor-management relations, it is true. They influence the conditions of work, the production process, and, undoubtedly, the money wages (and even the real wages) which their own membership receives. There may also be some "spillover" effects of wage increases on the wages of nonunion workers in the unionized industries. But unions have only a modest (if any) effect on the general level of real wages. In part, this is because less than a fourth of the labor force is unionized. In part, it is because the power of a union—even the strongest—is limited by competition between its members and workers in other industries or other places (sometimes other countries) and by competition between members and machines or other labor substitutes. When wages are pushed up too rapidly, work tends to be shifted to workers elsewhere or to substitutes that would otherwise be too expensive.

In the long run, business people influence the wages and salaries they pay by activities aimed at making profits for themselves. They develop new products, try new materials, improve methods of production, open new markets, invest in more and better capital equipment. They seek the labor needed to operate their equipment and to use the new methods and materials. They may often go to considerable expense to enable their help to work with the new machinery, methods, and materials by training the workers on the job. And they combine their labor, capital, and technology in the most efficient manner possible to produce the old and new products that offer the best prospects of profits. Business people in an industry may get together to fight a large wage increase; but it is just as true that they are almost always competing for labor with one another, with other industries, and sometimes with other countries.

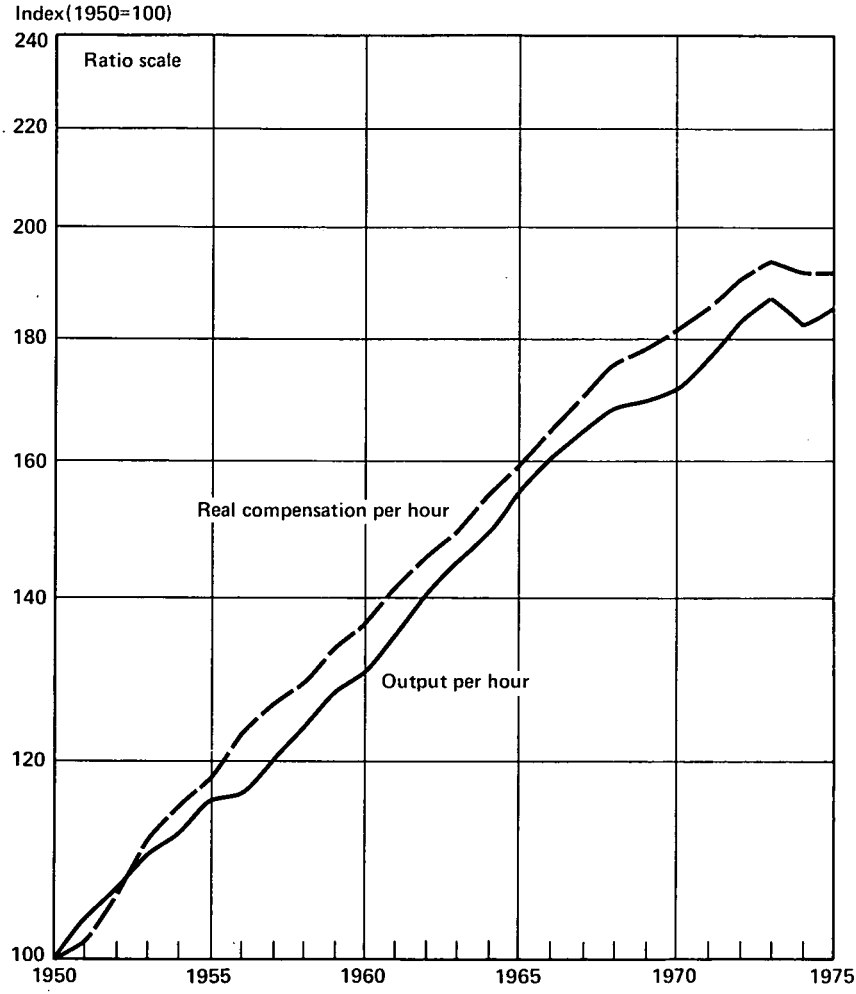
In the long run, government's influence on the real wages and salaries received by workers throughout the country occur less by intervention in the wage-determination process than by other activities. Real wages are pulled up when government devotes its energies to strengthening law and order, improving public services, removing physical and other obstacles to trade and the movement of people, capital, and enterprise, educating the young and informing the old, stabilizing the economy, and supporting the research, dissemination of information, and other activities that can yield rich returns to society at large. For example, minimum wage laws, like school attendance laws, generally follow rather than lead the prevailing practice in the United States.

In short, the average national real wage and salary rate is pushed up mainly by improvement in the quality of labor, by investment in tangible capital, and by increased efficiency in the use of labor and capital. An increase in any of these will exert an upward pressure on average wages and salaries by making labor more valuable in production. For in the long run at least, there is enough competition to ensure labor a wage or salary commensurate with its value in production.

The index of national labor productivity—output per hour—reflects all three of the influences named, appropriately combined. We may expect, therefore, that the trend in the national real earnings rate will move closely with the trend in the national labor productivity index. The historical facts support this expectation. There is, for example, a very close similarity between rates of change in real earnings and in labor productivity when the rates are measured by trends over the quarter-century between 1948 and 1973. (Chart 6.) Output per hour rose at an annual rate of 3 percent; and real hourly compensation, at a rate of 3.1 percent.

Chart 6

Output per Hour and Real Compensation per Hour Have Risen at the Same Rate Until Recently



Source: U.S. Department of Labor, Bureau of Labor Statistics.

However, the degree of similarity is somewhat less when shorter periods are examined; and when year-to-year changes are compared, there is still less similarity. Sometimes changes in real earnings from one year to the next are substantially greater than the corresponding changes in output per hour, and sometimes they are substantially less. Occasionally, even, the two move in opposite directions. This is because the major factors underlying the long-term trend in real hourly earnings do not exert their effects without delay, interference, or interruption. Other factors, which wash out in the long run, also play their part and are important in the short run.

To illustrate: Changes in the general level of prices are in effect put aside when money earnings are deflated and we concentrate on real earnings. This procedure is sufficient to exclude the effects of changes in price levels from the long-term trend of real earnings. But it cannot exclude all the effects of price level changes from the shorter-term changes in real earnings. Delays are frequent in the response of money wages to changes in the cost of living; and delays may be even longer in the response of salary rates to changes in the cost of living. A speeding-up of price inflation, for example, will tend to be followed by a speeding up of the rate of increase in wages and salaries. But for a time there may be a decline in the rate of growth of real wages and salaries. Indeed, when the price level accelerates very sharply, real salaries and even real wage rates may actually fall for a while, not simply rise less rapidly than before. When there is a slowing-down of price inflation, these lags will tend to work in the other direction.

Parallel trends between productivity and real wages are characteristic of the general level of real wages and the trend in national productivity. It is important to understand that this close matching of trends is not characteristic of the trend of wages in an individual industry and the trend in the industry's own productivity.

The explanation for the difference can be found in the way the economy operates. Suppose wage and salary rates in the electric power utilities, or in any of the industries in which labor productivity had risen very rapidly, were pushed up by their rapid increases in labor productivity. Suppose, also, that wage and salary rates in barbering or other industries in which labor productivity had risen very slowly were held down by their slow increases in labor productivity. What would result? Disparities in wages and salaries between these two groups of industries would become enormous—indeed, untenable. Even the most severe obstacles to competition, obstacles not only between workers, but also between workers and substitutes for workers in the form of machines and materials, could not preserve such disparities. In fact, large disparities could not arise in the first place, except in the most exceptional circumstances, or last very long when they did appear.

The historical information on trends in individual industries supports this reasoning. The long-term rise in real hourly earnings in an industry has been closely related to the rise in national output per hour but not to the rise in that industry's own output per hour. In fact, the relationship between the long-term change in an industry's hourly earnings and the long-term change in its own output per hour is small and not significant. This means that trends in the real wages of individual industries, as well as the trend of the national average real wage, were dominated by the economy-wide factors summarized by the trend in national output per hour. Hourly earnings in individual industries moved up more or less together—something to be expected in an economy in which workers and employers respond to wage differentials.

However, this is not to say that we should find closely parallel changes among the average rates of wages paid by different industries, and it would be surprising if we did. The American economy is one in which economic advance has brought not only greater efficiency, improved quality of labor, and more tangible capital per worker but also other changes—in the type of labor used by different industries, in the relative scarcity of the skills they employ, in the incentives they offer workers to accept technological and other changes, in the values placed on the various nonpecuniary advantages and disadvantages of working in them, and in other determinants of demand and supply. So continuous has the flow of these changes been that adjustment to them has never been completed. Therefore, also to be expected are exceptions to the rule that wages in different industries move together, paralleling national output per hour, and these exceptions appear in the record.

Productivity and relative price changes in individual industries

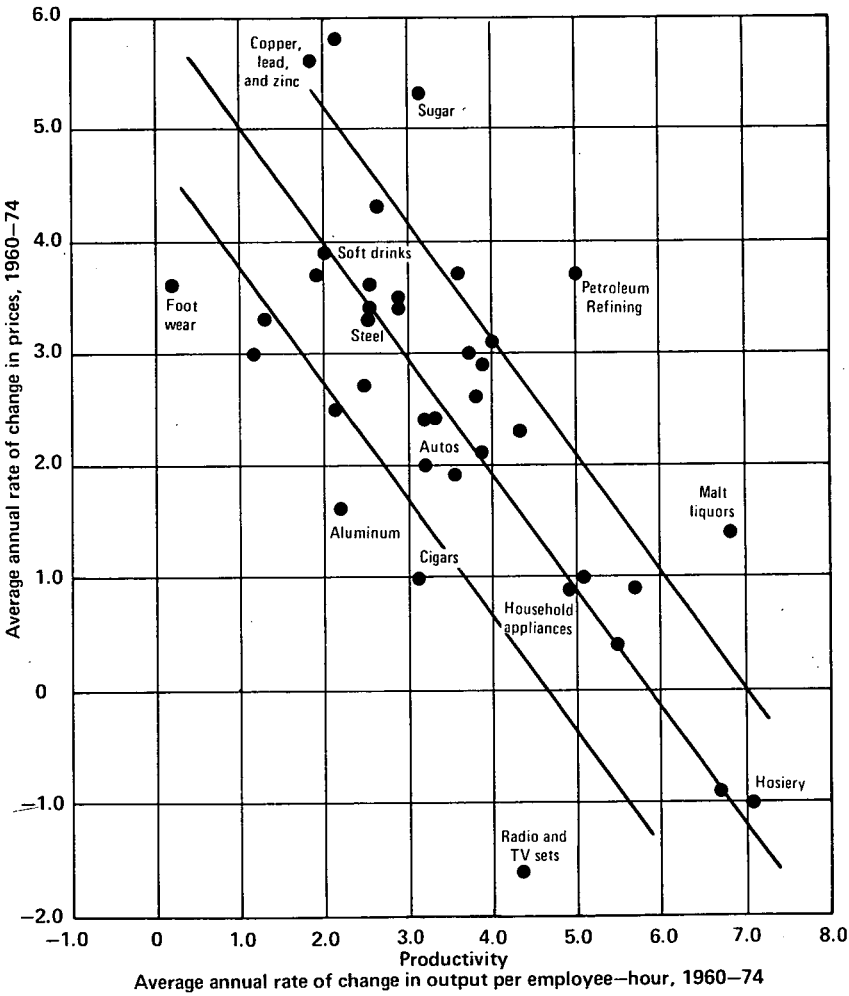
All industries, with few, if any, exceptions, have experienced long-term rises in output per hour. But the rate of increase has varied greatly (recall Chart 4). If industries whose productivity rises over the long-run more rapidly than the average have not pushed up their wages more rapidly than the average, to whom has the

benefit of their higher productivity growth gone? A similar question may be raised about industries whose productivity rise has been less than average, but whose wages have generally tended to keep up with the general wage level. Who has had to pay for the higher wages?

The main part of the answer to both questions is that firms with above average productivity growth have, as a rule, voluntarily or under the pressure of competition reduced their prices; or, during inflation, raised them less than prices on the average. An extreme example is the hosiery manufacturing industry. It increased its output per hour at the extraordinary rate of 7 percent per year between 1960 and 1974. And its selling price declined—despite the general inflation—at the annual rate of 1 percent. In contrast, industries with below-average productivity growth have generally raised their prices more than the general run of prices. An example is primary nonferrous metals, with a rate of increase in output per hour of under 2 percent per year, and a price increase of over 5 percent per year, between 1960 and 1974. Consumers gained from the one and paid the cost for the other. (Chart 7.)

There is more to the story, however. Consumers tended to buy more of the new cheaper, and less of the now more expensive, goods and services. And when the more expensive goods and services—health services, for example—were wanted despite their higher relative prices because cheaper substitutes were not available, consumers could generally afford them because their incomes were rising with the increase in national productivity. The higher costs thus tended to be offset. On net balance, the consumer price index has risen less than the money incomes of consumers.

Chart 7
Industries With Above Average Productivity Growth Tend to Show Smaller Price Changes



Source: Bureau of Labor Statistics, U.S. Department of Labor.

To avoid confusion, it must be kept in mind that the relationship between change in the general price level and change in national or overall productivity is *not* being described. The determinants of the general price level lie primarily in the monetary and fiscal realm. They are not the only factors, however, since the price level depends also on the supply of goods and services that is being "chased" by the money and on the amount of cash people want to hold. Productivity does help determine the supply of goods and services, as was noted earlier, and this can be a significant factor in accounting for the behavior of the general price level in the short run. But productivity is usually only a minor element in the determination of the general price level in the long term.

It has already been suggested why changes in the relative productivity levels of industries would be associated with changes (in the opposite direction) in relative price levels, but it is worthwhile to specify the reasons.

Given time for the necessary adjustments, competition makes for equality of price and cost per unit (including a normal profit), therefore of relative price and relative cost per unit, and therefore also of changes in these. A major determinant of cost per unit is productivity—output per hour. When productivity rises, less labor is needed to produce a unit of output, and costs tend to fall. We saw that all, or virtually all, industries have experienced a rise in productivity. But the rise was large in some industries and small in others. In those industries in which the rise was large, costs per unit tended to fall more than in the industries in which the rise in efficiency was modest. Under the pressure of competition, relative prices adjusted themselves accordingly.

Although we should expect, and we find, changes in productivity and price to be related, we should not expect, and we do not find, the relationship to be at all perfect. Productivity is a major determinant of price, but it is not the only determinant. The relative price of an industry may therefore change more or less than appears to be warranted by its relative productivity change, even given time for adjustment. How much more or less will depend on the importance and behavior of the determinants other than productivity. Sometimes they are so powerful as to cause relative price and productivity to move in the same rather than in opposite directions.

Among these factors that influence the relative prices of an industry's products but are not covered by our measure of productivity are changes in the efficiency with which materials, fuel, and services purchased from other industries are put to use. When fuel, for example, is especially important to an industry, as it is to electric power stations, and economies in the utilization of fuel have been very great, the costs and therefore the relative prices of the industry will tend to fall more than would be suggested by the change in its use of labor alone. The result will be the same if an industry has learned to get much more out of its raw materials by using better extractive processes and by turning wastes into useful byproducts, as has the cottonseed products industry, or if it has learned to make a more satisfactory product with a thinner coating of protective material, as has the tinplate industry.

The relation between price and output per hour will be altered also in industries that have increased their purchases of capital goods, materials, fuel, and the like, per unit of product, in order to economize on their own labor. The prices that an industry has to pay for its nonlabor inputs are also involved. When these prices rise more rapidly than the prices paid by other industries—all other changes being equal—we may expect the relative selling prices of the industry to rise more rapidly than would be indicated solely by the change in the industry's own relative productivity. The electric power industry, greatly affected by the surge in petroleum prices since 1973, again provides the example.

The prices of different raw materials, fuel, and equipment do not move closely together, for the industries producing them do not experience similar rates of productivity increase. Even wage rates (which move much more closely together in different industries than do other input prices) do not exactly parallel one another. In effect, then, the factory price of a refrigerator will reflect changes in the efficiency of every industry that is directly or indirectly involved in the production of refrigerators—not only refrigerator manufacturing, but also trucking, power, and the industries which produce electric motors and compressors, cartons, steel sheet, paints, and so on. Looking in the other direction, the productivity of the paint manufacturing industry, and the price of paint, will influence the price of all products in which paint is used—which means virtually every product. But the influence of the price of paint will be greater in some cases than in others. The relation between any particular industry's relative price and relative productivity is thus bound to be loose.

When an industry is not fully competitive, that, too, may influence the relation between the price of the products and its productivity. The adjustment of prices to changes in productivity will be impeded. But this is largely a short-run factor, usually overcome in time. In the long run, competition is felt in most industries.

When the period of time is short, however, imperfections of competition and other factors make for more and bigger differences between changes in relative price and in relative productivity than when the period is long. Lags become important. Less time is available for adjustments of prices to costs as conditions alter. Even with allowance for anticipations, the correlation between price and productivity is weaker.

The immediate impact of increased demand, for example, is largely on price and profits. Prices go up and so do profits. Until new plants are constructed by companies already in the industry, or by outsiders attracted by the high profits, prices will be "out of line" with costs and with productivity. Decreases in demand work in the other direction. The initial impact is on relative prices and profits, and prices will remain out of line with costs and productivity until capacity has been retired.

There are also temporary rises and falls in demand during business expansions and contractions of the kind described earlier. These cyclical changes in demand, and the other developments that take place during business cycles, will make the short-term relation between prices and productivity somewhat different from the long-term relation. The difference will be greater in the "cyclically sensitive" industries than in those with stabler demand.

PRODUCTIVITY AND EMPLOYMENT IN THE LONG RUN

One of the most significant sources of resistance to productivity improvement is the widespread association of the concept with the loss of jobs and unemployment. The question of labor displacement has troubled people since the early days of the machine age. There is no doubt that automation, mechanization, or any advance which makes for higher labor productivity can wipe out jobs. The immediate effect of increases in output per hour is to reduce employment per unit of output. If output is unchanged and hours of work remain the same, this reduction in employment per unit makes for a reduction in the industry's aggregate employment. However, if output is increased, employment can remain the same or be expanded.

Important indirect effects of productivity increases can result in such output increases. A rise in an industry's productivity also presses down on the price of the industry's product. If productivity rises rapidly, reduction in production costs and in selling prices will follow. (Recall Chart 7.) With demand responding to the reduction in price, output will rise and thus partially or wholly offset the effect of higher output per hour on employment. If demand is sufficiently responsive to the decline in price, the resulting rise in output could even exceed the rise in output per hour. The number of hours worked by all persons in the industry would then go up, not down.

The historical record shows that this is not infrequent. In the long run, industries whose productivity has risen more rapidly than in the whole economy have often raised their employment by a larger percentage than industry generally, and not by a smaller percentage, as might be supposed. Correspondingly, industries whose productivity has seriously lagged, such as footwear, have often raised their employment less than industry generally or have actually cut employment.

On the other hand, in some industries, relatively rapid increases in productivity have been accompanied by relative or even absolute declines in employment. Hosiery manufacturing, cited earlier as an outstanding example of rapid productivity increase, is an example also of a sharply declining employment, which was cut almost in half between 1947 and 1974. Other examples include industries where output rose little or not at all, such as railroads and coal mining.

Another important fact stands out in the historical records. While output per hour rose more rapidly after than before World War II, the rate of unemployment of the labor force as a whole averaged less after than before the war. It is also noteworthy that Japan and many European countries have substantially lower rates of unemployment but faster rates of productivity increase than does the United States.

The course of employment in an industry also reflects what has been happening to productivity in the country at large. The increase in national productivity and the higher income it has brought have tended to raise the demand of workers in individual industries with increasing productivity. This often offsets the direct adverse effects of the industries' own productivity changes on employment.

The effects of increased income were especially great on the output and employment of industries which produce the goods and services that people buy more

freely as they become more affluent and are able to pay higher prices. Increased national productivity helped sustain and often raise employment in these lower-productivity industries. Many of the health service industries, as has already been mentioned, provide examples of rising prices accompanied by rising rather than falling demand.

Further, unemployment is not necessarily created by declining employment in an industry. When the pace of decline is slow enough, normal attrition by retirement can contribute to avoiding displacement. In addition, although technological change may destroy jobs, it also creates new jobs. Workers are often attracted to these by better pay, and go off to them voluntarily even before their old jobs have become obsolete. In an expanding economy, such shifts can be made with a minimum of lost time.

Yet it is a fact that technological and other changes within an industry can create serious problems of personal adjustment. Not everybody whose job has become obsolete is ready for retirement, or can move off to a new job elsewhere at the same rate of pay and fringe benefits. The introduction of a computer may create new jobs for programers, but displace those whose skills or specialties have become obsolete. Thus, the effects of technological change on particular groups of workers can be serious, even if total employment in an industry is little changed.

The effects of technological change, and also of increases in scale of enterprises as old methods of doing business become obsolete, have posed similar problems for owners of small businesses. The declines of self-employment, it was noted earlier, helped raise productivity by improving the allocation of resources. By the same token, this meant a difficult period of adjustment for many small farmers, owners of "mom-and-pop" stores, and operators of handicraft establishments.

The problems of adjustment depend, however, not only on the rate of technological development but also on the capacity of the country to adjust. There is evidence that this capacity has grown on net balance. A higher level of education, better transportation and communications, a greater reserve in the form of savings—all identified among the sources of higher productivity—also help to ease the problem of adjustment.

In addition, improvement has occurred in aids to adjustment, including unemployment insurance, employment services, retraining programs, public service employment, and pension vesting. There has also been improvement in private arrangements. Through collective bargaining, programs have been adopted for manpower planning for attrition, advance notice of change, employee reassignment and retraining, and separation programs which provide benefits in case of involuntary early termination. Rather than responding to adjustment problems by impeding technological development or the other factors which make for higher productivity, surely arrangements of this sort are to be preferred. Society as a whole benefits from increased productivity; it should help to shoulder the problems of adjusting to the changes that bring increased productivity.

PRODUCTIVITY GROWTH AHEAD

On the basis of past experience and our understanding of the factors involved, we can be reasonably confident of two future developments in the level of productivity. First, output per worker-hour will continue its cyclical expansion, although probably less rapidly than during the initial period of recovery from the recent recession. Second, the long-term trend of productivity, averaging out the current and any later cyclical fluctuations, will be upward.

What we cannot be confident about is the precise speed at which productivity will grow over the years and decades ahead. That depends in part on certain developments in the economy that have already taken place—such as changes in the age distribution of the population—about the effects of which we know something, though not everything. It depends in part on future developments over which we have some considerable control—such as the rate of capital formation and of investment in education and R. & D.—if we choose to exercise it. Finally, the speed of productivity growth depends on future developments—changes in the weather here and abroad, of course, and economic and political changes in other countries—over which we have little or no control, although we can always try to offset any dampening tendencies the changes may have on our productivity growth.

It is for these reasons that productivity projections are usually accompanied by "conditions" or assumptions, and are often offered in the form of two or more alternatives. But even these conditional forecasts involve a strong element of judgment. They are selected as the most probable, and therefore as the most deserving of consideration, from what is inevitably a wide range of possibilities. The fact that a projection is based on the past trend does not preclude the need to choose. One

could project to 1985 the average rate of productivity growth during 1948–73, or only during 1960–75; and one could assume a constant rate of growth or allow for a degree of retardation. The results will differ considerably. And whatever the projections selected, they are always subject to revision as events unfold and judgments about the effects of past and future developments are reconsidered.

In the list of proximate sources of productivity growth previously discussed, we can be fairly definite, at least about their direction. Even with regard to these, however, we may not ignore the conditions to which they are subject. And for none can precision be sufficient to make it desirable to cite here such quantitative estimates as have been made.

One of these sources is the shift in the age-sex composition of the labor force. The influx of a large number of new, inexperienced (though well-educated) young people and women, which tended to depress productivity in the late 1960s, will no longer be a factor. Over the next 10 years, the youngest age group in the labor force will diminish in relative importance, and the fastest growing group, in relative terms, will be the more experienced ages of 20 to 34, the result of changes in the age structure of the population set in motion years ago when the birth-rate rose and then declined. On the other hand, the proportion of women in the labor force is expected to continue to rise. The net effect of these two changes on productivity growth during the next decade will be negative, as in the past, but much smaller than in the past. The decline in the negative contribution of the age-sex factor will make for acceleration in the rate of productivity growth. It is possible, further, that the negative contribution of the sex factor could decline—and even eventually vanish—as sex discrimination diminishes and the abilities of women are put to more effective use; but here we are looking much farther into the future.

Another factor about which we can be fairly clear is the prospective reduction in annual hours per job. These are expected to continue their long-run decline, but probably less rapidly than before. Also, the gain in efficiency resulting from a given reduction in hours tends to diminish as the level of hours declines. For both reasons, the contribution of this source of increase in productivity may be below its level of 1948–69 (table 6), thus tending to make for retardation in productivity growth.

A third factor is improvement in the level of education of the labor force which also may be expected to continue. But as already evident during the past decade, this improvement will proceed at a less rapid rate. The percentage of workers completing four years of high school, for example, already approaches something close to a maximum. Education, then, may still be expected to make a positive contribution to productivity growth, but it will be somewhat less than the contribution in recent decades. This also, then, will tend to reduce the rate of productivity growth.

Still another factor on which we can be reasonably definite is improvement in the allocation of resources resulting from the shift of workers from farm and nonfarm self-employment to more advantageous occupations. The number of persons employed in agriculture is already below 4 percent of the labor force, and while it may be expected to shrink further, this will be at a slower pace, and contribute less. The effect of a decline in nonfarm self-employment will be in the same direction. This factor, then, is a retarding one, when we look ahead.

With regard to tangible capital, we must become rather less definite. Looking back, there does not appear to be any sign of retardation in the rate of growth of tangible capital, whether measured gross of depreciation reserves or net, whether inclusive or exclusive of land. If the postwar rate of growth of tangible capital should continue and the rate of growth of the labor force should decline as is expected, capital per worker would go up more rapidly than before. This would tend to raise the rate of productivity growth. Further, talk of the need to stimulate tangible capital formation and bring its ratio to GNP up closer to that of other industrial countries may lead to more action than it has so far. If such efforts were made and were successful, the contribution of growth of capital to raising the rate of productivity growth would be even stronger.

About such a factor as the economies of scale, we may be reasonably sure that it may be expected to contribute, as in the past, to the future growth of productivity. Whether the contribution will be more or less than before is uncertain. Involved here are questions about the technological advantages of larger-scale industry in comparison with the economic benefits of more competition and the choice to be made among relevant policies.

Attention has sometimes been drawn to retardation in the rate of productivity growth in individual industries as they become "mature," to explain retardation in national productivity. There is, indeed, a tendency for productivity in individual industries to grow at a declining rate as their technological possibilities become

more fully exploited. However, new industries are always cropping up in a dynamic economy, and old industries occasionally experience technological breakthroughs. In such industries productivity generally rises at unusually rapid rates. The net result need not, and over the long-run has not, meant retardation in the productivity growth of industry as a whole.

As we look ahead, the crucial factor in this and other connections is the degree and character of technological change. Technological change, or more broadly, advance in knowledge, has been estimated to be the largest single factor accounting for productivity growth. What the rate of advance of knowledge will be in the future, and in particular whether it will be faster or slower than in the past, is hard to say.

Even the contributions to productivity growth of past advances in knowledge are uncertain. What is reported in table 6 is not a direct measure but only a residual, and in any case it covers the effects of causes not elsewhere classified. Direct measures, paralleling the estimate of the contribution to productivity growth of increases in tangible capital, are possible in principle, but the calculations are very largely hypothetical in character.[5] This much can be said, however: National Science Foundation estimates of R. & D. expenditures (in constant prices) declined over the past decade, not only in relation to GNP but absolutely. (Chart 8.) The big cuts came in Federal Government expenditures on R. & D. for defense and space programs. But even if it is presumed that these contributed little to productivity advance in the private sector, the behavior of the total excluding them is not encouraging. "Civilian" R. & D. so defined did continue to move upward between 1967 and 1976, but at an average annual rate substantially below that before 1967—only 2 percent per year as against 8 or 9. On almost any plausible estimate of the deduction to be made, against current expenditures, for depreciation and obsolescence, the net stock of knowledge attributable to R. & D. must have risen less rapidly during the past decade than before.[6] This, in turn, must have contributed to the retardation in the rate of growth of output per hour noticed earlier (Chart 3)—and significantly, if the social rate of return on investment in R. & D. is as high as it is reputed to be among those economists who have studied the subject.

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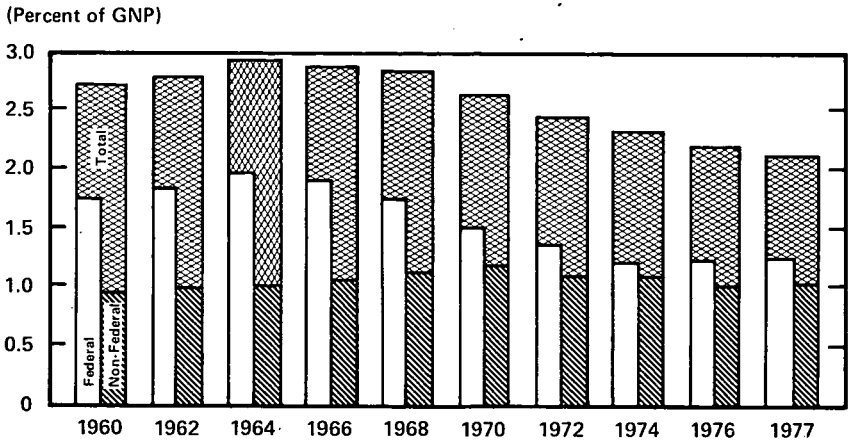
[5] Something is known of expenditures on R. & D.—a major activity in the production of technology, but by no means the only one. What is not known, or not known with sufficient accuracy, are the relevant rates of depreciation and obsolescence and the income earned on intangible capital. In the calculations mentioned, these are assumed, usually in the form of a range of presumably reasonable possibilities. Calculations of this sort have most recently been published by the National Planning Association.

[6] At a high enough—probably unreasonably high—rate of depreciation, the calculated net stock of knowledge attributable to R. & D. would show a decline. Another assumption needed in order to estimate the contribution of R. & D. to growth in output per hour concerns the efficiency with which dollars of expenditure on R. & D. are converted into increases in knowledge. The violent fluctuations in the Federal Government's support of R. & D. could hardly have failed to lower the efficiency with which research and development, and especially basic research (which is very largely supported by the Federal Government), is planned and carried out.

Chart 8

Growth in R&D Spending Has Not Kept Pace With Increase in GNP Since 1964



Source: National Science Foundation (both)

As for the future, the NSF projects a higher rate of increase in real investment during the next two decades than during 1967–76, but not nearly as high as the rate before 1967. If the NSF's projection is applicable to civilian R & D (no breakdown is given)—and the projection is realized—growth in the type of knowledge generated by R. & D. will tend to raise the rate of growth of productivity.

The increasing relative importance of the service industries, many of which—not all—are characterized by comparatively low levels and slow rates of productivity as conventionally measured, has also been offered as a factor accounting for retardation of productivity growth, and as tending to dampen this growth also in the future. The BLS measures of productivity exclude government, which is a large part of the service sector, because of deficiencies in the measurement of its output. The private service industries suffer from a similar handicap, but they are not excluded from the measure of output per hour in the private business sector. It is not at all clear, therefore, that the conventional measurements accurately reflect what has been happening to productivity in the service industries—and some doubt attaches also, on that account, to the measure for the entire private business sector, but to a lesser degree.

It may well be, as many believe, that technological, organizational, and managerial innovations in such service industries as retail food, hospitals, and banks, as well as government, have been relatively few. Steps taken to develop and apply these innovations more quickly and extensively would of course cause productivity in these sectors of the economy to rise more rapidly. If there is a dampening effect of the shift to services on the average rate of productivity growth, it would be lessened. But this could just as well be said of many commodity-producing industries.

As we look to the future, it appears likely that capital spending for modernization and expansion of plant and equipment for production will be increasingly in competition for available funds with programs for expanding energy supplies, improving the quality of the environment, and meeting health and safety standards on and off the job, as well as for housing and still other social needs. It is not clear what this competition will mean for productivity growth. Standards and means to implement them are still in the process of being worked out. By most estimates, however, the effect could be significant and in a downward direction. In contemplating this possibility, it is important to understand that investment in these programs can have a favorable feedback on labor quality, and thus serve to offset some of the retarding effects on productivity caused by a slower rate of increase in what is narrowly viewed as "productive" plant and equipment. Further, solution of pollution problems can and often does mean more effective use of the raw materials and waste end-products which now constitute the pollutants. Investment in the reduction of pollution can be profitable—or less costly than is commonly supposed—to business as well as to society at large; productivity need not necessarily be reduced, or reduced significantly. Finally, improvement in the quality of the environment,

reduction in illness and accidents, and provision of better housing, apart from their effects on productivity, yield benefits that are not now included in our conventional measures of national output. If these benefits were covered, output per hour might tell a different story. We should not let ourselves be misled, as we look ahead, by imperfections in our statistical measurements.

Also to be remembered are speculations, some of which were mentioned earlier, about the effect on productivity of such more basic factors as the deterioration of workers' attitudes; the "devaluation" of technology and growth; a tendency toward slackness on the part of management; impediments to savings, investment, and enterprise created by the tax system; government "interference"; and imperfections of competition. It is not possible, in the present state of our knowledge, to weigh these factors. But they should not be disregarded on that account. Attitudes and economic policies can be of first-rate importance in determining the past and the future of productivity growth.

It should be evident by now that calculation of the net balance between the positive and negative factors which may be expected to influence the future trend of productivity is a risky enterprise. The complexity of the factors affecting productivity and the inadequacy of information about these factors make projections of past trends into the future of limited value. The slow rate of productivity growth in recent years puts us on notice, however, that things have not gone as well as we would like, and that we may also be disappointed in the future unless we give positive support to factors favorable to higher productivity.

POLICIES TO RAISE PRODUCTIVITY

Private policies

For the most part, productivity increases have been achieved as the result of private initiatives taken for economic benefit. Productivity gains depend primarily on increased investment on the part of individuals and businesses in training and education, in capital equipment, and in research into technology and other means of raising efficiency.

These sources of productivity growth can be strengthened by:

A better understanding of the substantial benefits of higher productivity.

The realization that these benefits are sooner or later, and directly or indirectly, distributed widely to all participants in the production process.

Learning how to lessen or counteract threats to job security which may result from efforts to improve productivity, without at the same time inhibiting productivity growth.

What is required are education, the wider and prompter dissemination of information, and research on the facts and the interrelationships among the facts that bear on productivity. There are significant roles here for labor unions, managements, professional associations, private research institutes, and the "media." A beginning has been made in industries and areas here and there in the effective performance of these roles. This movement should be pushed further and participation in the process of raising productivity widened and deepened.

Cooperation is important. Firms can join in supporting research on new materials, production methods, and new and better products, especially in industries in which the firms are too small to have their own research facilities. Cooperation between labor and management can help industries and jobs to survive and grow in the face of competition from other industries, other sections of the country, and producers abroad. Of particular value is labor-management cooperation in "internal work force adjustments to avoid worker displacement, assistance to workers facing or experiencing displacement, and other programs which seek to minimize the human costs of productivity improvement, thereby diminishing resistance to workplace change and improving productivity growth," to cite the words of the Act establishing the National Center.

However, the private sector cannot in all cases realize adequate gains for the Nation as a whole, because the incentives to do so are not always appropriate or strong enough or because they are blunted or misdirected by inimical laws, regulations, and governmental procedures. Therefore, private efforts need to be supplemented by actions taken by government in the broader context of public policy.

Government policies

The function of government in support of education and the gathering and dissemination of statistical and other information is already well recognized.

This is less true of research. Opportunities to raise productivity through research can be highly beneficial for the economy as a whole, but these are sometimes not seized when the potential yield is too small to the individual businessman. The

benefits of research in basic science, in particular, may not be able to be fully captured by the individuals or companies which would have to make the effort and bear the costs. Thus, without Government support there may be less investment in research than is necessary to sustain technological progress. The deleterious consequences of a decline in research, and particularly in basic research, may take decades to materialize. And it may take further decades to repair the damage done to the Nation's economic growth when these consequences finally become visible.

Governmental regulatory responsibilities also affect productivity improvement. Unfortunately, however, government policies do not always foster productivity. Recently, university economists focused public attention on a long list of regulatory actions which have had the effect of protecting industries from competition and that are detrimental to productivity. There is, again quoting the National Productivity Act, "a national need to identify, study, and revise or eliminate the laws, regulations, policies, and procedures which adversely affect productivity growth and the efficient functioning of the economy."

In other words, the government has responsibilities to improve productivity by removing obstacles to private enterprise, that is, to free private enterprise. A step in this direction is the Presidential requirement (Executive Order 12044) for an analysis of significant regulations which involves a "careful examination of alternative approaches early in the decision-making process"; also for every agency "to undertake a systematic, 'sunset' review of existing regulations to eliminate those which are unnecessary and reform others to reduce the burden to the minimum."

Finally, by making special efforts to improve its own productivity, government at all levels can make a major contribution. With relation to its role as employer, government has far to go in productivity improvement. Because government officials are not subject to the positive effects of the profit motive, they often lack the motivation to gain the skill and knowledge necessary to improve productivity in the operations they manage. It is undoubtedly an exaggeration of the facts to assume, as is done in the calculation of the national product, that productivity in government is virtually unchanging. There is plenty of evidence that even in government capital equipment per worker has increased and new materials and methods have been put to use. The first major civilian use of large-scale electronic computers, for example, was made by the Bureau of the Census. Nevertheless, there is evidence also of a lag in utilizing in government operations all the available means of raising productivity. This lag can be shortened.

The task of developing a long-range program to raise productivity must proceed on a wide front, for there is no single dominant source of productivity growth on which to concentrate. Involved, therefore, are policies relating to support of science and technology, capital investment requirements, development of management skill, manpower training and adjustment, the quality of the work environment, government operations, market structure, and many other factors. Further, national policies must take into account the specific problems of individual industries if they are to have practical results.

While all of these need to be considered in developing a long-range program, we should not forget that too little is known about the connection between a given policy and its results. For this reason, policy should be flexible and experiments with new ideas for improving productivity should be modest. That is, every experiment should provide prompt and reliable feedback on costs and benefits.

Representative BOLLING. Thank you.

It seems to me there are a variety of minor factors—not minor, but less important factors—which you tend to leave out, perhaps because they are less important, and perhaps some of them are more controversial.

The people who sympathize with organized labor, or are more sympathetic to labor than to business, tend to complain about the unwillingness of business to take chances on investment, and the people who have the opposite view are inclined to complain more about featherbedding and the harm the union movement has on the freedom of the business enterprise to make judgments, and these same individuals complain about government regulations, many of which, in their opinion, are unnecessary and time consuming.

There are other things that I suspect might have some effect. Perhaps a relatively minor effect but nevertheless I would like to know if there is any scientific support for the theory that at least some of the so-called "younger generation" have a rather different attitude toward the work ethic, than some of their badly scared fathers and grandfathers, who went through the depression; that they perhaps are not as intense about their jobs. I would also be interested in the effect of various movements by minorities and by women, to get a greater share of the action.

I wonder if these social movements, would in the opinion of the panel, have a significance that we are able to discern. Excluding regulation but considering investing, featherbedding and the modern attitude of the young. Do they have a significance that we are able to count?

Mr. FABRICANT. Are you looking at me?

Representative BOLLING. I am looking at you, because you are the last spokesman and you came closest to talking about them.

Mr. FABRICANT. All right. Let me say this by way of instance.

There are an enormous number of factors that could be specified. One of the major contributions of Ed Denison was in reminding Congress and the rest of us of that fact. When you begin to classify things into many, many little things, any one of them sounds like it is unimportant, and yet the sum of the infinitesimals, you may remember from high school—or was it college mathematics—can be a pretty darned big thing.

Therefore, I would not dismiss things because they are small. They add up when you group them.

There is another point, I think. We tend to concentrate on those things we can measure, in which we feel reasonably competent enough to put some kind of figure on, and neglect other things. But that doesn't make other things unimportant.

What can be more important than love? Put a figure on it.

I am reminded during our discussion of a statement that was made by an Englishman only a few years ago. The National Bureau of Economic Research had its 50th anniversary meeting, and Robin Matthews, a British economist, came down to comment on the particular subject of the meeting, which was economic growth, the same subject as ours.

After listening to the Americans, who had been talking about the kind of things we are talking about, he said that an Englishman would emphasize something else. What would that be? Attitudes of labor and management.

I think the fact that we can't put our finger on it in terms of estimates and quantities does not make it less important. This is one of the things I was trying to emphasize.

Representative BOLLING. That is the point I was making. One of the things that disturbs me, and I have been observing the policy making process for some time and I don't recall having seen a time when the various segments of the society were more specifically at each other's throats.

I am aware that the 1930's was a much more violent period, at least history indicates one, the verbal violence. But today, when you try to deal with the specific problems on the Hill, a piece of legislation like energy—I am on the Energy Committee—like taxes,

and I am not on that committee, but I watch it very closely, you find that one side has taken a position that there is too much Government and Government regulation is destroying the whole system, that the reason we aren't going to have any capital formation, and it is almost put in terms that bleak, is that the uncertainties are so great that it is hopeless, but that they, business, are very nearly perfect, that they are rightfully ready to do the job.

The other side, and this is speaking in very gross terms, says, "Well, the profits are excessive, and what we really need is greater demand, greater overall demand, and everything will be fine, and to hell with capital formation."

Now, those are old prods, and they have been going on for 50 years at least, and maybe a hundred. But today they are very sharp. It is almost impossible to achieve compromises. We, after months and months and months by a vote of 13 to 12 in the House and 10 to 7 in the Senate in conference, got a compromise, so-called, on natural gas pricing.

There is general agreement among the three of you—not precise agreement, but general agreement—about productivity. I think that is a fair statement. That is what we are searching for in this study, and what we are trying to do is figure out how we can analyze what has happened and what is going on today and what the future requires in a way in which we can lessen the shrillness of the policy debate.

The question I am asking this panel is, would we find, if we selected another panel, any very violent disagreement about productivity? That is an unfair question, but it is fair for me to ask it. [Laughter.]

Mr. FABRICANT. You mean what to do about productivity or about the facts of——

Representative BOLLING. Well, would most economists of all stripes agree with the general thrust of what you have been saying regardless of whether they are business economists or labor economists or what-have-you? Would they agree?

Mr. DENISON. I think they would, but some amplification is necessary. I am one of those who thinks classification is extremely important, and I have even written a separate article describing what goes here and what goes there in a classification of growth sources. But there is a strong tendency among a lot of people to become enthusiastic about some one source and, therefore, to form a classification in which that source swallows up most of growth. For example, if one wants to emphasize capital investment, he will say, "Tom Edison invented the electric light, but capital investment was needed to make its use possible." So he will transfer the contribution of advances in knowledge to capital.

There are also enthusiasts about education, and they say education is necessary to advance knowledge, so they will transfer the contribution to education, because he never went to college. Of course, Tom Edison is not their best case because he never went to college. My point is that I think if you use a common classification you wouldn't get terribly much disagreement about the statements the three of us on this panel have made. Now, the kind of topics you have just introduced cover questions about which nobody really knows much. I would also add this, as is often said, the fact

that you can't measure something doesn't prove that it is not there. But it also doesn't prove that it is.

Qualitative judgments are terribly difficult. For example, consider the suggestion that changed attitudes toward work have impaired productivity. This could be important, and many people believe it is. Indeed, when I am quoted as saying that productivity has gone down sharply, that I can partially explain why but there is a big part of the drop I can't explain, people call me up on the telephone to give me the answer. About three out of four tell me, "You idiot, you should know the trouble is that people, especially young people, don't want to work any more." I get other suggestions, too—for example, that the problem is the 1969 capital gains tax—but by all odds the most popular is that young people don't want to work like "we did at their age." Of course, this is not true of the young people I see, but it is alleged to be true of the ones I hear about.

What bothers me about this explanation for the recent productivity decline is that I wrote a book back in 1962, and noted that everyone was saying then that young people don't want to work and that is the trouble with productivity. I also quoted 19th century economists who said that young people didn't want to work then either.

Maybe something has changed this time. But the simple assertion that young people don't want to work is not really evidence that it is so or that this is the reason we have had a decline in the rate of growth of productivity. What has really happened is a mystery, but this is one of the topics that could be investigated to some degree.

Representative BOLLING. Generally taken as an assertion by one side or the other?

Mr. DENISON. Yes.

Mr. FABRICANT. One of the troubles is that people take extreme positions. It is either black or white, and the truth is always in between, and somehow we have to educate people into realizing that it isn't only capital investment that count and not only labor unions doing this, but there is a host of many things, and I think we have to realize and appreciate that.

There is a lot of interaction in the comments of Jerry Mark. Take the example of the attitudes of young people. Many things are involved in it. The attitudes of young people mean that the education they are getting today, and have been getting for the last 10 years, has been of a lower quality than the education of your generation and mine.

This will have its effect on productivity. Education makes a contribution to productivity. It may already be having some effect, and will certainly have some effect later. But is it only the children who are responsible for the change in attitude?

Think of all the educational devices and "improvements" that have been made over recent years. A good deal of the attitude of students is because of changes in curricula and changes in attitude by professors and a general feeling of submissiveness that they have been brought up in.

There is another point that I think ought to be emphasized in replying to what Mr. Denison said, that in 1960 people were talking about young people not working as hard, and so on and so on. You can reconcile that and still hold to the idea that it makes sense to talk that way, because you can have a cycle. You can have a cycle, during one or two or three decades, or a generation. People don't work the way they used to, and this, in turn, can cause the next generation to work like their grandfathers rather than fathers.

Representative BOLLING. I have a theory myself that in universities and colleges the cycle is very quick, that the aggressive students who want to do all kinds of things come along for about 5 years, maybe 10, and then very quickly are succeeded by the passive students. I think I have detected that, but in a totally unscientific way.

I have been watching it for about 35 years, and it seems to me you see this cycle in and out, the aggressive and then the less aggressive, and then back again, just in the university. I have never been able to find it in high schools.

Mr. MARK. Some of this reminds me of a Talmudic expression that "An example is no proof." It seems to me there is a real question of the pervasiveness of these things, and perhaps to engender like situations from others.

The other question is how long the forces are taking place, because we are talking about longer term trends, and many of these situations may be present, in fact, in specific industries or in specific plants. But the next question is after that initial change has taken place, does that explain successive deterioration or acceleration?

I think that is a very serious thing that is overlooked, because we are talking about long-term trends, because these are the results of long historical trends, and new technology and changes. I think it would be hard to assess how extended they are.

Representative BOLLING. Of course, what I am really talking about is how you all use a rather gentle approach to problems which does not insist that all the truth is in one small package and the rest is peripheral, which is a view you have all taken, a very careful approach: How you take the facts that emerge or the near-facts that emerge from that and use them to achieve some kind of a political policymaking synthesis between the warring factions. One of the reasons that I was impelled to create this joint House/Senate study was that many Members shared my view that at various times in the history of this country we have been able to pull together, perhaps not in total agreement—but at least an acceptance of a policy that didn't entirely please anybody, but moved enough in the direction that each group was interested in so that they would go along with it.

That is what I think happened in this country in the post-World War II period. Since you, unlike almost every panel we have had, had a large area of agreement, although I recognize shades of disagreement, I think it might be legitimate for me to pursue the political question about how, in this area, which is social, if we are to proceed as we did in the last 25 years, using economic groups as an engine for social change, which is exactly what some of us were

doing in terms of our approach, how we could come back to the kind of agreement that existed wherein you could have the Truman administration, an Eisenhower administration, a Kennedy administration and a Johnson administration and a Nixon administration all pursuing a relatively similar economic policy—relatively similar.

You had Mr. Truman who placed much more emphasis on the growth of employment, the reduction of unemployment, and much less emphasis on inflation.

Mr. Eisenhower was the reverse. He persisted in a policy of alternation, and we had a relatively successful 25 years. I would say 1968 turns out to be a key date in other respects also. I have always used it as a key year because we didn't have a tax increase and needed it. In 1966, I was practically the only politician that publicly suggested that we needed a tax increase.

What I am searching for, and I am asking you specifically, because inevitably you have to deal in your business with both sides of the situation, which is my oversimplified version of the business side and the labor side.

What do you use as a common method, a common ground to get them to begin to talk? We now have a situation where both sides refuse to talk.

Mr. FABRICANT. Well, it seems to me that what you need is to convey to these opposing parties some knowledge of what it is they are talking about. Very often they take opposite positions, when, if they knew, they would agree on one or the other. The reason is that many of the so-called ends they are fighting for are really means to something more, which they would agree on, and what you need then is more knowledge.

Now, this involves two things: It involves research, which is why I keep emphasizing that, and I don't mean only narrow technological or narrow economics, but also sociological and political. It also involves education. We have to know more about what these things do to us and to our objectives, such as the welfare program, and we have been to a great degree pursuing those questions. We need to do more of that.

We need to do more education, and I think that one function of this hearing is as part of that educational process. Beyond that, all you can do is remind people every Sunday morning that we must live and work together, and we must learn to compromise and love one another and so on, and I don't see why we shouldn't keep repeating that, and sometimes it sinks in, at least until 10 a.m. on Monday.

Representative BOLLING. Now, having horrified the staff by entering into the political field in my questions, I will turn it over to them so they can be more content with the technical items that I have left out.

Mr. DENISON. May I make a little comment?

Representative BOLLING. Of course, you can make a little one or a big one.

Mr. DENISON. I think a part of the problem—I don't know whether it is big or small—is that Congress gets impressed by slogans, like a "license to pollute," which bar all rational thought and prevent reaching efficient solutions to problems even if all sides

might wish to proceed with minimum damage and maximum benefit. As long as that continues, I don't see how to progress. Congress has a responsibility, as well as an interest in better cooperation from interest groups.

Representative BOLLING. I think that is absolutely correct. And I think the reason for that is very simple. The language that you use to solve problems rationally is not the language that is commonly used on the stump when you campaign. It is not simply because people don't understand that the language of good sense is more effective on the stump than the more technical language. And I think one of the things that may be going on today is that a great many people, constituents, are getting tired of the language of the stump and would like to hear more rational discussion.

That is the reason that we have some difficulty in Congress, because the technique you need to use, or that people think they need to use to get elected, carries over here where it doesn't have any effect. It is a very interesting phenomenon. A number of people who come in here and are wonderful in their districts, and very well intentioned, take some years to learn that a rousing speech has no effect on their colleagues. A stump speech doesn't change their minds.

But it is a dilemma. I say that I have sinned. I have talked about politics instead of economics. Who wants to ask questions?

Mr. SHELDON. Mr. Chairman, there was a comment a moment ago about the attitudes of young people, levels of education and things of that sort, and I do think that an additional comment was made about our generalizing from our own experience. Something that may be appropriate to this is brought out by our analyst the other day, Mr. Robie, of the Equitable Life Assurance Co. He was making the point that there is a surplus of well-trained people for the better jobs in his big insurance company. The problem is in the lower paid jobs, the simpler tasks, where they have trouble finding people who can read and write.

So as we say, the young people we know seem to be well motivated, and well educated, too. I am impressed with the job applicants I talk with these days. We have to look at the whole spectrum of people and our statistics derived from the whole spectrum. So there has been some deterioration in education, but even that is selective, depending on the area, the school and the kind of training with which people are preparing themselves.

Mr. KASSALOW. The rest of the panel may be interested in the testimony we heard during the first day or two on the question of work attitude.

Several witnesses called attention to the enormously high labor force participation rate that the country is experiencing, and it certainly does not look as though many people, or more people, are avoiding work. It may be that that doesn't run directly to the work attitude, but at least someone from the conference board with a good deal of managerial experience suggested that as one bit of evidence that perhaps the question of work attitude deterioration has perhaps been exaggerated.

But pursuing Congressman Bolling's inquiry on the line of the question of consultation of warring factions—you used the word "warring, and so I will use it—I would like to ask Mr. Denison and

Mr. Fabricant this question: With productivity being so important, and we have the necessity to achieve a degree of cooperation, do they have much thought about the work of the National Center for Productivity and the quality of work life which is now being phased out?

One of its intents, certainly, was to bring about a high degree of cooperation and understanding from various groups in the population. I won't ask Mr. Mark, because part of it will be phased into the Department of Labor and it is a little unfair to ask him, but I would be interested to know if, as experts in the field of productivity, if you have an appraisal of that experience, what it is, or might be in the future.

Mr. DENISON. I have been asked that question before by people who were trying to decide what to do with the Center. My own reaction was that it had become a useful and realistic little enterprise. I think the people there did not imagine they were going to change the world, because they couldn't; what such an operation can do is very limited. But I thought the Center was worth more than its costs, and I am sorry to see it go.

I don't think it would be fair to take such an enterprise and evaluate it as if it could change the course of productivity by a noticeable amount. But they did support some useful research and meetings. They got into areas, particularly in State and local government, where not much is being done. I thought the Center was worth while.

Mr. KASSALOW. Mr. Fabricant, have you had experience with the European productivity centers, and certainly they were more extensive operations than the U.S. center was. In commenting, would you touch on that?

Mr. FABRICANT. As the chairman mentioned, I have acted as a consultant to the Asian program of reorganization, which is in effect a sort of a combination like this European one.

These different country productivity institutes vary in what they do and how much they do, but I have this definite impression, that on the whole they do good work.

For one thing, they provide a voice for reminding the public and Government officials and business and labor and everybody else, it is a voice that speaks out every so often loudly—and clearly, we hope—that there is such a thing as productivity and that it is important and basic.

In New York we have something called the "Village Voice" published in Greenwich Village, and they have been advertising themselves, saying, "In this city you need a voice."

In Washington you also need a voice, and I think the trouble with breaking up the National Commission and distributing it between the Department of Labor and the Department of Commerce, and perhaps some parts of it disappearing altogether—I am not sure—is that you lose that voice. The Department of Labor has too many other things to talk about, and the Department of Commerce, too. You need a voice.

Representative BOLLING. Who broke it up?

Mr. KASSALOW. I guess they are just letting the appropriations run out. The administration really——

Mr. MARK. The legislation expires September 30, 1978. It was a 3-year authorization.

Representative BOLLING. The original sponsor disappeared or has grown tired or what?

Mr. KASSALOW. It had difficulties, and there is a GAO report just out on the subject, which indicates it never had sufficient support from the executive department in either of the last two administrations, and perhaps had some weakness in its operation. But the GAO seems to regret the demise of the center as well.

I think it is a subject that is maybe worth some separate exploration, but it was interesting to get these reactions.

Representative BOLLING. I think that is good.

Mr. KASSALOW. While the Congressman stressed there was a great deal of agreement among you in your statements, as I read them it seems to me that you, Mr. Denison, seem to be putting a stress on the negative impact of recent Government regulations, plus the impact of crime, rising crime, is it—I am not sure—on productivity?

You mentioned something like 0.4 percent of the decline in the loss of productivity being attributed to these factors, which is against the national historical trend of 2 or 2.5 percent.

Does the Bureau have any figures on the effects of Government regulations, any estimates, Mr. Mark?

Mr. MARK. No, we do not. We have not and we do not at the present time have any figures on that.

Mr. KASSALOW. Can I ask you, Mr. Denison? In the past, would you have said such things as social security, child labor laws, minimum wage, and so forth, did these things have a similar effect on productivity, or is there a qualitative difference that we have now between more recent regulations?

Mr. DENISON. The two types of program are entirely different. Child labor laws or social security impose some administrative costs on business, and can have indirect effects, but the difference is that they do not impose substantial resource costs on business. This differs from the three things you mentioned—let's take the two having to do with Government regulation for the moment.

Requirements for pollution abatement and protection of employee safety and health have the effect of requiring business firms to take part of their labor and capital, which otherwise could be devoted to production of measured output like shoes and automobiles and gasoline, and use it in ways that do not add to or change the end-product that emerges, and thus do not contribute to measured output. The effect is to reduce output per unit of input.

The environmental requirements, for example, require firms to make investments for the purpose of pollution abatement. They end up with part of their capital devoted to pollution abatement. They also must use part of their labor and part of their purchases from other enterprises—which means the labor and capital of those enterprises to meet these requirements. They have this labor and capital going in to production and nothing coming out to measure as product, so measured productivity is reduced.

The impact of the rise in crime has two aspects. One, protection against crime. You walk into a grocery store and you see a guard where there didn't use to be a guard. You have one more man

working. That reduces output per man-hour, or whatever the productivity measure used by the amount of time this man is working.

The other aspect is that, if merchandise is stolen by a customer or employee, it vanishes as part of the national product, but the input used to produce it remains and productivity goes down.

Programs like social security don't have this kind of an impact except for their paperwork costs. But there are a lot of other programs that do, of course. The consumer products regulations—I don't mean just the Consumer Products Safety Commission, but the whole range—have had similar characteristics.

Mr. FABRICANT. In a formal sense, I would answer Mr. Kassalow's question a little differently than Mr. Denison did.

I would say in a formal sense there are many similarities and one has almost to be a mathematician to see what I mean. That is not asking too much of the Congressman. [Laughter.] What I mean, of course, is this: That social security involves costs. Mr. Denison referred to the paperwork. The income tax involves costs, and everything and anybody involves a cost.

So the question is not whether there are costs. There are always costs. I think that the problem is that we tend to neglect the costs and focus our eyes on the benefits. We tend to take extreme positions. We also tend to ignore indirect costs, which may often be of considerable importance.

We, as I said earlier this morning, may go too far, too fast to pursue a very worthy objective when a little patience, a more gradual approach, a more careful experimental approach might in the end mean greater economic welfare for our people than this hasty, extreme kind of thing.

As I said, you could have a revolution—I don't know how political you want to get.

Representative BOLLING. Get as political as you want. Mr. Brown from Ohio just came in. You can be as political as you want to, and we won't be loading the record.

Mr. FABRICANT. People voted in California for keeping the State budget down, but one might also say, "Is that the best way to deal with this kind of a problem?" You see, this goes from one extreme to the other. I think we must learn to avoid that.

It is not easy. It is much easier to take the extreme position. The fellow in the middle gets shot by both sides, you know.

Representative BROWN of Ohio. I don't know that I have had this experience before.

Representative BOLLING. The reason for the conversation, the political aspects, was that I said the panel was largely agreed on major issues, and how you broke down major issues you saw to exist today in the country and the Congress, where we don't even agree on the facts. We are still arguing the facts and are not able, really, to get to the politics discussion.

Since you and I have agree on that, that is the position we are in.

Representative BROWN of Ohio. It shows you how much trouble we are in. [Laughter.]

Representative BOLLING. That is right, exactly.

I was asking for advice on how to get out of that trouble. Does anybody else have questions?

Are you ready to get involved or do you want to look at papers a little longer?

Representative BROWN of Ohio. I would be happy to have the staff go ahead and ask questions.

Mr. KASSALOW. I have one more I would like to ask then, if I may.

None of the witnesses really mentioned at all the question of productivity in the government sector, which, considering the magnitude of government employment, is a troublesome question. Are there any new estimates, any estimates at all or trends which you could help us with in terms of that?

Mr. MARK. Yes. We had a project since 1970 when it really started, but in 1973 it started moving much more rapidly. In response to a request from Senator Proxmire, and this committee, the executive branch undertook a study of how to measure productivity in Federal agencies—not State and local at all.

Since 1972, the Bureau has been collecting information for this group. The group consisted of the Civil Service Commission, the Office of Management and Budget, and GSA, and we were the technical support for it, and we collect data on output and labor input from about 360 government agencies, annual data, and this represents various offices and bureaus within the Labor Department.

We group these in terms of their functional responsibilities. In other words, we try to group them into more homogeneous types of activities.

Now, this is not a measure really of government productivity, because we are not netting out the things that are within the Government like the GSA, for example. If you could view it from the national accounts point of view, you would really view the entire function of the GSA as an intermediate good, because it is providing housekeeping services for the Government.

On the other hand, these measures are useful as measures of the change in productivity for the particular agency we have, and we aggregate these in the same way that we get in terms of an average. We have the average change of the agencies included in our sample. This represents at the present time approximately 66 percent of the employment in the Federal Government, agencies, and people.

We have data going back from fiscal 1967 to fiscal 1977, and we are working on the results for now.

The average growth rate, viewing it in the context that it is an average of all the agencies, has been about 1.3 percent a year since fiscal 1967 to 1976. This varies substantially among agencies. Some agencies have had actual declines and some agencies have had substantial increases, but it does indicate that there are some possibilities for measurement, and that it is perhaps, or gives perhaps, some benchmark figures that can be looked at to get some particular insights.

If you focus on the type of function being performed, it is useful. We hope to improve it. We have had only one budget—in 1973 we had only four people on this project. It is very small. We work with the agencies to provide the data. We work with their record and

try to develop output indicators that are, we think, most appropriate and suitable, and it is constantly being improved.

Some of the active indicators we try to tie in with the missions of the organization. Take the BLS, for example. We do have measures for the BLS which are sometimes—sometimes the Commissioners are upset by them. But basically what we try to do is get output indicators tied into what our principal functions are; namely, to provide information and data, and we have separate data for the various series that we generate, the types of information requests we have, and the type of reports distinguished by the complexity, and we relate that to the labor input.

We do that for various other agencies. I was just using that as an example.

Mr. WALLACE. Your statistics on productivity don't include government workers, do they?

Mr. MARK. In our regularly published quarterly measures the highest level of aggregation we have is the private business sector. We exclude them because of the way the Government output is measured.

Mr. WALLACE. I am asking this because much of the increase in employment in recent years has gone into the public sector rather than the private sector. Has this had a tendency to push down overall productivity?

Mr. MARK. I imagine it does. A good part of that increase, though, has been in State and local, and not in Federal.

Mr. WALLACE. Do they measure State and local workers' productivity?

Mr. MARK. No.

Mr. WALLACE. That is my point. So much of the employment increase has been in the public sector where productivity has not been measured. Does that have a downward effect on total productivity?

Mr. MARK. It could have if we had a total economy measure. There is, however, increased output coming from the State and local agencies. They are generating some output that could be measured.

But it is a separate indication. Our most accurate measurement, as I indicated before, is that referring to the private business sector.

Mr. DENISON. I think you have to watch your time expanse, too. Since 1969 or 1970 the Government share of employment has dropped. This is mainly because the Armed Forces went down and employment in public education has ceased to go up much.

Mr. FABRICANT. Let me add one footnote to these remarks.

First is the fact that government output in some sense is, in part at least, unfinished and intermediate, and used in the production of goods and services. This does not mean that there can not be measurements of productivity in those areas of government. They are possible.

You learn to work with divisions within a company, even if you are not working with the final product of the company.

The second note is this: The national income accounts assume no productivity in government. The assumption is false.

We don't use the pony express to get letters to the BLS offices in San Francisco, do we, Mr. Mark?

Mr. MARK. Sometimes I think we do. [Laughter.]

Mr. FABRICANT. They use typewriters instead of quills.

Representative BROWN of Ohio. Mr. Chairman, could I kick in at this point, unless Mr. Denison had something to say?

Mr. DENISON. No.

Representative BROWN of Ohio. Let me ask all three of you: Do measures of the capital stock affect this? Don't they rely on historical costs of plants and equipment rather than being properly adjusted for inflation, as they should be?

I would suggest that we have a tax code which consistently underestimates the rate at which equipment is wearing out, by using that historical evaluation of the equipment, and then having taxes on corporate profits that are really taxes on the wearing out of the equipment, so that you have a double impact.

The estimate is that we increase those taxes on corporate profits by some $20 billion a year, or about one-third of the corporate income tax, through improper depreciation rates. Are we at the same time overtaxing growth activity and underestimating the need for an investment or reinvestment?

Mr. DENISON. I think there are two different questions. Let me respond, first, to the first one.

I think all of us, when we refer to changes in capital, rely on data put out by the Bureau of Economic Analysis. The procedures to estimate capital stock do not make use of the tax provisions or compilations. The procedures are constant overtime and do not change when tax laws change. I think they do not have any of the problems to which you refer. This doesn't mean they are perfect, because there are possibilities for error, but the series is an attempt to adjust in the best way possible.

So I don't think the analysis is seriously upset by these considerations.

Now, the other question is substantive. Are we overtaxing profits because of the effects of inflation on depreciation and on inventory valuation, and my answer to that is, "Yes, I think we are."

Now, there are offsets. I think tax laws are rather generous with respect to allowable depreciation formulas and the fact that they offset the effect of inflation sometimes is offered as a justification for them. But it doesn't make things come out right. One company may gain and another may lose.

Representative BROWN of Ohio. Well, the steel industry at the moment is the one that over the past 20 or 30 years has had a net loss in terms of its capital value and its profits. Isn't that correct?

Mr. DENISON. Yes. I think that we should be trying to find some way to adjust taxes.

Mr. MARK. I would only comment on the measurement aspect, and I would agree with what Mr. Denison said. We are using the BEA data.

Representative BROWN of Ohio. I am having difficulty hearing you.

Mr. MARK. We are using the BEA capital and stock data with respect to this question.

Representative BROWN of Ohio. May I observe that the SEC surveyed it and found that the BEA may be underestimating inflation adjustment by as much as a half?

Mr. DENISON. Excuse me. I don't think the two things are related.

Representative BROWN of Ohio. You don't think——

Mr. DENISON. Even if the size of the inflation adjustment on profit were in error by a half, I don't think it would affect the capital stock figure. If the error were in the price series, it would, but if it is an error in interpreting what the corporate tax returns mean or anything of that sort, it would not. It is a tricky business but I don't see how the capital stock is likely to be affected even if that statement were correct.

Representative BROWN of Ohio. Profits are out of whack in some way as a result of that, are they not?

Mr. DENISON. It would be the profits adjustments that would be out of whack.

Representative BROWN of Ohio. OK.

Mr. FABRICANT. I think we have gotten ourselves a little too deeply into purely technical questions, which can be summarized by saying that we don't know as much about the rate of depreciation and so on as we ought to. This is one of the things we can work on.

But I think you have put your finger on a real factor that we shouldn't forget about, and that is that profits are being overtaxed because of inflation. It is true, as Mr. Denison said, that in some industries and some companies it is the other way around. A company that has a very large funded debt may be gaining from inflation. If the funded debt were issued before the price rises began, that is so, and they are paying 4-percent interest. They are gaining from inflation.

But for business corporations as a whole, I think the evidence is pretty clear that they are being taxed more because of inflation, and I would agree with Mr. Denison that somehow we ought to revise our tax code to make an appropriate adjustment.

Incidentally, it is not only business profits that is being overtaxed. Everybody in this room is being overtaxed. Everybody in this room is being overtaxed because of the way——

Representative BROWN of Ohio. You are saying real wages are falling, but taxes are going up on the same wages.

Mr. FABRICANT. Or we are paying a bigger tax on a constant wage because of the way tax laws are written.

Representative BROWN of Ohio. I didn't get far enough into your paper to see if you resolved the questions you raised in the first few pages, with regard to NIPPE.

Mr. DENISON. Yes.

Representative BROWN of Ohio. It seems to have deteriorated sharply over a couple of years. Does that relate to what Mr. Fabricant has said about real wages and the increased tax on the wages?

Mr. DENISON. It could to some degree. Well, let me put it the other way around.

If the effect of inflation were simply to reduce investment as a consequence of overtaxation, this would contribute to the drop in

NIPPE. A drop in the growth of capital stock is one thing we can estimate; it is observable.

Inflation could, however, also affect things in other ways. You don't know what is going to happen in the future. Tax rates depend on inflation, and inflation depends on tax rates. The future course of both is unknown. This is upsetting and may cause firms not only not to make a new investment, but also not to take other steps to reduce costs, including R. & D. programs. I don't know that this is important, but it could be.

Representative BROWN of Ohio. Let me say, Mr. Chairman, that this is the third committee that I have been obliged to go to this morning, and one was on a substantive piece of legislation the administration wants. One was a subcommittee meeting trying to devise an alternative piece of legislation for something the administration wants, but obviously hadn't spent much time on, and in this one we are looking at the future; and I would like to hear that funding debate on New York City; and in my officie I have staff meetings working on the campaign for the fall. I mentioned that to a colleague this morning, and he said, "You know what you ought to do?"

He said, "You should go down for a massage." [Laughter.] I think that may have something to do with why NIPPE is falling, because unless you are on the treadmill for the purposes of a heart test, and you have a feeling of falling behind, you may just say, "To hell with the whole thing." Maybe that does have something to do with productivity.

I have other questions, and perhaps staff would like to ask some.

Professor Fabricant covered the effect of higher energy prices on productivity. You are suggesting that many machines and processes have been made obsolete and thus lower the effective capital stock per worker. My question is about regulation and inflation, and their impact on future productivity or productivity generally.

The question is how do taxes and regulations affect all factors of growth? In other words, do we discourage people's investment of capital, or their investment of personal effort?

Do we perhaps even discourage expansion of educational development so that, in effect, we have become held down in the whole process?

Mr. FABRICANT. Yes, I think that is a very interesting and very real point there; namely, taxes on income, however earned, labor or property income, or capital gains, tend to some degree to discourage or limit or restrict that line of activity.

This is something that has worried economists on tax matters generally, and they have advocated a consumption tax. They would discourage consumption by putting a tax on it.

Representative BROWN of Ohio. Suppose you take care of that by reversing the process and by giving greater credits for savings. We are committed to an income tax system, it seems to me, and it is an easy tax to administer because you get it at the source, and then they take it away from us before we ever see it, and it is, therefore, supposedly less painful.

But if I took what was left after taxes, and I put it in the bank, or invested it in something that would be productive and you gave me credit for it, such as the credit that occurs on home ownership

in order to stabilize it—I am not sure what it stabilizes, but it is considered to be a national objective—or credit for education—is that the way to deal with that problem?

Mr. FABRICANT. Well, there are various ways to deal with this kind of problem. One is to take the existing system and do a Rube Goldberg adjustment so that, in effect, you change the system, you continue with an income tax, but you patch it up and move to a consumption tax. It is a nice question whether one approach is superior to the other and, of course, there are very obvious political considerations involved. In either case, you are going to have all kinds of problems, and I think we want to ask ourselves about this. The income tax is not a perfect tax by any means, aside from the effects we are talking about.

Many of us in this room have been avoiding a tax by owning homes. That loophole is not available to renters. This is an injustice done by the tax system.

Representative BROWN of Ohio. Mr. Mark, do you have a comment?

Mr. MARK. No, I don't have a comment.

Mr. DENISON. Mr. Fabricant, I was curious as to whether there is any information quantitatively or even qualitatively about the amount of capital that has been made obsolete by the rise in energy prices and by the energy regulations and so forth. Your statement implies that there has been a lot of effect. I am very interested if there is such information.

Mr. FABRICANT. I don't recall seeing an estimate of what you might call the appropriate amount by which to write down the capital stock, a capital adjustment of some sort. There have been estimates, made by the Federal Reserve Bank of St. Louis, of the effect which is similar to a measurement of what happened to the capacity of the American economy to produce goods, and I recall a reduction of something like 4 percent. In a sense that is a measure of the loss in our capacity because of the increase in the petroleum prices.

There is no question that in 1973 a gun was held at us—is this on the record, this kind of thing?

Representative BOLLING. You can take it off or leave it on.

Mr. FABRICANT. We were robbed.

Mr. DENISON. I think that 4 percent was a big overestimate.

Mr. FABRICANT. Well, even if it were 1 percent of the national wealth or capacity or national income, it is nothing to sneeze at.

Mr. DENISON. I don't think it was 1 percent.

Mr. FABRICANT. I will settle for a quarter of a percent. It is a big figure in billions of dollars.

Mr. DENISON. I will settle for that.

Representative BOLLING. Mr. Lee.

Mr. LEE. In the last several years Congress finds itself pushed more and more in the direction of making long-term decisions, looking at the budget 5 years in advance. Of course, in order to do anything like that, we need some kind of a long-term projection of income, and that, no matter who does it, is usually related to a projection of potential GNP. Potential GNP depends largely on the growth in productivity and the labor force.

So what that means is that in one fashion or another we have to make an assumption about productivity. There is a range of things that we could do, but I would like to ask the panel, what sort of productivity assumptions would you regard as reasonable to put into these kinds of projections? Do we make up the growth we have lost in recent years or do we continue to grow at current rates or lower rates? Just what kind of working assumptions do you think would be reasonable?

Mr. MARK. In depth we have a growth model which we used as the basis of trying to extend our occupational projections. In other words, we have a responsibility in the Bureau to develop every 2 years or so what the outlook would be in various occupations, to assist vocational counselors and high school people, and these occupational office projections are tied into industry employment projections, which in turn are part of the overall thing which starts at the potential GNP and the supply of the labor force change, and productivity.

That assumption is built into that model. We have made these assumptions, and they are projections, but to a very large extent they are what we expect on the basis of looking at historical trends and some of the other assumptions we are including in the model.

We are currently working on the 1980 projection—1985–1990 projection—and included in that is a productivity growth rate for the nonfarm economy, which is in the direction of what I sort of mentioned in my prepared statement, that we do not expect the growth rate to reach the, certainly, the rate that it had been in the previous 2 decades prior to the downturn.

Representative BROWN of Ohio. Identify that for me more clearly. The previous 2 decades prior to what downturn?

Mr. MARK. Over the last decade there has been a deceleration in productivity growth which was substantial in what it had been from 1947 to 1966. From 1947 to 1966 in the private sector it was 3.2, and from 1966 to 1977 it has been 1.6.

Representative BROWN of Ohio. Are you projecting that it will be lower than 1.6?

Mr. MARK. No, lower than the 3.2, but higher than the 1.6. Our projection is still tentative, and that is why I still hedge the figures, but it is running, we believe, through the early part of the 1980's around 2.2, and in the latter part of the 1980's back to about 2.4.

This is tentative, and still isn't final.

The growth rate in nonfarm from 1947 to 1966 was at 2.7 during that same period.

Representative BROWN of Ohio. Would you yield on that point just to let me observe that the growth rate of practically every other industrial nation in the world during the same period that ours was running at 3 or 4, do you say?

Mr. MARK. 3.2.

Representative BROWN of Ohio. 3.2, and then in the last few years it has lowered. Theirs has been much higher than ours. The parallel figure, to emphasize what Mr. Fabricant said, was that their savings rates also generally were much higher than ours. The Japanese were four times higher than ours, the Germans were

three times, and their growth rates were not higher in the same quantum, but relatively higher by considerably more than ours.

Now, are you projecting in your analysis anything about savings or the possibility of what Mr. Fabricant suggested with reference to the stimulation of savings through the tax system?

Mr. MARK. There are certain assumptions in the model, and I am not fully familiar with all of them, and I just can't say in terms of what the project for the savings rate would be in the model for the whole time, but the productivity measures that we are projecting are consistent with, you know, whatever assumptions we have had, and we are assuming somewhat lower growth rates than we had in the previous period.

Representative BROWN of Ohio. But it occurs to me if the projection were changed by a significant amount—in other words, if it were up to 2.4 or 2.6 or 3.8 or 4.2, closer to that of some of the nations who thought they lost World War II, or that we thought lost World War II, we would resolve a great many of our problems socially and take care of a lot of things we have been discussing here on our demographic discussions, especially teenage unemployment, black unemployment, and so forth.

Mr. MARK. I would say in terms of the comparisons of the other countries, the productivity in the different rates reflect many things besides potential savings ratios. In part, some of the extended increases were because of the base levels that the countries were starting at and what we were starting at; and while our growth rate may be lower, the level is, we would estimate, probably still much higher and so this is, it seems to me, not an unreasonable thing.

Representative BROWN of Ohio. There are a lot of factors like their exports are higher and perhaps ours should be. Maybe there are policies we could pursue to encourage that. I don't mean to be aggressive with you, because apparently you are only reflecting what you assume will happen, but it seems to me that at some place in the administration there ought to be somebody who will be looking at our projections and saying:

Well, now, 2 isn't really all that exciting. How do we rev that up? And if we do rev it up, how do we rev it up without damage, either short term or long term, and what policies must we then pursue with reference to changing fundamental issues?

Mr. MARK. This will take place, Congressman Brown. This is reviewed within the whole executive.

Representative BROWN of Ohio. After you get the output, does somebody go back and kick the machine?

Mr. MARK. We take a look at it.

Mr. FABRICANT. May I make a comment on that remark?

I think we always realize when we try to talk about the future, what it may be tomorrow or 20 years from now, that we are making conditional projections of some sort or other. We have to make assumptions. You can't pick one thing and speak with confidence that that is why it is going to happen. Therefore, the BLS, or any other agencies concerned with making judgments on the GNP, or productivity, ought to have a number of projections, such as the Bureau of the Census has—a high, low, and medium, thing.

The Bureau of the Census' job is much simpler than the job the BLS and other agencies have, because they worry only about the

birth rate, death rate, and immigration rate, on the surface. But when you get down deeper, you find there are all sorts of things that determine the birth rate.

What we need in the BLS—there are two projections, if I recall correctly—and what you mean is a variety of them, and attached to them the assumptions or conditions.

Now, one of the troubles is that you get into political questions when you begin to talk about what might be done or should be done to attain a higher rate of growth. These questions have to be left to others. But the BLS projections ought to be useful to the Congress or to the executive branch. There can be a variety of them, and I wouldn't stop with two or three. I might have five or six, at least to convey the impression that there are many different futures, and that these futures are within our control, which, I think, Congressman, is what I emphasized.

That is exactly what I was trying to say this morning, that what the future will be is in some appreciable degree in our control, and we have to know what should be given up, or can be given up to attain a higher rate of productivity.

That is essentially the question.

Mr. KASSALOW. Mr. Denison, you have done a lot of work on the growth rates in other countries. Can you shed any light on the way in which we—or what we can learn possibly from the Japanese or German or West European experiences on growth?

Mr. DENISON. Before discussing international experience, I would like to continue Mr. Fabricant's discussion. I think I wrote what he is suggesting in 1962. I estimated what each determinant of output would contribute in a future period if we continued to do what we have been doing. I then estimated the effect on the future growth rate of changing any one of a large number of determinants. If you set out to alter the future growth rate there are a large number of determinants. If you set out to alter the future growth rate there are a large number of possible combinations. The number is practically infinite, so you could have an infinite number of projections. The only feasible approach is to consider the effect of one thing at a time.

I come back to international concerns.

First, I really would like to stress that I think it is——

Mr. KASSALOW. The reporter can't hear you.

Mr. DENISON. To make international comparisons fruitful, and I am picking up now on what Mr. Mark said, you can't look just at changes over time.

Let me come back to capital investment as an example. If I found that Japan had more capital per worker than we did, and they were still saving more, and going beyond where we are, I would find this a very distrubing fact. I find it much less disturbing if I find they have less capital than we do, and they are still catching up.

Representative BROWN of Ohio. Catching up is really a relevant term, because it seems to me that they are catching up with a much smaller population base relatively and a much smaller resource base, that is, domestic resource base, and if you throw a couple of those variables in also——

Mr. DENISON. Yes.

William Chung and I wrote a book on Japanese growth. We compared the sources of growth in Japan with other countries for which we had similar estimates, which included the United States, Canada, and seven European countries. As you know, the Japanese had the highest growth rate of any of them. Now, suppose you divide growth sources, other than education, into the five following groups. First: Changes in employment, working hours, and the demographic composition of workers.

Second: The increase in capital.

Third: The gains from reallocating labor out of agriculture and out of small nonfarm enterprises.

Fourth: Gains from incorporating new knowledge into production.

Representative BROWN of Ohio. Technological?

Mr. DENISON. Yes, and managerial—technology is not everything. Fifth, gains from economies of scale as the size of markets grew. The Japanese obtained a larger contribution to growth from every one of these five sources than did any one of the other ten countries with which we compared them, with the single exception that Italy gained more from the reallocation of resources away from agriculture and nonfarm self employment.

Mr. SHELDON. The reporter can't hear you.

Mr. DENISON. The high Japanese growth rate was not a consequence of any one factor but of all these things, and behind them lay still others. Despite this enormous growth, at the end of the period we analyzed, and it is still true today, Japan still stood well below the United States with respect to practically all determinants of output. If they had kept going at the rate they were going up to 1973, they might have caught up with us by now in capital per worker, but not in knowledge and efficiency——

Representative BROWN of Ohio. They stood below us in the aggregate amount? Certainly not in rates, but in the aggregate?

Mr. DENISON. That is correct. Output per worker was lower in Japan than in the United States, and capital per worker was lower.

Representative BROWN of Ohio. In the aggregate or in the percentage?

Mr. DENISON. In the aggregate. I had used the term "level."

But when one looks at some of the causes of rapid Japanese growth, some of them have a natural tendency to become exhausted. Gains from moving surplus labor out of agriculture is an example. When enough people have left agriculture, there is no more gain to be achieved. We have pretty much reached that stage. The British reached it before us.

There may be a problem of maintaining investment incentives in a country as it goes beyond others in the use of capital. Gains from additional investment also diminish. What determines investment is a really interesting subject.

Representative BROWN of Ohio. Can I make one observation about capital stock?

Someone said it is mysterious, and I agree with that. I found it mysterious in our newspaper plant when we invested $17,000 in a machine that would do something the previous machine, worth twice the cost would do, although that had been depreciated out so we didn't lose anything. Then within 2 years a new version of that

same machine was available at about $7,000 that would do a great deal more than the $17,000 machine. I kept asking my accountant what happened to the $10,000, and did not get any greatly satisfactory answer from the standpoint of either putting my hands on it or seeing it fly out the window.

But once you have put in a machine that is new technology and depreciated it out, and there is no new technology that replaces that machine, you still have a capital asset of significant value, even though your capital stock in an accounting sense has disappeared. Am I correct?

But if you put in a new machine and have, then, a technological change that comes in very quickly, the capital stock that is represented by that new machine deteriorates very rapidly, but not in the accounting system. I mean, your capital stock still possesses that machine as a valuable piece of stock although it may not be valuable at all.

So the pace of technological change affects capital stock.

Mr. DENISON. Broadly speaking, yes, obsolete machines are deleted from the stock because service lives allow for obsolescence. But it is not reflected accurately if two years after you make an investment something else new suddenly comes along and forces you to discard your capital goods unless your estimate uses 2 years as the expected service life.

Mr. FABRICANT. That is the point.

Mr. DENISON. I think you wanted to ask something else?

Mr. FABRICANT. This is the kind of question that relates to questions of depreciation and obsolescence, which is what we have gotten ourselves into. Here we sort of speak in terms of averages. There will be some items of equipment that will last longer than originally expected. There will be other materials that lose their value sooner, but on the average the depreciation and obsolescence rates will stay level.

If I may, Mr. Chairman, return to the point that we raised originally with Congressman Brown, and to which Mr. Denison talked. This is the Japanese question.

In effect, Mr. Denison was pointing to some fundamental practices underlining the kind of things we have been putting into our list of sources of growth. Why is it that the Japanese save and invest a larger fraction of their larger income? Why is it that they work harder, if they work harder, and so on?

We are getting down to the fundamental question that involves the whole matter of attitudes. You don't measure them in any direct way, but they are there. I am reminded of a cocktail party I attended some years ago, and it was in honor of Professor Ohkawa and Professor Rosovsky, who had just completed a very large study on the economic growth of the Japanese economy, and I said, "Well, fellows, you have been studying this question for a long time. Now tell me what the devil is it that makes the rate of growth in Japan bigger than in almost any other country of which we have any record?"

I remember their saying, "Well, it is just the nature of the people. It is the character of the people, their system, their social habits and so on."

I think these are terribly important in Japan and in the United States, and they can change over time. So the discussions we have had this morning about changes in attitudes can occur, and can be important even though you can't pin them down in terms of a quantum.

Representative BOLLING. Mr. Brown says we changed it for the Japanese.

Representative BROWN of Ohio. We did, not only by winning World War II, but by administering Japan and giving them a different form of government. Perhaps the Nisei gave it back to us in California the other day. [Laughter.]

Mr. BRADFORD. Have you done studies on what proportion of capital investment goes for new growth stock and what percentage for modernization and improvement?

Mr. DENISON. I don't have any numbers. There have been questions of that sort of a general nature. Do you remember anything?

Mr. FABRICANT. No, I don't. It is very difficult to decide whether you added a new machine or improved an old machine, and maybe engineers at that level might be interested in that kind of question, but I think as far as the Congress is concerned, we really have to deal with the total capital stock and realize that it can take different form, the changes can.

Mr. BRADFORD. One other very quick question: In the list of factors that affect productivity, output and growth, do you have a feeling which is the most important? Is it not the amount of capital, the capital-to-labor ratio? When you come right down to it, isn't that a major contributor?

Mr. DENISON. I would like to make it clear again that I deny there is any one thing. [Laughter.]

Mr. FABRICANT. Let me comment on it. I should be asking the chairman's permission.

Representative BOLLING. No, you shouldn't. We want it to be voluntary and not permissive.

Mr. FABRICANT. I would say there are many things, and we should never neglect one and concentrate too much on one. There may, however, be particular situations in which you can identify one or two or three of the dominant factors. Let me illustrate it by reference to the U.S. of America.

What was the fundamental difference between the situation on the banks of the Potomac in 1491 and as it was when—when did they settle around the Potomac? Say a few hundred years later when the whites came?

What was the fundamental difference? It was intangible character, the knowledge which they brought from Europe, and the social habits of working together, which they brought from Europe, and some implements and pieces of physical equipment which they brought from Europe. These were the very fundamental differences. Human beings are alike. Fundamentally they can become like everyone else, and they are becoming like everyone else.

What were the fundamental differences? In that particular type of situation you can identify, but more generally, I would say, "No, there are many factors."

Representative BOLLING. Gentlemen, you have all been very helpful. It has been a good session, and I am glad we got to the point

where you volunteered to speak up, and I didn't have to look at you and wave. We are grateful to you.

The committee will stand in recess until tomorrow at 10 a.m., when we will meet in room S-207 of the Capitol.

[Whereupon, at 12:20 p.m., the committee recessed, to reconvene at 10 a.m., Friday, June 9, 1978.]

SPECIAL STUDY ON ECONOMIC CHANGE

FRIDAY, JUNE 9, 1978

THE CHANGING WORK ENVIRONMENT

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to recess, at 10:05 a.m., in room 318, Russell Senate Office Building, Hon. Richard Bolling (chairman of the committee) presiding.

Present: Representatives Bolling and Brown of Ohio.

Committee staff present: John R. Stark, executive director; Louis C. Krauthoff II, assistant director; Lloyd C. Atkinson, Kent H. Hughes, and L. Douglas Lee, professional staff members; Mark Borchelt, administrative assistant; and Stephen J. Entin, minority professional staff member.

Special Study on Economic Change staff present: Charles S. Sheldon II and Robert Ash Wallace, research directors; Richard D. Bartel, staff economist; Paula J. Dobriansky, research assistant; and A. A. "Chip" Sayers, research assistant.

Also present: Everett M. Kassalow, Congressional Research Service, Library of Congress.

Representative BOLLING. The committee will be in order.

I think everybody has either heard, one way or another—I made a very long opening statement, which I won't repeat, which had to do with the way we hope the study will progress, and also lay down the ground rules.

The ground rules are honored more in the breach than they are in the provision. The ground rules involved asking each member of the panel to summarize their prepared statements of about 10 minutes. It usually works out to be a good deal longer than that. I am not sure it is because of my weakness in expressing this or because the difficulty of the subject. But the closer you can stay to 10 minutes the better off we will be, because we want to end up with a discussion rather than a more formal kind of hearing.

Our first witness is Ted Mills. He is the director of the American Center for the Quality of Work Life, a nonprofit organization devoted to development of action projects focusing on the emerging field of the quality of work life. As of June 19, 1978, the center he directs has developed nine major studies, including some private sector organizations such as Nabisco and Weyerhaeuser, some public sector organizations such as the city of San Diego, Mt. Sinai Hospital of New York, such international units as the United

Automobile Workers, AFSCME, the Bakery and Confectionery International, and others. Prior to funding the ACQW bill in 1974, Mr. Mills was special assistant to Mr. Jackson Grayson, former Chairman of the Price Commission, from 1971 to 1973. He is a former executive producer of NBC Television, from 1949 to 1972 when he produced many productions winning awards such as the Emmy, the Peabody, and the Golden Eagle. He is a graduate of Williams College and a member of many honorary and professional organizations.

We have something else in common. He has also sailed with the same man I've sailed with in the Caribbean. Your complete statement and the attachments, Mr. Mills, will be made a part of the record.

STATEMENT OF TED MILLS, DIRECTOR, THE AMERICAN CENTER FOR THE QUALITY OF WORK LIFE, WASHINGTON, D.C.

Mr. MILLS. Thank you Mr. Chairman. When I timed this statement it was 11 minutes. I will try to keep it as close to that as possible.

On November 15 and 16, 1977, the center which I currently direct convoked a conference at the Xerox Center in Leesburg, Va., for over 40 senior line officers, including two presidents, of four of the most conspicuously well-managed companies in the United States: General Motors, Nabisco, the Weyerhaeuser Co., and the host company, the Xerox Corp. The issue under examination at the Leesburg Conference was the emerging field of interest and concern titled "Quality of Work Life," and the function of American management in general, and the function of those four companies in particular toward this field.

To those members of the committee unacquainted with the term "Quality of Work Life," as many still are, it is a term increasingly coming into use in both management and labor circles, here and abroad, to describe a way of working in industrial and service organizations which is working together rather than working apart, open rather than shut, evolutionary rather than rigid. It both can have, and already has proven to have, a major impact on better labor-management relations; greater organizational effectiveness for both unions and managements; more profitable and job-secure outcomes for both employees and employers who have become involved in it; and elimination of some of the things Mr. Poulin will be talking about. I have taken the liberty of providing members of the committee with an address attempting to describe quality of work life which I made yesterday to Canadian industrial leaders in Montreal, at another conference, whose theme, it is worth noting, was, "All Is Not Well in the Work Place in Western Society." I hope it will provide the committee with some background as to exactly what this very inadequate, but increasingly used term seeks to establish in American industrial life.

To return to the November Leesburg Conference of the four American companies, I would like to read to the committee a few observations made by the officers present, in their subgroup reports to the plenary session of the conference on its last day.

One officer, a senior vice president of his company, said:

Our group agreed that the basic objectives of the quality of work life approach to work organizations are an urgent issue facing not just these four participating corporations, but the entire free market American system. Some members of our group felt that perhaps American industrial society has less than a decade in which to solve the kind of willing and open cooperation between employers and employees which quality of work life efforts seek to establish and maintain. The feeling of urgency about the problem, and the urgency of finding effective ways to solve the problem, was shared by the entire group.

We discussed the pros and cons of a conference similar to [this] including top labor leaders in the discussion, and the general conclusion was that having labor leaders participate in having new ways for union-management cooperation along quality of work life lines, would be both fruitful and extremely useful.

He concluded his report by stressing the need "to get other organizations to comprehend the immediate urgency of the problem, and the need for finding solutions to solve it."

Another senior officer from another participating company noted something of particular interest to this committee. Referring to the problem of greater employee involvement in the goals and objectives of their organizations, he said:

If we do not find creative solutions to that problem there will be more government intervention, more forcing through of tougher legislation mandating things which business and labor must do together, voluntarily.

He added, "To understate it, we felt that would be something that we would not like to see happen."

Still another officer, also a senior line vice president of his company, said of his subgroup:

We all agreed unanimously that we in management have to take action. We felt this was the biggest challenge of the 1980's which we will all soon be facing. We agreed that we could see no alternatives, particularly if you look at quality of work life from the perspective of the survival of a free market economic system.

As his colleague had noted, he added: "Our group felt it would be helpful if some of the top management people in this room were put in with some of the top international union guys for a similar conference."

A distinguished guest our center invited to the Leesburg Conference was a gentleman well known to many members of the Joint Economic Committee when he was chairman of the Price Commission, Mr. C. Jackson Grayson, now chairman of the American Productivity Center in Houston. He said to the officers present:

From where I sat in Washington, I saw that the forces moving counter to the preservation of our unique [American] system are growing stronger, not weaker. I saw that if we don't make some strong efforts to work on improving the human and economic dynamism of our society, we stand the danger of losing the characteristics of the system in a dangerously short period of time—short meaning 10 to 20 years. And I think we are already reaching points where the system could tilt.

Therefore, the degree of urgency that I think is attached to the quality of work life movement—to respond to people as people, in terms of the essential dignity of every working individual is great. If we don't provide them with it, they will seek it through governmental measures, as they have in Europe. * * * Productivity and quality of work life are two very difficult concepts, separately and together. Both of them deserve tremendous attention by all of us in the immediate future to preserve our American system.

Mr. Chairman, these speakers were not economists or policy analysts. They were tough, pragmatic, operating executives who collectively are directly responsible for producing over $12 billion dollars of American GNP annually. I have let them speak with their words, and from their hard personal and professional experi-

ence and deep conviction, some of the notions and observations I believe they have said better than I could. I have heard similar deep concerns, and expressions of similar urgency, from some of the major leaders of the American labor movement, who see in their membership across the country a growing sense of turnoff from allegiance to their unions, to the companies they work for—for many reasons Mr. Poulin will discuss—and from work itself. The urgency expressed is not a management concern, it is a national concern.

In a stunning recent survey, Daniel Yankelovich has found incontrovertible proof that American working men and women, hourly workers and managers alike, are with increasing vehemence demanding participation in the daily decisions that affect—and can effect—their working life. The price our economy pays for not providing them with that involvement, or what Mr. Grayson calls that "essential dignity", is high. In microterms, the price we pay is human turnoff—or not caring or counterproductive behaviors such as growing absenteeism, job quits despite 6 percent unemployment, diminished quality of product or service, human anguish, and just plain don't-give-a-damnism. In macroterms, the price our society pays is a consistently declining American productivity rate.

Mr. Chairman, I call the attention of this committee to the concern expressed by many of the corporate leaders I have quoted that Government might be forced to intervene, as governments have intervened throughout Europe, to provide working men and women with regulatory protection of their participative rights at work, in a democracy. Such intervention is not sought, and would not be welcomed, by American unions or American management, the key stakeholders, along with the American public, in our economic system. Much of what is wrong in the world of work can be solved by free collective bargaining, as both parties, I believe, would agree. And an ever-increasing number of international unions and corporate managements are finding that additionally, beyond collective bargaining, voluntary, unregulated, joint labor-management cooperation in quality of work life activities can add to existing collective bargaining some new joint solutions to the problems posed by the growing demand in the society for greater employee involvement in decisionmaking at work.

I should like to underscore that when quality of work life efforts are successfully applied, as in General Motors, there is a measurable impact on economic performance, productivity, and growth, goals this committee is seeking for the economy.

The distinguished attendees at the Leesburg Conference, the leaders of an ever-growing number of internationsl unions, and the also-growing tens of thousands of working men and women across America who have lived through quality of worklife experiences, do not believe that the principles of democracy at work are mutually incompatible, as some still vociferously claim.

Mr. Chairman, all is not well in the workplace in the United States. Nor without remedial measures applied with some urgency will it get better. I suggest to this committee that the role and policy of our Federal Government in the immediate future, in protecting the social and economic welfare of our society, should be

not regulatory but supportive of voluntary labor-management efforts by the private sector to find and spread evermore effective ways and means to twin the democratic societal objectives of human dignity at work with the economic imperatives of an ever-healthier and dynamic economic system. In 1974, the West German Government, with an economy one-fifth the size of ours, provided support funds to the West German private sector of $110 million for joint labor-management exploratory efforts such as those under discussion at Leesburg. Similar support from the American Government, through an agency perhaps established for that purpose, which without hindering regulatory terms and conditions would permit private-sector managements and unions to seek evermore effective ways and means to achieve and carefully measure the impact of that twinning, is something I humbly believe this committee and the Congress might well consider, particularly in consideration of the urgency attached to it in the perceptions of the leading stakeholders in our economy and society, and our national need for a reinvigorated American thrust into a complex future.

Thank you for your invitation and attention.

[The attachments to Mr. Mills' statement follow:]

QUALITY OF WORK LIFE: THE NAME THAT ISN'T THERE[1]

(By Ted Mills, Director, the American Center for the Quality of Work Life)

A friend of mine recently told me that an old Greek philosopher once observed that "naming is a legislative act." By naming things, in a word or two, we zero in on their identity, life, substance, and validity. By naming things or ideas, we do indeed pass a formal act of establishing something hitherto unnamed, even if there is only one vote for its legislation.

As a name to identify and legislate a perceivable, discrete set of notions, or activities, or even values, "Quality of Work Life" is a lousy name. Exactly what it seeks to legislate is helplessly fuzzy. As a name it obviously relates to work, and working, and the word "life" or "work life" in it implies it has something to do with people who work. But beyond that, zilch.

And besides, either the full-out name or its shortened acronym, QWL, are a mouthful. Either way, exactly what it is trying to legislate is more or less unfathomable. It seems to run meaninglessly around the blurred edges of its subject.

To anyone unfamiliar with exactly what "quality of work life" is trying to name, it is a bummer of a legislative act. It rings no quick, easy bells of instant understanding. Tell a manager or a shopfloor worker you are interested in improving his or her quality of work life, and you will get a puzzled "howzat again?" kind of stare of incomprehension. It is not a name *people* use.

I will say this to you, in total candor. If anyone could suggest to me a better name to encompass in not more than four words, preferably two or one, all of the things quality of work life really means, I'd shuck the term immediately, change the name of my Washington Center immediately, and sleep one hell of a lot better for a while.

Let me give you some near misses: industrial effectiveness; human resource development; organizational effectiveness; work restructure; organizational restructure; socio-technical systems; work humanization; labor-management cooperation; working together; worker involvement or worker participation. Each of those names, in varying degrees of failure, legislates a part of the whole that quality of work life seeks to legislate. But not one says it all.

I've found it a useful exercise, sometimes, to identify something by first ruling out all the qualities it does *not* possess: an exercise, by the way, that some of us (not me) may wish we'd used more effectively in choosing our spouses. With the name quality of work life, identifying what it isn't is an astonishingly easy exercise. And it's worthwhile. So for a moment, let's examine some of the things quality of work life *isn't*, before we try to identify what this bummer of a name *really* seeks to legislate.

Contrary to a lot of misconceptions about it, it isn't a soft, touchy-feely kind of activity or approach at all. True, it does sound suspiciously like another of those

[1]An address to the Centre International De Recherches Et D'Etudes en Management, Montreal, Canada, June 8, 1978.

names academics cook up to give a title to a weighty behavioral science theory, or like a term pointy-headed liberals might use to describe advocating working people going home brimming with contentment about their work day. But as we'll see, when it's properly applied by managements, it legislates a kind of organizational activity as pragmatic and cost-effective as management science, except that it *works* for both management and labor in today's changing labor climate. And management science *doesn't.*

Another thing quality of work life isn't is a threat to power—management power or union power, although many labor under the misconception that it is. Managers who only half-understand its real objectives often fear it threatens to diminish their right to manage; union leaders often fear it threatens to weaken their adversary power. Both fears are sheer poppycock; experience has proved it so. The truth of the matter is that when QWL is properly introduced and implemented, *everybody* wins *more* power. But it's the right kind of power—the power to get results, not the power to punish or penalize, which is a wasteful kind of power. Or as one of my colleagues has wisely pointed out, it provides both management and unions with new influence power, instead of dictate power.

It isn't quick. It doesn't provide the instant results most may desire, and some may claim it will provide. It may, and will, and should take months and years to develop its extraordinary impact on the effectiveness, growth, and productivity of organizations, slowly spreading across, upward, downward, like well-planted pachysandra in a garden.

It isn't easy. It's hard work—a long, tough, uphill struggle by a lot of people to make it pay off—as it can and will.

It isn't a panacea—a surefire cure for what ails you. It isn't an activity that can be written down in some slickly printed, step-by-step training manual with visual aids to send out to the organization. It has no stet rules, no standard set of universal snake-oil steps you can buy from a consulting firm for a few hundred thousand bucks, and go fishing, with certainty that all your problems will be licked. In fact, it *must* be totally idiosyncratic to each organization undertaking it. It does have some very basic generalizable guidelines and concepts, which we'll examine in a minute, but it has no stet, pat, discrete, mechanistic series of yes/no decision points like a computer program. It's not a package. It has no blueprints. In fact, it's the very opposite of rigid: it's an open, evolutionary, growing kind of organizational process, as we'll see.

It isn't visible. You can't walk out on a shopfloor and see it at work, as you can with new machines or new technology. For what is happening when quality of work life activities operate properly is something inside people, and between people, in that invisible thing called social interaction, or organizational structures.

It's *impact* will certainly be visible, and show up on computer printouts and P & L statements of bottom line performance. But the *process* of change, of what Rosabeth Kanter has called turning powerlessness into power, isn't something you see. You can *feel* it, as you can sometimes instantly feel a well-run or badly-run organization just by walking into their offices. But there's nothing you could send a cameraman out to take before/after photographs of.

It isn't an end. It's a means to whatever the basic ends of your organization are, or should be if you define them properly. It's a means of achieving those ends better and more effectively in this cockeyed time of Western history. If better return on stockholder's equity is your end, it will help provide that better return, if growth is your end, it will provide a more intelligent, structured, means to achieve orderly, sound expansion. Whatever you perceive as your corporate objectives, quality of work life is simply a more effective and more contemporary means to achieve them.

Now hear this. Quality of work life isn't job enrichment. People often confuse the two terms as the same thing. They're not. Far from it. For one thing, job enrichment focusses down on changing specific jobs or tasks, not whole work organizations. For another, employees and their unions are rarely if ever involved in job enrichment decisions or implementation. Such decisions tend to be imposed by management, unilaterally, whether employees like it or not. In quality of work life activities, by contrast, active employee and/or union involvement and participation is critical. A quality of work life project might, if its joint participants so decided, examine job enrichment possibilities, among a dozen others, and perhaps implement some. But the reverse doesn't happen. They're very different kinds of approaches, one unilateral and job-focussed, the other bilateral and organizationally focussed.

Here's something which quality of work life isn't that's hard sometimes to grasp, but essential to understand if you're going to move in the QWL direction. A QWL effort isn't a productivity improvement effort. What makes this so difficult to grasp is that almost always, an impressive increase in productivity occurs as a measurable

outcome of a QWL effort. But it occurs along with many other improvements: increased quality of product or service, increased performance, decreased counterproductive behaviors such as grievances, scrap and error rate, absenteeism, turnover, alcoholism, and so on. Productivity improvement in a quality of work life effort, isn't the sole or exclusive goal. It's one of a dozen goals, which lump together under the bigger and more important rubric of "organizational effectiveness." Besides, making productivity improvement an announced goal is curiously counterproductive, in a kind of crazy illogic, which we've seen happen consistently enough in widely varying kinds of organizations to know it's illogically logical. The anomaly could be put this way: if you overtly seek to get more productivity out of your people, you're almost bound to lose, and even suffer productivity fall-off. If, on the other hand, you overtly seek to establish new work structures whose primary objective is to improve physical, social and psychological work conditions, you'll get more productivity out of your people than you believed possible without even mentioning it, because they're turned on.

Another way to say this is that quality of work life efforts aren't, and should never be, or be permitted to be seen as, a productivity improvement wolf hiding in QWL sheep's clothing. If they are or are even so perceived, your people and their unions will spot the masequerade in the wink of an eye and turn off from any further participation in the effort. I've seen it happen. As we all know, most working people and their unions are hugely suspicious of productivity improvement programs, which they equate—with a lot of justification—with speedup for the same pay, job loss for themselves or their co-workers, or union weakening—or all three. If they can be convinced, and it takes one hell of a lot of convincing, I assure you, that you really care about your people and their social and economic well-being, and that you really are serious about what you say, and will consistently continue to be, and that all this quality of work life stuff isn't just another management trick to get more work out of them, then you'll get a productivity byproduct out of such caring which I suspect would astonish you. If you want increased productivity out of the people in your organization, the worst way to get it is to go after it, per se. The best way to get it is to prove that you care enough about your people and their problems so that they care about you and your problems. Maybe it sounds crazily inverted. But it works. And if you're results oriented, as most of us who run a business usually are, what works is what counts.

In one of the QWL projects our Center initiated in one of the best-managed pulp and paper organizations in the United States, the Executive Vice President of the company told me at its outset that if he didn't see measurable productivity improvement coming out of the project within twelve months, he'd scuttle the project. Eighteen months later, I reminded him of his ultimatum, and he laughed. He'd witnessed such a remarkable turnaround in profit in the plants where the project was operating, as well as a remarkable change in employee allegiance, union-management relations, absenteeism, turnover, product quality, and a few dozen other improvements, including seeing one of his QWL plants move from the company to bottom line performance, that productivity had moved way down on his list. He said "I remember saying that." And then almost apologetically, he added "but back then, I didn't understand."

To drive home this critically important point of priority reversal, I'd like to read to you a statement made by George Morris, Vice President of Industrial Relations of a company you'll be hearing more about today from Reid Rundell: General Motors. A year ago, speaking to the Automotive Engineers in Detroit, Morris described the curious inversion of company priorities that had occurred at GM, a process that E.F. Shumacher in *Small is Beautiful* called "standing reason on its head."

"When we began applying organizational development principles about seven years ago, our focus was on improving organizational effectiveness. We saw improvements in the work climate as naturally flowing from these efforts. I think now we have reversed those objectives. Our primary objective is to improve the quality of work life. We feel that by concentrating on the quality of work life and wisely managing the systems that lead to greater job satisfaction and feelings of self-worth that improvements in the effectiveness of the organization will follow."

You'll note that curiously nowhere in Mr. Morris' statement to a bunch of hard-nosed engineers is productivity as an objective even mentioned. The bigger word effectiveness, yes. To suppose that an organization as huge and profitable as General Motors isn't concerned with its productivity rates is a little absurd. But, as I think we'll hear later, maybe General Motors' management has become convinced that the most effective way to seek it and get it is the new priority-reversal route Mr. Morris describes.

Another thing quality of work life isn't is ideological. At least so far in North America, it's apolitical. Its advocates don't seem to be right, left, or center. Those who believe profoundly in it may be senior managers of highly conservative political persuasion, and senior labor leaders of strongly liberal persuasion. Ditto with those who are still suspicious of it.

It isn't—even in part—co-determination, or *mitbestimmung,* the policially left of center phenomenon that has swept across Western Europe in the past six years like a prairie fire, largely at the political instigation of the Social Democratic labor confederations, to become regulatory laws of the land in a dozen European countries.

Thanks to the German Marshall Fund of the United States, each of you will receive a copy of a book our Center has just published called *Industrial Democrary in Europe: A 1977 Survey.* In it, among other things, you'll find our contention that the strong politicization of work life issues in Europe in the 1970's are basically not transportable overseas, like many European wines. You'll also find in our book that quality of work life activities and projects are as voluntary, non-ideological, and apolitical over there as they are here. QWL isn't a matter of ideology. It's a matter of pragmatically coping with industrial change.

To end my list of what QWL is not, comes perhaps its most important single characteristic. It is not, and cannot be imposed. It can't be decreed. like an ordinary management order. A CEO cannot decide "let there be quality of work life", and demand its installation by July first. It doesn't work that way. Carl Rogers, a brilliant psychologist, observed years ago that social change, if it is to work and to last, cannot be imposed. It must be sought. A quality of work life effort is a change effort. As may be evident from George Morris' quote, it seeks to legislate a new, changed set of value systems in the workplace. You cannot impose changes in values by fiat. You must seek to win allegiance, trust, confidence and advocacy to new values from the people who will be practicing those new values. As Billy Graham knows well, you must win converts. You can't decree their conversion, and expect them to immediately be born again. Quality of work life isn't something that can be imposed. It must be won.

So far, we've been briefly examining some things quality of work life isn't. We've eliminated softness, rigidity, snake oil or panacea, productivity, ideology, co-determination, and imposability as characteristics not present in the effective implementation of quality of work life activity in work organizations. Now let's move from the negative to the positive, and try to get a handle on what this bummer of a name actually does seek to legislate.

Right off the bat, it's important to point out that along about now in Canadian and American industrial history, it's a term that seems to have come to stay, like it or not, fuzzy or not, bummer or not. And importantly, in both our countries, it's a term as acceptable (and unacceptable) to unions as it is to managements, and vice versa. Union acceptance of the term as something they might support gives it a strong head start in the naming sweepstakes.

Actually, for all its flaws, quality of work life has some good points as a name or acronym. It doesn't threaten any of the stakeholders in the free enterprise system like such blatantly ideological names as "industrial democracy" or "self-management" or "worker participation", all of which have an implied "I want mine" ring to them that gets backs up politically and suspicious negative reaction juices flowing. It's a bland kind of name. It isn't shrill. It doesn't demand, or complain. It doesn't bleat its objectives; it gentles them. It's a rather sweet, nice name it's difficult to be against and in no way dangerous to be for, like the nice name "freedom" (which incidentally, is one of the important ingredients unidentified in the quality of work life name). In fact, maybe its greatest value as a name, now that we seem to be stuck with it, is the simplicity of what it seeks to legislate: a reasonable, desirable, attainable, uncomplicated better way of life for people who work and their employers in equal measure.

Maybe one of the greatest assets of the name we're stuck with is its impressive silence as to suggested solutions for what it names. It doesn't have a verb in it, like "enrich" or "participate" or "control". It has no "how to" pretensions as a name. Even more important on the positive side of the case, it rather precisely, and quietly identifies in one four-word term an emerging locus of social and economic concern in the late twentieth century. If it does nothing more, at least it legislates where to look, and what to look for. And it's worth noting and maybe even stressing that it's a name born in and of the 1970's, just as another name legislating a whole set of socio-economic concerns was born in and of the 1960's: "environmental preservation". In fact, the two names have much in common. Both identify and point to areas of growing social and economic concern about the burgeoning nature and

activities of industrialized society rampant. One points to people, the other points to the planet on which people—at least for the time being—have to live. Most important of all, neither is a name for a passing fad, but rather for an area of concern. The passing fad names are the names given to solutions, like job enrichment, which come and go.

I suggest that in this very less than adequate name is an attempt at legislating a slightly-startled new awareness in Western societies that despite the eternal imperfectibility of the human comedy, the quality of human experience at work can be a more effective, and results-producing experience for everybody than we've thought until very recently. Good name or bad, it zeroes in on—or legislates—a focus we're all of us in Western society going to have to deal with increasingly across the quarter century ahead of us; people in work organizations.

In its use today, I've often heard the name used as a noun. More often, I've heard the term used as a descriptive adjective. You'll hear people talk about "a QWL approach", "a quality of work life philosophy", "a QWL matter", or "areas of QWL concern". But when used as an adjective, except for its clear identification of locus, it means a lot of things the term itself is silent about. Like the term "affirmative action", unspoken in it, or subsumed under it, are a whole vast set of values and notions and activities it silently implies; perhaps in different measure to its various stakeholders. I'd like to spend the rest of my few minutes here, examining what the name is silent about, what it doesn't verbally legislate, but what most of the people who've been involved in making it happen would tend to agree it's really all about.

When we use the term as an adjective—let's say when we talk about the quality of work life approach—I think most of the ever-growing number of union and management people and their consultants who've been working in the QWL mode would agree that basically, the term implies a different concept, a different philosophy about work and working than most of us have been used to, a different way of working. I suggest that we scrape off it all the academic jargon with which behavioral scientists and others have lathered it so profusely in its formative years. If we do, I think you'd find that the quality of work life concept and philosophy is something very much like what Schumacher was hinting at in *Small is Beautiful.* It means perhaps going back in time some two hundred years or more to the small artisanal work units of the healthy medieval guilds. That was before the notion of men working together toward a common end was disintegrated into the division-of-labor constructs which would come to full, dehumanizing flower in the giant mechanistic organizations of the industrial age, and provide strong, ugly, wretched grist for the mill of the Marxian dialectic. Back then, people worked cooperatively, with respect for each other's contributions. They worked together. The artisanal way of working, from which I believe our so-called new quality of work life concepts spring, was cooperative rather than authoritarian, open rather than shut, evolutionary rather than rigid, informal and intuitive rather than formal and written, human and interpersonal rather than mechanistic, and win-win rather than win-lose. The essential value system or basic concept of this cooperative way of working, I would suggest, revolves essentially around the notion of trust between people who are working together, today as it was before the industrial age. Two-way trust. Trust of the worker by the supervisor, and vice versa. Trust of the management's intentions by the unions, and vice versa. Trust of the company by its employees, and vice versa. Trusting one another instead of suspecting one another. Thinking "us" instead of "we" versus "they". It's a more intrinsically human, and pleasurable, and less instrinsically artificial and thereby stressful way of organizing human beings to perform economic acts called work. In my opinion, if the whole complex world of quality of work life doesn't sound much more complex than the Boy Scout oath, it's because at its very base, it isn't.

I feel obliged, at this juncture, to make a brief personal digression, with which some of my colleagues in the field would strongly agree, and others just as strongly disagree. I do not personally happen to be either a great admirer of the notions of Jean Jacques Rousseau nor a great believer in the perfectibility of mankind. As some of you may recall, in *Emile,* Rousseau advanced his hypothesis *"que la nature a fait l'homme heureux et bon, mais que la societe deprave, et le rend miserable".* To the non-Francophones amongst you, loosely translated, Rousseau suggested that nature made man happy and good and if he's not it's society's fault. In his brilliant book, *The Social Contract,* ethologist Robert Ardrey suggests that with that Rousseauian notion, the age of the alibi was launched. Depuis ce temps-la, l'alibi fut invente pour le reste du temps. But worse, Ardrey adds, any such belief in human goodness must necessarily produce disillusionment, pessimism, and paranoia, if we look around us at the mess we're in, the institutions we've built and the people we let run them, and our apparent helplessness to do anything about it. "The vision of

man as a fallen angel," Ardrey notes, "is to me the most helpless of all philosophies. A strong belief in our original goodness leaves man, as we know him, as beyond comprehension as he is beyond help." The notion of the infinite perfectability of man—all men, all women, all Quebecquois, all Canadians, all Zaireans—provides the alibi—the passing the buck—for what ails us away from the truth that we are a natural species on the planet like all the others, except for the somewhat dubious distinction of our rationality. That rationality, true, flew me here on a jet aircraft, and has winged men to the moon, among other achievements. But if anything, it has hindered as much as helped human advancement to a higher state of social grace across millennia of the human comedy. Another ethologist, Konrad Lorentz, has suggested with some perspicacity that man may be the missing link between the anthropoid ape and the human being.

So to me, at least, and to our Center in Washington, it is not the possibility of the perfectability of man that prompts our strong advocacy of quality of work life activities in industrialized societies. We believe our mission to be couched in the eternal imperfectability of man, but the perfectability potential of man's organizations, in which imperfect missing links can, if properly guided by wise concepts, get their act together a little better for the social and economic benefit of all.

I would doubt if there's anyone in this room who would disagree that his work organization is not quite perfect, and therefore susceptible to a little perfectability here and there, or betterment, or change. That's where quality of work life appears on the scene. Quality of work life activity seeks change, or as some say, a change in work culture, to make organizations more contemporary.

To understand what such change means, it's useful if not mandatory to understand the change from what, or the "traditional" work culture prevalent when most QWL efforts begin. It never occurs to most of us that most of our existing organizations, public and private, are very probably absolescing, or anachronistic. Most were devised in or for another epoch of industrial history. In his excellent book, *Personal Values and Corporate Ethics,* E.H. Mobley, IBM's former Director of Training, describes with impressive accuracy the historical genesis of the model for organizations we have used for some two-hundred years in a wholly erroneous assumption that all organizations must be so constructed:

"* * *models for managing organizations are found historically in the family, the church, the military, and the state. These models are essentially bureaucratic in nature, and highly consistent with the Christian doctrine and Newtonian world-view (stable, materialistic, machine-like, cause-and-effect oriented), and viewed as wholly rational and objective."

In the certain, rational, machine-obsessed industrial age scheme of things which Newton helped spawn (j'ai remarque qu'en France, on ne dit pas Newton, on dit Descartes, qui vale a peu pres les memes idees) it was natural and perhaps even necessary for a while (with a major 20th-century assist from Frederick Taylor and his notions of "scientific" management) to invent organizations in which people and machines were perceived as relatively interchangeable units functioning toward the same end. And with that invention came another: the notion of perceiving people at work as economic units of production, or the notion of "economic man" or "human capital". As Peter Drucker has pointed out, the human machine's added value is in its ability to coordinate perception and reflex better than most machines, but the perception is the same: human labor as an economic commodity.

It is important to remember, and highly relevant to the importance of quality of work life in the 1970's, that when such organizational constructs were forming, a century or more ago, the "worker"—the new economic man—was basically illiterate and uneducated, with an anticipated life span which was "short, nasty and brutish". It made rational sense, as Taylor argued, to divide machine-and-human labor down into the smallest, and most easily-grasped functions for such industrial peasants. As a union colleague of mine called such emphasis, it was creating dumb jobs for dumb people.

But in the 19th century industrial organization model, real men got lost somewhere (as Dickens and Marx, among others, began to perceive). In the rush to create ever more goods and services and wealth, the shapers and movers of the industrial age largely forgot that every man and woman—economic or otherwise—has a navel, and was born from passion. They forgot—perhaps because one can't rationally quantify such phenomena—that what they perceived as bloodless units of mechanical labor were also sentient, learning, blooded, irrational, imperfect, emotional individuals capable of yearnings, angers, passions, convictions and, most important of all, behaviors a good deal less orderly than the unquestioning machine. They also forgot that such individuals were capable of being educated by the society.

Even more important, the shapers and movers of the industrial age largely failed to perceive the slowly-forming social and economic consequence of such forgettings. It rarely occurred to them as they formed their rational, quantifiable organizational constructs, that as their organizations became ever bigger, the employee considered and treated as "economic man" would become ever-farther removed from individual participation in, or contribution to, the purposes, ends and goals of the organization where he worked, and its parts. They didn't—and many still don't—perceive that such employees, given no responsibilities or involvement beyond a single repetitive task, would gain an ever-increasing sense of removal and distance from the purposes and objectives of the organization, and its objectives would seem ever-farther removed from theirs. The industrial organization—and even the economic system in which it operated—became less and less theirs. It was someone else's. It was management's organization, not theirs. Allegiance to the organization's concern for its welfare and profit, motivation to work, all dissipated in almost direct ratio to the degree of removal and irresponsibility. Purely economic man *has* no allegiances, except to dollars. Nor, if so treated, should he.

At a conference our Center convoked last fall for the CEO's and Senior Officers of General Motors, Xerox, Nabisco, and Weyerhaueser, one president explained to his peers the reasons for his organization's entry into QWL. He said it stemmed from his increasing concern and awareness in their 28,000-man work-force of what he called don't-give-a-damnism. En francais, *je m'enfoutisme.* "They just come in and work and get paid and go home," he said. "Their allegiance to us, to their work, and even to their union is worsening year by year." If, as is so often reported, *je m'enfoutisme* seems to be a growing international Western phenomenon, I suggest its primal cause, very probably, is growing turnoff by an ever-more-educated and demanding work-force in 1978 from still being treated and regarded as a dumb commodity, as unthinking "labor capital," or merely economic man. It is simple self-removal from involvement in a system or organization which is structured and run as oblivious that its living people are living people.

For all such growing signs of the unravelling of old industrial-age notions, the old illusions of rigid stability and military-power-dispensation in organizations to this day still cling to most Canadian and American and European industrial organizations like an unscourable bathtub ring. Elsewhere in our societies—as in our schools and churches—the Newtonian dogma of certainty and rigidity has taken a bad beating. Even the laws of physics, led by new 20th century thinkers like Heisenberg and Einstein among others, had knocked the Newtonian/Cartesian certainties into a cocked hat. Certainty, predictability, rigidity—the Newtonian/Cartesian legacy—were by 1978 as anachronistic as the horse and buggy. As Mobley puts it:

"Today, change is a more accurate description of the management of organizations than stability * * * Human purposes must continually be determined and changed; social order in organizations must be conceived in terms of process, rather than rigid, stable structure."

To those in this room who percieve your organizations as stable, rigid structures, set forever in concrete, your organizations are not, and should not be, candidates to try the quality of work life approach. To those of you who, like more and more of the best managed companies in the world, perceive your organizations as being involved in an evolving, developing, changing process, a process adaptive to the realities of the free market societies where you produce and sell your goods and services, your organizations are, and should be, candidates for quality of work life.

What does being such a candidate entail? To move from the general to the specific, let me tell you one opinion—my own, and that of our Center.

First, it means total, real, top-level, long-term commitment to the principles and concepts of quality of work life, which I characterized a moment ago as cooperative rather than authoritarian, open rather than shut or rigid, informal rather than formal, human rather than mechanistic. It means that from the very top of the organization to its lowest components, your managers and work-force must understand that you believe in, and will continue to believe in, the essential trust of one another—including your unions—as a new and better way of running organizations, which is the essence of quality of work life. Senior management must be as involved and dedicated to this set of values as shopfloor workers, and vice versa.

Second, it means patience, dedication, resolve, and willingness to let the process work, imperfectly and slowly. It means tolerance of its evolutionary, trial-and-error process. It means accepting setbacks and failures stemming from the imperfectibility of men, without shattering or diminishing your continuing commitment to make the process work.

Third, it means recognition and conviction that inside your managerial, middle-managerial, and hourly work-forces is a wealth of creative expertise and wisdom

which the old, rigid, stable structures kept locked in behind rules and organizational boxes. It means resolving to unleash and tap that expertise, and involving it actively as never before in the problem-solving mandatory to cope with never-ending change. It means involving people, in the cooperative, problem-solving mode, in decisions which affect the performance of their daily tasks. And equally if not more importantly, it involves listening carefully to what they have to say.

Fourth, it means establishing new, informal, cooperative structures specifically created and designed to implement the new problem-solving technologies already developed and in place in organizations such as General Motors, Nabisco, Weyerhaeuser and other organizations in the United States. Our Center, and other organizations involved in helping establish such informal structures, believes it wise, if not imperative, to have such problem-solving structures, which often call themselves quality of work life committees, established at several levels of the organization—one at the senior management level, others at divisional or regional levels, and still others at the plant or work-place levels. We also believe that in unionized organizations, it is literally mandatory that officers, stewards, and worker members of the union be joint participants in such committees. In our Weyerhaeuser project, the top level committee of six people consisted of the regional president of the international union and two of his key vice presidents, the executive vice president of the corporation, the senior vice president of personnel, and the human resources vice president. In other of our projects, that composition of the top level committee is significantly different, for as I noted earlier, every quality of work life effort is and must be idiosyncratic to the organization and unions involved. The informal structures, we believe, are a must, at each operating level of the company. General Motors calls them "parellel structures" Their function is joint, cooperative problem solving in the areas of the organization where they are formed. They create themselves; they are not imposed or ordered. They—often but not necessarily with outside help at first—establish the prioritization of the problems they perceive in their area as most needful of attention. They may, and often do, place environmental, safety, or health problems high on their priority list. They may, and often do, place restructuring of work, work processes, work assignments high on the list. They may, and often do, examine and problem solve around such issues as unnecessary supervision in certain areas, or even elimination of supervision in favor of relatively autonomous work teams. They may, and often do, concern themselves with rectification and improvement of simple housekeeping problems such as oil on floors, or cafeteria quality or even parking lot assignments. One labor/management committee in one of our projects actually became involved in redesigning some new technology the company had purchased, and making the manufacturer change it to match their specs, at a saving of some $500,000.

Whatever they—and incidentally, only they—may decide as their problem-solving priorities, and however they, and only they, may recommend ways to solve them and in what time frame, it is of critical importance to those of you in unionized companies to be aware that none of the problems they attack should ever be permitted to be issues which involve the collectively bargained union/management contract. Contractual issues, like pay scales, pensions, incentive plans, etc. are not conceived as quality of work life issues, and if your QWL effort is to succeed, contractual issues are not, and should not be mixed into the problem-solving cooperative effort.

In a meeting of some hundred quality of work life workers, supervisors, stewards, managers and union officers which our Center held last year, one supervisor from a Nabisco bakery suggested that maybe ten percent of the issues involved in work are strictly management concerns, and maybe another ten percent are strictly union concerns, and that the issues bargained over in collective bargaining involved that 20%. But the remaining eighty percent or grey area, he said, are things like machinery maintenance, or work processes and their structure, or flexible work hours, or other things which usually aren't even involved or discussed in bargaining and contracts. That eighty percent, he suggested, is the area for the cooperative, joint problem-solving processes of the quality of work life effort.

Participative problem-solving, tapping the expertise in the total work-force, neither is nor should be limited to the committees. Through committee-appointed task forces and subcommittees, it should be spread as widely upward and downward in management and the work-force as is feasible and possible. For the goal of the effort, remember, is to provide an enablement to permit the total organization to become involved in working together, instead of against each other.

Our Center sets a lot of store by these enabling problem-solving structures which I cited as the fourth proviso for an effective quality of work life effort. But we also set a lot of store by the fifth proviso. You must measure what happens, within an

inch of its life. We don't feel costly measurement of attitudinal change is worth very much to either managements or unions. What we feel is terribly important is before/after measurement of results, hard data—accumulated across the years—which will show managements and unions the specific dollar impact of this new problem-solving technology on productivity, product or service quality, and dollar savings in reduced grievances, reduced absenteeism, reduced turnover, which almost always follows in the wake of QWL efforts. I come back to the term "organizational effectiveness" I mentioned, which ultimately must be measured, and measurable, in impact on bottom line performance. The trouble is, we've found again and again, a great many management information systems aren't geared to capture, let alone put dollar amounts on, many of the cost-effective improvements which the process provides. In one company, in one plant, their measurements showed productivity decreasing slightly, while bottom line profit rose sharply. We suggested to them, as I suggest to you, that just maybe their productivity measurements weren't exactly top-rate. A good, well-structured quality of work life effort, you may find, may urge you to a major reassessment of your MIS and what it shows you.

Sixth, it means accepting the imperfectness of the process, and the imperfectness of many of the individuals who will be involved in it. In one of our projects, the plant manager of a pilot site stubbornly (the union said helplessly) refused to accept the new cooperative way of life springing up around him. When his recalcitrance and inability to get with it, and some of the misinformation he had fed up to higher-level committees finally surfaced, the company's president blew his top, and in a burst of anger decided to fire the SOB. But although many on the senior-level committee, including the president of the international union, would have liked to see the gentleman's immediate departure, to end his roadblocking of cooperative development, they urged the president to remember his acceptance of the slowness of the process, and instead to work harder to make the guy learn slowly to fly right. Firing him would have been the old, authoritarian way out, they told him. Grudgingly, but because he profoundly believed in the process and its values, the president agreed they were right. There's a postscript to that story. Almost a year later, the plant manager is still in place. And still just as unable to get with it as ever. But the values are still in place in that plant, and despite the roadblocks, gaining in effectiveness every day.

I have a definition of the quality of work life I'd like to close with. It encompasses almost everything I've tried to convey here. I think it may be one of the best definitions of the process I've ever heard. Here it is: faith in the capacities of human nature, faith in human intelligence, and above all, faith in the power of pooled and collective experience. It is not belief that these things are ever complete. It is belief that if given a show, they will slowly grow, and generate the wisdom and the knowledge needed to guide collective, cooperative action.

It may be worth noting that the definition I just read wasn't an attempt to legislate an identity to quality of work life, the name that isn't there. It was written by an American philosopher, John Dewey, in 1928, exactly fifty year ago, before this fuzzy, bummer of a name had come to stay and plague us all. It was Dewey's attempt to define the process of democracy, one of the highest and most noble concepts imperfect man ever invented.

On your seats, you'll find a slip of paper. On that paper, I wish you'd write your suggestion as to what name you'd recommend to legislate the identity of what I've tried to describe here. You need no box tops, and only if you want to, need you fill in your name. There is a prize. If your name—in four words or preferably less—is acceptable to the jury, you will get credit throughout history for having named what just might be the leading edge of the voluntary social force that without government regulation enforcing us to comply just could save the free market system from destroying itself in our time of history.

[From Psychology Today, May 1978]

The New Psychological Contracts at Work

(By Daniel Yankelovich) [1]

No question will dominate the workplace in the 1980's more than how to revamp incentives to match the new motivations of workers.

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A new breed of Americans, born out of the social movements of the 60s and grown into a majority in the 70s, holds a set of values and beliefs so markedly different from the traditional outlook that they promise to transform the character of work in America in the 80s. Here are just a few consequences of New Breed values:

The desire to hold a paid job has become so compelling that some 24 to 27 million people not now employed in full-time paid jobs—women, young people, and old people in particular—are waiting to take jobs if they become available. The traditional method of creating jobs is through growth in the economy at an average rate of two to 2.5 million new jobs a year; at this rate, supply has no chance of catching up with demand. The official unemployment figure of about seven million, therefore, grossly understates the potential demand for jobs. As we move closer to our national commitment to guarantee a job to everyone who wants to work, we are confronted with the awesome task of creating millions of new jobs in addition to those that will be generated by normal or even superheated growth in the economy.

Competition for jobs has already grown so fierce that young blacks—the prime target group for many policy planners—are the most deprived, they now suffer from an unemployment rate estimated at 46 percent to 60 percent. If our approach to the job market does not change, their plight will grow worse. And yet, millions of jobs that are considered undesirable, or "dead end," cannot be filled.

Today, millions who do hold paid jobs find the present incentive system so unappealing that they are no longer motivated to work hard. As a consequence, not only do they withdraw emotional involvement from the job, they also insist upon steady increases in pay and fringe benefits to compensate for the job's lack of appeal. The less they give to the job, the more they seem to demand—a process that cannot continue for long without breaking down. A deep flaw in the incentive system, signified by the failure of the old incentives to catch up with the new motivations, leads inexorably to deterioration in the workplace, threatening the position of the United States as the world's foremost industrial nation.

WORK AND THE OLD VALUES

In the last half century, the field of psychology has added greatly to our understanding of what contributes to people's feelings of well-being. A variety of studies have demonstrated that psychological well-being is a complex structure. Among its chief building blocks are: a sense of self-esteem and conviction of one's worth as an individual; a clear-cut sense of identity; the ability to believe that one's actions make sense to others as well as to oneself; a set of concrete goals and values; feelings of potency and efficacy; enough stimulation to avoid boredom; a feeling that one's world is reasonably stable; and an overall sense of meaning and coherence in one's life. People for whom these needs are met often experience a job in living and a conviction that they are successful as human beings. Their lives may be marked by suffering and frustration—such is the human condition—but, psychologically speaking, they are the fortunate ones.

Because psychologists focus so sharply on the *individual,* their writings imply that it is up to each person to achieve his or her psychological well-being through inner resources. Unfortunately, psychologists fail to appreciate how dependent all of us are on the ability of the society and culture to create the conditions—social, economic, political, and cultural—in which personal ego strengths can be nurtured. For most of this century, and in particular in the quarter century following World War II (roughly up to 1970), the value system of most Americans centered around a number of powerful, culturally derived symbols that drew their strength from their ability to "deliver" at least some of the essentials of psychological well-being. In particular, they proved capable of giving people a sense of self-esteem, a clear identity, concrete, well-defined goals and values, a sense of effectiveness, and a conviction that one's private goals and behavior also contributed to the well-being of others.

Most of these symbols are strikingly middle-class in character. They became dominant values in the 1950s and 1960s as more people were able to move into the middle class through education, a booming economy, and a steady rise in the median income of all but the poorest 20 percent of the population. Some of the consequences of the old value system for the world of work can be summed up as follows:

If women could afford to stay home and not work at a paid job, they did so.

As long as a job provided a man with a decent living and some degree of economic security, he would put up with all its drawbacks, because it meant that he could fulfill his economic obligations to his family and confirm his own self-esteem as breadwinner and good provider.

The incentive system—mainly money and status rewards—was successful in motivating most people.

People were tied to their jobs not only by bonds of commitment to their family, but also by loyalty to their organizations.

Most people defined their identity through their work role, subordinating and suppressing most conflicting personal desires.

For all practical purposes, a job was defined as a paid activity that provided steady full-time work to the male breadwinner with compensation adequate to provide at least the necessities, and, with luck, some luxuries, for an intact nuclear family.

Under the onslaught of a new value system, all these consequences of the old value system have already changed or are in the process of changing. The New Breed values are expressed in the world of work in some ways that are obvious and others that are quite subtle. Three of the more striking manifestations of New Breed work-related values are (1) the increasing importance of leisure, (2) the symbolic significance of the paid job, and (3) the insistence that jobs become less depersonalized.

THE PURSUIT OF LEISURE

Along with family life, work and leisure always compete for people's time and allegiance. One or the other is usually the center of gravity; rarely does the individual strike an equal balance among all three. For the New Breed, family and work have grown less important and leisure more important. When work and leisure are compared as sources of satisfaction in our surveys, only one out of five people (21 percent) states that work means more to them than leisure. The majority (60 percent) say that while they enjoy their work, it is not their major source of satisfaction. (The other 19 percent are so exhausted by the demands work makes of them that they cannot conceive of it as even a minor source of satisfaction.)

This is not a purely American phenomenon. A recent study in Sweden produced a striking set of findings. When Swedish men, 18 to 55 years of age, were asked way back in 1955, "What gives your life the most meaning—your family, your work, or your leisure?," only 13 percent answered "leisure," 33 percent "work," and 45 percent their "family." In 1977, when the same question was asked of a new cross-section of Swedish men, the proportion of men naming work as the main source of meaning in life had been cut in half—from 33 percent to 17 percent. The position of family life had also eroded slightly—45 percent to 41 percent. But dedication to leisure had more than doubled—from 13 percent to 27 percent!

THE PAID JOB AS A SYMBOL

If leisure grows more important for men in the pursuit of self-fulfillment, for New Breed women the symbolic significance of a paid job has greatly intensified. Let us acknowledge at once that most women work for money: many women have no other source of economic support but their own work, and increasing numbers support their dependent children through paid work. Even when the burden of making a living falls mainly on the man, the money earned by the woman in most families has proven indispensable to maintaining a standard of living the family considers satisfactory. Yet, even though work is often an economic necessity for women, one of the essential points of the women's movement is the symbolic meaning of a paid job.

In recent years, unpaid housework has suffered a severe loss in social status. For women today, being "just a housewife" is a poor means of maintaining self-esteem. For New Breed women, exclusive confinement to the unpaid work of homemaker and mother somehow implies being cut off from the full possibilities of self-fulfillment. A paid job has become a badge of membership in the larger society and an almost indispensable symbol of self-worth. It is also a means of achieving autonomy and independence.

The woman with a paid job, however menial or poorly paid, feels that she no longer has to be totally dependent on the will and whim of a man. No longer is she obliged, when trapped in total dependency, to stay with an unsatisfactory marriage. Divorce rates have shot up because divorce is now a practical option for millions of women. They now have, or can acquire, the "price of admission" to independence in our society—a paid job. This does not mean that only women are choosing divorce and are solely responsible for high divorce rates. Many women do not choose divorce because they are able to find work—but find work because they are forced to support themselves after their men leave to "fulfill themselves."

To observers, and indeed to many women who work, exchanging the security of homemaker for a poorly paid job seems like a bad bargain. Often it *is* a bad bargain.

Probably, therefore, women in the 1980s will grow more discriminating about the jobs they take. But even when this occurs—as seems inevitable—the pendulum will not swing all the way back. Unfortunately, many women seem to have accepted unquestioningly the male-dominated values of the old era; instead of bringing men to a greater appreciation of the values of home, family, and child care, women have endorsed the male values associated with paid work.

THE PERSON COMES FIRST

More complex and intangible is the New Breed's refusal to subordinate their personalities to the work role. To understand this refusal is to grasp the essence of the New Breed's quest for self-fulfillment.

One of the most striking characteristics of the old value system was the tendency for people to identify themselves with their work role. European visitors to the United States are often startled when Americans introduce themselves by saying, "I am a car dealer"; "I'm assistant manager of the local bank"; "I'm a housewife"; "I manage the personnel department at J.C. Penney's."

Today, there is no greater source of discomfort to the New Breed than this traditional equation of identity with work role. In their eyes, when an individual is subordinated to his role, he somehow is turned into an object, and his humanity is reduced in some indefinable but all-important sense. In the new value system, the individual says, in effect, "I am more than my role. I am myself." The New Breed person demands that his or her individuality be recognized.

When we ask people in our surveys which aspects of their work are becoming more important to them, they stress, above all else, "being recognized as an individual person." They also stress "the opportunity to be with pleasant people with whom I like to work." Significantly, for the majority of people these demands come ahead of the desire that the work itself be interesting and nonroutine.

SEEKING NEW BREED INCENTIVES

Perhaps no question will dominate the workplace in the 1980s more than how to revamp incentives to make them a better match for the work motivations of the New Breed. One might assume that because so many people want paid jobs, they are therefore motivated to work hard. This is true for some people, but the desire for a paid job and the motivation to work hard are independent factors. Just *having* a paid job meets important human needs: for income, independence, self-respect, belonging to the larger society. In principle, a person might be satisfied merely by holding a job without working at it seriously.

And, in practice, this is what a great many do. People will often start a job willing to work hard and be productive. But if the job fails to meet their expectations—if it doesn't give them the incentives they are looking for—then they lose interest. They may use the job to satisfy their own needs but give little in return. The preoccupation with self that is the hallmark of New Breed values places the burden of providing incentives for hard work more squarely on the employer than under the old value system.

Unaccustomed to this burden, employers are angry and frustrated. Under the old value system, they relied on the carrot-and-stick approach, the carrot being money and success, the stick being the threat of economic insecurity. This combination still works, but not as well as in the past. With the advent of New Breed values, the motivational context has changed drastically.

The workplace in America is among the most conservative of our institutions. It has been highly resistant to change, particularly to the successive waves of individualism that have swept over so many other areas of American life. To be sure, at the stratospheric levels of giant corporations, trade unions, government bureaucracies, hospitals, and other institutions, individualism flowers for top-level executives. In these great baronies of our society, the self-fulfillment needs of those at the top are given full play; but all other employees are expected to conform to rigid rules of group behavior. On ceremonial occasions, obeisance is paid to them: "Our people are our greatest resource and we must pay attention to their needs," their leaders say. But in everyday life, attention is paid to everything but people—capital requirements, technology, material resources, managerial techniques, political pressures, cost controls, and markets.

As long as the traditional carrot-and-stick worked well, those at the top could afford to pay less attention to the human side of the organization. Perhaps the chief lesson we should draw from the changes shaped by the new values is that concern with the human side of the enterprise can no longer be relegated to low-level personnel departments. In the 1980s, knowledge of how the changed American value system affects incentives and motivations to work hard may well become a key

requirement for entering the ranks of top management in both the private and public sector. If this occurs, we shall see a New Breed of managers to correspond to the New Breed of employees.

WORKING OUT SOLUTIONS

In retrospect, the 1970s will be seen as a watershed in American social history. The great changes taking place in the value system have consequences for *all* aspects of American life, but for none more than the workplace. Our traditional economic categories lead us to false conclusions. Within their framework, we seem to be confronted with a disaster in the making: a mass of would-be workers far in excess of the normal capacity of the economy to create jobs to accommodate them, and an incentive system that no longer motivates people.

But disaster looms only if the situation is seen within a narrow economic perspective. If we broaden our vista to take into account new psychosocial realities, the "disaster" looks more like an opportunity. Ever larger numbers of people are willing to share the burdens of coping with our advanced industrial society and its problems. A better-educated work force refuses to accept the old alienations that past thinkers assumed were inherent in modern society. The employees' challenge is essentially constructive; and if it is properly understood and acknowledged, we may emerge with a better *society* as well as a healthier *economy*.

We may have to push our institutions to mobilize their political will, but no one ever said that the purpose of people is to suit the convenience of institutions. It is supposed to be the other way around.

Representative BOLLING. Thank you.

Our next witness is Mr. George Poulin, general vice president of the International Association of Machinists & Aerospace Workers. He has been an active representative of the union since 1952.

His administrative responsibilities cover the entire organization.

We are glad to have you with us.

Please proceed, Mr. Poulin.

STATEMENT OF GEORGE J. POULIN, GENERAL VICE PRESIDENT, INTERNATIONAL ASSOCIATION OF MACHINISTS & AEROSPACE WORKERS

Mr. POULIN. I very much appreciate this opportunity to participate in these hearings. I am appearing this morning as a general vice president of the International Association of Machinists & Aerospace Workers, and I've been asked to discuss work environment from the workers' point of view.

I have a prepared statement. However, I would like to make a brief oral statement.

Representative BOLLING. Your full prepared statement will be included in the record.

Mr. POULIN. In my prepared statement, I state that the union's views necessarily reflect the members they represent.

I have been doing that for a good many years. I started out in the shop, and my experience in contract negotiations and grievances indicate that the environment of the workplace has not really changed much since I was a production helper in a plastic extruding plant 30 years ago.

And considering the ways in which the workshop sets the work, let me say first of all that union members are fully aware of the need for such things as flextime.

We know that our employers must be able to compete, and make a profit. So we are not opposed to their efforts to increase productivity.

We do, however, question the ways in which some tried to extract it from the work force. We question the intense pressures

that are far too common in the mills, mines, foundries, warehouses, and other places, where many of the workers perform the hard, heavy, dangerous, dull, and repetitive jobs necessary in our industrial society.

These are pressures that flow from primarily production quotas and speedups, devised by time and motion experts who assume, in most cases, that every worker at every moment can achieve, on a short-time basis, the maximum under the most ideal conditions.

We contend that over the long run, constant and continuing pressures result in less productivity, and more defective products.

We also question the environment of authoritarianism that permeates so many of our American working places today. We question whether workers can be motivated to work sufficiently by treating them like children in kindergarten or prisoners in the penitentiary.

In my prepared statement, I listed some of the petty rules that are being used. I will not bore you with those statistics here.

Lest you think that the kind of examples I offer are exaggerated, I stated Fortune magazine has observed, and I quote: "At some plants there are sternly detailed work rules that would make a training sergeant at a Marine boot camp smile with pleasure."

Admittedly, some companies are trying to temper this kind of authoritarianism by giving workers a greater sense of participation through job enrichments, those of which Ted Mills has just addressed himself to.

It is too early to tell, in my opinion, whether this is more than just another fake. In some cases workers have been able to make token changes. But some managements are already drawing back for fear of giving workers too much on the job.

In addition to intense pressures and authoritarianism, the aspect of work environment that concerns us most really today, Mr. Chairman, is the physical environment of the workplace.

This is an environment in which millions of men and women daily risk their hearing, their sight, their limbs, and even their very lives. It is an environment characterized by deafening noise, choking dust, bad lighting, and merciless heat.

But the most insidious dangers are those that cannot be seen, touched, or felt in the workplace. These include thousands of untested chemicals and compounds, plus the fumes, and vapors, the gases, the radiation, and other noxious substances that have been introduced into the workplace by a rampaging technology.

Instead of repeating work accidents, diseases, and death statistics that are too numerous to be truly comprehended here today, I have stated a number of actual cases in my prepared statement.

Drawing these from our members, I have tried to dramatize by statistics and personalized example the ways in which our members are being crippled and killed by exposure to beryllium, asbestos, carbon monoxide, and countless other poisons in the workplace.

I could have listed, Mr. Chairman, many more substances. We average between 10 and 15 letters everyday from our members who are suffering, either from liver damage, brain damage, emphysema, brittle bones, rashes, blurry vision, cancer, and thousands of other crippling diseases due to such exposure.

Recently, we have been treated to a typical example of low priority that is placed on the health and safety of working people in some quarters. I am referring to proposed regulations designed to reduce the incidence of dreaded brown lung disease, which already afflicts some 35,000 workers in the textile industry today.

OSHA has proposed that members be protected from cotton dust through new ventilation and engineering controls. This effort to protect the work force was almost cut down by opposition from the President's economic advisers. They said it would be too expensive for employers.

This is just another case, I submit, Mr. Chairman, of dollars over lives. Some people consider this a victory that the President, after some indecision and delay, finally overruled his economic advisers, and authorized the new rules with some modifications.

I say there should have been no indecision. There should have been no compromise in this case.

I would submit that that issue has been studied for a good number of years. We keep hearing that safety pays, but that is obviously untrue. If safety pays, every business organization would have lined up in support of OSHA.

Instead, they fought it for 50 years, and they are still fighting it.

If safety pays, I can assure you that every workplace in America would be safe. Industry may save the cost it would take to make America's working places safe, but employers do pay the price for the pressures and personnel policies and peril that permeate so much of America's work environment. They pay the price in the loss of production, when so many workers dread going to their jobs every morning, and can't wait to get out in the evening.

They pay the price in the loss of mutual trust and cooperation, when industry wages a kind of class warfare against any union or government effort to improve the work environment. If employers want more efficiency and more productivity, I suggest they stop treating workers like machines, while treating machines better than people.

I suggest a lot of them could clean up their acts along with the workplaces.

Thank you very much.

[The prepared statement of Mr. Poulin follows:]

PREPARED STATEMENT OF GEORGE J. POULIN

The Work Environment—A Union View

Mr. Chairman and members of the Joint Economic Committee, I very much appreciate this opportunity to participate in these hearings. I am appearing this morning as a General Vice President of the International Association of Machinists and Aerospace Workers and have been asked to discuss the work environment from the union's point of view.

Let me begin by noting that like all of my fellow officers on the Executive Council of the Machinists Union I began my working life in the shop. So when I talk about the work environment I am dealing with a subject I know at first hand. For some years now I have been serving as a union representative rather than working on a production line. But on the basis of my own experience over many years of contract negotiation and grievance handling I can assure you the work environment hasn't changed much since I was hired as a production helper in a plastics extruding plant almost 30 years ago.

Although I have been asked to consider the working environment from the union's point of view I cannot do so without reference to the workers' point of view.

In the final analysis unionism originated and has survived as a direct response to the environment in which millions of Americans spend their working hours.

So let me tell you how the people who do the hard, dirty, heavy, dangerous, dull and repetitive jobs of our industrial society normally feel when they go into many of this nation's mills, factories, mines, foundries, workshops, warehouses and other work places.

Generally and most immediately they feel a sense of pressure. The desire by employers to extract as much production as possible from the work force is one of the constants in the labor-management equation. The body of the father of scientific management, Frederick Taylor, may lie moldering in the grave, but his spirit marches on. In thousands of work places bright young time and motion study engineers are still clocking the work processes of the most vigorously able employees under the most ideal conditions. These then become the norm for the speed of conveyor belts or production quotas that have to be met. And everyone is expected to keep up no matter who they feel on any particular day. It doesn't matter if a guy or a girl had a bad night with a sick child or are worried about the car breaking down or feel a tooth ache coming on. They've got to withstand production pressures set by some deskbound time and motion expert who has never had to put in eight hours on a production line.

When I was serving as a local union representative for these employees in the shop, management was always telling me how they had to have more efficiency in productivity. Over the years I came to realize that for many managements, "efficiency" meant finding better ways to apply pressure to get labor to work longer and harder. The latest fad in the search for increased productivity goes by the sugar-coated term of "job enrichment." This is a kind of industrial democracy that is imposed from above. Management permits workers to make token alterations in job arrangements. But since the purpose is to spur production rather than make workers happy, there is no real transfer of power over the work environment. Let me note at this point that neither unions nor their members are opposed to efficiency or productivity as such. We know that if a company is not competitive it cannot provide jobs very long. But we do not believe that efficiency can be achieved by creating a pressure cooker work environment. Over the long run, in fact, the result is more likely to be more inefficient production and defective products.

In addition to pressure, millions of working people are also subjected to an environment of authoritarianism in the work place that is best described as corrosive to the human spirit. Lest you think I am exaggerating for effect, let me quote from an article on blue collar employment that appeared in Fortune Magazine some years ago. This is what the bible of big business has to say on the subject of management control. "At some plants there are sternly detailed work rules that would make a training sergeant at a Marine boot camp smile with pleasure. The rules prohibit such offenses as catcalls, horseplay, making preparation to leave before the whistle sounds, littering, wasting time, and loitering in the toilets."

Rules such as these may be appropriate for a kindergarten or a prison. But the workers of America are not children and places of employment should not be patterned on penitentiaries.

Optimum productivity and maximum efficiency cannot be achieved in an environment in which the worker's dignity and self-respect are under constant assault.

It does nothing for a worker's dignity to have to ask for permission to go to the bathroom or use the pay phone.

It doesn't help one's sense of self-esteem to be told that the company has rules against talking because if you're talking you're not working.

It doesn't do much for one's morale to be told you have to work overtime whenever your foreman says so.

It doesn't sustain one's pride to be told that if you're off sick, you have to bring a note from the doctor.

It certainly isn't conducive to self-confidence to know that if you swear at the foreman you can be suspended or fired, but if he swears at you nothing much will happen.

These are just some of the irritants that pollute the job environment for millions of working people. Though union-negotiated grievance procedures help to relieve this kind of psychological pollution in organized plants, they are not fool-proof.

Many people do not realize that in a grievance procedure a worker is presumed guilty until proven innocent. If a foreman decides to discipline an employee, the penalty goes into effect immediately. The right to grieve comes later. And if the case goes to arbitration it can take months for a worker to recover lost wages or his job even when he's right. The effect is that even if a foreman's order violates the union contract or the company's own safety rules, a worker risks suspension or

termination if he refuses to obey. I might point out, incidently, that this was one of the key issues in the coal strike last winter. Miners know that if they can be ordered into an unsafe mine they may be dead before they can file a grievance.

The dangers of mining are well-known because they are periodically dramatized by disasters in the coalfields. The hazards of employment in other work places are less publicized, but they are nonetheless severe.

To this point I have stressed the mental pressures and emotional assaults to which so many workers are subjected because these are too often overlooked in considerations of the work environment. But let me come now to what is the most overwhelming concern of all. And that is the physical environment in which so many Americans earn their daily bread. This is an environment in which millions of men and women can at any moment lose their eyes or limbs or even their lives. It is an environment characterized by deafening noise, choking dust, bad lighting and merciless heat. But these are merely the most obvious dangers—the ones that can be seen and felt and touched. Far more insidious and increasingly pervasive are all the unseen and untested chemicals, fumes, vapors, gases and other noxious substances that are being introduced into work places by a rampaging technology.

I could cite a lot of statistics to prove how many workers are being crippled and killed and diseased in the industrial work environment. But I don't want to talk about statistics. I want to talk about people.

I want to tell you about the Machinists Union member in Iowa who works with polyurethane foam and who wrote to complain his lungs are so badly congested he can't sleep at night.

I want to tell you about the member in Ohio who works with cleansing chemicals and who has developed a rash covering his hands, arms, face and feet.

The widow in Illinois who wrote about her machinist husband who died from beryllium poisoning.

The auto mechanic in Seattle who was disabled by the asbestos dust he inhaled while machining brake linings.

The grinding machine operator in New York who got emphysema from metallic dust.

I want to tell you about the man and wife who both worked in the same shop and who both suffered liver damage from using the same trichlorethylene solvent.

The member in Iowa whose liver was damaged by continued exposure to perchlorethylene on the job.

The worker in the New Jersey pharmaceutical plant who wrote to tell us how he has become weak and disoriented and has blurry vision and pains in the chest because of bromide poisoning.

The airline worker who cleaned down planes with methylethylketon until he collapsed and was hospitalized with permanent brain damage.

The welder in Michigan who learned too late that even brief exposure to cadmium can cause bones to crumble.

The 50-year old body and fender man in Pennsylvania who lurches and shakes because of long exposure to carbon monoxide.

These are just a few, a very few, of the kind of cases that turn up in letters from our members to our Medical Department at the rate of 10 to 15 a day.

These cases and conditions exist as a normal part of the working environment for millions of Americans because it is cheaper for industry to risk bargain basement workmen's compensation payments for a few workers than to invest in safer equipment, better ventilation and decent health and safety precautions for all workers.

When the paid propagandists of big business proclaim that "safety pays," they lie. If safety paid, every business organization in America would have lined up in support of OSHA. Instead they fought it for 50 years and they're still fighting it. If safety paid I can assure you every working place in America would be safe.

Industry may save the cost it would take to make America's working places safe. But employers do pay a price for the pressure, personnel policies and peril that permeates so much of America's work environment.

It pays a price in loss of production when so many workers dread going to their jobs every morning and can't wait to get out at night. It pays a price in loss of mutual trust and cooperation when it wages a kind of class warfare against any union or government effort to improve the work environment.

If employers really want more efficiency and productivity I suggest they stop treating workers like machines while treating machines better than people. I suggest a lot of them could clean up their act, along with their work places.

Representative BOLLING. Thank you.

I am sure you know, OSHA is still under fire in the House. I happened to be presiding over the appropriation bill on HEW when the Committee of the Whole adopted an amendment that would eliminate from the OSHA coverage about 95 percent of all the workplaces in the country by eliminating those who employ less than 100.

We hope to reverse that, I might say, as you probably know, when the matter gets back to the House, probably on Tuesday. But that is a good illustration that the Congress has succumbed to a good deal of propaganda and——

Mr. POULIN. We hope you are entirely successful.

Representative BOLLING. I don't usually get involved in things such as this, but I was rather shocked the other day.

Mr. POULIN. You and a lot of other people.

Representative BOLLING. Now we have a gallant lady. She has been very kind to join us, because one of our witnesses at the last minute was unable to come.

We appreciate it very much. We don't expect any statements from you unless you would like to make one.

We are delighted to have you here to join us.

The lady is Ms. Joan Mebane, manager of communications research at Philip Morris U.S.A. She obtained her B.A. in economics from Vassar. That is where my mother went.

She is a former research associate for Fortune magazine; more recently a researcher-writer-editor of Time-Life books, as well as involved in reporting on possible future projects to top management.

Unless you would like to make a comment, we will go to questions and discussions.

STATEMENT OF JOAN MEBANE, MANAGER OF COMMUNICATIONS RESEARCH, PHILIP MORRIS U.S.A.

Ms. MEBANE. I think I should make one comment. I do appreciate being excused from delivering a prepared statement at the last minute.

But perhaps I owe it to you and the rest of the people here to tell you why I have an interest in this particular subject area. Philip Morris has joined with the Wharton School of the University of Pennsylvania, and with the Colgate Darden School of Business Administration of the University of Virginia in putting on a conference in the spring of 1979 on working in the 21st century.

This demonstrates Philip Morris' commitment and sense of social responsibility to the purpose that we should be involving ourselves in issues of this importance, and we consider this to be an extremely important issue.

This conference will be designed to invite business leaders, political leaders, academicians, members of the press, associations, and others interested in this subject matter, to the Philip Morris Operations Center in Richmond for 2 days to discuss this subject.

We will be talking about the 21st century in terms of the quality of the work life, but also in terms of the broader issues, the impact of technology on capital formation, the international influences that will be determining what the work life will be at that particular time, the emerging new work force, et cetera.

Our emphasis will be to come up with alternative management strategies to deal with this issue in the future.

My interest is perhaps journalistic, academic, and I am very much concerned as coordinator of this conference, to get it together in the best way possible.

Representative BOLLING. Thank you very much.

I'm curious that one aspect of the American, peculiarly American, problem in this respect. I have been talking to a variety of people from other countries, sometimes perfectly casually, and sometimes in a rather structured way, about the differences in the experiences of some of the other developed countries in a variety of those sets of relationships and in the process of that, and my other experiences. I have been made more and more aware of the differences that exist between management and labor relations in this country, as opposed to, say, Germany, or a variety of other countries.

In Germany, for example, the tradition of labor has been to gain a larger share of management, I think that is a fair way to say it, at the expense—some would say—of their ability to deal most effectively with the pay envelope.

I think that would be denied by German workers, but that would be the picture some American unions have. In effect, the German labor movement has sought a share in some aspects of management. The Minister of Finance of Germany, whose name I will not attempt to pronounce at this time, is from the labor movement.

It is that kind of a situation which is clearly rather different from ours. We have more of an adversary situation in this country.

Despite the experiences of Germany with totalitarianism, they all have a longer, more active tradition because, after all, Germany got social security from a man named Bismarck. I think it is social security that is more progressive than our social security system anyway.

But what I am curious about, and the question I would like to throw out, if our difficulties are going to be to deal with this specific problem, which I think is a very fundamental problem—because we do have this sort of adversary relationship that is built into the system. I am not being critical of it.

I just think it is a little different than some of the other countries.

I wonder if you have a comment?

Mr. MILLS. I would like to make a couple of remarks.

Our center has just published a book entitled "Industrial Democracy in Europe." We made a very complete study of what has been going on in Europe.

To me, the significant difference between not only West Germany, Holland, Scandinavia, every country except France and Italy, is that the effect is to turn to the legislatures and pass laws such as the Mitbestimmung law of 1976 which mandates workers on boards; the 1972 work constitution act in Germany, which makes worker councils mandatory in every company with more than 50 employees, et cetera. The same is true in Austria. The same is true in Belgium and every Scandinavian country.

They also go to their legislatures and enact laws mandating that this take place in the private sector. In the United States, because

of its totally different nature, the American union movement neither seeks nor wants such laws.

It believes profoundly—and I don't know if Mr. Poulin believes this or not—in free collective bargaining to settle these kinds of problems, not turning to Government as a court of last resort, unless the situation gets so out of hand—and I don't believe it is anywhere near that—that you have to pass laws like OSHA because management will simply not do it without Government intervention.

There is, in my opinion, a very major distinction between the European phenomenon which has swept across Europe in the last 6 years, and what is happening here, which is voluntary unions and managements together trying to solve some of these problems.

I would just like to make one comment about what Mr. Poulin said. I agree with everything he said but one thing: He used the term "job enrichment." "Job enrichment," in this country, is imposed by management on workers without union participation, or without employee participation, and job enrichment has proved to be the very fad Mr. Poulin named it.

"Quality of work life," which an increasing number of international unions in the AFL–CIO have adopted as consonant with the goal of the American labor movement, describes not a solution by job enrichment, but by joint union-management cooperation in solving some of these very problems that you identify.

Mr. POULIN. I agree in part. I adjust myself to some of the schemes that are coming forth, and the quality of the work life is really part of the scheme. I am not sure that I have had enough exposure to give an opinion, up or down, that we have the experience in some of our negotiations, and I view them with still some qualms, and I am not necessarily ready to agree that that is something the American labor movement is going to adopt.

I see some additional problems, Mr. Chairman, which fall within the purview of what your committee is attempting to put together in this type of conference, and that is—let me address myself to the question of industrial democracy over in Europe.

I just came back a little over 1 month ago from a 2-week tour of England, Germany, and Sweden. One of the things that we were looking at, six unions were involved under the auspices of the German Marshall fund, we were looking at alternative work patterns, flextime, and all of that.

I find that there was heavy push on to convince us that codetermination was probably the way we should be traveling.

I can state for the machinists union, but I cannot state for the entire movement, that we are not really intersted in codetermination. We think that we can operate much more effectively, we think we do operate much more effectively, under the adversary system. I don't think we ought to bury that word.

It is the system that I think affords both sides the opportunity to probably do the best job for each of its representative sides in negotiations. I, for one, would not be ready to turn that system over at the present time for codetermination or any other type of system that I am familiar with.

However, I do see some dangers that are very eminent, and are on the horizon. They are with us. They do confront us.

They confront the machinists union, and indeed, the entire labor movement. It is a very deep-seated concern. You touched on it.

What are some of the basic differences? One of the key differences that I discern in Germany, England, and Sweden, is that there is more ready acceptance on the part of management and labor. When management and labor sit down, labor is usually not trying to protect its jugular vein and trying to survive.

There is not that expectation that they are going to go out of business tomorrow. We see more and more of that in this country. We see a lot of signs such as the new committee of the Manufacturers Association on union-free environments, the push of the traditional ultraright elements in this country.

We are very, very concerned that there is really not already afoot in this country a move to do away with the trade union movement.

So whether we like the free system, we like less Government control, I don't know, we may come to a point that we have to turn to the Government for survival, witness in point what is going on in the Senate and what you and your fellow colleagues did on the Labor Reform bill not too long ago.

You will not be able to talk or convince the machinists union or any other labor union, in fact, to sit down in these kinds of forums, or any other kind of forum, with management, and talk about improving the quality of worklife on the one hand, and on the other hand, there are millions of dollars that are going to the construction of the very types of unions they don't want.

They want cooperation in improving the work location. I think you have to address yourself to all of these things.

But in general, I find that our system is a hell of a lot more compatible than codetermination.

Representative BOLLING. I'm very interested in your last remark, because in Missouri there is a very active statewide right-to-work movement. Missouri is the next target after Louisiana. I happen to agree with you. I happen to share your view.

I don't think that the larger corporations will admit any involvement, and they may not have any involvement. But there is a major move on to break union security, which I think is probably essential to the survival of the union movement in the country.

I am not sure that very many people in the country are aware of that. But I am convinced that what you say is accurate, although I have not heard many other people in the labor movement say it as well as you have.

I am fairly certain many parts of the country are not aware of that. I come from the Midwest, and the Midwest is more primitive on this matter than some other parts of the country.

Mr. MILLS. Mr. Chairman, I would like to point out that in my prepared statement I noted that at this meeting of the 40 senior executives of General Motors, Nabisco, the Weyerhaeuser Co., and Xerox, there was a real consensus, which surprised me, that one mistake we made in putting that conference together was not including the labor unions, and they specifically mentioned the automobile workers, the steel workers, et cetera, with whom those various organizations were dealing with, as participants in this conversation.

It was a very genuine expression, and I was frankly startled at the genuineness of their feelings that this should be something we should be doing, sitting down with union leaders and discussing this.

So while I think Mr. Poulin is correct that there is a groundswell of antiunion feeling in a lot of the more conservative, right-wing managements, I also believe that in many managements today there is a feeling that we ought to work more closely with our unions than we have in the past.

Mr. POULIN. I would submit, Mr. Chairman, just a quick comment on that last remark.

I probably could say that, yes, you are right, they have been very convincing, and they can be very sincere in those offers, when you are talking about sitting down and discussing problems which increase productivity and under whatever name you want to call it.

I think they can be most cooperative and congenial. The problem is that I think we are reaching a state, and I think we are reaching it a hell of a lot quicker than people realize. We are reaching a state where you cannot go both ways; you cannot do that and do the opposite.

I'm not convinced that some of the very people that sit down—who just came from a 2½-day work symposium up in New York, and this very question came up.

It was raised by one man who serves on the board of directors of the American Work Life Institute. He raised a very serious question of whether he could continue to participate in those kinds of forums, given the kinds of actions of American industry today.

American industry can be very chameleon. When they go overseas, they don't have any problem with codetermination. They want to make money. They will go with that.

They will put a labor man on their board of directors. When you come over here, they won't even give you peer recognition. I submit that somewhere along the line, we have to address ourselves to that question.

If you are going to recognize us, don't do it halfway. Either the labor movement is a vital and viable part of this institution, or it is not. It cannot be used willy-nilly or turned on and off.

We are experiencing this with some of the large corporations in reference to labor law reform, because we get asked on numerous occasions—and so does the AFL-CIO—to support different propositions or different legislations for particular industries. I won't bore you with those propositions.

We have been most cooperative for many, many years, and we would like to be most cooperative; but it has to be a two-way street. There has to be a quid pro quo somewhere, somehow. I would like to submit that maybe it ought to begin with the basic recognition of the labor movement, continuing to be a viable part of this institution.

Representative BOLLING. I think we ought to try to put this in its perspective.

What we have been talking about is important, but it does not cover all of the workplaces in the United States. I forget the percentage of workers that are organized, but there are a large number of people that are not—about 25 percent.

Mr. MILLS. 23.6 percent.

Representative BOLLING. And there is a whole area of very complicated, very difficult discussions: Why is the labor movement the size it is today, as opposed to being larger or smaller? I suppose you can make an argument that large industry is much more unionized than small industry. And so on and so on.

But to get back to the fundamental subject, I think all of these points are important, very important. They are not outside of it, but they are not the whole of the problem we are talking about.

What kinds of things are done, or can be done, to deal with the unorganized workers, the unorganized workplaces, what are the alternatives there?

Mr. MILLS. I was at a conference recently where the senior vice president of the Polaroid Co., in charge of employees—which is a nonunion company—spoke. He was essentially saying all of the things that I believe are imperative to an effectively run organization.

Polaroid has no turnover, almost no absenteeism. They have an employee involvement program which is extraordinary. You take an organization like Polaroid, which is nonunion. Our Center will not deal with organizations that are not unionized. So we have no experience with nonunion companies. But you compare that with companies such as Central Tile Co., which does all of the things George Poulin has been talking about, exploits their workers, have intolerable working conditions, and consistently refuses union organization.

My feeling, in sum, is that 70 percent of the workers are not yet organized, and I hope an increasing number will be for their own protection.

The nonunion companies generally do what they do today because the unions are outside pulling wages and so on up to higher levels, or they try to top what the unions have done to keep the unions out.

I think a great many unionists, including Lane Kirkland, would agree that it is the labor organizations, the trade union organizations, who have made the nonunion companies at least pay approximately the same, at least provide some services, and essentially use it as a way to keep the unions out.

Would you agree with that essentially?

Mr. POULIN. Yes, generally, I would agree with that assumption.

Mr. MILLS. The labor unions have set the standards, and the nonunion companies have to come up at least to that standard.

Mr. POULIN. I would suspect that you will have for a good number of years—it may sound contradictory, but the labor unions want less involvement on the part of the Government. I would suspect that given the ratio of organized versus unorganized, and the figures I will not give you, although they differ from the esteemed Senator Hatch on why those figures are like that. But what I think you are going to see is what we are seeing happening with OSHA, what we are seeing with the minimum wage in the area of national health, and what we will be doing in other areas.

We have to use legislation well in order to bring the types of protections that we are talking about to this vast reservoir of

people represented by the labor movement, which must be about 75 percent, or thereabouts, of the work force.

Not all companies would fall into the category of not trying to meet minimum safety health standards, and decent working conditions.

I think Ted Mills has pointed out a very good example. Polaroid, a relatively new plant, outside of Boston, probably has all of the things that Ted has said. I really don't know. I have not studied it that closely.

There are problems of other companies not doing things like this. But by and large the big majority would not fall into that category. They would fall into the last part of Mr. Mills' remarks.

So I think we have to rely on the Congress. I think we have to rely on the leadership to come from the White House in certain key areas in order to protect those workers who are not covered under collective bargaining arrangement.

In most situations where we have collective bargaining, we will address ourselves to the very problems we are talking about, and attempting to move up the ladder, and make improvements, in all types of fringe areas.

So we will begin to make life a little better during the adversary, collective bargaining process. But for those who do not have this vehicle, I don't know where else they will turn unless they turn to a committee such as this to make their case, or turn to legislation to give them at least some minimal protection.

Mr. KASSALOW. Along that line, the biggest area of employment expansion—we have been told, and we will have some hearings on this further along—but it will be in the area of services, a variety of services, small organizations and these generally are poorly organized.

One of the areas we have had a brief discussion among ourselves is along the lines you have been talking about, that many service workers do not enjoy minimum things such as paid vacations or paid holidays. Do you have any ideas along those lines as to whether benefits can be extended, or should be extended?

It is not likely that organized labor will make a great deal of progress in the area of services in the years ahead, even if it should move ahead in other areas.

Mr. POULIN. There is a natural fallout of benefits to the unorganized sector, even though the ratio is so great. That is, most employers, as Mr. Mills has suggested—not most, but a good number—will try to keep some relationships as to benefits, holidays, and wages. In most cases, it does not really do the job.

Do I see us getting standards, setting standards for holidays and vacations? Yes, there is—that is probably on the horizon. If management does not change its ways in some respects, I think we will probably get into that.

I see us, depending on what management does, getting closer to the types of things, the experience of West Germany, if the free collective bargaining system does not do the job—and I will just use that one caveat—if it does the job, we can remain a strong enough force to keep the ratio relatively close, and then I do not see us going that way.

But if we keep going the way we have been, I see us having to go to legislation for all of these things.

Mr. KASSALOW. Mr. Mills, in your remarks, I guess you made a statement and then you quoted Jackson Grayson and some of the leaders of the corporations with whom you had been meeting, talking of an oncoming crisis unless the workplace was improved, unless the quality of worklife was advanced.

In structuring these hearings, we deliberately talked about having this hearing on work humanization—which is a bit out of line—because this is essentially an economic investigation. But we did think this was important.

At the same time, I must confess to being a bit puzzled. A University of Michigan survey done periodically, and other surveys, seems to indicate a fairly consistent response from American workers running somewhere around 80, 85 percent, which indicates either a moderate degree of satisfaction, or a substantial degree of satisfaction with their jobs.

Without putting too much reliance on one questionnaire or survey, for questions which are inherently difficult, especially when you are talking about worker attitudes and their jobs, why do you see this in terms of such a growing major crisis, when there does not seem to be a great response from workers and when the Michigan surveys, over several years, indicate no great sense of crisis, or dissatisfaction with jobs?

I am sure you are familiar with the University of Michigan study.

Mr. MILLS. As a matter of fact, our Center, until a year and a half ago, was associated with the Institute for Social Research. So I know it intimately.

I have very little tolerance or patience or belief in attitude surveys, insofar as the workplace is concerned. I believe we should deal with behavior in the American workplace rather than expressed attitudes. If you correlate the expressed attitudes in the Michigan survey, and others, with actual behavior in the workplace, such as alcoholism—which is one of the things the American unions are doing a great deal to fight—turnover, poor quality, absenteeism, and a great many other aspects of the workplace behavior by both managers and workers, then you see an entirely different picture. The alarm that these gentlemen were expressing was not leveled only to the so-called hourly workers. Their alarm was expressed at the don't-give-a-damnism of the management, of the supervisory groups, who do not come under the union rubric in this country at all.

I think if you will look into the behaviors, and specific hard data figures of American industry, you will find a significant decrease in the general effectiveness of a great many of our organizations, and we have done some research into that.

This is what those gentlemen, who were line officers, who watched the product come out of the other end with a 26 percent reject rate, this was the concern.

I think most of those officers present would have been no more interested in that study than I am in what academicians' polls might discover about attitudes.

Mr. POULIN. On our tour over in Sweden, we visited one plant which is experimenting, and it is in its third year with what they call "autonomous work." It is the Amex Corp., about 30 minutes by rail out of Stockholm. It is probably 130 employees.

They put it into effect on a voluntary basis. In effect, what it does, and what it is doing is, it takes a very small department, 5 to 10 to 15 people. In this particular place, it is a very small, simple, repetitive assembly operation, assembling devices for detectors for businesses, and so forth.

You could do it in this type of a situation. What it really does, and we had a long talk with representatives of the unions, the workers. We toured the plant, and we talked with individual workers, talked with management, and everybody we talked to said that, except for one person, that the system was very, very good. It did away with supervising.

In that case, they moved themselves upstairs, not to fire them. The local people, the department people, were called the group leaders. They were from the ranks.

What they did was sit down and decide if they would turn their benches around, whether they would face each other. They tried to work it so everybody would know everyone else's job so they would be subjected a single base rate.

We queried them extensively, and I have some deep reservations. They just replaced the supervisors. One of the workers, in effect, became a supervisor with a different title and probably less money.

In most cases, it was the union leaders that took the jobs, because they would recognize people in the plants, and they were the ones naturally elected.

They were the basic leaders in that situation.

I asked them, "How do they handle a grievance?" He said, "We talk it out. We sit down and we reach a consensus, even if it takes a very long time." What he said was, the group pressure eventually would prevail.

So you have some of these experiments that may not be as democratic as they may seem. Whether it comes from a group or from a single supervisor, it is the same problem. They have not really addressed themselves to the problem.

Interesting enough, both management and the people say, the system is working extremely well. There were some departments that did not have it because the majority did not vote to have it.

But in the ones that had it, they all liked it, and they tell me that not only are they getting out as much production, but the quality has improved. It has cut down on the absenteeism in that situation, plus the unions say it has been a benefit to them.

Their membership meetings have increased quite considerably, as high as 85 percent. They have extended in this situation the fraternal relationship that they want to build up outside of the shop.

Now they meet outside of the shop to discuss shop problems and quality of work.

I submit that that ought to be something we ought to watch. On the other hand, a similar type of experience took place in Oslo that failed miserably. I'm not familiar with that one.

Mr. MILLS. I would like to point out that the particular instance that George Poulin was talking about was not mandated by law. This was a voluntary instance in Sweden, which has a very, very strong industrial democracy law.

This particular thing was voluntary in which the unions and the management, in that process, and others throughout Europe and the United States, voluntarily decided to try it on a different kind of work organization for the benefit of everybody.

One thing that George Poulin did mention was that if it works, a tremendous benefit will accrue in job security, because you now have a more effective and viable organization. So it redounds to the benefit of the workers.

Representative BOLLING. What is the percentage of the labor force in Sweden that is organized?

Mr. KASSALOW. Around 85 percent.

Go on, Mr. Mills. Can you tell us out of the four major corporations with whom you were meeting, can you tell us of any work experiements that are going forward with any of those four companies, any of them for any length of time, which have also deeply involved the unions in the planning and execution and how they worked out?

Mr. MILLS. In 1973, the United Automobile Workers, through collective bargaining, demanded and got in their contracts, the formation of a committee called the quality of worklife committee. Slowly across a period of several years, working jointly together with the quality of worklife committee, which then spread out into the many operating divisions of General Motors—it has not affected the white-collar branch of General Motors.

That joint operation, in which the union is as involved in the making of decisions in certain areas as is the management, has spread. In the meeting I was at yesterday in Montreal, the director of personnel development for General Motors made an address in which he described, I believe, the Fisher Body No. 2 plant. In a period between 1973 and now, they have developed within that organization several vertical organizations, which are very much like those that Mr. Poulin just described in Sweden.

On each committee, there may be an industrial engineer, a shop steward, a shop committeeman, and a control manager. These informal organizations, as described yesterday in Montreal, have become essentially small organizations of their own, with almost a competitive nature to each other within Fisher Body, in which the people involved all work together.

They do not get involved in issues which are contractual collective-bargaining issues, but they get into how this department can be run better than that. That is one instance, in answer to Mr. Kassalow's question.

In Nabisco, the Baker and Confectionery Workers International Union and the company got together for a well, we do not use the word "experiment," anymore. Experiment was a term that was used in 1973. Today we say, pilot project, because the Houston project in Nabisco may not only spread throughout Nabisco, but the union is so impressed with the results that it is talking of spreading it to other companies with whom they have contracts.

In that particular instance, in a Houston bakery of 1,400 people, there is a committee called, I think, EJEC. It stands for Employees Joint Effectiveness Committee. The 14 people on it, which include the manager of the plant, the international representative of the union, and an equal number of management and labor participants. That committee has been diagnosing what is wrong with the plant, everything from housekeeping like oil on the floor, to total restructuring of the way work is performed in that bakery.

The indications from that bakery are that its profitability is significantly higher than before the project started. All of the various things that George Poulin was talking about in Sweden are happening. The attendance at the union meetings has significantly increased. The union members have perceived that their union is actively involved in trying to improve the quality of their worklife, and essentially, I think both the company and the union would say, here is a pilot in which, when it matures and gets through some of its problems, can have a tremendous impact on the performance of the plant.

I can go on. The Harmon International story, et cetera, et cetera. And in General Motors, I think I heard yesterday that the profitability of their manufacturing activities in many major plants has been affected by the quality of worklife approach.

I have a copy here of a speech which I gave yesterday in which I quoted the industrial relations vice president of General Motors in a speech he made last year, which I think is worth listening to, for its relevance to what we are examining here today. His name is George Morris. He said, and I quote:

> When we began applying organizational development principles about 7 years ago, our focus was on improving organizational effectiveness. We saw improvements in the work climate as naturally flowing from these efforts.

He continues:

> I think now we have reversed those objectives. Our primary objective is to improve the quality of worklife. We feel that by concentrating on the quality of worklife, and wisely managing the system that leads to greater job satisfaction and feelings of self-worth, that improvements in the effectiveness of the organization will follow.

This philosophy is endorsed by the senior management of the company, the senior management of the automobile workers in the General Motors area, and I think may in some degree be responsible for the fact that General Motors has significantly increased its profits in the last 2 years.

Does that answer your question?

Mr. POULIN. I'm not familiar with all of those projects that you mentioned. But I do know the quality of worklife situation—I just don't think the number in terms of percentage of dissatisfied workers is as great as a lot of people would like to think.

I would like to refer to my remarks on the collective-bargaining process, in a process in which we addressed ourselves to all of those questions. Here we reach a real paradox. We have, for as many years as I have been negotiating, and that goes back to the 1950's, we have addressed ourselves on numerous occasions to all of the problems that the companies now say they are willing to address themselves to, under the guise of quality of worklife.

The reason I think they want to do it in that direction is that it keeps them out of the realm of negotiating that. It keeps it out of the realm, or at chipping away at what management likes to call their prerogatives. They retain that resemblance of perogatives which they say is inherently theirs. For years we have been precluded from negotiating in those areas that they now want us to participate in, only still outside of the realm of collective bargaining.

That is an interesting thing.

I was in Tarrytown, N.Y., awhile ago for a conference. In Tarrytown I was at a conference which was sponsored by the Congressmen from the Buffalo, N.Y., area. It was a very interesting session up there.

Part of the session was conducted by management and the union, a UAW representative, and it was to give us some idea of what the Tarrytown experiment was producing, and it was under the guise of quality of worklife.

Mr. MILLS. I would like to point out that he is referring to the Tarrytown plant of General Motors.

Mr. POULIN. The quality of worklife. I listened to this for more than a half hour. There was only one question I had in my mind, and I addressed it to both the union representative and the management representative. I said, I have listened to this for awhile now. Something troubles me with this whole presentation.

I have listened to this for 30 or 45 minutes, and all I heard was you explain the quality of the product. You have explained how you have improved the quality of that product on that line. I don't know what you did other than to bring in all of the workers, 3,000. They were halfway through, then, in an interview, and they had not told them anything other than to tell them that you have given them an audience, and they will give you suggestions on how to improve the quality of worklife.

All you did was improve the quality of the automobile. The one shining example was that for many, many months they could not find the leak in the windshields. It had that beneficial fallout.

I am not trying to mock or ridicule the experiment. But in that particular case, if there was more to the discussion, I did not get it. I am not sure there is more. I queried them both.

I said that I don't view this as quality of worklife per se. Here again, an objective is to increase productivity, but if you are going to increase the amount of work to the workers we have to adjust ourselves to other issues.

Ms. MEBANE. There was a gentleman at the conference, the same conference George Poulin was referring to that was held a few weeks ago, and he did make the general comment that these experiments are generally more successful where the involvement of the worker is such that the ideas come from the bottom up, and not from the top down. I guess the windshield situation was really quite successful.

It seems to me that in analyzing these work experiments, you have to be very careful about what you are talking about. I think George Poulin is trying to say, are we just trying to raise productivity, or are we trying to help the workers out. It seems these experiments have only been tried out with big companies, and they

are so few and far between that they are not something that can be generalized.

Some have been successful, and others, such as the Pet Food project in Topeka, were not successful, or as successful as some of the others.

I am sure we have learned a lot. But the thing that strikes me is that when you talk about the quality of worklife, you cannot separate that from the quality of life in general. And that may be the kind of thing that ultimately is more important on a generalized basis—things like flextime, worksharing, greater availability of part-time work—so that the people who are now trying to come into the work force, women, younger people, and so forth, have a greater opportunity to do so under some type of new conditions relating to hours, so that the job fits better into their total overall existence, and we come out with better quality of life. The two are very closely intertwined.

Representative BOLLING. I am having a very interesting experience in my district. I represent most of a medium-sized city, and I also have most of the suburbs of Kansas City, Mo. We have a very substantial Federal installation, one of the 10 IRS regional centers. It employs about 2,000 people on a permanent basis, and about 2,500 people during the peak period of activity for the Internal Revenue Service.

The IRS is located, that particular facility, in the suburbs of Kansas City. There is a proposal to relocate it and expand the facilities to downtown Kansas City. It would have obvious advantages for a city that is withering like most cities.

There has been a great outflow. But one of the reasons that the IRS placed it in the suburbs is that the 2,500 temporary workers are mostly overqualified, highly overqualified housewives who like to have that 3- or 4-month period of work.

It fits beautifully into their lifestyle, and into the lifestyle of that whole suburban area. The thought that it will be located down in the center of that city is a complete outrage to those ladies.

On the other hand, you see the other end of that. If it is relocated, it will be relocated in an area where there are a great many young, unemployed people, and a great many black, and you have all kinds of choices.

So your point is a valid point that we need quality of worklife and quality of life related. It is about the only way we can deal with it.

Mr. MILLS. I think George Poulin pointed out something very important and significant in this area when he pointed out that the Swedish company—and we also find this in the Houston project—that from the workplace outward, the collegiality of the workplace was reflected out in the community. We find this happening again and again and again. In the Harman Bolivar plant, one of the more intriguing outcomes was the development of a workers' school. If the employees got up to a standard, they could then take off, no matter what period in the shift they were through. They could take off, and they had earned what is now called, earned time.

With that free time—incidentally, with significantly increased productivity, and decreasing significantly stressful work, they then

developed their own inplant school, where some 20 percent of the workers, using peer-taught technologies or bringing people in from the outside, they could go to school, or they could go home.

Some of the farmers in that particular work force and farmers wives got a chance to go home earlier to take care of their farms after their shifts.

So there are ways in which this radiates outward into the quality of life.

Representative BOLLING. Which Bolivar?

Mr. MILLS. The Harman International Plant in Bolivar, Tenn.

Representative BOLLING. I thought it might be in Bolivar, Mo.

Mr. POULIN. There are problems with flextime. I will not raise the issue. I will just share with you some of the things we picked up on flextime over in England and in Germany and Sweden.

There is not that outcry or outpouring of sentiment for flextime that runs across the sectors of any of the countries. It is very prevalent in the white collar areas, and it is rare that you find it in blue collar sectors.

Flextime really began at the Messerschmitt plant in Germany. It was to eliminate a problem, a traffic problem, originally. We found that all of the situations we examined for flextime were introduced by the employer because it had the advantage over other employers, and it afforded the employees to come and go within some certain fixed hours.

Flextime runs around core hours, usually from 9 in the morning to 2, 3, or 4 in the afternoon. You may have a little flextime even for your lunches. There were certain core hours when everyone had to be there.

So you were flexible at the front end or back end, so you could either have it back up, or you could deck your hours, because you got paid on a bimonthly basis over there.

One of the things we found, we asked at several locations what effect it had on productivity. None seemed to know. I was not sure we were getting the truth.

We found two things invariably in that situation. We found that it did do a couple of things. Obviously, because of the nature of the system, the tardiness was eliminated entirely. Absenteeism was cut drastically. Everyone admitted that.

Where we did talk with employees in blue collar situations, we found that they liked it. They liked flextime. We went to the Mercedes plant in Germany, and there was a small group of white collar in that shop that had it. They had the flextime, and they liked the flextime.

There was a demand on the part of several other departments in the immediate area that they wanted it too. They had not been able to put it into effect yet.

But flextime, that will be on us, and something that we have to be concerned with, and something that we will be addressing ourselves to.

Mr. MILLS. I wonder if you could tell us, Patsy Fryman of the Communication Workers Union was along with you on that trip. She said that essentially flextime has a significant impact for white collar, but relatively little, as they describe it, impact or potential in the blue collar area.

What is your opinion?

Mr. POULIN. I agree with what Patsy Fryman said on the latter part. I'm not entirely ready to agree with her on her premise. You might find that the white collar will be against it. One of the things it does is to put you on a clock. Most white collar workers are not on a clock.

While the clock is not to measure the time you come in and the time you leave, but the total time on the premises, I am not sure that that would be readily acceptable here. There are some problems with it in this country, and not there.

In our country, in collective bargaining, a lot of our overtime divisions are tied to 8 hours, 7 hours, of contract, but over in England and in Germany and Sweden, they are not locked in.

It is a 40- or 42-hour week. It is more flexible for them than under the normal collective bargaining that I am familiar with in this country.

You are talking about changing more in our collective bargaining than in Germany or in England.

Ms. MEBANE. We have to be cautious in drawing generalizations, since we are moving into a service economy.

Mr. MILLS. The last figure, I think, was 68 percent of American workers are in some kind of service or Government function.

Ms. MEBANE. With numbers like that, maybe the situation is changing with regard to the conclusions we are drawing. It was very interesting, at the Work in America meeting, in talking about productivity and being concerned with a fallout index, a representative from A.T. & T. and Exxon were making the point that, really and truly, productivity is not influenced that much by the human factor. On a scale of 1-to-10, it might come out around 3.

Mr. POULIN. We did not all agree with him, though.

Ms. MEBANE. They were also talking about the high cost of pollution controls, and all of that. It seems to me in talking about the quality of worklife, we should not be pushed too far in the direction of what is going on in the factory, but should look in all of the sectors of society.

It was felt that the productivity index is probably very obsolete, and should be looked at and revised.

Mr. MILLS. The American Productivity Center, which Mr. Grayson is running, has been conducting for over a year an intensive study of productivity measurements, because they believe that the current methods of measuring, the techniques being used by the world, just simply do not actually reveal the kinds of data that they should.

I believe they will come up with something quite different than the kinds of productivity measurements we have used to date. I think this will make a rather significant contribution. They have been using a man who will be appearing before this study, John Kendrick, to help them come up with a new kind of measurement. They are moving more and more to make organizational effectiveness distinct from productivity, because there are so many other factors that are not simply related by input and output ratios.

We have in one of our projects—I am not allowed to name the project—a case in which the productivity fell sharply when the quality of worklife was introduced, but the profits soared. This

indicated to them—and they are now doing something about it—that their existing productivity measurements were just a sham. They suddenly found this particular plant, which was No. 34 in importance, became No. 2, even though productivity fell. There is something wrong in measurements if profits increase and productivity declines.

Representative BOLLING. This has been one of the freest discussions we have had.

Are there further questions?

We are very grateful to all of you. It has been very interesting to me at least.

The committee will stand recessed until Tuesday, June 13.

[Whereupon, at 11:35 a.m., the committee recessed, to reconvene at 10 a.m., Tuesday, June 13, 1978.]

[The following information was subsequently supplied for the record:]

STATEMENT OF GENERAL MOTORS CORP. ON THE CHANGING WORK ENVIRONMENT

General Motors appreciates this opportunity to discuss its experience in the changing work environment.

The issues under discussion by the Joint Economic Committee are of major importance to our country and its institutions. Hopefully, these hearings will contribute to a better understanding of how we can improve the functioning of all our institutions and organizations.

Today's society is characterized by changing attitudes, the questioning of traditional values, and higher expectations of our institutions and organizations. These changes are, of course, apparent in the workplace.

The problem confronting us today is not change, for change is inevitable, but rather the revitalization of our institutions and organizations to respond to change. What appears to be at issue is how to bring about greater compatibility between the attitudes, values and expectations of people and our institutions and organizations which exist to help fulfill the needs of society.

In General Motors today there is a wide range of activities under way to assure our responsiveness to the needs and aspirations of our employes. We have a deep concern for the personal good and well-being of our employes as well as for our viability as an organization. General Motors has always held the conviction that the well-being of its employes is inseparable from its effectiveness as a business.

We are several years into a comprehensive improvement process that is based on the compatibility of our business objectives and the reasonable expectations of our employes. General Motors is pursuing a course of action that is based on the belief that the process of maintaining a work environment that contributes to personal dignity and self-respect is simply one dimension of the process of organizational effectiveness.

This belief has found support in a long series of studies and projects which have led to a concerted effort in General Motors to enhance the quality of work life.

Three major approaches have emerged as a result of the knowledge and experience accumulated to date:

First, employe-management cooperation, with particular emphasis on union-management cooperation in those units where the employes are represented by a union for collective bargaining purposes;

Second, innovations in the work place; and

Third, measurement.

The first such approach, employe-management cooperation, is a fundamental requisite to any improvement in the working relationship. There must be a development of mutual trust and mutual respect for the needs of the business as well as for the concerns of the employes. Above all else, this cooperation must be mutual and sincere.

In conjunction with the 1973 contract negotiations, General Motors and the United Automobile Workers established the National Committee to Improve the Quality of Work Life. This committee constitutes an adjunct to the traditional collective bargaining process through which management and the union identify and cooperate on issues of mutual concern. The committee reflects a growth in the

long-range trend for management and the union to jointly initiate activities that will improve the work environment.

The UAW is represented on the committee by two high level officials of the International Union. Two officers of the Corporation responsible for personnel and industrial relations matters represent management.

The committee meets periodically to consider joint projects and to review and evaluate those which are under way. A key function of the committee is to encourage the diffusion of management and union collaboration.

For this purpose, the National Committee has sponsored two one-day seminars for officials of the UAW and General Motors executives. These meetings have been directed at developing a clearer recognition of those areas of common concern and mutuality of interest where a cooperative approach is the best way to make progress.

A cooperative approach is essential at the national level, but to bear fruit the concept must also be put into practice at the workplace.

This leads to our second approach: innovations in the workplace. Just two examples will be cited from among the many innovations that have been introduced in General Motors in recent years.

The first involves the GM Assembly Division plant in Tarrytown, New York. Today, the Tarrytown plant has an outstanding record of performance, but that was not always the case. In the late 1960s the situation was not good. Absenteeism, grievances and discipline problems were running high and there was an atmosphere of hostility between management and the local union. As one might expect, costs were high and performance poor in this kind of environment.

Local management and the local union recognized that something had to be done. As a first step, they started to talk about their mutual concerns and an atmosphere of trust began to develop. Both sides became determined to change.

Management demonstrated a sincere desire to improve the relationship, and the employes responded with an eagerness to participate.

In 1972, a major plant rearrangement was planned prior to new model start-up. Employes were consulted before the change. They were shown diagrams of the proposed rearrangement and solicited for their ideas. Employes made a number of constructive suggestions. As a result of their interest and support, the new model start-up was one of the best ever for the plant.

Following the lead set by the creation of the GM-UAW National Committee, Tarrytown management and the union formalized their relationship on quality of work life and the process has been developing ever since.

Today, management and the union are cooperating on a plant-wide quality of work life project that involves specific training for employes in team problem solving, communications and related subjects. The program is being offered to all employes who want to participate, and 95 percent of employes have said they want to become involved.

What has all this meant to employes? All signs indicate that the quality of work life in the plant is going in the right direction. Employe morale is high. Grievances are down sharply. For example, at the end of March of this year the plant had fewer than 70 open grievances, compared to over 700 for the same period in 1970. There hasn't been a strike or work stoppage in seven years.

The plant's performance also has improved dramatically. Today, the Tarrytown plant is one of the best performing plants in General Motors Assembly Division. This fact is not only important to the Corporation, it is equally important to the employes whose accomplishments have made it possible.

The following is one other example of the innovations being developed at the work place.

A Fisher Body plant in Grand Rapids, Michigan is applying the same principles as the Tarrytown plant, but in a somewhat different way. To better meet the reasonable aspirations of employes and improve the operation of the plant, the local management has significantly restructured the organization over the last four years.

The traditional organizational structure has been modified to accommodate a "business team" approach. The plant now is divided into six business teams. Each has the necessary production and support elements to function independently in a specified area of the plant. Each team has its own personnel who are responsible for maintenance, industrial engineering, production control, quality control and cost analysis, as well as production.

A team operates much like a small business. It sets its own goals within the parameters of the overall business objectives and the members are responsible to one another for the team's success.

Much of the plant organization now is structured horizontally, rather than vertically for those functions delegated to the teams. This means other changes as well. There's less emphasis on authority, more on responsibility; less emphasis on finding fault, more on cooperation and problem solving.

The top management of the plant is no longer primarily concerned with the nuts and bolts of running the business. Many of those decisions now take place lower down in the organization.

Of course, if the right decisions are to be made by people at lower levels, they have to be well informed. Good communications within each business team are a must.

Quality problems usually are resolved faster under the team approach. The quality control supervisor has a closer tie with the production supervisor, the maintenance supervisor and the industrial engineer. Their communications are more direct because they are members of the same team.

Currently, management and the local union are focusing jointly on providing the opportunity and means by which hourly employes can become more involved in the business teams.

The third approach being taken to improve employe-management relationships is one of measurement. Nearly two years ago we introduced a quality of work life survey in the Corporation. The survey measures—anonymously—how employes feel about their work environment.

The survey provides an assessment of a number of different areas of work life, including the physical work environment, feelings of economic well being, the development and utilization of employe skills and abilities, employe involvement and influence and supervisory and work group relationships.

Last year we conducted the first round of surveys and most GM units now have benchmarks of this measure of the level of quality of work life. Additionally, many units are using the survey as a springboard for involving more people in identifying problems and developing solutions. In follow-up meetings employes share their ideas as to why certain areas had high or low scores. The ultimate aim of this process is to help create more effective organizations and a better work environment.

In the future, we plan to use the survey as a means of providing for increased involvement. Future surveys will enable evaluations to be made of the degree of progress, including the effectiveness of specific quality of work life projects.

We in General Motors are proud of the accomplishments we have made so far. We also know there is much room for further improvement. The very nature of the quality of work life concept demands that we continue to question whether people are being given the opportunity to make full use of their talents and abilities, for their own good and satisfaction and for the good of our organization.

The principles we are applying are not at all complicated. Treating employes fairly and equitably, recognizing their rights as individuals, encouraging more involvement of employes in decision making, providing rewards and recognition, establishing opportunities for personal growth and development * * * these are some of the basics of our quality of work life effort.

If we are to improve harmony and compatibility and to provide a work environment that is responsive to social change then we must continue to evaluate our institutions and organizations based on such principles.

The task is not easy, but our experience indicates that systems can be developed and managed in such a way that people can contribute more significantly to organizational objectives, that our human resources can be utilized better and that the working lives of men and women can be enriched.

In General Motors we view this as a responsibility and an opportunity.

SPECIAL STUDY ON ECONOMIC CHANGE

TUESDAY, JUNE 13, 1978

PRODUCTIVITY, WHAT CAN BE DONE ABOUT IT?

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to recess, at 10 a.m., in room 2168, Rayburn House Office Building, Hon. Richard Bolling (chairman of the committee) presiding.

Present: Representatives Bolling, Brown of Ohio, and Rousselot.

Committee staff present: John R. Stark, executive director; Louis C. Krauthoff II, assistant director; Kent H. Hughes, professional staff member; Mark Borchelt, administrative assistant; and Charles H. Bradford and Stephen J. Entin, minority professional staff members.

Special Study on Economic Change staff present: Charles S. Sheldon II, research director; Robert Ash Wallace, research director; George D. Krumbhaar, Jr., counsel; Richard D. Bartel, staff economist; and Paula J. Dobriansky and A. A. "Chip" Sayers, research assistants.

Also present: Everett M. Kassalow, Congressional Research Service, Library of Congress.

Representative BOLLING. The committee will be in order.

I am enough impressed by the thickness of the prepared statements, that I am going to reiterate my standard request, which was in my opening statement at the first hearing, that we are anxious to have a conversation after we have statements. Therefore, we would like the members of the panel to try as best they can to summarize the main points of their prepared statements on something in the order of 10 minutes.

What has happened is that it has worked out to be a little longer than that, but I am quite frightened by at least one of the prepared statements, because I am afraid that that member of the panel will decide to read it all and we will never have a conversation.

The full prepared statements will be included in the record, with other things that the panelists may want to propose after we have had a chance to look at them.

Because of a breakdown we are not going to have our usual long introductions. I will introduce each panelist briefly.

Our first witness is Michael Evans, and he will give us a statement on productivity and a macroeconomic view.

Mr. Michael Evans received his A.B. in mathematical economics and his Ph. D. from Brown University. He served as assistant and associate professor in the Wharton School at the University of Pennsylvania where he coauthored the "Wharton Econometric Forecasting Model", the first econometric model of the U. S. economy to issue regular quarterly forecasts, and pioneered many of the econometric techniques now commonly used in model building. He is chief executive officer of the Chase Econometric Associates, Inc., author of the "Chase Econometrics Macroeconomic Model," and prepares the monthly "Analysis" and forecasts.

STATEMENT OF MICHAEL K. EVANS, PRESIDENT, CHASE ECONOMETRIC ASSOCIATES, INC., BALA CYNWYD, PA.

Mr. EVANS. Thank you, Mr. Chairman. In view of your comments, I will be brief.

One of the most striking features of the U.S. economy during the past decade has been the secular decline in the rate of growth of productivity. For the period 1947 through 1968, output per person-hour in the nonfarm private sector increased at an average annual rate of 2.8 percent. However, for the 1968–78 decade, it has grown only 1.3 percent.

So we have had a decline of 1.5 percent per year in productivity over the past decade.

Unfortunately, the comprehensive figures for the supply side of the economy are not available; we have estimated that this 1.5 percent average annual decline in the growth rate can be divided into three roughly equivalent categories. About 0.5 percent of the decline is due to a reduction in the investment ratio, about 0.5 percent is due to an increase in government-mandated programs and a change in spending priorities, and about 0.5 percent is due to a change in the demographic composition of the labor force.

I thought very briefly I would discuss each of these this morning.

The change in the investment ratio is no surprise to anyone.

Figure 1, of my prepared statement, indicates clearly what has happened to the ratio of fixed business investment to gross national product. This ratio peaked at approximately 11 percent in the mid-1960's and returned to that level in the early 1970's, but has declined very sharply in the last 2 years; and in fact the investment surveys for 1978 indicate no improvement at all.

Furthermore, if you would adjust this ratio to exclude nonproductive investment, that is, those investments mandated by the Government sector, in order to improve the quality of life but do not add to output, the ratio drops further.

As a result, the capital stock of the economy which had previously grown at about 4 percent a year has declined to 2.5 percent in the past 5 years, and this decline has reduced the growth rate by half a percent.

Now, the decline in the productivity growth rate and the investment ratio are clearly not coincidental. In fact, we have two other figures in my prepared statement, figures 2 and 3, which show some international comparisons between the investment as a percentage of GNP—in other words, the investment ratio—and the increase in productivity.

In figure 2 we see that unfortunately the U.S. economy is dead last in both cases. We are outstripped even by the United Kingdom and Canada, and we are further outstripped by the Common Market countries in Europe, and Japan is almost off the graph.

Figure 3 in my prepared statement shows much the same factor, which indicates that, while productivity in the U.S. economy has grown 2 percent a year from 1960 to 1976, productivity in Japan has grown 9 percent a year.

So we find that the investment ratio in Japan is about 2.5 times as high as it is in the United States, while the growth in productivity per year is 4.5 times as high.

I think that this relationship is clearly not coincidental and does strongly suggest that higher investment leads to higher growth rates and productivity and of course a lower growth rate leads to lower productivity.

Now, what are the factors that have caused this slowdown in the investment ratio, which I think is agreed to by everyone?

Here we reach some disagreement. Not everyone agrees on the determinants of investment. Some people think output is important. Some people say cash utilization, cash flow, interest rates, tax rates and the like.

One thing is clear, as shown in figure 4 of my prepared statement, and that is that the growth in plant and equipment spending during this recovery simply has not kept pace with the growth in other recoveries; whereas the top half of the graph shows the increase in consumption in this recovery is in fact slightly better than the average increase in the postwar business cycles.

So it is not that the recovery from the 1975 recession has been particularly weak in all sectors of the economy, but it has been weak only with respect to investment spending.

Now, figure 5 perhaps is a little hard to read at first, but what it shows is the change in investment on an annual basis, correlated with the change in the level of the effective corporate income tax rate, again on an annual basis.

From this graph we can see that there have been three investment booms in the postwar period; namely, 1955–56, 1964–66, and 1972–73.

Now, each of these investment booms has a very interesting precedent, and that is in the year before the investment boom the tax rates were changed in a meaningful way in favor of investment. To be specific, in 1954 we had the end of the excess profits tax, following the Korean war and the first liberalization of the depreciation allowances.

In 1962, we had the introduction of the investment tax credit of 7 percent and a 20-percent decline in the tax lives, and in 1964 we had the cut in the corporate tax rate from 52 percent to 48 percent.

In fact, the combination of these factors resulted in a 20-percent increase in fixed business investment in the next year, which is the only time that occurred.

Finally, in 1971 we have the reinstatement of the investment tax credit and a 20-percent decline in tax lives which resulted in another investment boom.

So there does seem to be a very strong correlation between the changes in the tax rates and investment in subsequent years.

Now, this graph does not show a perfect correlation. In particular, we have slumps in investment in 1958 and 1975, which were associated with the recessions. We also have a very sharp increase in tax rates which is shown with a negative figure in 1969, and that was the result of the 10-percent tax on personal and corporate income and a temporary suspension of the investment tax credit.

It is interesting to note that investment declined in 1970 as a result of these tax increases, even though the economy was operating at very high utilization rates and most economists and businessmen were not expecting a downturn.

Now, in figure 6, we have another graph, and this one shows the very close correlation, and this is the relationship between the investment ratio, which is shown, and the ratio of stock prices to construction costs, with a lag of 1 year, which is shown with the dotted line.

As can be seen from the graph, the two ratios are very closely related. The theory behind such a ratio indicates that, when stock prices are high relative to construction costs, firms expand by building new businesses and, of course, putting in them new equipment.

On the other hand, when stock prices are low relative to construction costs, then firms expand by buying existing businesses rather than by building new plant and equipment.

I might say that this sort of analysis has received bipartisan support and that it was written up prominently both in the 1977 and 1978 economic reports to the President. So, evidently both political parties have found this to be a meaningful relationship.

In fact, the close relationship between the stock market and investment is probably one of the major reasons why the recently proposed rollback in capital gains tax has received so much support.

So I think we can establish that investment is one of the key determinants of productivity and that the investment ratio over the years has been influenced by changes in the tax rates and changes in the stock market.

We now briefly turn to the second major factor, reducing the growth rate activity, and that is what I call the Government-mandated programs.

I understand Edward Denison has testified already before this committee on the lack of productivity growth due to pollution abatement standards, occupational health and safety standards, and other laws, and I don't wish to repeat that, but to concur with his findings in general.

I would point out one other key element, and that is the proportion of research and development spending relative to GNP.

We note the proportion of R. & D. as a percentage of GNP peaked in the mid-1960's, not so coincidentally, with the NASA space program, and has declined to a low of just over 2 percent in the current year.

As can also be seen from that graph, the proportion of R. & D. federally funded has declined quite rapidly, and the proportion of R. & D. industry funded has remained unchanged almost, over the last decade.

So declines in R. & D. spending have resulted in another reduction of 0.5 percent over the growth rate.

The third factor which has caused a reduction in productivity has been the entrance of secondary workers into the labor force, and at the time of entrance these workers for the most part had fewer job skills, had less formal education, less training, and so forth.

Now, this doesn't necessarily imply that these people would have a lower productivity over the lifetime of their jobs, but simply when they entered the labor force their productivity was lower.

As we can see, the labor force participation rate for males 25 to 54 declined over the last decade, while for teenagers and females the rate has increased substantially.

Now, I think that this factor will be reversed in the 1980's. First of all, we need to consider the population statistics. During the decade of the 1980's, the number of people aged 16 to 24 will actually shrink by some 6 million.

As a result, the number of teenagers entering the labor force will be substantially lower.

Second, although labor force participation rates for females will continue to rise, most of the females entering will be fully trained for jobs, will have the experience and the education and therefore will be fully as productive as their male counterparts; whereas, in the previous decades this was not necessarily the case.

However, that factor appears to be the only one in which the decline in productivity growth is likely to be reversed, for, unless major changes are made in the tax laws, the investment ratio is likely to stay at its currently depressed level of 9.5 percent, and the recent indications are that the environmental and safety standards will be tightened rather than loosened.

As a result, we find that productivity growth will continue at a rate of no more than 2 percent in the decade of the 1980's and possibly less than that.

The final graph in figure 10 simply shows the great disparity between the growth rates of potential GNP as measured by the old method and potential GNP, taking into account these declines in productivity.

Now, we have the maximum potential for the old GNP as calculated by the CEA. That method has since been dropped, but the new potential GNP as measured by the Council of Economic Advisers still would indicate no substantial inflation problems with inflationary pressures in 1978, while the potential estimated by Chase Econometrics shows that the two lines are approaching, and in fact with the rapid growth in the second quarter of this year, leave virtually no gap between potential and actual GNP.

This, of course, creates inflationary pressures, which in the past have led to a slowdown in growth and possibly another recession in 1979.

While I am not necessarily predicting that today, I would point out that the measures of productivity which I think are accurate indicate that the gap between actual and potential GNP is very small, and that this gap will not produce substantial gain until measures are taken to raise the investment ratio, and, if not cut-

ting back on the Government-mandated standards, at least examining the cost-benefit relationship more thoroughly.

Mr. Chairman, thank you very much.

[The prepared statement of Mr. Evans follows:]

PREPARED STATEMENT OF MICHAEL K. EVANS

Productivity—A Macroeconomic View

One of the most striking features of the U.S. economy during the past decade has been the secular decline in the rate of growth of productivity. For the period 1947 through 1968, output per person-hour in the nonfarm private sector increased at an average annual rate of 2.8 percent. However, for the 1968–1978 decade, it has grown only 1.3 percent.

While comprehensive figures for the supply side of the economy are not available, we have estimated that this 1.5 percent average annual decline in the growth rate can be divided into three roughly equivalent categories. About 0.5 percent of the decline is due to a reduction in the investment ratio, about 0.5 percent is due to an increase in government mandated programs and a change in spending priorities, and about 0.5 percent is due to a change in the demographic composition of the labor force.

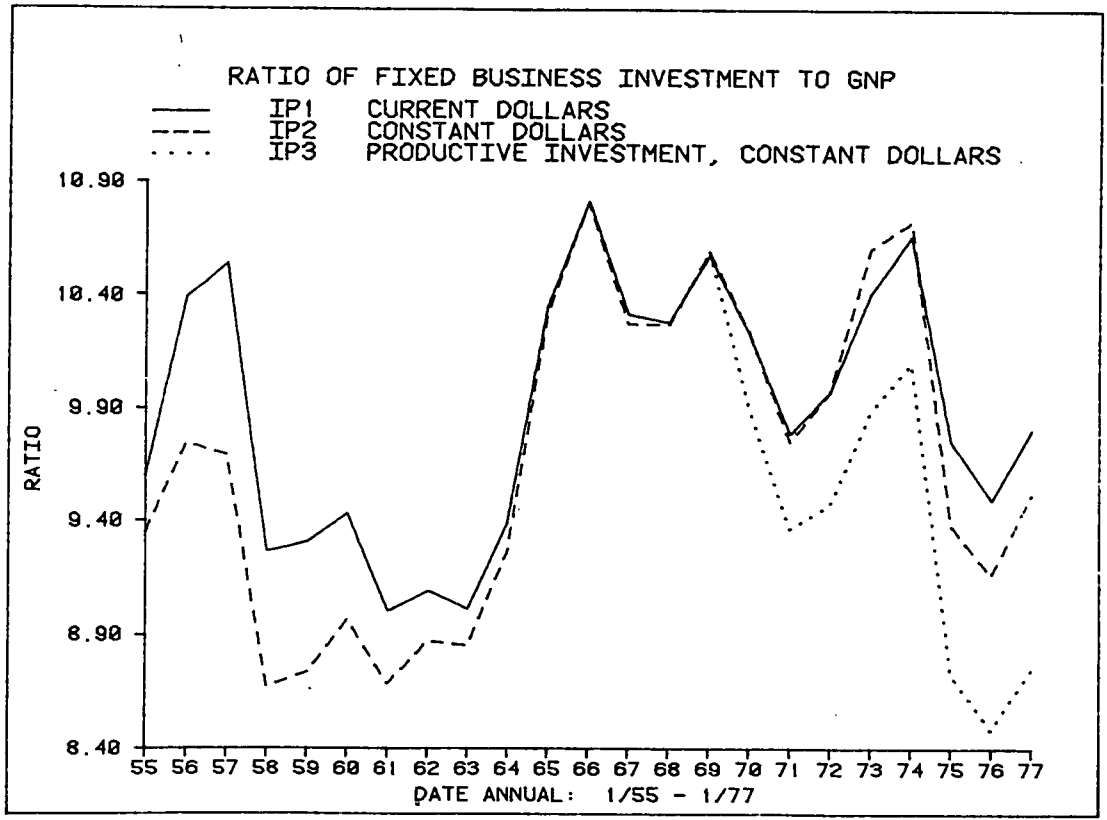

RATIO OF FIXED BUSINESS INVESTMENT TO GNP
IP1 CURRENT DOLLARS
IP2 CONSTANT DOLLARS
IP3 PRODUCTIVE INVESTMENT, CONSTANT DOLLARS
10.90
10.40
9.90
9.40
8.90
8.40
RATIO
55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77
DATE ANNUAL: 1/55 - 1/77

Figure 1

The decline in the investment ratio, or ratio of capital spending to GNP in constant dollars, has been well chronicled by numerous other economists. While the causes and remedies for this decline are not always agreed upon unanimously, the facts are not in dispute. As shown in Figure 1, this ratio has declined from a peak of 11 percent to it current unsatisfactory level of 9½ percent. If we consider only productive investment, thereby excluding those government-mandated capital expenditures which do not increase output, the rate drops to an even less impressive 8.7 percent.

This decline has caused the growth in the capital stock to diminish from a 4.0 percent annual average for the 1947–1973 period to a meager 2.5 percent for the past five years. Since returns to capital—profits, depreciation, net interest and rental income—represent approximately ⅓ of private GNP, growth theory indicates that a 1 percent decline in the capital stock will result in a ⅓ percent decline in the growth rate. Hence the diminution of capital stock growth of 1.5 percent per year has resulted in a decline of 0.5 percent in the overall growth rate.

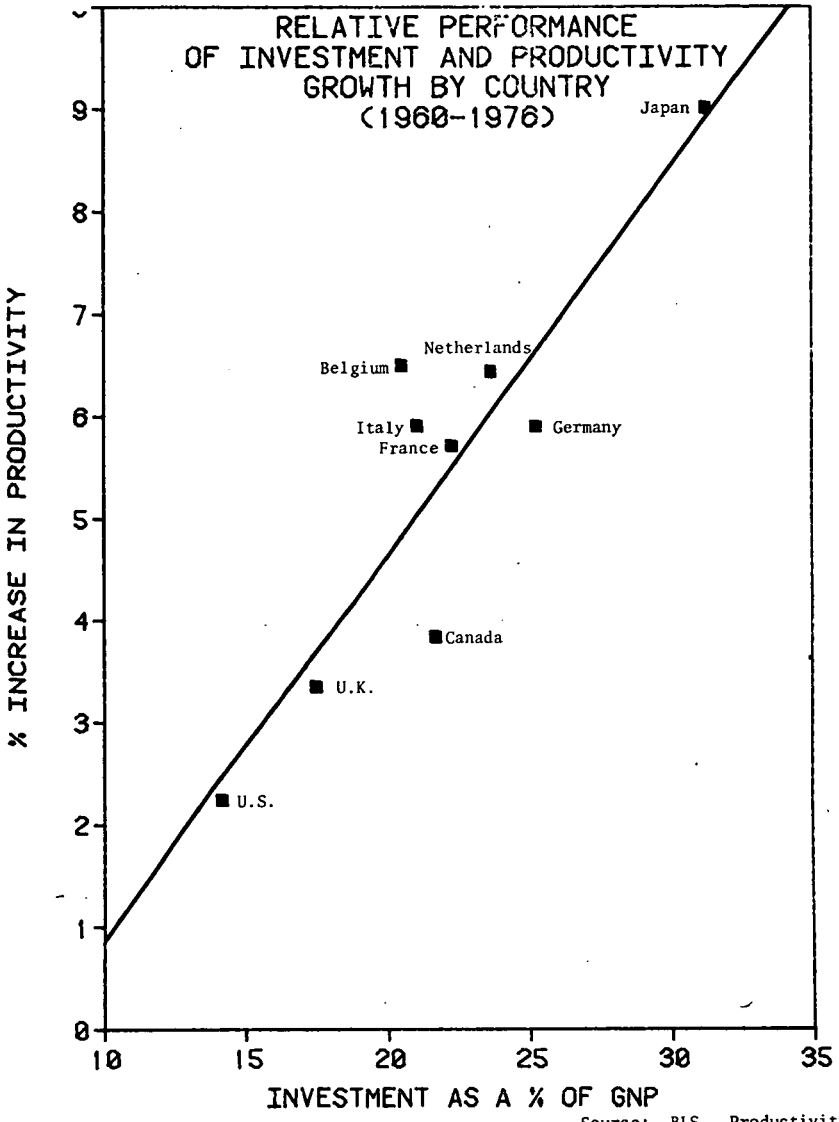


Figure 2

Source: BLS - Productivity
OECD - Investment

Output per Man-hour

BY MAJOR INDUSTRIALIZED COUNTRY

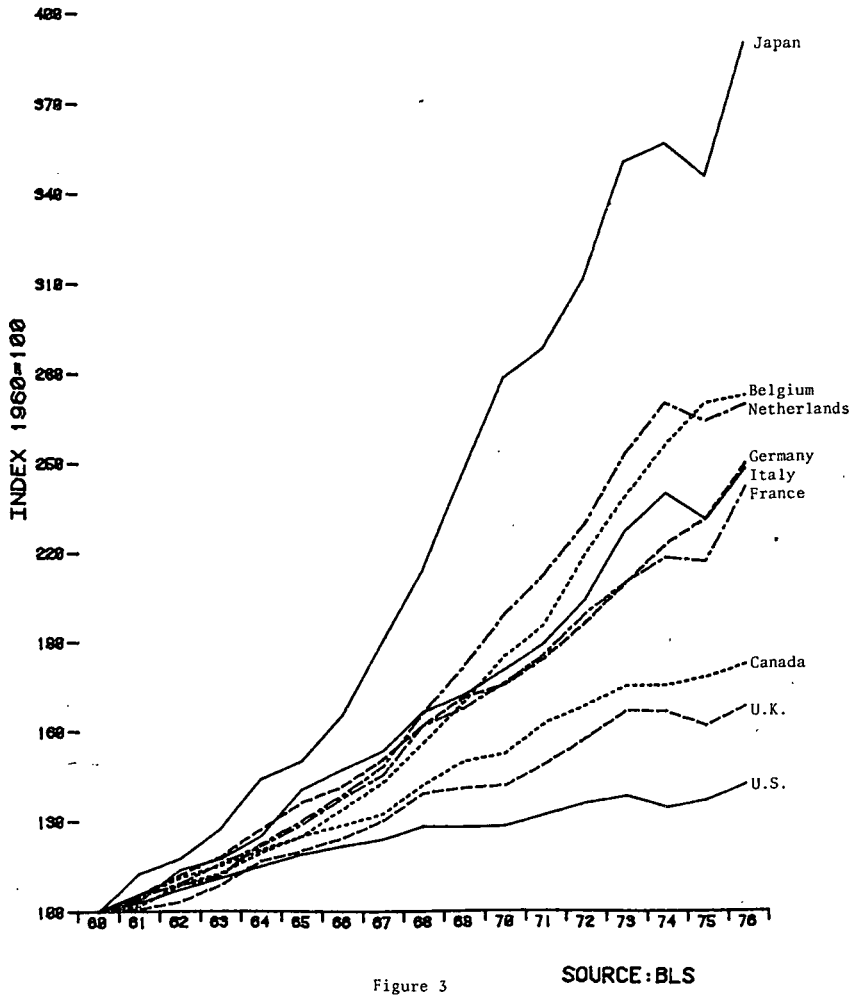


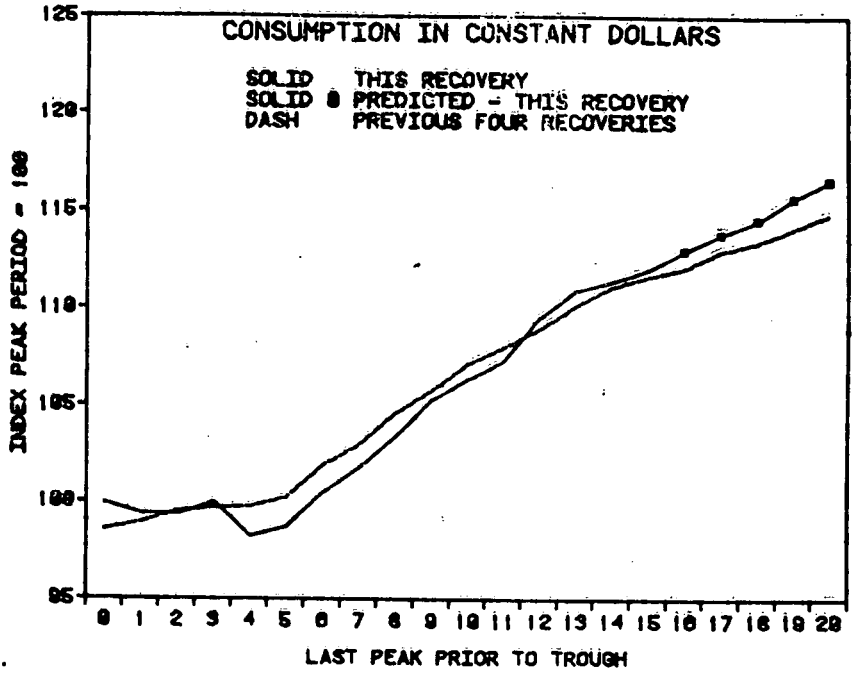
Figure 3

The declines in productivity growth and the investment ratio are certainly not coincidental. In fact, as shown in Figures 2 and 3, a near-perfect correlation exists between the investment ratio and productivity growth for all major industrialized nations. We find that for the 1960–1976 period, both the level of the investment ratio and the rate of growth in productivity were lower for the U.S. than they were for the U.K. and Canada, and were even further outdistanced by the old Common Market countries in Europe. The most striking comparison of all is with Japan: the investment ratio was 4 times as high, and the growth rate of productivity was 4½ times as great—9 percent per year compared to 2 percent in the U.S.

These international comparisons should leave little doubt concerning the vital role of investment as a determinant of productivity growth. However, they do not help us to answer the question of what steps should be taken to reinvigorate investment. This problem is particularly critical because, as shown in Figure 4, investment has lagged far behind the rate of growth in this recovery at the same time that consumption has outdistanced the average increase which has occurred in previous postwar business cycles. In other words, investment has failed to improve significantly even though total sales have risen rapidly, capacity utilization has improved handsomely, and both internal and external funds have been plentiful in the current recovery.

We at Chase Econometrics have studied the determinants of investment for many years, and have concluded that one of the major determinants of capital spending is the effective rate of taxation on corporate income. The relationship between these variables is shown in Figure 5.

To summarize the information given in that graph, the U.S. economy has undergone three investment booms in the postwar period: 1955–1956, 1964–1966, and 1972–1973. Each of these booms has a common characteristic: it was preceded in the previous year by a major change in the tax code which was favorable to investment. Hence 1954 marked the end of the excess profits tax from the Korean War and the first liberalization of depreciation allowances. The investment tax credit was introduced at a 7 percent rate in late 1962 and was accompanied by a 20 percent reduction in accounting tax lives; when this was followed by a reduction in the corporate income tax rate from 52 percent to 48 percent in 1964, capital spending climbed 20 percent in constant prices in 1965, the only time in the postwar period that has occurred. Finally, in 1972 the investment tax credit was reinstated at 7 percent and accounting tax lives were reduced by an additional 20 percent.


CONSUMPTION IN CONSTANT DOLLARS
SOLID THIS RECOVERY
SOLID @ PREDICTED - THIS RECOVERY
DASH PREVIOUS FOUR RECOVERIES
INDEX PEAK PERIOD = 100
125
120
115
110
105
100
95
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
LAST PEAK PRIOR TO TROUGH

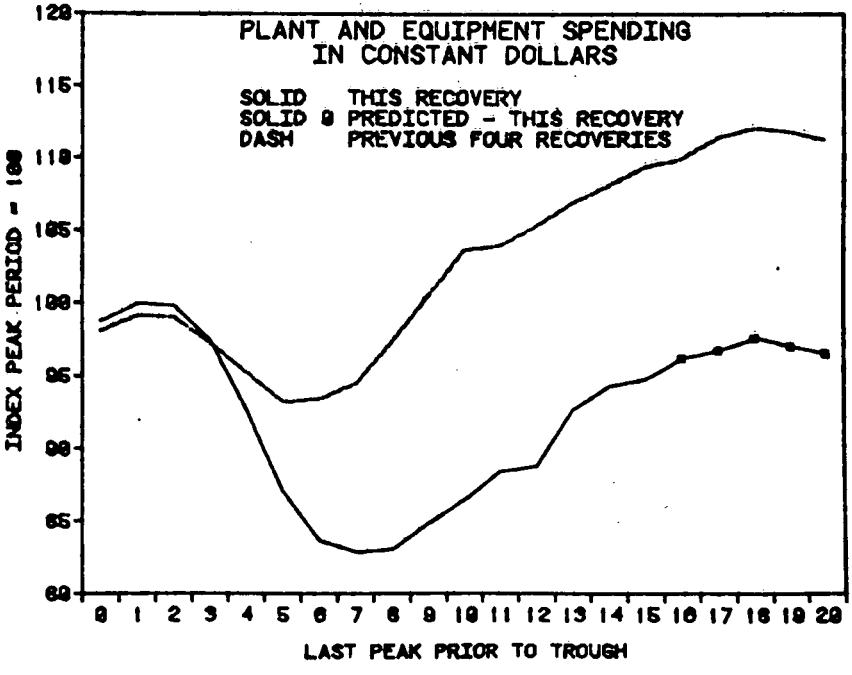

PLANT AND EQUIPMENT SPENDING
IN CONSTANT DOLLARS
SOLID THIS RECOVERY
SOLID @ PREDICTED - THIS RECOVERY
DASH PREVIOUS FOUR RECOVERIES
INDEX PEAK PERIOD = 100
120
115
110
105
100
95
90
85
80
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
LAST PEAK PRIOR TO TROUGH

Figure 4

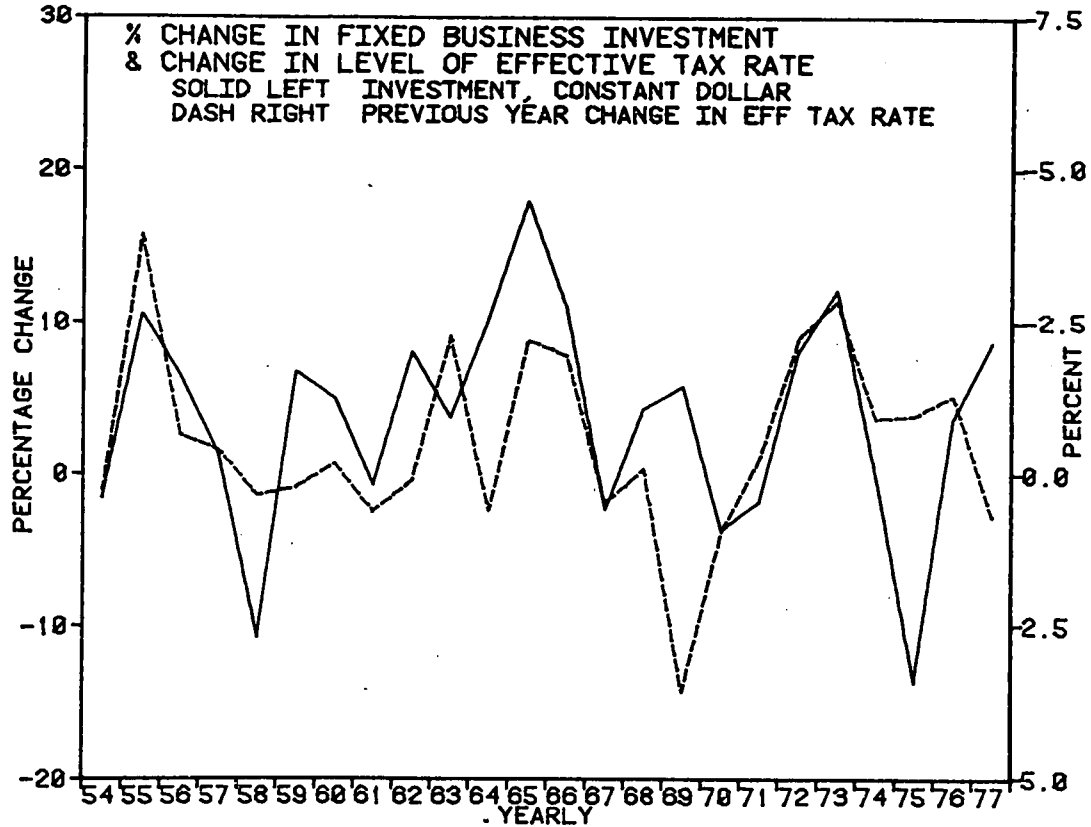

% CHANGE IN FIXED BUSINESS INVESTMENT
& CHANGE IN LEVEL OF EFFECTIVE TAX RATE
SOLID LEFT INVESTMENT, CONSTANT DOLLAR
DASH RIGHT PREVIOUS YEAR CHANGE IN EFF TAX RATE
PERCENTAGE CHANGE
PERCENT
YEARLY
30
20
10
0
-10
-20
7.5
5.0
2.5
0.0
2.5
5.0
54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77

Figure 5

We also note that the sharp increase in tax rates in 1969, caused by the imposition of the 10 percent income tax surtax and the suspension of the investment tax credit, was sufficient to cause a decline in investment in 1970 even though the economy was still operating at high utilization rates.

However, the correlation between changes in investment and changes in the effective corporate income tax rate is not perfect. In particular, the sharp declines in investment in 1958 and 1975 appear to be unrelated to changes in the tax code, and were indeed caused by the severe recessions which occurred in those years.

This anomaly disappears when we correlate the investment ratio and the ratio of stock prices to construction costs, lagged one year. As shown in Figure 6, this ratio captures both the cyclical and secular movements in the investment ratio. This fact has received bipartisan support, as it was prominently discussed in both the 1977 and 1978 issues of the Economic Report of the President.

The theory behind this ratio is fairly straightforward. When stock prices are high relative to construction costs and equity capital is relatively inexpensive, businesses will expand by building new plants and filling them with new equipment. However, when stock prices are relatively depressed, businesses will expand by buying smaller existing businesses, rather than by investing more in new capital assets. The course of the stock market is thus of extreme importance in determining the growth in investment. Since stock prices are very sensitive to the rate of taxation on capital gains, this is one factor behind the widespread popularity of the recent proposal to reduce capital gains taxes.

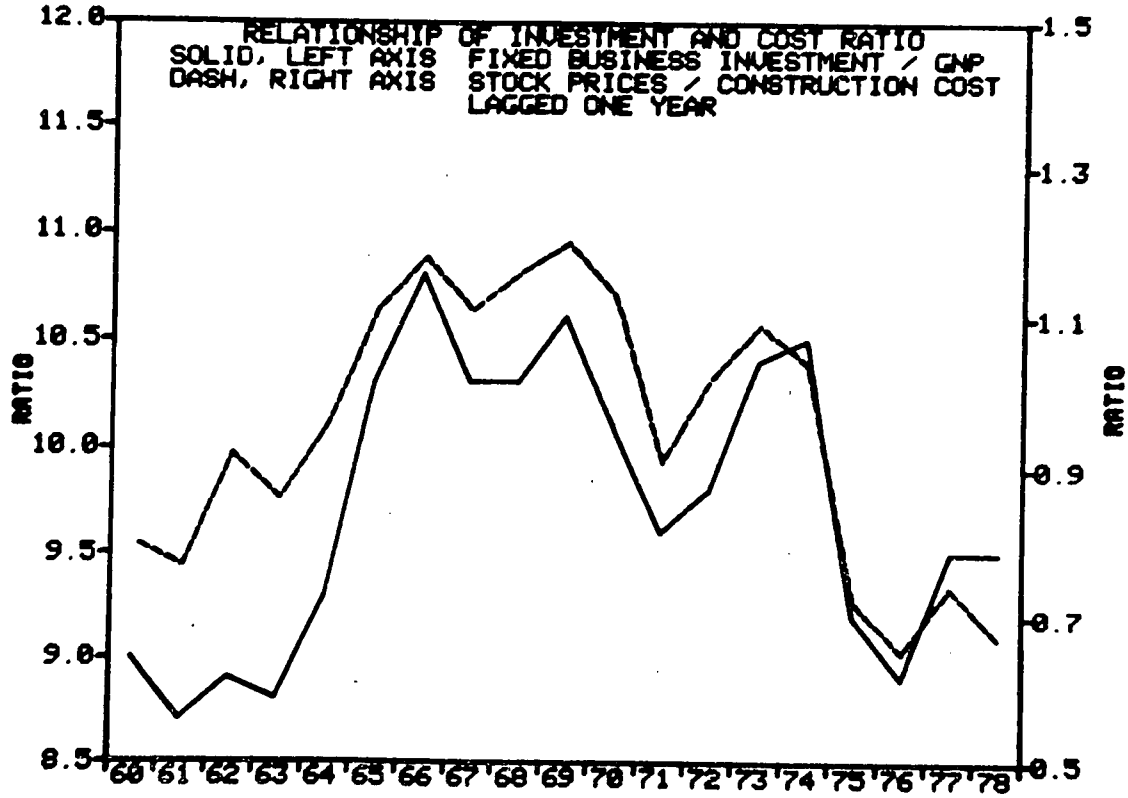

RELATIONSHIP OF INVESTMENT AND COST RATIO
SOLID, LEFT AXIS FIXED BUSINESS INVESTMENT / GNP
DASH, RIGHT AXIS STOCK PRICES / CONSTRUCTION COST
LAGGED ONE YEAR
RATIO
RATIO
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
1.5
1.3
1.1
0.9
0.7
0.5
60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78

Figure 6

What many would-be experts on investment theory fail to understand is that it is not the level of cash flow or output which is the primary determinant of investment, but rather the expected future rate of return and the incentives to entrepreneurship which are affected by the various tax rates on corporate income and on capital. This area of investment theory has received much less attention than the traditional links between investment, output, and capacity utilization, and deserves to be studied in further detail.

We now turn to the second major factor which has reduced the growth rate of productivity over the past decade, and that is the increase in government mandated programs and a change in Federal spending priorities. Edward Denison has already presented testimony in which he argues that standards for pollution abatement, occupational safety and health, and crime and disorder have reduced the growth rate of productivity significantly over the past decade. Our figures do not include crime and disorder, but they do include the effect of the sharp increase in energy prices, which converts investment from labor-saving to energy-saving. While this type of investment represents rational behavior on the part of individual businessmen and also works in the direction of important national goals, it does diminish the growth of output per person-hour. We estimate that these factors have accounted for a decline in the growth rate of the capital stock of 0.8 percent per year over the 1973–1978 period, and hence in the overall growth rate of 0.3 percent per year.

The other 0.2 percent which falls into this broad category is the sharp reduction in spending on research and development as a proportion of GNP, as is shown in Figure 7. From a peak of 3 percent reached in the mid-1960's at the height of the space program, this ratio has declined to just over 2 percent in 1976. The long lags between R & D spending and productivity growth, which average up to five years, mean that this relationship is not quite as precise as the factors determining investment, but is estimated to have reduced the growth rate by at least 0.2 percent per year over the past decade.

The final factor accounting for the slowdown in productivity growth, and one which will be reversed during the 1980's, is the sharp growth of secondary workers in the labor force. In 1964, males aged 25 to 54 accounted for 46 percent of the total labor force; in 1978 the figure will be 36 percent. The major increases have occurred in women aged 25 to 54 and in teenagers of both sexes, as shown in Figures 8 and 9. The problem has been compounded not only by rapid increases in labor force participation rates but in the population aged under 25.

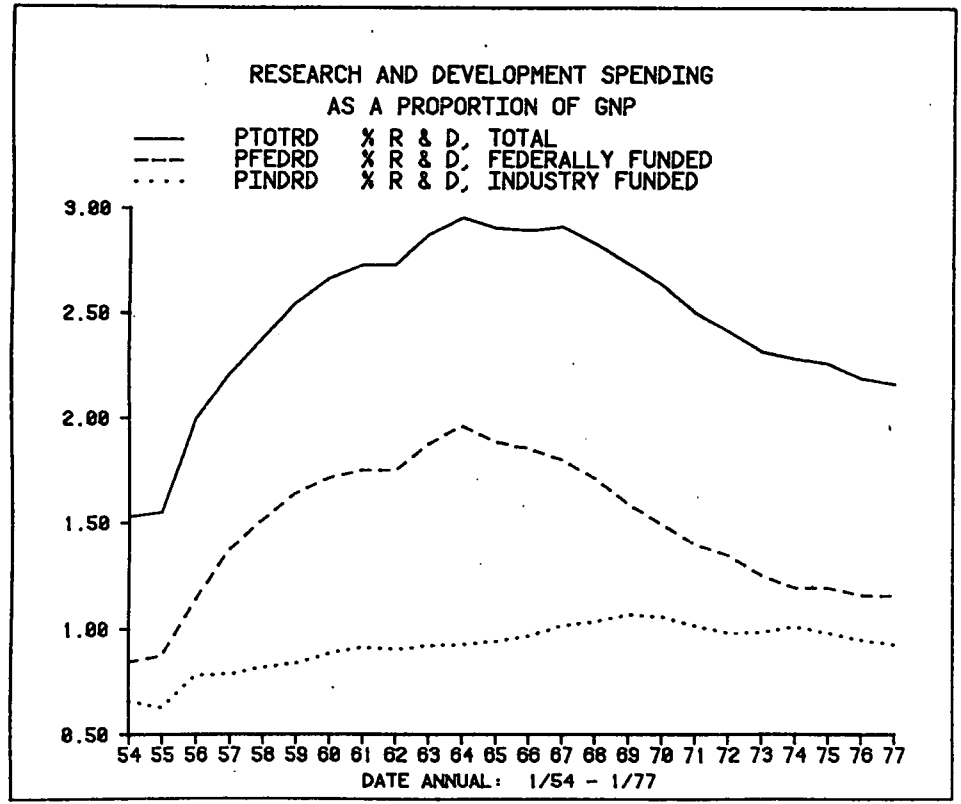
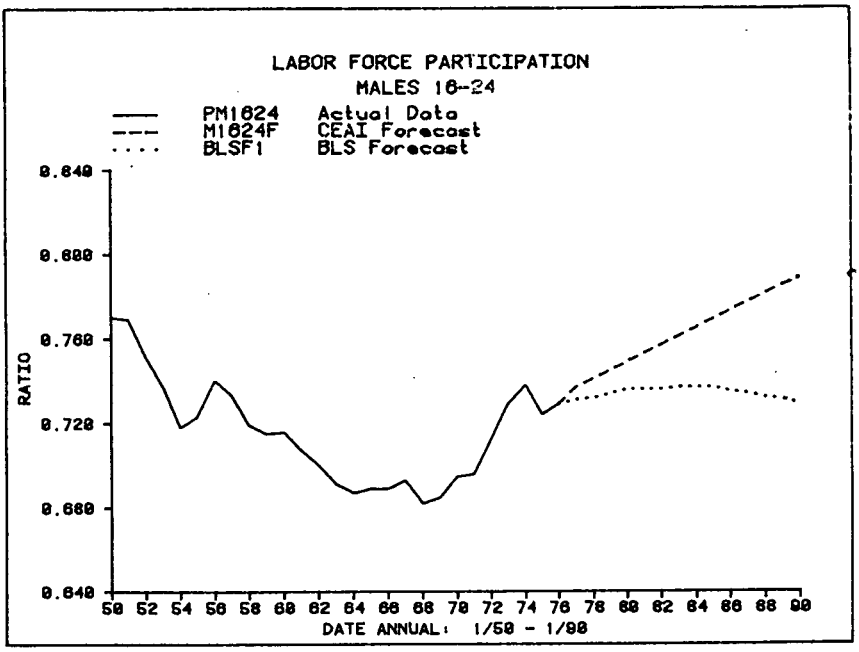

RESEARCH AND DEVELOPMENT SPENDING
AS A PROPORTION OF GNP
PTOTRD % R & D, TOTAL
PFEDRD % R & D, FEDERALLY FUNDED
PINDRD % R & D, INDUSTRY FUNDED
3.00
2.50
2.00
1.50
1.00
0.50
54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77
DATE ANNUAL: 1/54 - 1/77

Figure 7


LABOR FORCE PARTICIPATION
MALES 16-24
PM1624 Actual Data
M1624F CEAI Forecast
BLSF1 BLS Forecast
RATIO
0.840
0.800
0.760
0.720
0.680
0.640
50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90
DATE ANNUAL: 1/50 - 1/90

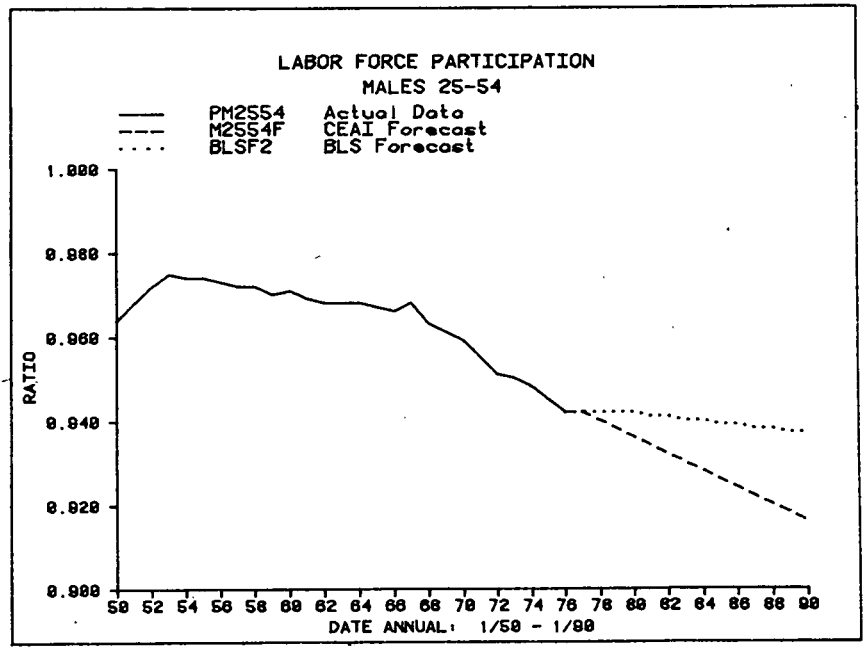
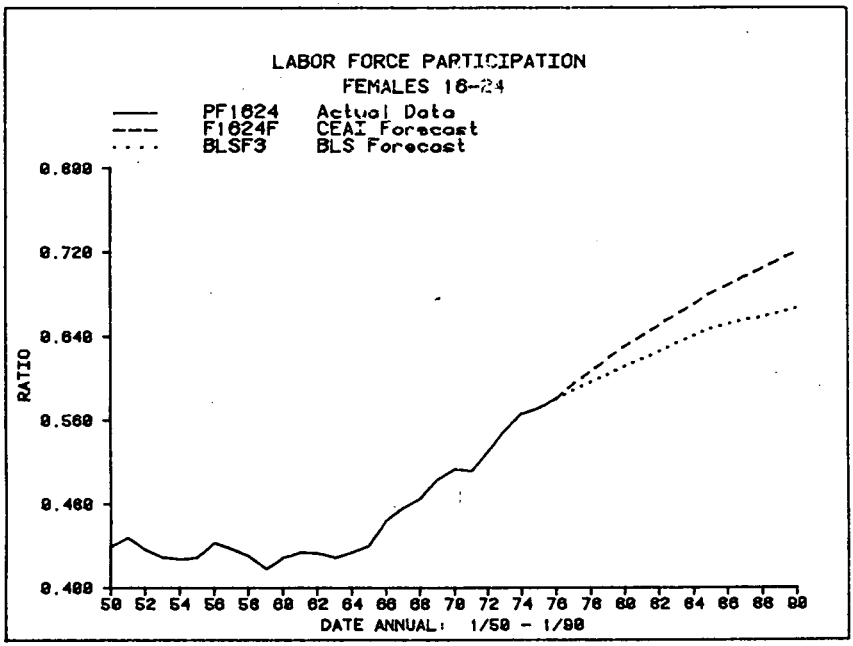

LABOR FORCE PARTICIPATION
MALES 25-54
PM2554 Actual Data
M2554F CEAI Forecast
BLSF2 BLS Forecast
RATIO
1.000
0.980
0.960
0.940
0.920
0.900
50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90
DATE ANNUAL: 1/50 - 1/90

Figure 8


LABOR FORCE PARTICIPATION
FEMALES 16-24
PF1624 Actual Data
F1624F CEAI Forecast
BLSF3 BLS Forecast
0.800
0.720
0.640
0.560
0.480
0.400
RATIO
50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90
DATE ANNUAL: 1/50 - 1/90

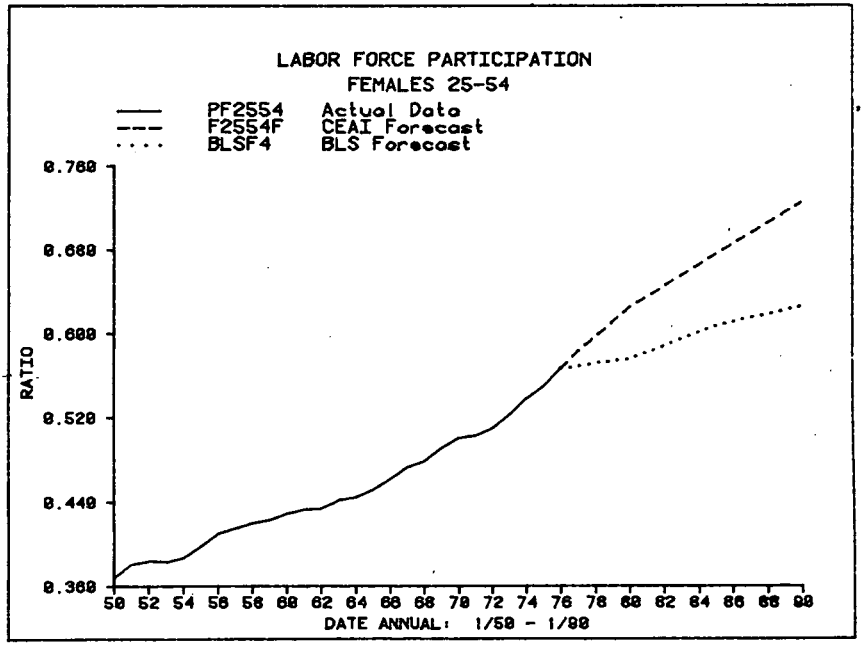

LABOR FORCE PARTICIPATION
FEMALES 25-54
PF2554 Actual Data
F2554F CEAI Forecast
BLSF4 BLS Forecast
0.760
0.680
0.600
0.520
0.440
0.360
RATIO
50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90
DATE ANNUAL: 1/50 - 1/90

Figure 9

Many of these secondary workers had less education, vocational training, or on-the-job experience than their primary counterparts when first hired. As a result, they were initially less productive. This does not necessarily imply that such individuals will continue to have a lower level of productivity over the lifetime of their jobs, but rather that their productivity was lower when they initially entered the labor market.

During the 1980's, however, the size of the population aged 16 to 24 will shrink by a full 6 million persons. Thus even if labor force rates continue to rise for teenage workers, the number of potential employees will decline significantly. Second, many women aged 25 to 54 in the labor force will have had the full complement of education, vocational training, and on-the-job experience as their male counterparts, so they will be just as productive. As a result, we look for this factor to improve, hence raising the growth rate of productivity for the 1980's from 1.3 percent to about 1.8 percent per year.

However, the outlook for increasing the other two primary determinants of productivity does not at present look very promising. As a result of the lack of understanding of these determinants, we find that the U.S. economy is now fast approaching the "danger zone" of sharply higher inflationary pressures, if in fact it has not done so already. For as shown in Figure 10, when the lower growth in productivity due to the three principal factors is taken into account, the gap between actual and maximum potential GNP in mid-1978 is essentially zero even though the current unemployment rate is 6.1 percent.

The paradox of high and rising rates of inflation side by side with above-average rates of unemployment is resolved when we realize that these two indicators of economic malaise are really symptoms of the same disease. An increase in productivity will expand the production possibility frontier of society, thereby permitting the production of more goods and services and providing more jobs for the economy. At the same time, the expanded production facilities will reduce inflationary pressures, since bottlenecks and shortages will be less likely to materialize and unit labor costs will rise less rapidly. However, this can occur only by increasing the proportion of our national resources which are directed toward productive capital spending, a task which will require significant changes in our tax laws and a willingness to examine the costs as well as the benefits of increased government regulation.

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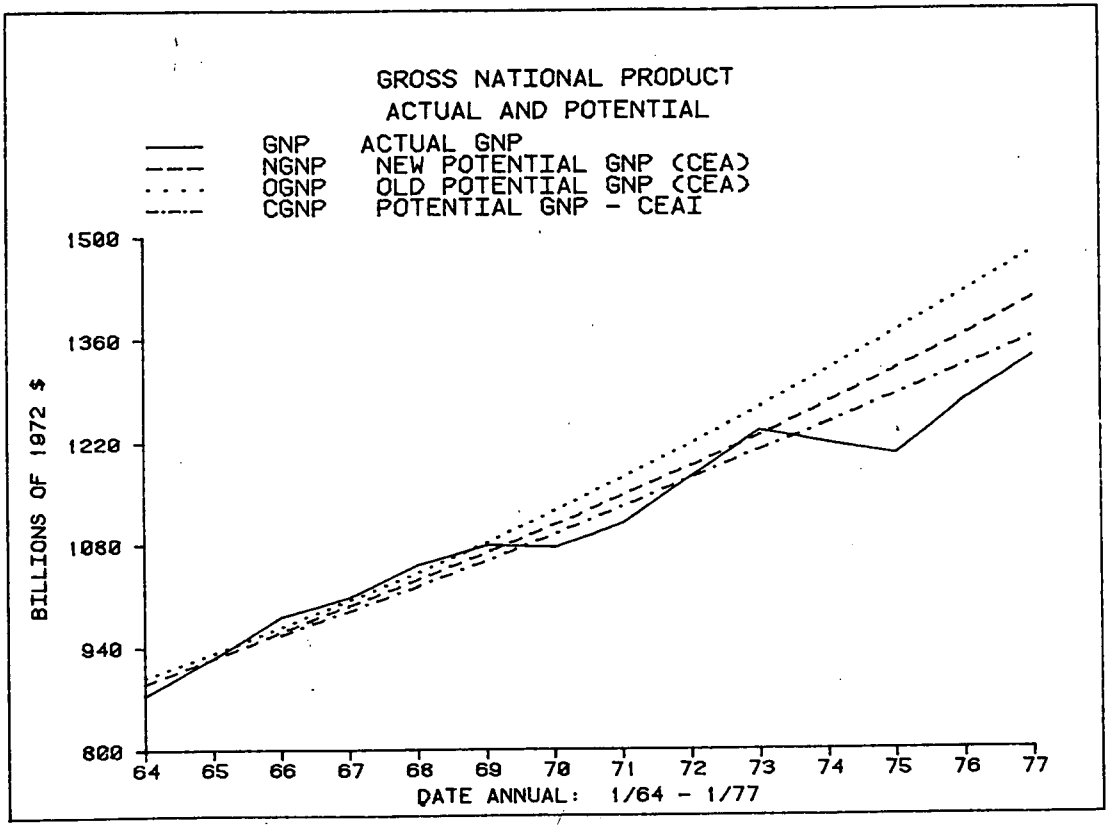

Figure 10

Representative BOLLING. Thank you, Mr. Evans.

Next we have John W. Kendrick, professor of economics, the George Washington University, since 1956; member of senior research staff, National Bureau of Economic Research; economic consultant and lecturer. Formerly chief economist of the U. S. Department of Commerce, 1976–77; vice president for economic research of the Conference Board, 1972–73. Fellow of the American Statistical Association; member of American Economic Association; Southern Economic Association, vice president 1969–70; Conference on Research in Income and Wealth, chairman, 1963–64; and National Economists Club, president and chairman, 1975–77. Author of over 100 articles and 10 books on economic subjects, including "Postwar Productivity Trends in the United States," New York: National Bureau of Economic Research, 1974; "The National Wealth of the United States by Major Sector and Industry," New York: The Conference Board, 1976; "The Formation and Stocks of Total Capital," New York: NBER, 1976; and "Understanding Productivity," Baltimore: The Johns Hopkins University Press, 1977.

We are glad to have you with us. Please proceed, Mr. Kendrick.

STATEMENT OF JOHN W. KENDRICK, PROFESSOR OF ECONOMICS, GEORGE WASHINGTON UNIVERSITY, WASHINGTON, D.C.

Mr. KENDRICK. Thank you, Congressman.

I suspect that mine is one of the long prepared statements you are referring to. However, I did provide a summary and conclusions section of only 3½ pages at the end of my prepared statement. I will center my oral remarks around this summary.

As your other witnesses have pointed out and documented, since 1966 there has been a disturbing deceleration in the growth of total factor productivity from 2.9 percent 1948–66 down to 1.4 percent a year through 1976. Based on Denison's growth accounting framework, the chief causes of the slowdown appear to have been significant reductions in the contributions of advances in applied productive knowledge, changes in labor quality—due chiefly to shifts in the age-sex composition of employment—and volume related factors—scale economies and declines in the ratio of actual to potential GNP. Diminishing returns to domestic natural resources and a negative impact of Government intervention in the business economy had a lesser, but still significant influence.

Looking ahead to the 1980–90 decade, the growth of real business product is projected at about 3.4 percent a year, assuming no major new policies are adopted to promote productivity. This projection implies that productivity growth will accelerate modestly to 1.8 percent a year, up from the 1.4 percent of 1966–76, but still well below the 2.9 present average for the 1948–66 subperiod. The chief factors behind the improvement are expected to be changes in labor quality, as shifts in the age-sex mix become favorable, and volume-related factors, assuming high-level employment in 1990. However, continued declines in the average quality of natural resources, negative effects of inter-industry shifts of factor inputs, and possibly a bit slower rate of advance in technology will prevent a significant resurgence of productivity growth.

It should be noted that the deceleration in growth of "labor productivity"—real product per hour—was greater than in total

factor productivity due to deceleration in growth of capital per unit of labor input as the growth of the labor force and hours worked accelerated substantially after 1966. In the 1980 decade the projected retardation in rate of growth of the labor force and hours worked and acceleration in growth of capital per hour will result in the growth of labor productivity. Even so, the average increase in real product per hour is likely to be only 2.6 percent a year 1980–90, compared with 3.3 percent 1948–66.

In our view, a positive program to release the dynamic forces of the private economy could raise the rate of growth of total factor productivity back to the 2.8 percent a year experienced in the two decades prior to 1966, and the rate of increase in real business product to 4.8 percent. The centerpiece of the program would be the pursuit of macroeconomic policies, including significant reductions in business income tax rates that would raise the net rate of return on investment by about 2.5 percentage points, back closer to that of the mid-1960's, resulting in an increase in the proportion of income saved and invested by about 2 percentage points. This would not remove the biases against saving and investment now present in the U.S. tax system, but would offset the biases sufficiently to have a marked stimulative effect. It would be further enhanced by the increase in business confidence engendered by adoption of measures to facilitate the operations of the enterprise system.

Specifically, I would urge enactment of the measures proposed by the President to reduce business taxes—reduction of the corporation income tax and expansion of the investment tax credit to cover structures as well as equipment. But this is not enough. Macroeconomic policies should be pursued to permit a further widening of before-tax profit margins closer to those of the 1960's. And next year and/or in 1980 business taxes should be pared further by reducing the double-taxation of dividends and permitting firms to price-index their depreciation allowances to reflect replacement costs of plants and equipment. Other policy options are available, as discussed in my prepared statement.

The increase in tangible investment, embodying new technology, would also help speed up creation and application of advances in knowledge. In view of the high social rate of return on R. & D., however, we recommend additionally a tax credit or other subsidy for privately financed R. & D., and a substantial increase in the Government R. & D. outlays in selected areas, including basic research. These measures could increase the contribution of technological progress to productivity by 0.5 percentage point—back to the rate experienced prior to the mid-1960's when the ratio of R. & D. to GNP began to decline sharply.

There are other policy options available to promote education and training, health, factor mobility, and economic efficiency, and improve the net effect of governmental activities on unit real costs of business. The impact of these measures will be reenforced by wider opportunities for economies of scale, increases in rates of utilization of capacity, and a more stable economic growth rate.

A growth rate close to 5 percent is not the most probable outcome for the decade ahead, and will not be achieved without broad public and official understanding of its benefits and the kinds of

measures necessary to stimulate productivity. If it is attained, it will mean a rate of increase in real income per capita of about 3.5 percent a year, compared with 2.3 percent 1948–73. Increases in real labor compensation per hour would accelerate to about 4 percent. This would help reduce the impact of money wage-rate increases on unit costs, contributing to reduced inflation. It would help increase the international competitiveness of U.S. products and thus contribute to improving the trade balance. Finally, it would increase the material strength of the Nation and reduce the relative burden of outlays required for national security in an unsettled world.

As I measure productivity, the rate declined from 2.9 percent, 1948–66, down to 1.4 percent a year from 1966 through 1976.

I don't spend much of my prepared statement discussing the reasons for the slowdown because these are summarized in table 1 at the end of my prepared statement.

If you compare the last two columns, you can see the major elements which I think account for the showdown, using Edward Denison's growth accounting framework.

Most of the numbers for the 1948–66 period are from Denison as described in his recent book on accounting for U.S. economic growth. The 1966–76 numbers are my own extensions of his estimates for the more recent period.

As a quick summary, the chief causes of the slowdown appear to have been significant reductions in the contributions of advances in applied productive knowledge. This is largely a result of the point that Mr. Evans made that R. & D. spending has dropped from 3 percent of GNP in the mid-1960's to 2.2 percent last year.

Also, there have been changes in labor quality due chiefly to shifts in the age-sex composition of employment, and then there are the volume-related factors, lesser scale economies and a decline in the ratio of actual potential GNP since we are ending in the year 1976 when we still had considerable excess unemployment and productive capacity.

I would add that I believe that during this last decade diminishing returns to natural resources has been a factor, because we find the average quality of mineral reserves has dropped. We are drilling out over the oceans and the gulf, which, of course, costs a lot more to produce oil, and so on. Also, as Mr. Denison has documented, I believe that the various government regulations which have increased costs of business without increasing product as measured has been a factor.

By the way, in this table, I have an empty box which I left for Mr. Rosow's convenience on changes in quality of labor. I have the ratio of actual to potential efficiency of labor.

Now, this is something that I don't pretend to be able to measure in the economy as a whole. There has been a lot of talk that there has been a loosening of work ethic and discipline, and so forth, in the last decade. This could be.

I am sure we don't get 100-percent efficiency out of the work force as a whole—probably far below that. But this, I might point out, is an area where gains are potentially short term. I think the more important factor in promoting productivity is the longer run technological progress as a result of R. & D. and its incorporation

in the ways and means of production through investment and the incorporation of advancing knowledge in people through education and training.

But I don't want to minimize the importance of motivating workers to do a good job, and I think that the short-term gains can be very substantial in particular plants and companies and industries.

Now, looking ahead to 1980 to 1990, which I do in table 2, in the first column, I have a basic growth projection which represents what I think will happen if no special policy measures are adopted beyond those already in place as of early 1978.

Here, I am predicting that total real product in the business economy, which is 85 percent of the total, and the only part where we could really measure productivity adequately, will grow at 3.4 percent a year, and this implies that productivity growth will accelerate to 1.8 percent a year up from the 1.4 percent of 1966–76, but still well below the 2.9-percent average for 1948 to 1966 period.

The chief factors behind this improvement, which not only I, but most other economists, Jerry Mark, Ed Denison, and others expect, without special policies, is the favorable shift in the age-sex mix with fewer of the very young workers, and greater experience of the female participants in the labor force.

The volume-related factors, assuming high level employment in 1990, would be more favorable. However, we will have continued declines in the average quality of natural resources, particularly if we seek greater energy independence, which seems to be a reasonable goal.

It means a greater draft on our own domestic resources and a quicker reduction of the average quality.

There will be some negative effects of interindustry shifts, especially to service industries, and possibly a bit slower growth in technology, without special measures.

It should be noted that the deceleration and growth of the conventional labor productivity measure was greater than that in total factor productivity because there was some deceleration in the growth of capital per unit of labor, and in the 1980 decade, I would expect that the comeback of output per hour would be a little better because of the slowing growth of the labor force and hours worked. We will have an accelerated rate of increase in capital per hour.

But even so, the average increase in real production per hour is likely to be only 2.6 percent a year in the 1980's compared with the 3.3 percent from 1948 to 1956. I think my projection is higher than Michael Evans' but it is still lower than the two postwar decades.

Coming to the major topic for discussion in the panel, and that is, what can be done about improving productivity? I think that a positive program to release the dynamic forces of the economy could raise the rate of growth of total factor productivity back to the 2.8 or 2.9 percent a year experienced in the two decades prior to 1966, which would result in a growth of real product of 4.8 percent instead of the 3.4 percent.

Of course, this would have a lot of beneficient fallouts in the way of reducing the inflation rate and improving standards of living faster, and helping in our international competitiveness.

The centerpiece of this program would be the pursuit of macroeconomic policies, including significant reductions in business income tax rates that would raise the net rate of return on investment by about 2½ percentage points, back closer to that of the mid-1960's, which would result in an increase in the proportion of income saved and invested of about 2 percentage points.

In other words, I agree with Mr. Evans that fixed investment is very important as a carrier of technological progress and an acceleration of the growth of the capital stock itself promotes a diffusion of technological change, since the average age of the stock becomes younger, meaning more recent technology is incorporated to a greater extent than when the capital stock is growing more slowly.

On these percentages, let me point out that a study by the Bureau of Economic Analysis a couple of years ago indicated that in order to meet the social goals of the Nation on energy, antipollution, occupational safety and health, and also to increase capital per worker in line with past trends to keep up our productivity growth, we would need to increase the percentage of GNP devoted to plant and equipment spending by, or, rather up to, 12 percent.

Now, last year it was below 10 percent. This year it may be close to 10 percent, but 2 percentage points more on a GNP of almost $2 trillion means about $20 million.

Now, based on relationships in the DRI econometric model. I am sorry I have to use DRI, but I didn't have access to your service. I could have called you and asked.

Mr. EVANS. I will talk to you about it this afternoon.

Mr. KENDRICK. But to get 2 percent more investment, as I understand it, the DRI model indicates you need 2½ percentage points more on corporate rate of return on investment, which would be back closer to the 1960's.

In the body of my prepared statement, I cite figures from George Terborgh, indicating that the rate of return has dropped by 3 percent since the mid-1960's, which is one reason this recovery has been as sluggish as Mr. Evans' chart indicated.

If we are able to do this, I think that this will be a very important aspect of improving productivity partly because stimulating plants and equipment will also stimulate private R. & D. spending.

More specifically, I would urge enactment of the measures proposed by the President to reduce business taxes, that is, his proposed reduction of the corporation income tax rate, his expansion of the investment tax credit to cover structures as well as equipment and making it permanent.

But, this is not enough. This total reduction, as I recall, was $5 or $6 billion, and I am talking about something like $25 billion.

Part of the way we can further increase the rate of return on investment is macropolicies that would permit a widening of the profit margins before tax.

In other words, by letting prices rise about 1 percentage point more than unit costs, which, once we got a wider margin, then the increase in prices could be the same as the increases in costs.

However, the other part of the increase in profit margins would have to come from further reductions of business taxes, and I have a number of options such as further reduction of the corporate tax rate, reducing the double taxation of dividends, or permitting firms

to price index their depreciation allowances for tax purposes to reflect the replacement costs of plant and equipment instead of the original purchase price which depreciation allowances now cover, which are obviously not sufficient for replacement in an inflationary period.

The increase in intangible investment, as I said, would speed up creation and application of advances in knowledge, but in view of the high social rate of return on R. & D., I would additionally recommend a tax credit or other subsidy for privately financed R. & D. and a substantial increase in government R. & D. outlays in selected areas, including basic research.

Incidentally, I think the easiest way to do this would be to expand the coverage of the present 10-percent investment tax credit, not only for equipment and for structures of the present proposal as enacted, but also to let it apply to private R. & D. expenditures. Tax purists prefer a direct subsidy, so that people can see what is happening better than when you have a tax expenditure.

But since R. & D. is really the fountainhead of invention as a basis for innovation, I think it is important that we get the R. & D. ratio backup.

There are other policy options which I discuss in the paper and don't have time to repeat now, available to promote education and training, health, factor mobility and economic efficiency, and also to improve the net effect of government activities on unit real costs of business, such as stricter application of cost-benefit analysis in setting standards for clear air, clean water, and so forth.

The impact of these measures will be reinforced as table 2 shows, by greater economies of scale as the economy grows faster, by increases in rates of utilization of capacity, and also by a more stable economic growth rate since productivity is affected by the degree of variability in production overtime.

So, I think just pursuing the objectives of the Employment Act of 1946 itself in getting more stable growth helps on productivity.

Now, in conclusion, a growth rate of close to 5 percent, which I project as feasible with a positive program, is not the most probable outcome for the decade ahead. I wouldn't say that the right-hand column in my projection is the most probable. Probably the left-hand column is closer. This will not be achieved without broad public and official understanding of its benefits and the kinds of measures necessary to stimulate productivity.

But if it is attained, it will mean a rate of increase in real income per capita of about 3½ per year compared with 2.3 percent in the last 25 years, increases in real labor compensation per hour would accelerate to about 4 percent. This would help reduce the impact of money-wage increases on unit costs, contributing to reduced inflation.

This would also help increase the competitiveness of U.S. products abroad and, thus, help improve the trade balance, and, finally, this higher growth which I think is possible would increase the material strength of our Nation and reduce the relative burden of outlays required for national security in an unsettled world.

[The prepared statement of Mr. Kendrick follows:]

Prepared Statement of John W. Kendrick

Productivity: A Program for Improvement

A significant slow-down in the rate of productivity advance in the U. S. business economy since the mid-1960s has been well documented in other papers of this series, and in some of my own previous writings. This is true whether one measures productivity in terms of the conventional output per labor hour ratio, or in terms of broader multi-factor productivity productivity measures relating output or real product to all associated inputs or real costs, nonhuman as well as human (see Table 1). The slowing of productivity advance resulted in a deceleration of the growth of real income per worker and per capita, and it contributed to the acceleration of inflation and to the reduced international competitiveness of domestic products.

Few would argue with the desirability of measures to accelerate the pace of productivity advance in the future, subject to the usual economic constraints. That is, it is rational to try to produce the same outputs with fewer inputs, since the factors of production have desirable alternative uses, or to produce more outputs with given inputs, since most persons wish to have higher real incomes. The economic constraint is that the investments required to increase productivity should not exceed the present value of the expected future cost-savings.

In addition to enhancing real income per worker and per capita, accelerated productivity advance could help to mitigate price inflation, and help to increase the international competitiveness of those industries in which relative productivity growth is enhanced.

In this paper I develop various policy options for promoting productivity growth. Since the paper has been prepared for a Congressional Committee, primary attention has been devoted to policy measures available to the Federal Government. But it will be noted that the measures relate chiefly to the role of the Government in providing the legal and institutional framework within which private enterprise operates, and in affecting the incentives to work, save, and invest through tax and other macroeconomic policies.

Given a favorable institutional setting, I accept the proposition that the competitive market system is an effective engine of economic progress. That is, enterprises have a strong incentive to innovate and reduce real costs per unit of output in order to widen or to protect profit margins. The above-average profit margins attendant on successful pioneering innovations are justifiable as a reward as well as an incentive for socially desirable innovation under conditions of uncertainty. The abnormal profits tend, of course, to be competed away as the innovators are imitated. Only if given firms are able to stay ahead of the pack technologically can they continue to enjoy above-average profits—an important reason for the institutionalization of the research and development (R. & D.) function by private industry during the twentieth century.

Even in the regulated sectors of the economy there are incentives to increase productivity. Regulated monopolies seek, through cost-reducing technological innovations, to prevent or slow erosion of profit margins as rising unit costs encroach on fixed prices between time-consuming rate adjustments granted by regulatory commissions. There are, however, opportunities for regulators to use their powers to provide additional incentives for productivity advance in this sector.

Although most of the measures to improve productivity discussed here relate to the private economy, it should be noted that the Federal, state, and local governments have a special obligation to their tax-payers to take appropriate actions to improve the productivity of the public sector in order to reduce the real cost of given public services, or to increase the services provided with given revenues. In recent years, the Federal government has instituted a program of productivity measurement covering about 65 percent of civilian employees, as well as mechanisms for trying to stimulate productivity improvements in Federal agencies. Some states and local governments have also experimented with productivity measurement and/or improvement programs. Obviously, such efforts should be encouraged, and intensified.

Very little has been written about household productivity, possibly because most household productive activity does not get into the gross national product (GNP). Yet it has been the proliferation of labor-saving appliances and equipment in the home, prepared foods, and so on, which has made possible the sharp increase, of recent decades, in the ratio of females in the paid labor force of this and other advanced nations. Household productivity is not treated in this paper, but it is a subject worthy of attention.

THE ANALYTICAL FRAMEWORK

Knowledge of the chief sources of productivity advance is a necessary background and framework for discussion of policies to promote productivity. Edward F. Denison has provided such a framework as a basis for his pioneering efforts to account for the sources of past U. S. economic growth.[1] Our brief discussion here is compatible with Denison's schema, with minor rearrangement and elaboration as shown in Table 1. The estimates for 1948–66 are based largely on Denison, with our own preliminary extensions for 1966–76. Since this paper is policy-oriented, we do not here discuss the sources and methods used to obtain the historical estimates. These are described in Denison's works, and my modifications and extensions are described in a paper available on request.[2] The estimates of sources of productivity advance are subject to varying margins of error, but they are useful in conveying a rough notion of the relative importance of the several causal forces upon which policy levers available to the Federal Government may be brought to bear.

Table I relates specifically to proximate determinants of productivity growth. Underlying these are the basic values, laws, and institutional forms and practices of the nation. But changes in these fundamental causal factors take place slowly, and operate through the more immediate determinants. To the extent that they are not captured by the estimates of the contributions to growth of the proximate determinants, the effects of changes in fundamental factors show up in the "residual" category. It is under that rubric that our general remarks on values and institutions will be given.

With respect to the proximate determinants of productivity increase, the fountainhead of advancing technological knowledge, the most important source of productivity growth, is research and development (R. & D.). In recent decades it has been formal R&D outlays that have accounted for most of the increases in the stock of technological knowledge applied to productive processes. But informal R&D, involving small improvements in new cost-reducing innovations as they are applied in plant and office, plus the inventive activity of individuals not included in the formal R&D estimates, continues to be significant.

The advances in knowledge resulting from R&D projects are embodied in new capital goods and diffused through investment, and the associated know-how is embodied in the current or future labor force through education and training outlays. With regard to the former, tangible capital outlays are not only important as a carrier of technological progress, but also, if the rate of capital formation is strong enough to reduce the average age of plants and equipment, the rate of technological advance is speeded up. This is the main factor in the sub-category "changes in rate of diffusion" within the category "advances in knowledge" shown in Table 1.

Next in importance to advances in applied productive knowledge are several variables, particularly education and training, affecting the average quality of labor inputs. Rising average education of the employed labor force increases productivity as evidenced by the earnings differentials of workers with different attained levels of education even after standardization for other causes of the differentials such as intelligence and family background. Advances in education and training interact with technological progress, of course, with respect to the production of scientists, engineers, managers and others who make inventions and innovations, as well as in meeting the rising skill requirements associated with an increasingly complex technology.

Increases in average outlays for health and safety of workers also help promote productivity by decreasing time lost due to illness and accident, as well as by raising vitality and reducing debilitating health conditions.

Changes in age-sex mix of the employed labor force affect productivity since the average earnings and value added per worker differ among the various groups. Thus, the bulge in the young age groups 1966–76 served to depress productivity; but the effect will be reversed in the 1980's.

Finally, we include under labor quality changes in the average ratio of actual to potential labor efficiency under given technology. This is potentially important, and many observers believe the ratio declined after 1966, reflecting some loosening of the work ethic. But there is no good way to measure this variable at the macrolevel, so we have left this box in Table I empty.

Changes in the average quality of land and other natural resources can affect productivity trends in the extractive industries. This variable appears to have had a

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[1] See Edward F. Denison, *Accounting for United States Economic Growth, 1929–1969* (Washington: The Brookings Institution, 1974).

[2] John W. Kendrick, "Total Investment and Recent Productivity Developments," paper prepared for a Joint Session of the American Economic and Finance Associations, Dec. 30, 1977.

negative effect since the latter 1960's, although it is mitigated with respect to its impact on the total business economy by the relatively small weight of agriculture and mining. But the effect may well be more significant in the years ahead, particularly in view of the nation's efforts to achieve a greater degree of independence from foreign energy sources.

We come next to a group of factors having to do with the effect of resource reallocations, sometimes referred to as changes in economic efficiency. When labor or nonlabor resources move from uses, industries, or regions in which their remuneration is below a normal "equilibrium" level to areas in which their rates of remuneration are higher, real income and product are raised. Inefficient allocation usually results from impediments to mobility required to adjust to changes in technology and other dynamic forces affecting patterns of supply and demand. The impediments may be due to government regulations, practices of firms or unions, or the sheer costs of movement. In the past, major interindustry shifts, particularly from agriculture to other industries, and shifts of persons from marginal types of self-employment to employee status, have helped to raise productivity. But since the mid-1960's, these shifts have largely played out, with little additional positive effect on productivity.

The volume-related factors comprise economies of scale, related to the growth rate, and intensity of demand, reflecting changes in the ratio of actual to potential real product. A significant part of the deceleration in productivity growth between 1948–66 and 1966–76 was due to the lower rates of utilization of capacity in 1976 than in 1948 and 1966. The irregular factors shown in the Table 1 such as abnormal weather or strikes, may affect annual changes, but seldom the rates of change over longer periods.

Since Table 1 relates to the business economy, the net impact of its transactions with governments is relevant. On the one side, the public sector provides services to business, some directly and some in the form of intrastructure and maintenance of the social fabric which benefit business and households jointly. On the other hand, business costs are increased by governmental requirements and regulations. In recent years the net impact of government on business productivity appears to have become negative, due in part to the environmental, health, and safety regulations as documented by Denison.[3]

The residual factors, n.e.c. (not elsewhere classified) relate to variables not included in the previous categories, such as changes in the crime rate; or to the effect of changes in values and institutions whose effects were not fully reflected in the proximate determinants, as discussed above.

POLICY OPTIONS FOR PROMOTING PRODUCTIVITY

Without special policies over and above those in place in early 1978 it is unlikely that there will be any major recovery in the rate of productivity increase. The performance of productivity should improve fractionally over that experienced during the 1966–76 decade as a result of the reversal of some of the temporarily unfavorable factors, such as increasing proportions of youth in the labor force and the drop in intensity of demand. But the rate of productivity growth would not come back to that of the 1948–66 period without special policy measures. This is not only my opinion, but also that of other productivity experts.[4] A "basic" projection of real product and total tangible factor productivity, based on these views, is shown in Table 2. In comparison with Table 1, note that productivity growth is projected at a 1.8 percent average annual rate 1980–90, somewhat above the 1.4 percent rate 1966–76, but well below the 2.9 percent rate attained between 1948 and 1966. Tangible factor inputs increase somewhat more in the 1980 decade than 1966–76 despite a marked retardation in labor force growth,[5] mainly because in the earlier decade employment rose less than labor force as reflected in a rise in the unemployment rate from under 4 percent in 1966 to over 7 percent in 1976. Conversely, we assume that the unemployment rate will drop slightly from near 5 percent in 1980 to about 4.5 percent in 1990. It is also projected that the growth of real capital stocks and inputs will grow slightly faster 1980–90 than 1966–76 due to the faster growth of real product (3.4 percent vs. 2.8 percent annual rates) even assuming approximately the same ratio of gross saving and investment to GNP.

The "high" projections of real product and total tangible factor productivity are based on the assumption that the policy measures discussed below are adopted,

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[3] See January 1978 *Survey of Current Business.*

[4] See Joint Economic Committee of Congress, *U.S. Long-term Economic Growth Projects: Entering a New Era* (Jan. 25, 1978), Part VIII, "The Decade Ahead,", pp. 109–111.

[5] The labor force projections were those prepared by the Bureau of Labor Statistics based on the Census Bureau's Median, Series II population projections by age-sex groups, published in the December 1976 Monthly Labor Review.

raising the average annual rate of growth of productivity to 2.8 percent, virtually back to the 1948-66 average. Although we project the same rate of growth of labor input as in the basic projection,[6] the measures advocated below for stimulating capital formation would result in a significantly higher growth of real capital stocks and inputs. For this reason total tangible factor input is projected to grow at a 2.0 percent average annual rate 1980-90 compared with 1.6 percent in the basic projection. As a result of stronger growth in both tangible factor inputs and productivity, real gross product in the high projection grows at a 4.8 percent average annual rate compared with 3.4 percent in the basic projection which assumes no new policy initiatives.

In the following sections we set forth a program of policy measures which we believe could accelerate the growth of total factor productivity by 1 percentage point over and above what it would otherwise be.[7] Although R. & D. was referred to earlier as the fountainhead of productivity advance, we begin with a discussion of measures to promote tangible investment, since these would also tend to stimulate R&D.

TANGIBLE INVESTMENT

Policies to promote tangible investment and thus the rate of growth of real stocks and inputs of structures, equipment, inventories and developed natural resources would obviously accelerate the growth of real product per unit of labor input and per capita. Real product growth would be favorably affected by the faster rate of diffusion of new technology, reflected in a declining average age of the fixed capital stock. Also, the acceleration in tangible capital formation would have a positive effect on R. & D. spending and other intangible investments that are part and parcel of the inventive-innovative process.

The key policy lever for stimulating business investment is the after-tax rate of return on investment, increases in which influence expected rates of return favorably as well as enlarging internal sources of funds. In this connection it should be observed that during the most recent 8-year period, 1970-77 inclusive, adjusted domestic after tax profits of U. S. nonfinancial corporations averaged 4.25 percent of their gross domestic product, compared with a 7.75 percent average for 1947-69. The estimated 1977 ratio is below 4 percent. In this calculation by George Terborgh based on Commerce Department data, the profits estimates were adjusted for capital consumption and inventory valuations to current replacement costs from the costs charged for income tax purposes.[8] When adjusted profits are related to net worth (with tangible assets restated at replacement costs), the 1970-77 average rate of return is 3.55% compared with 5.90 for the 1947-69 period. There was a similar drop in the before-tax profit rates.

A basic cause of the decline in the profit rate, which began in 1966, was the accelerating pace of price inflation. For one thing, most corporate managements apparently did not adopt pricing policies (to the extent they had some discretion over prices) to reflect fully the impact of inflation on costs, particularly the replacement cost of fixed capital and inventories. More importantly, in my view, has been the use of macro-economic policy to restrain inflation by holding price increases below the increase of unit costs, thus squeezing profit margins, in periods of high-level activity—particularly 1966, 1969, 1973, and also 1977, when rates of return again appeared to be declining a bit. In addition, the wage-price freeze and subsequent controls from August 1971 to April 1974 not only limited profits growth, but also distorted relative rates of return which contributed to inadequate investment and capacity bottlenecks in 1973-74 in some basic industries.

In the current expansion it is important that monetary, fiscal, and incomes policies permit the recovery of profits back to more adequate rates, thereby increasing both saving and investment. A close relationship between profit rates and investment lies at the heart of both the neo-classical and flow-of-funds theories, and appears to be substantiated by various empirical investigations. Some economists subscribe to an accelerator model of investment behavior, claiming that in other

[6] The growth of labor input could, of course, be accelerated by further relaxation of mandatory retirement laws and reductions of the disincentives to work inherent in the tax system and Social Security laws.

[7] Most of the following material has been drawn from parts of papers prepared by the author for the American Enterprise Institute, "Productivity and Economic Progress," and for the National Science Foundation in "Relationships Between R&D and Economic Growth/Productivity" (Nov. 9, 1977).

[8] See a study for the Machinery and Allied Products Institute, George Terborgh, *Corporate Earning Power in the Seventies:* A Disaster (Washington: Machinery and Allied Products Institute, August 1977), p. 5.

models profits are a proxy for sales or output. I would argue that the reverse is true, and that when the movements of profits and sales diverge the profit rate is the more influential variable. Thus, in the recent recovery since April 1975 the sluggishness in growth of private fixed investment reflects the relatively low rates of return and uncertain prospects for the future.

The sluggish investment performance since 1975 has been all the more disturbing in view of various recent studies of capital requirements in the years ahead.[9] Thus, the study by the Bureau of Economic Analysis indicated that in order to meet the capital requirements of mandated social programs (environment, occupational safety and health, and greater energy independence) as well as to increase capital per worker at the rate of the previous decade, nonresidential structures and equipment outlays would have to rise to around 12 percent of GNP in the latter 1970s, compared with an average of 10.5 percent in the decade 1965–75. Since that study was completed the ratio has sagged to 9.5 percent in 1976, 9.8 percent in 1977, with a projected ratio of about 10 percent for 1978 based on BEA's survey of plant and equipment spending plans. This suggests, other things equal, that policies to raise the ratio of saving and investment to GNP by at least 2 percentage points would be desirable to avoid increases in the real interest rate that would reduce the growth of capital and output per worker.

More broadly, the case for raising the proportion of income devoted to saving and investment rests on the view that the U. S. tax system is biased against capital formation—more so than is true of most other industrialized countries, which have significantly higher ratios of gross saving and investment to GNP. It is held that a neutral tax system, or one in which the biases are reduced by various measures itemized below, would result in higher rates of capital formation and growth.

The theoretical case for greater capital formation has been made most forcefully by Martin Feldstein, President of the National Bureau of Economic Research. He points out that personal and corporate income taxes put a wedge between the national rate of return on capital and the net rate received by savers. He estimates that the latter rate, and thus the rate of discount of future consumption, is less than half of the corresponding pretax average rate of return on private investment in the United States. As he put it: If the amount of future consumption that individuals require to forego a dollar's worth of present consumption is less than the rate at which investment produces future income from current capital investments, we should save more."[10] He also argues that the Social Security system reduces saving in the United States.

Ture and Sanden explain the bias against saving and investment in the present U. S. tax system somewhat differently, stating:

"* * * for the most part, neither the part of income which is saved nor the return on such saving is excluded from the base of the income tax, the principal source of tax revenue. Since saving is the capitalized amount of the future income purchased by the saving, this characteristic of the income tax subjects the part of current income used to buy future income to a double tax, whereas the part of current income used to buy consumption goods is taxed only once."[11]

Another way to put it is that income taxes reduce disposable income and thus impact both consumption and saving, but that since future income from the investments into which savings flow are also taxed, after-tax returns and thus the present values of investments are reduced making saving and investment less attractive relative to consumption than would be the case with a neutral tax system.

Capital recovery allowances, which are not the full equivalent of expensing capital outlays, particularly in an inflationary environment when depreciation allowances are at original cost, ameliorate but do not eliminate the disproportionate burden on saving. So do certain tax "loop-holes." On the other hand, some nonincome taxes accentuate anti-saving bias. This is true of taxes on capital gains, which are basically capitalizations of expected increases in the earnings of assets. Since such earnings increases will be taxed as they accrue, taxing the capitalized value of such increases is a further layer of taxation on the same income stream. Estate, inheritance, and gift taxes are similar in their impact to capital gains taxes. Property taxes also add to the burden of saving, since they are the equivalent of income taxes on explicit or implicit income from the property. Further, the provision of the Tax Reform Act of 1969 limiting the maximum marginal rate on

[9] See the summary by Henry Wallich, "A Near Term Look at the Capital Shortage," *Journal of Financial and Quantitative Analysis,* November 1976.

[10] Martin S. Feldstein, "National Saving in the United States," *Capital for Productivity and Jobs* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., for The American Assembly, 1977).

[11] Norman T. Ture and B. Kenneth Sanden, *The Effects of Tax Policy on Capital Formation* (New York: Financial Executives Research Foundation, 1977), p. 71.

"earned" income to 50 percent in contrast to 70 percent on property income plainly serves to discourage investment.

In order to eliminate the anti-saving bias of the U.S. tax system, Ture recommends two major measures.

(1) The corporation income tax should be repealed, attributing corporate earnings to shareholders for inclusion in their taxable income—which, incidentally, would remove the differential treatment of corporations and unincorporated enterprises.

(2) Current saving should be excluded from the base of the individual income tax, while fully taxing returns from investment plus repayments of principal.[12]

Revenue losses could be made up by increasing tax rates on personal income less net saving and/or by a value added tax which is essentially neutral with respect to saving decisions.

It is quite unlikely, however, that such a radical reform of the tax system will be enacted, particularly the second measure, despite the evident need to devote a larger fraction of national income and product to saving and investment. But there are a number of more modest tax options for stimulating investment and saving which we shall discuss briefly, and then mention some non-tax measures to encourage capital formation.

It should first be noted that at this stage of the present recovery, with at least another year to go before reaching relatively full employment, measures to promote private investment are more appropriate than measures to increase saving directly. Measures that reduce the effective corporate tax rate which, together with before-tax earnings recovery, stimulate investment also tend to increase corporate saving. Further, the increase of investment will have the usual multiplicative effect on total national income (other things equal) which will generate the total saving necessary to accomodate the investment growth. But once the full-employment range is attained, measures to increase saving are indicated to achieve a higher investment/GNP ratio if the inflationary route of forced saving is eschewed.

We now enumerate some of the more prominent tax proposals for stimulating private investment and saving.

1. Reducing effective corporate income tax rates by one or more of the following measures.

a. Further acceleration of depreciation charges for tax purposes, and/or indexation of depreciation to adjust from book depreciation of fixed assets at original cost to replacement costs based either on specific capital goods price indexes or general price indexes such as the private GNP deflator.

b. Reduction of corporate income tax rates by decreasing the 22% normal tax, decreasing or graduating the present 26% surtax applicable to income above the $25,000.00 surtax exemption, increasing the surtax exemption, or by some combination of the alternatives. To encourage small business, an increase in the surtax exemption and a graduation of rates for increments of net income would be helpful.

c. Elimination or reduction of the double taxation of corporate dividends. Here, too, there are alternative approaches, principally either to allow the corporation a deduction for its dividend distributions (as is done for interest payments), or to allow the shareholder a credit equivalent to the tax paid by the corporation with respect to the distributed earnings. The former approach is administratively simpler. Or, the corporate and personal income taxes could be completely integrated, with the shareholder paying personal income taxes on both dividends and his share of undistributed profits.

d. Increase of the investment tax credit from 10 percent to, say, 15 percent and expand its coverage to expenditures for new plant as well as equipment. The advantage of the credit is that tax liabilities can be reduced by businesses, other things equal, only by increasing investment. Most studies indicate that the credit does increase investment by somewhat more than the revenue loss. Businessmen claim that making the credit permanent would further increase its effectiveness.

2. Adjustments of the personal income tax.

a. The Tax Reform Act of 1969 provided a 50 percent maximum marginal rate on "earned" income. Extension of the maximum rate to property or capital income as well would encourage investment.

b. Reducing personal income taxes generally, as revenue requirements permit, and reducing the steepness of graduation of marginal rates, would also reduce anti-saving bias. Changes in graduation would, however, have to be weighed against equity considerations.

c. Strengthening tax incentives for personal saving. There are a number of such incentives in existing law. Some provide tax exemption or deferral for income from capital, such as provisions relating to pension, profit-sharing and stock bonus plans.

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[12] *Ibid.*, p. 71.

Others give tax deferral to income that is saved. As discussed in the recent report of the Joint Committee on Taxation, some of the existing provisions could be broadened, or new provisions added.[13]

3. Revision of the capital gains tax.

A "rollover" treatment of capital gains, similar to that for owner-occupied residences, could be accorded to all assets by deferring the tax on gains so long as the proceeds from the sale of the assets were reinvested fully. Also, capital gains tax rates could be reduced, or an annual exemption of a specific amount provided. Also, a more symmetrical treatment of capital gains and losses would be desirable to encourage greater willingness to undertake risky innovations.

With respect to the effectiveness of investment incentives involving a reduction in the corporate tax rate, quite a few econometric studies have been undertaken to answer the question.[14] Various analyses, such as those by Jorgenson and Hall, Bischoff, and Coen showed significant stimulative effects on investment of past increases in the investment tax credit, in particular, and of accelerated depreciation and reduction of the corporate tax rate. The effect of the latter was reduced, of course, by the fact that it lessened the tax-reducing effect of the other incentives on the implicit rental cost of capital.

As Christensen[15] pointed out, however, the models showing strong effects of incentives were prepared in a partial equilibrium context. When the investment models are specified within a general equilibrium framework and tested in complete econometric models of the U. S. economy, the effects of the investment stimuli were found to be considerably less by Taubman and Wales, Klein and Taubman, Christensen, and others. Harberger has noted that when tax incentives are analyzed in a general, equilibrium framework, the effects attributed to them will vary significantly depending on the complementary policies pursued—particularly fiscal policy in financing the tax expenditures and associated monetary policies—as well as on related structural relations in the model such as the interest sensitivity of saving. Also, as Lucas discovered, if it is assumed that tax changes are correctly anticipated by businessmen, the investment impact is substantially increased.[16]

One important lesson from this discussion is, I believe, that tax incentives for investment (including R&D, discussed below) can be effective as long as the complementary macro-economic policies are expansive and not offsetting. As Harberger wrote:

"In the final analysis the long-run effects of investment incentives on output will stem from their influence on the amounts of basic resources (labor and capital) which are voluntarily supplied to the market. Ultimately it is how these tax stimuli affect the labor-leisure choice and the savings decision that will determine their effect upon output."[17]

Expansionary macro-economic policies would reduce the requirements for tax-cuts if the rate of increase in the implicit price deflator for gross business product were permitted to rise somewhat faster than unit costs, widening gross profit margins. Let us suppose for the purposes of our high projection that business investment is increased as a ratio to GNP by two percent, or about $40 billion at current levels of GNP. To stimulate this much additional investment, profits after tax would have to rise by about $50 billion, or 2½ percent of GNP[18] which would bring them back closer to their average for the 1947–66 period. Half of this increase could be achieved by an increase in the implicit price deflator for gross business product about 1½ percent faster than the increase in unit cost. This would be a once-for-all add-on to the inflation rate, possibly spread over several years. Thereafter, prices and unit costs could rise more or less proportionately. The other $25 billion could be obtained by a combination of the tax-reducing measures specified above, which could also be spread over several years. Note that this represents about four times the business tax reduction recommended by the President in his 1978 economic message. By our calculations it would result in about a 1.3 percent a year faster

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[13] See "Tax Policy and Capital Formation," report prepared by staff of the Joint Committee on Taxation for the House Ways and Means Committee Task Force on Capital Formation (April 1977).

[14] See Michael Visscher, "The Effect of Tax Incentives on Investment Behavior," Chapter 2 of *Tax Policies for R&D and Technological Innovation* (Pittsburgh: Graduate School of Industrial Administration, Carnegie-Mellon University (processed).

[15] Laurits Christensen, "Tax Policy and Investment Expenditures in a Model of General Equilibrium" (Madison: Social Systems Research Institute, University of Wisconsin, processed, December 1969).

[16] R. E. Lucas, Jr., "Econometric Policy Evaluation: A Critique," K. Brunner and A. Meltzer (Editors), *The Phillips Curve and Labor Markets* (Amsterdam: North Holland Press, 1975).

[17] Arnold Harberger, "Tax Policy and Investment Expenditures: Discussion," G. Fromm (Editor), *Tax Incentives and Capital Spending* (Washington: The Brookings Institution, 1971).

[18] Based on relationship in the Data Resources, Inc. (DRI) model.

growth in real capital stocks of the business sector. When weighted by the .33 share of property income in gross factor cost, this would directly contribute 0.4 percentage point additional growth to real business product in the 1980 decade, as reflected in Table 2. Although the growth of consumption would be reduced somewhat while the investment ratio was being raised, the stronger subsequent growth of real product (assuming appropriate aggregate demand policies) would clearly mean larger consumption by the latter part of the decade than would obtain without the increase in the saving ratio.

With respect to the role of government in the investment process, it is frequently advocated that once the full employment zone is reached governments should run budget surplus to supplement private saving in the financing of business investment. That is well and good, assuming private demand is strong enough to maintain full employment. But even more important for productivity growth is the appropriate allocation of government outlays between current services and investments, including the intangibles—R&D, education, training, health, safety, and mobility. Governments at all levels have devoted close to half of their revenues net of transfer payments to tangible and intangible investments. This is a higher fraction than is devoted to investments (including child rearing) by the personal sector, which has averaged less than 40 percent in high level years. Thus the relative shift of national income since 1929 from the personal to the public sector is one reason for the upward trend of the total investment ratio through 1966. But the business sector has consistently devoted more than its entire disposable income (gross cash flow) to investment. A major reason for the decline in the ratio of total gross investment to GNP after 1966 was the drop in the ratio of business cash flow to GNP 1966–69, a decline in the public investment ratio 1969–73, and the relative shift of gross income to persons after 1966.[19]

It is important that governments continue to allocate a major fraction of their net revenues to total investment. The minor part of such investments devoted to reducing unit real costs of government operations has an important payoff in making public monies go further by raising productivity of the resources commanded by governments. The major portion of public outlays devoted to infra-structure and intangibles is important so long as its social rate of return is at least equal to the rate of return on private investment. An important part of the return on public investment is its contribution to raising the productivity of private industry, thus increasing rates of return on private investments and innovational activity.

ADVANCES IN KNOWLEDGE

The spearhead of advancing productive knowledge and know-how is R. & D., particularly that performed in or for the business sector. As noted above, a significant increase in profit rates would undoubtedly stimulate business-financed R. & D. Conversely, accelerating R. & D. outlays and the growth of the resulting stock would help to reenforce the rising rate of return and lead to a sharper increase in tangible investment in which much of the advancing knowledge is embodied. R&D directed to improving processes and producers goods obviously conduces to reduced unit real costs and thus increased productivity. Even the R&D directed towards creating new or improved goods for private or collective consumption also helps promote productivity advance through the learning-curve effect.

The case for special measures to stimulate R. & D. investments, and reverse its declining ratio to GNP since 1966 rests on its three prime characteristics:

(1) Inappropriability by the funding firm of all the benefits of its inventions due to externalities;

(2) The uninsurable uncertainties of the outcomes of R&D; and

(3) Indivisibilities requiring R. & D. resources on an optimum scale larger than many firms can afford.

The theoretical arguments have been butressed by research such as Mansfield's suggesting that social rates of return to R. & D. are far higher than, possibly double, private rates of return. To the extent that the special characteristics of R. & D. differ by industry, by size of firm and type of projects, a case can be made for selective grants or subsidies, which we shall look at after considering across-the-board incentives. The latter are obviously more economical and convenient to administer, involving less bureaucratic judgment.

Business R. & D. outlays already enjoy an advantage over tangible fixed investment in that since 1954 they may definitely be written off as an expense in the year in which they are incurred. The most frequently mentioned additional incentive is some form of a tax credit, or equivalent cash payments to firms paying no tax, for

[19] See John W. Kendrick, *The Formation and Stocks of Total Capital* (New York: NBER, 1976), pp. 236–237.

business R&D outlays. The tax purist would prefer to see a direct subsidy payment, but probably the most feasible plan would be to extend the present 10 percent tax credit on equipment purchases to cover industrial R. & D. as defined by the Financial Accounting Standards Board, or some other body. An advantage of this approach is that there would be little or no interference by government with the private decision-making process.

One objection to this approach is that public funds would tend to substitute in some degree for private. Judging from studies of the tangible investment tax credit, however, there would be a substantial positive effect. An alternative proposal, which would induce a larger increase in R. & D. outlays, would be to permit a larger tax credit on incremental R&D over and above the outlays of the previous year, or an average of several prior years. Even a 50 percent incremental R&D tax credit would cost the Treasury less than one billion dollars, assuming a ten percent increase in business R. & D. between 1978 and 1979. This compares with an almost $2 billion revenue loss from a 10 percent average credit on the $19 billion or so that business may spend on R. & D. in 1978.

A variant of the R. & D. tax credit proposal, whether average or incremental, would be to graduate the credit inversely to the size of the firm's R&D program up to some point. The rationale for graduation lies in the fact that uncertainties, indivisibilities, and even externalities tend to have a lessened negative impact on private R. & D. programs as they increase in size up to some point.

Another variant of the tax credit proposal originated several years ago[20] would be to allow a larger credit to producers of capital goods and possibly of intermediate producers' goods. The rationale for this stems from a priori reasoning butressed by N. Terleckyj's research findings that the productivity effects of indirect R. & D. performed by makers of producers' goods and purchased by user firms are even greater than the effects of their direct R. & D. outlays. Another justification for special incentives for capital goods producers is that to the extent their relative productivity rises through process R. & D. and the product R&D of the firms from which they buy, the relative prices of capital goods will tend to fall, which will stimulate tangible investment.

A related proposal is to allow accelerated depreciation of R&D plant and equipment outlays by business, or possibly a complete write-off in the year in which the costs are incurred, for tax purposes. Alternatively, a larger investment tax credit could be granted for R. & D. facilities. Such measures would help increase the productivity of resources devoted to private R. & D. By the same token, government grants to help modernize R. & D. facilities of universities and private nonprofit organizations would help improve the effectiveness of R. & D. activities in those sectors.

With respect to selective support of R. & D., there have been proposals for creating a Federal Center for industrial R. & D., which would be authorized to disburse funds for R. & D. projects in the public interest which would not otherwise be undertaken because of major uncertainties or costs, or too great a fragmentation of particular industries which undertake little or no research. In the latter case, the grants could be made on a matching basis to industry associations. Such arrangements for cooperative R&D might require special exemptions from the anti-trust laws, however. Governments of many other industrialized countries support such centers.

Governmental procurement policies can also be used to stimulate innovative activity by suppliers, as the Experimental Technological Incentives Program (ETIP) in the Bureau of Standards demonstrated. Further institutionalization of such programs, particularly at the state and local levels, would be desirable.

During the past decade, Federal Government support for the gathering of domestic and foreign scientific and technological information has declined drastically. It is time to again increase informational services, particularly information from foreign countries whose R&D activities and productivity have increased relative to the United States. In that connection, the Internal Revenue Service should again allow full deduction of travel expenses of U.S. scientists for attendance at scientific meetings abroad. Special attention should be paid to gathering and disseminating information that would be of value to technologically-lagging industries in this country.

Renewed support by the Federal government for state technical service centers should be considered. These are of particular value to smaller firms. Evaluation of N.S.F.'s Innovation Center experiment may indicate the desirability of expanding the number of centers.

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[20] See John W. Kendrick, "Productivity and Business" in Jules Backman, ed., *Labor, Technology, and Productivity* (New York: New York University Press, 1974).

There are various other proposals for aiding small technical enterprises and "long-wolf" inventors, as by government guarantees of loans by SBIC's to such enterprises, or the creation of a national research and development corporation after the British model, or tax incentives for shareholders of private corporations that invest in new or existing small technology-based companies.

Space precludes the discussion of other proposals that have been made to encourage R&D and innovative activity. A useful compilation is contained in the document *U.S. Technology Policy,* published in March 1977 by the National Technical Information Service (NTIS) for the Office of the Assistant Secretary for Science and Technology, U.S. Department of Commerce. Unfortunately, there has not been enough study and research with respect to the impacts of the various policy options, although the policy studies that have been and are being supported by N.S.F. are helpful and should be continued.

Finally, with regard to the totality of Federal Government support for R&D it is highly important for scientific and technological progress that the Federal Government pursue a reasonably steady and predictable policy with respect to investment of public funds in support of R&D. The sharp cut-back in the late 1960s and early 1970s of such support was the primary reason for the substantial drop in the ratio of R&D expenditures to GNP and the bulge in the unemployment rates of scientists and engineers. I would hope that the Science Adviser to the President and his Office of Science and Technology Policy would promote gradual increases in Federal funding of R&D at least in line with the growth of potential GNP, and possibly somewhat faster if the estimated benefits warrant it. A steady, predictable R&D funding policy is important in view of the long lead time required for planning the education of scientists and engineers. Particularly important is steady, adequate support for basic research to keep up the flow of new knowledge into educational channels and into applied research.

For the purposes of the high projection, we assume that a combination of the policies outlined above increases the proportion of total R&D to GNP from the 2.2 percent of 1977 to 2.8 percent in 1990. This would result in a contribution to advances in knowledge of 0.9 percent, instead of the 0.6 projected assuming no relative increase. Further, we would expect a 0.1 larger contribution from informal inventive and innovative activity, stimulated by the larger number of major inventions and innovations emerging from formal R&D programs. Also, the higher rate of tangible investment discussed in the previous section would accelerate the rate of diffusion of new embodied technology by an additional 0.1 percent. Altogether the positive program for economic progress discussed above could accelerate the rate of advance of productive knowledge by about one-half, from 0.9 to 1.4 percentage points. (See Table 2).

CHANGES IN QUALITY OF LABOR

Projected increases in outlays for education and training and the associated real stocks of human capital should be accelerated somewhat by accelerated increases in stocks of tangible capital and of productive knowledge and know-how. Advances in technology generally upgrade the structure of demand for labor, increasing the requirements for more highly educated and trained personnel. Acceleration of technological advance, therefore, would tend to raise the prospective rates of return on higher education (which had declined in the 1970's) and on training for skilled occupations, and thus tend to accelerate the growth of such investments by individuals and firms.

Various governmental initiatives are available to reenforce the trend towards higher levels of average education and training per worker in addition to increased public expenditures. There are bills before Congress to permit deduction from individual taxable income, or provide tax credits, for some portion of tuition expenses. Expansion of loans, or loan guarantees from public funds for college or technical school expenses has been advocated.[21] Expansion of subsidies to industry for training of youth and disadvantaged workers by the Employment and Training Administration of the U.S. Department of Labor would help increase employment as well as training. Expansion of continuing adult education programs is particularly important in view of accelerating technological advance and the gradual increase in the average age of the labor force projected for the decade ahead.

Finally, programs for further development and more rapid diffusion of educational technology would help increase the productivity of education and training. Major technological advances have been and are being made in the areas of computer-

[21] See National Commission on Productivity, *Education and Economic Growth* (June 1971). In his 1978 *Economic Report* President Carter has recommended loans and loan guarantees rather, than tuition tax credits.

assisted instruction, programmed materials, closed circuit TV, films, and other teaching aids. But diffusion has been slow due in part to the fragmented nature of the market. Possibly performance standards could be agreed on and centralized purchasing done through national associations of state and local governments, and of educational institutions at various levels. It is to be hoped that the Commissioner of Education in H.E.W. and the Administrator of Employment and Training in the Labor Department are developing policies to enhance the productivity as well as expand the volume of resources devoted to education and training. In the high projection of Table 2 we estimate that the policies noted in this section could result in a 0.1 percent larger contribution of education and training to growth in the 1980 decade.

With respect to health and vitality, the projection of a continued decline in the length of the average work-week and work-year suggests further minor gains from this source according to Denison's analysis. So does the projection of continued increases of real health and safety outlays per capita. We do not envisage the possibility of further gains from this source in the high projection since the projected increases are already quite considerable. We would suggest, however, that intensification of health education and preventive medicine programs offer the cheapest avenue for additional gains.

Change in the age-sex mix of employment is not a useful policy objective. But increases in the ratio of actual to potential labor efficiency is. The main areas in which labor efficiency (under given technology) can be improved are those in which there are restrictive work-practices, union work rules, or just plain lack of motivation and concern. It is here that quality of working life programs, job redesign, company productivity improvement programs, labor-management productivity teams, productivity bargaining, incentive pay systems, and other programs designed to stimulate worker cooperation and efforts to cut unit real costs can play an important role.[22] In response to the productivity slow-down of recent years there has been increased emphasis in such programs. The initial impetus came from the creation by Executive Order in 1970 of the National Commission on Productivity, reconstituted in 1975 by Congressional Act as the National Center for Productivity and Quality of Working Life. It is to be hoped that these programs will be taken over and strengthened by other agencies when the Center expires on September 30, 1978. Already, a number of quality of working life organizations have been formed in the private sector, as well as the American Productivity Center in Houston, founded by C. Jackson Grayson in 1977, which is promoting productivity measurement and improvement at the company level in a succession of industries. If these efforts are continued and broadened they should have a cumulative impact on labor efficiency specifically, and productivity in general in the decade ahead. Accordingly, we show a 0.1 percentage positive contribution to growth from an increase in the ratio of actual to potential labor efficiency in our high projection.

It should also be noted that since fear of unemployment is a major cause of restrictive work rules and practices, maintenance of relatively full employment and provisions for job security by firms and other organizations to the extent feasible would also help increase labor efficiency.

CHANGES IN QUALITY OF LAND

Historically, the market system has been quite effective in promoting substitution of relatively more abundant and cheaper natural resources for those which were becoming relatively scarcer and therefore more expensive. Such substitutions have been further accelerated by price incentives (when allowed to operate) for search, discovery and development of new resource supplies, and for research and development of alternative sources. Further, a liberal international trade policy mitigates the effect on productivity of a declining average quality of domestic natural resources. I would recommend more complete reliance on market pricing of natural resources, and further liberalization of foreign trade policy except where national security considerations dictate greater reliance on domestic resources even when costs are higher.

Possibly the effectiveness of the market-directed enterprise system could be enhanced by better projections of future requirements by firms and concerned government agencies. Nevertheless, we do not envisage any major offsets to the negative impact of declining average resource quality on productivity, especially in view of the accelerated growth projected in this section and the assumption of policies to promote greater energy independence. It is always possible, of course, that major

[22] See John W. Kendrick, *Understanding Productivity, An Introduction to the Dynamics of Productivity Change* (Baltimore: Johns Hopkins University Press, 1977), Chapter 11.

new natural resource discoveries will be made, or that technological break-throughs on new energy sources will come sooner than expected.

RESOURCE REALLOCATIONS

Relative shifts of labor and capital have resulted in raising productivity in past periods, and are projected to continue to do so to a minor extent in the future. The tendency might be speeded up somewhat if competition and labor and capital mobility were increased. Certainly more vigorous enforcement of anti-trust laws would help. So, too, would actions to reduce restrictions on entry by certain labor unions, professional associations, and other organizations. Better business and economic data would facilitate planning of adjustments. Improvement of programs to help retrain, relocate, and place displaced workers under the Comprehensive Employment and Training Act of 1973 could speed up mobility. Maintenance of high-level aggregate economic activity itself facilitates adjustments.

While we support these kinds of policies we do not project a larger contribution to growth in Table 2 than is shown in the basic projection. Some increase in resource mobility would be required just to keep up with the faster pace of technological progress projected in our high growth model, and a faster shift to services has a negative weighting effect.

VOLUME-RELATED FACTORS

Given the faster rate of economic growth in the high projection, economies of scale would obviously contribute more than in the standard projection—0.5 compared with 0.35 percentage point. We are not projecting a higher rate of utilization of the higher proeudtive capacity in 1990 than in the basic projection.

The rate of productivity is not only affected by the volume factors just described, but also by the variability of production during a period of time.[23] So it is important from this point of view that fluctuations in real GNP, if they occur in the 1980 decade, be held to the small average amplitude of the post-World War II era up to 1973. The more severe 1973–75 contraction produced the first absolute decline in productivity in a quarter of a century, with unfavorable effects from which the economy has not yet fully recovered.

NET GOVERNMENT IMPACT

In the basic projection it was assumed that the relative increase in government employment would continue, all of it occurring at the state and local nonschool level. We do not alter this in the high projection, but we do project that a vigorous program to enhance productivity in governments at all levels can add another 0.1 percentage point to the growth impact of government services to business.

Since 1973 BLS has been preparing and publishing labor productivity indexes, by functional groupings, now covering outputs produced by 65 percent of federal government civilian employees in 245 organizational elements of 48 agencies. Just as important, the Joint Financial Management Improvement Program established by the Office of Management and Budget was authorized to prepare annual reports analyzing the reasons for the productivity changes revealed by the measures and to prepare recommendations and plans for future productivity programs. The plans involve rationalization of internal agency programs for cost-reducing capital outlays, as well as creation of agency productivity committees to develop ideas for enhancing worker efficiency.

The National Center for Productivity, which has strongly supported the Federal productivity measurement and improvement programs, has been taking steps to encourage similar programs at the state and local level.

If these programs are continued and strengthened it is not too much to expect that there should be some acceleration in government productivity growth in the decade ahead with benefits to business and consumers (assuming government activities and outputs are the appropriate ones!).

With respect to increases in business costs imposed by governmental requirements and regulations—such as paperwork and conforming to standards—the basic projection already assumes some easing in the decade ahead. Further progress towards reducing paper work, simplification of regulations, and application of strict cost-benefit principles in revising old standards and promulgating new ones as necessary, could further reduce the negative productivity impact of government requirements.

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[23] See Michael Mohr, "Labor Productivity and the Business Cycle," in *New Directions in Productivity Measurement and Analysis* (New York: NBER, in process).

RESIDUAL FACTORS

Increased understanding of the principles of a modern mixed economy by the public generally and government officials in particular should help bring about those changes in laws, institutions, regulations and other social variables that would conduce to a more efficient operation of the economy. Rising educational levels, the work of organizations such as the American Enterprise Institute, and the Joint Council on Economic Education help promote the required economic understanding. More generally, civic and ethical education that instills a sense of social responsibility that must accompany the tremendous individual freedom offered by our system should be expanded to reverse some of the negative social tendencies that have been aggravated in the past decade. Afterr all, the economy is only one aspect of the broader society, and the state of health of that society inevitably affects economic performance.

One final comment with respect to the role of the Federal Government in promoting growth. At the present time, no one agency has the authority to review existing policies from the viewpoint of their impacts on productivity and economic progress, nor to coordinate and provide leadership in developing a coherent set of policy proposals to promote these objectives. The Council of Economic Advisers is largely concerned with short-term policies to promote high-level income, employment, and purchasing power. Conceivably, its mission could be broadened and its funding increased to permit it to perform the coordinating and leadership role recommended here with respect to longer-run growth requirements. Or another agency could be designated or created to perform that function. Much thought would have to be devoted to defining the function so that it would focus on promoting and facilitating the dynamic initiatives and adjustments of the enterprise sector and not substitute centralized direction of resource allocations. But the legitimate role of government in areas affecting capital formation, manpower, natural resources, science and technology, health and safety, education and training, competition and regulation, and so on, is so pervasive that a more effective means of coordinating and improving its policies in all these major areas would seem desirable.[24]

SUMMARY AND CONCLUSIONS

Since 1966 there has been a disturbing deceleration in the growth of total factor productivity from 2.9 percent 1948–66 down to 1.4 percent a year through 1976. Based on Denison's growth accounting framework, the chief causes of the slow-down appear to have been significant reductions in the contributions of advances in applied productive knowledge, changes in labor quality (due chiefly to shifts in the age-sex composition of employment) and volume related factors—scale economies and declines in the ratio of actual to potential GNP. Diminishing returns to domestic natural resources and a negative impact of government intervention in the business economy had a lesser, but still significant influence.

Looking ahead to the 1980–90 decade, the growth of real business product is projected at about 3.4 percent a year, assuming no major new policies are adopted to promote productivity. This projection implies that productivity growth will accelerate modestly to 1.8 percent a year, up from the 1.4 percent of 1966–76, but still well below the 2.9 present average for the 1948–66 subperiod. The chief factors behind the improvement are expected to be changes in labor quality, as shifts in the age-sex mix become favorable, and volume-related factors, assuming high-level employment in 1990. However, continued declines in the average quality of natural resources, negative effects of inter-industry shifts of factor inputs, and possibly a bit slower rate of advance in technology will prevent a significant resurgence of productivity growth.

It should be noted that the deceleration in growth of "labor productivity" (real product per hour) was greater than in total factor productivity due to deceleration in growth of capital per unit of labor input as the growth of the labor force and hours worked accelerated substantially after 1966. In the 1980 decade the projected retardation in rate of growth of the labor force and hours worked and acceleration in growth of capital per hour will result in the growth of labor productivity improving somewhat more than that in total factor productivity. Even so, the average increase in real product per hour is likely to be only 2.6 percent a year 1980–90, compared with 3.3 percent 1948–66.

In our view, a positive program to release the dynamic forces of the private economy could raise the rate of growth of total factor productivity back to the 2.8 percent a year experienced in the two decades prior to 1966, and the rate of increase in real business product to 4.8 percent. The centerpiece of the program would be the

[24] See discussion in J.E.C. print cited in footnote 4, Part VIII, "The Need for a National Growth Policy," pp. 114–118.

pursuit of macro-economic policies, including significant reductions in business income tax rates that would raise the net rate of return on investment by about 2½ percentage points (back closer to that of the mid-1960s), resulting in an increase in the proportion of income saved and invested by about 2 percentage points. This would not remove the biases against saving and investment now present in the U. S. tax system, but would offset the biases sufficiently to have a marked stimulative effect. It would be further enhanced by the increase in business confidence engendered by adoption of measures to facilitate the operations of the enterprise system.

Specifically, I would urge enactment of the measures proposed by the President to reduce business taxes—reduction of the corporation income tax and expansion of the investment tax credit to cover structures as well as equipment. But this is not enough. Macro-economic policies should be pursued to permit a further widening of before-tax profit margins closer to those of the 1960s. And next year and/or in 1980 business taxes should be pared further by reducing the double-taxation of dividends and permitting firms to price-index their depreciation allowances to reflect replacement costs of plants and equipment. Other policy options are available, as discussed in the paper.

The increase in tangible investment, embodying new technology, would also help speed up creation and application of advances in knowledge. In view of the high social rate of return on R&D, however, we recommend additionally a tax credit or other subsidy for privately-financed R&D, and a substantial increase in government R&D outlays in selected areas, including basic research. These measures could increase the contribution of technological progress to productivity by 0.5 percentage point—back to the rate experienced prior to the mid-1960s when the ratio of R&D to GNP began to decline sharply.

There are other policy options available to promote education and training, health, factor mobility, and economic efficiency, and improve the net effect of governmental activities on unit real costs of business. The impact of these measures will be reenforced by wider opportunities for economies of scale, increases in rates of utilization of capacity, and a more stable economic growth rate.

A growth rate close to five percent is not the most probable outcome for the decade ahead, and will not be achieved without broad public and official understanding of its benefits and the kinds of measures necessary to stimulate productivity. If it is attained it will mean a rate of increase in real income per capita of about 3.5 percent a year, compared with 2.3 percent 1948–73. Increases in real labor compensation per hour would accelerate to about four percent. This would help reduce the impact of money wage-rate increases on unit costs, contributing to reduced inflation. It would help increase the international competitiveness of U. S. products and thus contribute to improving the trade balance. Finally, it would increase the material strength of the nation and reduce the relative burden of outlays required for national security in an unsettled world.

TABLE 1.—U.S. DOMESTIC BUSINESS ECONOMY SOURCES OF GROWTH OF REAL GROSS PRODUCT CONTRIBUTIONS TO GROWTH IN PERCENTAGE POINTS, SELECTED SUBPERIODS

	Historical		
	1929–48	1948–66	1966–76
Real gross product	2.6	3.9	2.8
Tangible factor inputs	.3	1.0	1.4
Total factor productivity	2.3	2.9	1.4
Advances in knowledge	.7	1.4	1.1
Formal R. & D.	.5	.85	.7
Informal	.3	.3	.3
Changes in rate of diffusion	—.1	.25	.1
Changes in quality of labor	.8	.6	.5
Education and training	.5	.6	.8
Health and vitality	.3	.1	.1
Age-sex composition		—.1	—.4
Actual/potential efficiency			
Change in quality of land			—.1
Resource reallocations	.3	.3	.1
Self-employment to employment		.1	
Inter-industry labor shifts	.3	.4	.1
Weighting effects		—.2	
Volume related factors	.4	.6	—.2
Economies of scale	.35	.5	.3
Intensity of demand	.04	.1	—.5
Irregular factors			
Net government impact	.1		—.1
Government services to business	.3	.1	.1
Business services to government	—.2	—.1	—.2
Residual factors, not elsewhere classified			.1

Source: Most estimates through 1966 based on Edward F. Denison, "Accounting for United States Economic Growth 1929–1969;" preliminary estimates for 1966–76 provided by John W. Kendrick.

TABLE 2.—U.S. DOMESTIC BUSINESS ECONOMY ALTERNATIVE PROJECTIONS OF REAL PRODUCT AND PRODUCTIVITY, BY COMPONENTS, 1980–90 CONTRIBUTIONS TO GROWTH IN PERCENTAGE POINTS

	1980–90	
	Basic	High growth
Real gross product	3.4	4.8
Tangible factor inputs	1.6	2.0
Human	.5	.5
Nonhuman	1.1	1.5
Total factor productivity	1.8	2.8
Advances in knowledge	.9	1.4
Formal R. & D.	.6	.9
Informal	.2	.3
Changes in rate of diffusion	.1	.2
Changes in quality of labor	.9	1.1
Education and training	.6	.7
Health and vitality	.1	.1
Age-sex composition	.2	.2
Actual/potential efficiency		.1
Change in quality of land	—.3	—.3
Resource reallocations		—.05
Self-employment to employment	.1	.1
Inter-industry labor shifts	—.1	—.15
Weighting effects	.4	.55
Volume related factors	.35	.5
Economics of scale	.05	.05
Intensity of demand		
Irregular factors	—.1	.1
Net government impact	.1	.2
Government services to business	—.2	—.1
Business services to government		
Residual factors, not elsewhere classified		

Representative BOLLING. Thank you, very much.

Next is Mr. George H. Kuper, Executive Director, National Center for Productivity and Quality of Working Life.

Mr. Kuper was nominated by the President and confirmed by the Senate as Executive Director of the National Center for Productivity and Quality of Working Life in May 1976.

He has been actively engaged in the formulation and implementation of national productivity growth policy since 1972. With the former National Commission on Productivity, he served first as director of public sector programs and subsequently as Acting Executive Director.

Before joining the Federal Government, Mr. Kuper held management positions in both the public and private sectors. As deputy director of the Office of Justice Administration in the city of Boston, he worked for the mayor in various citywide administrative and planning tasks.

Earlier employment included positions with First National City Bank & Morgan Guaranty Trust Co. of New York. With Morgan Guaranty, he developed prototype productivity assessment programs for banking officers.

As an entrepreneur and consultant, Mr. Kuper has been the founding principal in three corporations and a director of five additional companies. He has specialized in manpower planning, financial systems, and productivity improvement efforts for small companies and local governments.

His education includes an undergraduate degree from Johns Hopkins University and graduate degrees from both the London School of Economics and Political Science and Harvard University School of Business Administration. He also served as a lieutenant in the U.S. Naval Reserve.

We will be glad to hear from you.

STATEMENT OF HON. GEORGE H. KUPER, EXECUTIVE DIRECTOR, NATIONAL CENTER FOR PRODUCTIVITY AND QUALITY OF WORKING LIFE

Mr. KUPER. Mr. Chairman, I am clearly disappointed that I don't have the opportunity to read word for word my 46-page prepared statement.

Representative BOLLING. We will place it in the record.

Mr. KUPER. I appreciate that. I am extremely pleased to have this opportunity to contribute to your Special Study on Economic Change.

My purpose is to concentrate on an alarming element of economic change already underway—our declining productivity performance—that has a pervasive impact throughout our society. Unless this change is corrected, it can undermine achievement of the Nation's most fundamental economic and social objectives.

Just to insure that Mr. Evans isn't the only one with bipartisan support, I can claim that productivity slippage was cited by the National Center for Productivity and the Council of Economic Advisers as one of the most significant problems in recent years.

That problem is very difficult to grasp. Sometimes, I find it useful to think of a metaphor that can bring it to light for us. Think, if you will, of productivity as being the engine that drives

the economy train; with human resources, capital and technology as the engine's basic parts, operating on a track defined by market factors and governmental policy.

Take that metaphor, and you can come to the conclusion that that engine is losing steam. Our current projected rate of productivity growth is lowest among the industrial nations of Western Europe and Japan. Clearly we are not extracting from the sources of growth what we need.

Our current economic frustrations are part of the price we are now paying for this slippage. Failure to reverse this decline will have a substantial impact on: Our ability to control inflation; our competitiveness in world markets; our ability to preserve and create new jobs; and our potential for a higher standard of living and greater leisure time.

I have described these relationships more comprehensibly in my prepared statement.

Just one frightening example of the implication of this change is the long-term effect of low-productivity growth on our capacity to support the Nation's social security system. Today, for every person over 65 we have six wage earners. When the baby boom of the 1950's becomes the senior citizen boom of the 21st century, we will have only three wage earners for every person over 65. Steady increases in output per worker will be essential to enable future workers to pay for the social security of the aged without reducing living standards for either.

The implication for our policymakers is clear. Unless we achieve and maintain a higher rate of productivity growth, we will be faced with the politically impossible task of lowering the expectations of all Americans for a higher standard of living. With a brisk rate of productivity growth in an expanding economy, we can better reconcile the demands of all groups, without having to take from one to satisfy another.

Unfortunately, for this trend, there is no single key that by itself will speed up the process of productivity growth. It does not suffice to concentrate attention on any one of the individual elements—whether it is capital investment, technology, the Government's role, or the human factor. Nevertheless, we do so in part because it is easier to act in those terms. We need to abandon our piecemeal policy approach and focus more attention on the complex interdependent systems on which we depend for our basic necessities of food, clothing, housing, et cetera.

An industrywide example of a comprehensive approach to productivity improvement is our work with a labor-management committee in the men's clothing industry that is identifying opportunities for improving productivity that grew out of the industry's desire to make itself more competitive with foreign producers. Their agenda calls for simultaneous action on a wide front—improvements in technology, worker training, management practices, statistics, marketing, materials handling, and others.

No one element by itself would be effective without consideration of the others. Individual interests are being subordinated to an overall goal of a healthy, competitive industry with secure employment and profits.

We need to look at this in a collective fashion and I will try to break it down into five elements. The first element I think we need is to meet the legitimate concerns of taxpayers to reduce waste and inefficiency, without jeopardizing the provision of essential public services to citizens generally and those in need particularly.

Furthermore the Federal Government, which collects productivity data for 62 industries and 60 percent of the Federal work force, should measure the progress of State and local governments in improving productivity. Not only should we account for the performance of this sector of the economy, but the availability of such data would further reinforce the incentives for improved performance.

Second, we need to try to accelerate technological innovation.

Third, greater support for capital investment is needed for modernization and continued business recovery.

Fourth, we need to lessen the inhibiting effects of regulation on investment, innovation, and productivity, without diluting environmental, health, and other sound objectives.

Fifth, and most importantly, key groups must be encouraged to cooperate in establishing productivity objectives and initiatives.

As for my first point, how the current "taxpayer's revolt" is responded to by policymakers will have deep seated effects on the domestic tranquillity of our society. If taxes are cut and services are denied, some groups will be hurt and alienated. If taxes are maintained and services continued, then another group of citizens will be economically hurt and angry. Improving productivity—the efficiency and effectiveness of Federal, State, and local governments—must be part of the response along with streamlining services and revising revenue structures.

The overriding problem is the need to improve the incentives for public management to work on productivity improvements. In the absence of a clear indicator of accomplishment, such as profitability, the benefits of productivity improvement are not obvious and the incentive is insufficient to motivate improved performance. The $85 billion grant-in-aid system provides a clear—but nondirective opportunity to reward governmental units for improvements in productivity while reducing the overall cost of government. Doing so, the local initiatives in management improvement effected in response to these Federal incentives would spill over to the delivery of all local services as they are managed by the same people.

The Federal Government also sets examples for State and local governments. The proposed civil service reform reflects positive leadership; Federal regulatory policies on the other hand are leading State and local governments down the path of the Federal Government's expensive mistakes.

Chairman Reuss is holding hearings on the cities in the next month where a number of local leaders will be talking about productivity in their governments.

The problem is that the political leaders at the local level need help.

My second point has been eloquently addressed on a number of fronts before the committee and elsewhere. My comment, I think, would be one a little bit broader, and would draw on the General Accounting Office's report of 2 years ago which stated that:

The United States is perhaps the only nation in the free world which has not undertaken a coordinated program at the national level to stimulate commercial technology in the private sector.

I visited a machine tool show in Philadelphia recently, and estimate that 90 percent of the goods being exhibited were manufactured abroad—90 percent.

This in a country which has felt that its machine tool industry is paramount.

Accelerating technological innovation not only requires policy changes related to R. & D. expenditures but also improvements in the system of diffusion of new technology. Mr. Simon Ramo stated at our Conference on the Future of Productivity: "The bottleneck is not science and technology per se, but lies instead in the arrangement making process among government, private enterprise, and science and technology."

My third point has been adequately covered by the previous witnesses, and I will say nothing more than that I support what has been said.

My fourth point is that we need to lessen the inhibiting effects of regulation on investment, innovation, and productivity, without diluting environmental, health, and other sound objectives.

Mr. Edward Denison's recent estimates of the impact of environmental and health regulation on productivity have been startling in spite of the arguments business leaders have been making for almost a decade. Significant changes have taken place in the institutional framework within which business must operate. There is no need to abandon our national environmental or health and safety goals.

We need, however, to examine the regulatory process more from a problem-solving perspective and try to encourage more active cooperation of labor, management, and Government toward meeting our regulatory goals.

One conclusion that we can draw is that trust between regulatory agencies and business cannot grow in an environment dominated by bureaucratic fiat.

Executive Order No. 12044 opens up some important new directions by requiring careful examination of alternative approaches, such as incentive systems, early in the decisionmaking process. This is an important step in sorting out where and when government intervention can be most useful, when private initiatives can handle the problem, and where joint actions are called for.

It is the increasing need for these joint actions which we see and the concurrent lessening of adversary relations to encourage a problem solving attitude to complex issues.

In the men's apparel industry, they are agreeing to an agenda that they are going to pursue themselves. They are going to ask the Government for assistance when they cannot handle the problems themselves, but they will ask for assistance when and where and in the fashion they want it, and it is not going to be determined by the bureaucrats sitting in Washington. The result is a program that will be owned by the industry and will bring significant change to that industry. From my point of view and the work we have done, it is the only way to go. It is the only way to handle the productivity problem.

Nobody knows better the productivity problems than industry or can deal with the problems more effectively than the people in that industry. But they are supported by the Government, not driven by the Government.

Just to wind up, with a return to my earlier metaphor, it is clear that the basic thrust of my testimony here is that we must urge all elements of our society to leave for a moment the riding portion and pay attention to the engine.

The taxpayer problems are a challenge to their combined abilities to accomplish something. Today, we have communicated current economic change as action requiring less of something, less energy, less pollution, less pay, less profit.

We could probably find a much healthier, more effective and thorough response if we, as a nation, could perceive economic changes as requiring positive aspects. We need to all roll up our sleeves and continue to make our economy something better for the benefit of those who depend upon us as well as those who work, today and in the future.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Kuper follows:]

PREPARED STATEMENT OF HON. GEORGE H. KUPER

Mr. Chairman, I am honored to appear before this distinguished committee to testify on the productivity problems of the United States as one of the significant economic changes we are experiencing. My statement is divided into four parts: the *first* deals with the productivity challenge; the *second* discusses the role of productivity improvement in meeting national goals; the *third* describes opportunities for productivity improvement; and the *fourth* presents an agenda for action. The Center's experience in working on this agenda over the past several years provides the basis for this statement.

I. PRODUCTIVITY CHALLENGE

In a little noticed sentence in the 1978 Economic Report of the President, the Council of Economic Advisers states that the slowdown in productivity growth is "one of the most significant economic problems of recent years." Although the slowdown affects almost every major issue facing the American people, policymakers have paid inadequate attention to this phenomenon.

The slowdown has been underway since the late 1960's. The rate of increase of output per hour in the private economy over the first two postwar decades averaged 3.2 percent; for the 1967–77 decade, the rate of increase dropped by one-half 1.6 percent. Clearly the 1974–75 recession was the most serious of the entire postwar period, during which production declined measurably. However, the Council of Economic Advisers and the Council on Wage and Price Stability conclude that even when rates are corrected statistically for cyclical fluctuations, productivity growth rates for the past decade are significantly lower than they have been since the end of World War II.

The slowdown was fairly widespread among industries. About two-thirds of the 62 industries for which the Bureau of Labor Statistics reports data showed declines in rates of productivity growth for the 1966–76 decade. One significant example is the absolute decline in productivity in mining of copper and coal, indicating the increasing real costs of obtaining raw materials essential to industrial progress. After two decades of rapid improvement averaging 6.8 percent a year, output per hour in coal mining during the last decade declined at a rate of 3.6 percent a year; copper mining declined at about 0.2 percent a year.

As capacity utilization rates improve in a post-recession expansion, substantial advances in productivity can be expected in the early stages of the expansion. The rate of productivity growth then levels to fall off in the latter stages of a business expansion, if we come up against capacity restraints. So far, during this expansion, these advances have taken place at a slower rate compared with previous expansions. Furthermore, the current expansion has already shown weakness in productivity improvement—only 2.4 percent in 1977 compared to a 4.2 percent increase in 1976—although theoretically we are still in the early stages of this expansion.

Productivity rates ahead, therefore, may be even lower than those already experienced in the three years of this recovery period.

Admittedly, it is difficult to project productivity in view of the multiplicity of factors which influence the trend. Nevertheless, the long-term outlook is disquieting, according to a panel of international authorities which the Center asked to assess the future of productivity in the U.S., Europe, and Japan over the next 10 years. BLS participants project a rate of 2.4 percent for the 1975–80 period and 2.7 percent for 1980–85—higher than in the previous decade, but still significantly below the prior 20-year 3.2 percent trend. Other experts project a lower rate of 2.0 percent per year.

Factors of the past decade, such as the unusually large influx of inexperienced young people and women into the labor force, will no longer have a downward influence on the trend of productivity; instead, the greater dominance of more experienced groups will contribute positively. But the slow recovery from the 1974–75 recession has a lasting effect.

Contrary to the general view, the trend towards services (other than government) is not seen as necessarily a negative factor. In fact, many service organizations show significant productivity gains as the types of management and technology which are used in goods-producing industries are introduced more widely. Some observers, who recognize the importance of the qualitative aspects of service productivity, conclude that there is a considerable potential for significant productivity growth.

Although productivity growth among our trading partners in Europe and Japan could also be at a slower rate than in the past, the pace of growth will still be faster than in the United States. Output per employee-hour in Japan is projected at a rate of 6 percent a year and worldwide communication and transportation, investment capital, advanced technology, and skillful management are highly mobile, and higher productivity is a national goal throughout the industrial world.

The measurable factors which contribute to the low U.S. growth rate in the past decade have been delineated by economists in great detail. However, the intangible influences of the economic and social setting on productivity are too often overlooked. The past decade was characterized by an unusual accumulation of disturbances. Not only were there exceptionally sharp fluctuations in output and employment, but shocks were produced by sharp rises in energy, material, and food prices. Similarly, the expansion of government regulation resulted in business uneasiness.

While there are no precise measures of the extent of these influences, persistent inflation and cyclical unemployment have affected the attitudes of businessmen and employees toward research, investment, risktaking, and technological innovation. Continuation of these unfavorable circumstances over the coming decade would further weaken productivity-related values and low growth rates could be prolonged.

In brief, the record of the past decade has made it clear that the process of productivity growth is not automatic and that the future could be disappointing if the forces which sustain productivity growth are not strengthened.

II. ROLE OF PRODUCTIVITY IN MEETING NATIONAL GOALS

One cause of the lack of concern over the Nation's productivity performance is the failure of policymakers to fully appreciate its potential contribution to achieving the Nation's major economic and social goals. Productive efficiency needs to be improved for inflation control, job conservation, higher living standards, and a better quality of life.

Inflation control—More rapid productivity improvement could contribute significantly to reducing inflationary pressures and to greater stability in the economy. One of the many factors underlying the inflation of the past decade has been the failure of productivity gains to match the rise in hourly compensation. While hourly compensation increased at an average annual rate of 7.8 percent between 1967 and 1977, output per hour rose on the average only 1.6 percent a year. The result has been a 6.1 percent annual increase in unit labor cost, and about a 5.9 percent rise in prices. Compounded over a decade, a 6 percent inflation reduces the purchasing power of fixed incomes by almost half.

The experience of the early 1960's demonstrated the anti-inflationary implications of high productivity growth. Price stability was achieved in the first half of the 1960's when output per employee-hour gained at the substantial rate of 3.6 percent a year, which was about the same rate of increase as hourly compensation. As a result, real hourly compensation increased in line with rising productivity and unemployment gradually fell below 5 percent as output expanded at a more rapid rate than productivity. We could expect a more stable economy were productivity to advance at the long-term trend rate of 3.2 percent a year.

Job conservation—Historically, a higher rate of productivity growth has offset higher wage costs, strengthened American industry's competitive position in expanding world markets, and conserved domestic jobs without resorting to restrictive trade policies. Increased productivity—and a stronger competitive position—would also be vital should we need to increase exports to offset increasing dependence on oil imports.

However, the more rapid increase in manufacturing productivity in Japan, Germany, and other trading partners has narrowed and in some key industries, such as steel, has eliminated the U.S. productivity advantage. Between 1970 and 1975, other countries experienced more rapid increases in hourly compensation and unit labor cost, which diminished the advantage of higher gains in productivity. However, in 1976 and 1977, the increase in unit labor costs was slower in West Germany and Japan than in U.S. manufacturing. Currency devaluation and protectionist trade policies may meet foreign competition but only as short-term palliatives. Long-term stability and job conservation depend on improving the underlying productivity growth rate of American industries. To the extent that American firms increase their market by improving productivity, employment in the U.S. can be increased, thus contributing to attainment of the goal of full employment.

Improved standard of living—The growth of productivity is a key factor in the long-term expansion of the economy which enables the U.S. to raise its average level of living. In the 30 years since 1947, the real output of the Nation's private business increased two and a half times. Only a small fraction of the increase reflected increased work time. About three-fourths of the rise was accounted for by increased productive efficiency of the work force.

It will be even more urgent to maintain a high rate of productivity growth over the coming decade in order for the economy to expand at its historic potential growth rate of 4 percent per year. Since the potential work force is expected to increase at only about 1 percent a year, a reflection of the steady decline in U.S. birth rates since 1960, the potential growth of the economy could fall below its historic trend, unless output per hour increases at a rate close to 3 percent a year.

Productivity growth is even more important in accounting for the improvement in real output per person, a rough measure of the average level of living. Over the 30 year period, the ratio of the total hours worked to the total number of people in the country declined As a result, the entire growth in real output per person reflects the improvement in real output per hour—that is, productivity.

Economic growth has meant a better life, not only in terms of greater amounts of goods and services per person, but in a broader variety which affords consumers a wider range of choice and represents the underpinning of a higher quality of life.

Although such economic progress is sometimes associated by those critical of the consumer-oriented economy with the loss of environmental amenities, increased productive efficiency often yields savings per unit of output in scarce resources of land and water. These could be conserved for recreational or production uses. Greater productivity is also a means to generate income which can be directed to controlling and even reversing environmental pollution, without sacrificing other economic goals.

Most important, increased productivity and economic growth could provide a basis for reducing poverty, by creating the opportunity to share in a larger real output, instead of taking away income from one group to give to another. In an expanding economy, productivity gains which are more equitably shared would contribute to a climate of industrial and social peace.

Enhanced quality of life—Finally, productivity advances contribute to the quality of life. As more and more people are able to meet their material wants, they place greater value on leisure, education, health, and recreation. Historically, the American people have shared productivity gains not only by increasing the per capita consumption of goods and services, but also by experiencing, without loss of pay, shorter workdays, shorter workweeks, more vacations and holidays. The reduction in labor time per unit of output has also led to extended years of schooling and a shortened worklife through pensioned retirement. A man born in 1900 could have expected to spend only 16 years of his life doing something other than work; for a man born in 1970, that period goes up to 27 years.

Future productivity performance will have an important bearing on the Nation's ability to maintain a decent level of living and quality of life for the growing population over 65 who, under current retirement practices, are generally out of the labor force. The postwar "baby boom" will be transformed and appear early in the 21st century as a senior citizen boom. The burden on active workers to support people who retire earlier and live longer will increase sharply. The Department of

Health, Education, and Welfare estimates that the current ratio of active workers to retired citizens of six to one will decline to three to one in 2030.

Steady increases in output per worker will be vital if the working population of the future is to pay for the social security of the aged without reducing the living standards of either. Such increases could also help lessen conflicts between the generations over the allocation of the national output and scarce resources.

III. OPPORTUNITIES FOR LONG-TERM IMPROVEMENT

In November 1975 Congress passed the National Productivity and Quality of Working Life Act to create a national awareness of the benefits of productivity growth and to encourage initiatives for improving the Nation's performance. The law emphasizes joint deliberation and action by leaders of business, labor, government and the public and success requires the commitment and contribution of each group.

While there is general agreement about the national importance of productivity growth, people from varying backgrounds differ about the methods of achieving progress. This Center and other productivity centers around the world are based on the premise that a bipartite or multipartite organization can provide a forum for reconciling these differences and for developing a consensus in support of productivity improvement.

The United States provides a highly favorable cultural base for productivity improvement programs. Americans have a receptiveness to change, and, according to perceptive visitors, from De Tocqueville in the 1840's to observant Japanese industrialists in recent years, Americans are industrious, practical, competitive, and optimistic.

In recent years, questions have been raised as to whether inflation and unemployment have weakened the hold of these traditional values. However, while some social values have undoubtably undergone changes over the past generation, there is considerable evidence that the American enterprise system is believed to reward efficient performance.

The Center's Board of Directors defined opportunities for productivity improvement as falling under four broad headings. These are: accelerating technological innovation; enlarging capital investment; enhancing human resources; and improving government-business relationships. The unique problems of the large and growing public sector prompted the Board to give special attention to productivity opportunities in government.

In developing a perspective on major opportunities in these complex areas, the Center has convened panels of experts from business, labor and government and commissioned studies to supplement existing research. The following highlights of this experience are presented not as a final consensus but rather as a summary of preliminary findings in a continuing search for possibilities for productivity improvement.

Accelerating technological innovation

Productivity improvements come about through changes in production methods, materials, and machinery which stem from the accumulation of scientific and technological knowledge. The technology factor is credited with at least 40 percent of the growth in productivity over the past 50 years.

Increasing productivity through technology presents a formidable challenge because of the tremendous scale and complexity of producing and using technological knowledge.

Technological change has an impact on productivity at the time when a new technology is put into place and efficiencies are achieved. Before this can happen, an innovation must be conceived, information regarding it must be diffused to potential users, and the innovation must be implemented. Therefore, the entire process must be considered before productivity improvements can be realized.

We have no definitive indicators on whether the process of new developments has slowed recently, except in terms of one final result—the slowdown in productivity growth. In the opinion of the National Science Board and other authorities, the environment for innovation seems to be less favorable and the momentum of technological progress is waning. It would be useful to have comprehensive data on the speed of adoption of new technology, the time period between stages, and the comparative status of American technology in relation to other countries in order to be able to gauge the pace of change. In the absence of such data we must be willing to draw conclusions from a number of more indirect indicators.

One unfavorable trend is declining support by the Federal Government and industry for research and development. Despite evidence of large private and social return from R&D, total spending for R&D by industry, government, and universities

dropped from 3.0 percent of GNP in 1964 to 2.2 in 1977. The National Science Foundation expects the ratio to decline to 2.0 percent by 1985. Total R&D dollars spent increase each year, but when adjusted for inflation, the real volume of R&D spending has been declining.

Comparative data for major industrial nations show a slippage in the U.S. relative position since the mid 1960's, with Japan, West Germany, and the U.S.S.R. devoting an increasing proportion of GNP to R&D. Patenting activity by foreign inventors is also rising; for example, 35 percent of all U.S. patents went to foreigners in 1975. This decline is disquieting not because it is a reflection of the creativity of American scientists or the quality of their inventions or discoveries (which it is not), but rather because R&D outlays tend to have a positive correlation with productivity growth and a decline could foreshadow a slowdown in the flow of new products and processes.

The lack of adequate support for research and development of manufacturing technologies is especially disturbing. For example, experts have reported to the Center that, the U.S. traisl West Germany in R&D in metalworking, an area that is vital to productivity improvement. The Japanese government is giving full support for R&D on flexible manufacturing systems; the conclusion is that the U.S. no longer has sole control of technical leadership in manufacturing technology developments.

The reasons for this slowdown are difficult to determine. Economists often treat technological innovation as exogenous and subject to its own laws of development. At the Center's conference on the Future of Productivity, Simon Ramo stated "the bottleneck is not science and technology per se, but lies instead in the arrangement-making process among government, private enterprise, and science and technology." Thus, the pace of innovation is affected by nontechnical factors, including the state of the economy, the profitability of investment, patent, tax, antitrust and regulatory policies, the structure of industry, the skill and knowledge of management and the work force, the pressures of organized interests, and many others.

Resolving the bottleneck involves closer cooperation among the different groups in the process—scientists, engineers, inventors, manufacturers, distributors, users, consultants, and others. The groups in this complex chain pursue different and sometimes conflicting goals, are motivated by different incentives, and are rewarded in different ways.

The Center has concentrated on this innovation process and on the opportunities which exist at the interface of producers of new technology, potential users, universities, and others. Industry and university experts report a variety of barriers, which slow the diffusion of new technology. These include:

Producers' lack of information about the specific needs of their potential customers;

Neglect of industrial marketing of innovations in management education;

The tendency for more decisions on innovations to be made by conservative financial managers of large companies who resist innovative ventures which do not pay off in a short time; and,

The difficulty of small firms which have contributed substantially to technological progress to raise capital for new projects.

The lack of a close relationship between university engineering schools and manufacturing industries is also an impediment to productivity improvement. Although the supply of engineers appears to match the demand, the direction and relevance of engineering education has been questioned. According to engineering educators and industrial employers, recent graduate engineers often lack the practical knowledge which is needed to encourage productivity improvement at the factory level. One reason for this deficiency may be that engineering educators are rewarded more for theoretical research than for participating in solving practical problems of industry.

Numerous examples of productivity-enhancing technology which are commercially feasible have not been adopted widely because of barriers that individual firms are not able to overcome. For instance, we identified technologies in two major industries—metalworking and food distribution—as having substantial potential if system improvements could be made.

In metalworking, greater use of numerical control and flexible manufacturing systems could help raise productivity in many batch processing firms, but adoption of these technologies is impeded by economic, social, and managerial problems which can be resolved only through closer cooperation among producers, users, and educational institutions. A report to the Center by the Illinois Institute of Technology identified as major barriers to wider adoption of new metalworking techniques the inability of a small manufacturer to analyze his operations, estimate cost/

benefits of new equipment for making his products, and to repair costly complex machinery quickly. Another study reports that the lack of an adequate system for training workers in new maintenance skills is a serious handicap to manufacturers who wish to use these productive tools.

In food distribution, modularization of shipping containers could reduce food wastage, raise truck capacity utilization, and increase productivity in warehousing. However, adoption of this simple innovation requires that grocery manufacturers, truckers, retailers, and wholesalers agree on standards and costs. Such agreement has so far been elusive. Significant productivity increases might also be realized if industry-wide agreement could be achieved on standard symbols identification of the contents of shipping containers; but here again a workable consensus among food processors, wholesalers, retailers, container manufacturers, and equipment vendors has yet to emerge.

Accelerating the introduction of productivity enhancing technology requires a broader perspective than often exists. While market forces are the prime movers of technical change, some industries need some type of mechanism for coordinating various elements. In fragmented industries no single firm can introduce certain critical operational changes without the cooperation of many others both in the industry and outside. In such cases, careful intervention of the government—by acting only as a catalyst—can play an important role in helping people in an industry resolve not only technological but also economic, social, and political issues which cannot be settled through the working of the marketplace alone.

Increasing capital formation

A steady flow of capital investment is necessary for the application of more and improved productivity-improving technology. Expenditures for new plants and equipment, whether for expansion or replacement, allow the stock of capital to be modernized and more efficient automated technology to be introduced.

In assessing opportunities for increasing productivity-enhancing investment, the Center, in cooperation with a committee of business, labor and government leaders, examined studies on the outlook for capital formation. Much of the research emphasized the importance of inflation, business uncertainty, employment instability, and the insufficient return to investment as restraints on the volume of saving and investment. A number of unfavorable trends are noteworthy.

First, the rate of growth in the capital-labor ratio since 1967 has slowed down significantly. This measure of capital intensity is closely related to the growth of labor productivity. The capital-labor ratio (i.e., the ratio of the net stock of fixed, non-firm business capital to total employee-hours) increased at an annual rate of 3.3 percent for the 1947–67 period; the rate for the 1967–73 period declined to 1.9 percent a year; and it declined to 1.2 percent a year for the 1973–77 period. These figures exclude investment to meet environmental standards. Economic adjustments to take account of cyclical fluctuations in the capital-labor ratio show about the same degree of slowdown.

Second, real fixed investment in productive facilities is lagging behind the 10 percent annual rate of increase which the Administration estimates is needed to bring recovery along a balanced path to full employment and to meet the capital requirements of the 1980's. The increase in 1977 was 8 percent; in the 1970's the rate of gain was only 2 percent annually. The recovery in investment since 1975 has been weaker than in the typical postwar cyclical upswing. To a great extent, this lag in expenditures on plant and equipment contributed to the slowness of American industry in installing automated technology which could boost productivity growth.

Third, the composition of capital expenditures has shifted markedly. Of the dollars invested, larger amounts are earmarked for meeting environmental and occupational health and safety regulation requirements. Investment in capital equipment for environmental goals now accounts for about 9 percent of investment outlays in the manufacturing sector. If these mandated capital expenditures are excluded, investment, as a share of value added, has actually declined in the manufacturing sector since 1966.

Fourth, and finally, lagging investment seems to be the result of a deterioration in profitability. There are many ways of measuring profitability, but they all tend to show similar trends. In 1977 after-tax rates of return on capital, reflecting replacement costs, averaged 3.4 percent, compared with an average of 8 percent during the mid 1960's. These rates are considered particularly low in view of the greater risks and uncertainties of investment today. Another factor in this low rate of return may be the continued low rate of capacity utilization, which depresses productivity and discourages investment.

We must keep in perspective the contribution of capital investment relative to other sources of productivity growth. Depending on the concept used, about 15 percent of the postwar increase in productivity came from growth of tangible capital per hour (including structures, equipment, and inventories). This about equalled in importance the contribution of advances in education and training of the work force, a form of intangible investment in human skill and knowledge, which complements physical capital. However, since capital investment is intertwined with the technology it carries, it is difficult to estimate the effect an increase in capital investment by itself would have on productivity growth.

Many economists believe that a faster rate of economic recovery would stimulate significant savings and investment to expand productive capacity and update aging facilities in the private and public sectors. Others feel that additional incentives will be necessary to encourage productivity-enhancing capital, particularly investment in capital-intensive energy production. Whatever the mix of monetary and fiscal policies to increase tangible capital investments for productivity improvement, they will have to be balanced against the requirements for investment in R&D and intangible human capital, including the education, training, and health of the work force.

Enhancing the role of the work force

There is increasing recognition that better management of today's work force is vital to productivity improvement. By 1985 nearly two-fifths of the work force will have at least one year of college education and one-fifth will have four or more years. Efforts to meet the expectations of workers for better working conditions and to make more effective use of their ingenuity and creativity represent one of the significant economic changes taking place today.

Surveys of job expectations reveal, in addition to traditional concerns about pay and working conditions, a variety of other interests. For example, the Labor Department's Quality of Employment survey, taken in 1969 and 1972, ranked pay high, but also found that workers want many other opportunities—to obtain training, use their talents more fully, have greater flexibility in work patterns, education, leisure and retirement, have health and safety protection on the job, and exercise greater control over performance of work. Only a small minority—not over 20 percent—express dissatisfaction with their jobs; however, these are concentrated among young, educated workers whose views may dominate in the future.

To achieve the twin objectives of greater productivity and worker satisfaction, a variety of human resource programs are being tested. New techniques, such as group incentive systems, flexible work schedules, autonomous work teams, job design, and goal setting approaches, have had varying degrees of success. According to a Work In America Institute study of 103 experiments, techniques that identify effective work behavior, furnish feedback on results, and reward effective performance have significant potential for reducing absenteeism and turnover and improving the performance of the organization. The programs which show the most promise in improving both productivity and job satisfaction seem to be socio-technical systems that take into account various aspects of the workplace, including recognition for performance, training, a voice in plans and decision about how work is done, safety and health protection, and appropriate equipment to do the job.

The Center has concentrated on trying to make employers and unions aware of opportunities for improving productivity through cooperative arrangements by which the mutual interests of workers, unions, and industry management are engaged in the competitiveness of their firm or industry and the quality of working life. Despite the adversary relationship which characterizes collective bargaining in the U.S., there seems to be a greater potential for this type of inplant cooperation than is generally realized. A 1974 study by Daniel Yankelovich and Raymond Katzell found that an overwhelming majority of managers and union officials agreed with the statement that "It is possible for the union and management to cooperate on specific programs which will improve productivity."

Examples of various types of grass roots cooperation are more wide-spread today than at any time since World War II, but the number is still small. The Center has identified over 240 joint labor-management committees of various types in different industries and localities. Some are organized as part of a communitywide joint effort to improve the industrial relations climate and strengthen the economic base.

Inplant joint committees, set up through collective bargaining deal with workplace production problems, materials and energy savings, methods improvement, and safety and training. In a few cases where the degree of mutual trust is high, labor and management have expanded the scope of cooperative efforts to cover areas that usually are the exclusive province of managers, such as plant layout and new products.

One of the most important benefits from the establishment of a regular channel of communication between managers and unions is the opportunity to improve the effectiveness of the entire organization. Greater understanding of the industrial employee's role in the production process leads to better scheduling, less waste, and a more effective organization. Illustrative of such efforts are the Quality of Working Life Committees in the auto industry and joint committees in local governments of Springfield and Columbus, Ohio, and other cities.

The prospects for achieving a greater degree of labor-management cooperation for productivity improvement hinge to a great degree on the assurance of job security. Since many employees see productivity as a threat of displacement, they are not likely to give their full support to work improvement efforts without some assurance that their employment will continue. Unions and management have adopted such protective measures as retraining workers for new jobs, using attrition to reduce jobs, giving advance notice, providing severance pay, and offering early retirement. Unfortunately, except for seniority, protective programs are not widespread. In an uncertain economy, management generally opposes contractual job security and seeks maximum flexibility. The few companies which have adopted a manpower planning concept to stabilize employment have found such policies compatible with the objectives of efficiency and productivity. Protecting the individual worker from the full burden of change should be a key element of any productivity improvement program.

Sharing the gains of increased productivity in an equitable fashion also contributes to a cooperative climate. In unionized companies, workers assure their share of the gains from greater productivity through the mechanism of collective bargaining. Productivity gain sharing through profit sharing, stock ownership, and group bonus systems, such as the Scanlon Plan, which involve employees in joint problem solving have proven useful in some situations in encouraging support for productivity improvement.

The prospects for widespread adoption of labor-management cooperation to improve productivity are not favorable in a climate of mistrust and antagonism to collective bargaining. Nevertheless, the number of labor-management cooperative efforts is likely to increase gradually, particularly in such old, established industrial areas as the Midwest and Northeast which are facing competition from newer, nonunion plants in the South and abroad.

Improving business-government relationships

Government affects the productivity of the private sector in three important ways. First, it establishes the legal, economic, and social framework within which private enterprise can grow and prosper. Federal, State, and local governments build roads, schools, bridges, and other infrastructures of society; they maintain law and order; and they shape work skills and attitudes toward profit-making and competition. Through its monetary and fiscal policy, the Federal Government affects the level of business activity, the rate of investment, the allocation of resources, and many other economic variables indirectly underlying productivity growth.

Second, the Federal Government has a direct impact on the levels and priorities of R&D, through direct expenditures and indirectly through tax and other incentives. Of $933 million spent in 1976 for projects directly affecting productivity, about 85 percent was for R&D projects in civilian technology. One of these technologies, agriculture research, has been coupled with intensive dissemination to achieve impressive payoffs in increased farm productivity.

No yardstick exists for assessing the adequacy of the Federal programs as a whole. However, studies of productivity growth suggest that technological innovation needs to be complemented by management changes and training of the work force as well as by capital investment. The Federal Government is increasing its expenditures on projects for enhancing the human factor in productivity growth, but the effort remains negligible alongside Federal programs for technology and capital investment.

Third, Federal, State, and local governments affect productivity through rules which supplement or replace market forces in directing activities. Government regulation has expanded substantially in response to economic and social problems which have arisen from the growth of large-scale industry, advancing technology, and changing social standards.

There is little disagreement about most of the goals of regulation: control of monopoly; protection of consumer and worker health and safety; allocation and protection of scarce natural resources; promotion of equal employment opportunity; and maintenance of trust and confidence in the economic system. While improved

productivity is not usually an explicit goal, it is indirectly served by some regulatory programs and, unfortunately, retarded by some others.

Economic regulatory programs govern entry, service, and pricing in individual industries where the market outcome was considered unfair to consumers. Industries most affected by economic regulation include railroads, airlines, trucking, communications, banking, and energy.

In contrast, most of the social regulatory programs that have been adopted in the past decade deal with conditions affecting all businesses. These programs cover the health, safety, and environmental hazards which are concomitant with the increased productivity and other benefits that flow from changes in technology. Compliance with such regulations often involves weighing private costs imposed on the producers against the social benefits to the community.

Inflation and the recessions of the past 10 years have given rise to concern about the proliferation of government regulation and its effects on industry's productive efficiency. The Executive Agencies, Congress, and the regulatory agencies have conducted extensive studies on opportunities for reforming the regulatory system and reducing negative impacts on the economy.

One of the conclusions of these studies is that freeing some industries from economic regulation could create opportunities for greater productivity. Thus, the original basis for regulation in the transportation industries, for example, has been eroded by technological and economic changes, so that more competitive market forces might be more effective in protecting the consumer.

In the short time they have been administered, social regulations have been found to improve the conditions affecting the environment, health, and safety of Americans; however, their costs to the private sector have been substantial and larger than were originally estimated. According to Edward Denison expenditures to comply with air and water pollution and occupational safety regulations, and for the costs of crime appear to have reduced the average growth rate of measured productivity of private industry between 1969–75 by nearly 20 percent. Since there is no way to measure the value of changes in the quality of air and water, personal injuries prevented, and other benefits as a result of required capital expenditures, these estimates are only partial measures of the impact. Moreover, these estimates do not reflect the impact of regulations that interfere with day-to-day operations as a result of confusing and conflicting administration. Nor is there an assessment of the impact of these regulatory decisions on capital investment decisions in the industry.

A Center study of the cumulative impact of safety, trade, environmental considerations, and equal employment in the steel industry casts doubt on abstract models which are used to reduce the complexities of regulatory costs to a single "impact" estimate. A realistic impact study should also take into consideration the adjustments made by private decisionmakers at the plant and company level to accommodate regulatory costs to particular economic and trade conditions. A rigorous methodology to assess the impact of regulation on a single industry would be enormously costly. More useful would be to stimulate, at each point of enforcement, creative problem-solving on the tradeoffs required by the regulatory system.

Another Center study deals with resources wasted over a 12-year period when efforts were made to solve a problem which was inappropriate for the regulatory system—tire quality grading. Because of the critical difficulty of defining tire quality in a way useful to consumers, the regulatory process was clearly an inappropriate vehicle but continued attempting, without success, to establish standards. This process consumed millions of dollars of the resources of government and industry. Where tire safety had been the issue, the regulatory process worked effectively and quickly.

Improving productivity in the public sector

The role of the public sector in the economy is substantial. State and local government alone account for almost 15 percent of the gross national product. Greater expectations of performance have resulted from population growth in general, sizable increases in government-dependent constituencies, and the creation of new areas of responsibility such as mass transportation, special education, and pollution control. However, the amount of the revenues available is limited as confirmed by so-called "taxpayer revolts." The capability to meet the demands has been further narrowed by recession, skyrocketing fuel costs, inflation, and rising unemployment. According to a report by the Committee for Economic Development, the increased costs of goods and services purchased by local governments, including materials, fuel, land, equipment, and labor, have caused unit costs to rise 152 percent over the past 20 years compared to an 83 percent rise in consumer prices. At the same time, the public increasingly shares the view that the quality of

services has not improved commensurately with the increase in costs. The fiscal crisis has served to call attention to, among other issues, a longstanding need for improving productivity and the quality of working life in the public sector.

Special encouragement for productivity improvement is needed in the public sector. Without a clear-cut indicator of accomplishment such as profitability, the benefits of productivity improvement are not obvious and the incentive is not as strong as in the private sector. Lack of revenue during the recession delayed capital investments needed for productivity improvement, and discouraged rational decisions about operating alternatives. Resources which should been devoted to improving operations are diverted to bolster inefficient service operations. Elected officials, who have short terms in office, become even less willing to make changes whose benefits are long-term at a time when a discontended public is demanding immediate remedies.

The Center has concentrated on developing labor and management support for efforts to identify obstacles to and opportunities for productivity improvement in the public sector. We have also dissiminated examples of successful efforts under the assumption that the wide variation in performance among jurisdictions suggests that improving performance to the best known level would yield significant benefits.

The critical element to productivity improvement is good management as practiced in efficient public and private organizations. Good management includes a basic concern for the personal and organizational well-being of employees, systems of measurement for incentive and control, incorporation of new techniques and technologies into current practice, and organization of resources to accomplish goals with reassessment in terms of changing needs.

In the management of its employees, the public sector falls significantly short of private industry. In a comparative study by the Center of the attitudes of several thousand managers and employees in the public and private sectors about their jobs, public employees and managers were found to have a low opinion of the quality and quantity of the output of their organizations compared to their private sector counterparts. This is significant because a strong correlation has been demonstrated to exist between an employee's perceptions of the effectiveness of an organization and that organization's actual performance. Other findings of the study include:

Job challenge and satisfaction with job content do not appear to differ significantly between the public and private sectors.

Compared to their private sector counterparts, public sector employees have a negative view of the competence of their supervisors and upper-level management personnel.

Public sector employees generally regard their employment situation—in terms of equitable treatment in such areas as pay, job security, benefits, and working conditions—as favorably as private sector employees, but they feel that improved performance is not necessarily rewarded through promotion or recognition.

Government employees know what is expected of them in their work, but they feel they get too little feedback on how well they do it.

Considerable potential for improving productivity lies in improved management of human resources, including better communication between management and employees, more management and employee training, and means of sharing productivity gains.

A second area of opportunity lies in developing a system of measuring total organizational performance as a means of control and to provide incentive for improvement. A public sector committee of elected officials, administrators, and union leaders recommended to the Center that improved management will result from the developing and disseminating of information on (1) the unit cost and effectiveness of government services within a jurisdiction and as compared with others; (2) the extent to which current government programs meet true citizen needs and are deemed satisfactory by the citizen consumer; and (3) the extent to which employees' personal and organizational needs are met.

A concept called total performance management, which incorporates these elements, is now being tested by the Center in five jurisdictions around the country. Through the incorporation of performance data, with customer and employee attitudinal data, it motivates corrective action by managers and provides a factual basis for a community consensus for productivity improvement.

Just as industry does, government can improve productivity through technology—for example, by adopting more sophisticated police communications systems and installing better refuse collection equipment. However, public officials who decide on new technologies and improved equipment maintenance and replacement pro-

grams often do not have sufficient incentive to direct capital investments in areas which will result in productivity gains and benefits beyond their term of office. Instead, they opt for using the available resources to expand services and employment opportunities which yield short-term benefits.

The means for generating capital in the public sector also retard rather than encourage productivity improvement. A system for rewarding managers for productivity gains would focus attention on the adoption of new methods.

Finally, organizing resources to meet goals is often distorted by the intergovernmental grant system, in which productivity performance is given a low priority. Research in New York State is beginning to identify methods for incorporating positive incentives to improve efficiency and effectiveness into grant programs. The real benefits from improving the Federal grant system are to be gained from making an impact on the administration of these grants at all levels—not just at the Federal level.

IV. AN AGENDA FOR NATIONAL ACTION

A vigorous national effort which draws upon the contributions and experience of all groups of society is urgently needed to meet the challenges of the economic changes outlined in the previous pages.

In this section, measures which could help improve the Nation's productivity performance are outlined. These reflect the Center's experience over the past three years in working with labor, management, government and other groups on means and techniques for attaining improved rates of productivity growth.

Need for national leadership

To sustain a national effort of cooperation and dedication to improve productivity, the Federal Government must assume a strong leadership role. A strong independent body dedicated to productivity, such as those of our strongest trading competitors, provides visible evidence of commitment by the Nation's leaders to the issue of productivity and work improvement and can be a catalyst to stimulate action by responsible groups in industry and labor.

Federal leadership and support are necessary to reinforce newly emerging State and local efforts seeking productivity gains in their communities. With the National Center's assistance, productivity and quality of working life centers and institutes have already been established in Utah, Maryland, Massachusetts, Illinois, Pennsylvania, Arizona, and Georgia and others are forming around the country. The ability of these local initiatives to contribute to community and national goals will be greatly enhanced if there is a national body that is capable of providing continued encouragement, information, and technical assistance.

Assist industrywide efforts

Opportunities to institute changes which improve productivity differ from industry to industry and can be best determined by the industry itself—its managers, workers, suppliers, and customers—with the government providing the forum for their deliberations and assisting in the problem-solving. In many cases, important opportunities lie beyond the ability of individual organizations to achieve by themselves and require cooperation among management, labor, and government. The Center's experience with such collaborations has been successful and encouraging. In one instance, the food industry was able to improve the coast-to-coast rail shipment of fresh fruits and vegetables. In another, a joint labor-management committee of the men's clothing industry has entered into a cooperative effort to improve its competitive position through a joint worker and management program, training, technological research, manufacturing practices, distribution, and better industry statistics. Industrywide programs are also being explored in the food distribution, construction, and coal mining industries. Opportunities for similar cooperative programs to identify and resolve systemic barriers will need to be pursued in other industries if we wish to avoid costly bottlenecks and maintain an aggressive effort to keep U.S. industry strong and competitive.

Encourage labor-management cooperation

Great promise is shown by joint efforts to improve productivity and enhance job satisfaction by drawing on the ideas and creativity of the work force; however, such efforts are far from widespread. The concept of labor-management cooperation has been effectively spread by community programs which integrate community-wide labor-management cooperative activities with inplant joint consultative committees to deal with problems of productivity improvement and quality of working life. For example, the four goals of the successful Jamestown labor-management committee—economic development, industrial peace, skill training and productivity—were im-

plemented at the plant as well as on a community basis. Similar joint efforts are operating in Buffalo, St. Louis, and Muskegon (Michigan), among others. Many other communities in the Northeast and Midwest are considering adopting the concept and need encouragement and assistance. Federal assistance to these joint projects is needed for technical services to labor and management in the plants of these communities until the community once again can become healthy enough to be self-sustaining.

Encourage manpower planning

Productivity improvement is often feared and resisted because of its potential for job displacement at individual sites, even though over the long run total employment advances. Some firms have tried to allay employee anxieties by advance planning of manpower adjustments. Through collective bargaining, equitable provisions have been made for retraining, relocation, severance, early retirement, and other protective measures. Some attention is being paid to measures to create jobs through work sharing and other adjustments in work time. Those who wish to minimize adverse effects need the opportunity to exchange experiences with others. Public policy must consider measures to coordinate private adjustment measures with unemployment insurance and social security. Since society as a whole benefits from productivity gains, it also has an obligation to plan orderly adjustments of those who are affected adversely.

Foster technological innovation

Concern about the productivity slowdown has renewed interest in measures to strengthen American technology. Increased Federal support of research and development in FY 1979 may reverse the decline of recent years. More attention may be given to manufacturing research which contributes to productivity improvement. The President's Committee on Technological Innovation is studying barriers to change. The Department of Commerce's Cooperative Technology Program proposes steps to improve the infratechnology of small distressed industries which cannot undertake their own research programs. A major responsibility, however, rests on the private sector to improve management of innovation. Engineering schools and industrialists need to consider closer cooperation through exchanges, internships, and greater attention to training which is relevant to industry's needs. While technological innovation cannot be mandated, we need to consider more carefully the disincentives of government regulation and other policies on the capacity and motivation of business to introduce change.

Increase capital formation

An increased rate of capital investment is necessary for economic recovery, modernization of plant and equipment, and greater capacity to avoid bottlenecks in key materials. The President's program to reduce inflation and overregulation contributes to a better climate for investment. More important are the Administration's proposals to improve profitability by cutting taxes on corporate income through a reduced corporate tax rate, a permanent 10 percent investment tax credit, and liberalized depreciation for small business. Congress, too, might consider steps to broaden investment of equity in productive capacity.

Another stimulus to capital formation would be a reduction in the relative price of capital goods. For example, increased productivity in building construction, and other capital building industries, could have important ramifications for increasing investment in other sectors of the economy. A continuing effort on the part of contractors, unions, and the government to improve construction productivity could have a significant payoff in economic growth and modernization.

Regulatory reform

Our goal should be to lessen the inhibiting effects of regulation on investment, innovation, and productivity without diluting environmental, health, and other sound objectives. In some cases deregulation or less regulation can free enterprise from unnecessary and outworn rules and increase competition. In other cases, regulatory reform should lead to reexamination of administrative procedures, improvement of management, reduction of the paperwork burden, and simplification of language. The overall costs of regulation could probably be lessened by a greater awareness of the impact of the pace at which regulatory goals must be met and the degree of detail with which regulations are specified. A significant new direction in regulatory reform was taken in Executive Order 12044, which requires, for significant regulations, "careful examination of alternative approaches early in the decision-making process." These initiatives could lead to the use of incentive systems that lessen the impact of regulation on cost and productivity.

Improve public sector management

The overriding need at all levels of government is for improved management. We need the incentives and rewards for managers that are featured in the Federal Civil Service Reform Program. The $80 billion Intergovernmental grant system offers opportunities for encouraging better management and realizing significant savings and improvements in effectiveness at all levels of our Federal system. Federal support of governmental management improvement at the Federal, State, and local level must be increased and coordinated. Governmental financial and accounting systems must be modernized. Labor-management cooperation in dealing with productivity issues has great potential and should be encouraged and extended.

Measurement for productivity improvement

Policies to improve productivity can be strengthened by a better understanding of the sources and benefits of growth. Research based on reliable and extensive measures of trends can make an important contribution to a national program. The National Academy of Sciences Panel to Review Productivity Measurement (sponsored by the Center), is reviewing the concepts and usefulness of productivity statistics. The Panel's recommendations should help to improve the data base for national policy.

Productivity measurement at the plant level is a useful tool for internal improvement and for maintaining progress. Encouraging company measurement and improvement programs can have useful payoff at a low cost. Productivity measurement data should be collected for State and local government as they are for selected industries.

Create awareness

All of the foregoing recommended actions are underway to some extent in the U.S. today. They represent some of the necessary changes that must take place if we are to continue to rely on our economic system to deliver on the expectations of our citizens for continued improvements in our quality of life.

What is missing from these embryonic activities is an understanding of the need for and the interdependence of each in a broader context. The American economy is clearly in need of a goal—not in terms of how we will expend the benefits of a healthy expanding economy but how we are going to achieve that state. Those goals must emanate from the leaders of industry and labor from each of the industries and sectors. Once established these goals will allow us to achieve a critical mass of activity in each of the areas mentioned above.

Out of respect for the pluralistic society on which our greatness is so dependent we must start setting those goals company by company, industry by industry and economic sector by sector so that we together understand how we are going to preserve and enlarge our economic strength.

With due respect I submit that this is the economic change we are seeking today. Thank you.

Representative BOLLING. Thank you.

Next, is Mr. Jerome Rosow, president, Work in America Institute, Inc. He has had careers in both government and industry, devoted to manpower, employee relations, and public affairs.

He served as manager of employee relations at Esso Europe and most recently as public affairs planning manager, Exxon Corp., New York, N.Y.

His government service includes: Assistant Secretary of Labor, 1969–71; vice chairman of the National Commission on Productivity; and, since 1971, chairman, President's Advisory Committee on Federal Pay.

Mr. Rosow is president-elect of the Industrial Relations Research Association for 1979. He is an adviser to the Committee for Economic Development, and a member of the U.S. Business and Industry Advisory Committee of the OECD, Paris. In 1974, he edited "The Worker and the Job: Coping With Change," as chairman of the American Assembly on "The Changing World of Work."

Would you, please, proceed.

STATEMENT OF JEROME M. ROSOW, PRESIDENT, WORK IN AMERICA INSTITUTE, INC., SCARSDALE, N.Y.

Mr. Rosow. Thank you, Mr. Chairman. My remarks will be the briefest of the four, and I can allow more time for interaction and discussion. Also, in deference to the other presentations, particularly our fine economic presentations, I will not be dealing in a statistical game. I was interested that my friend, John Kendrick, left a blank, but I was surprised that he admitted that the more there is, the more we are able to measure.

That is what I intend to concentrate on this morning.

The question posed to me by the committee is: "Can labor and management improve productivity in the United States?" My answer, only slightly flippant, is: "If labor and management cannot, then no one can."

How great an improvement do we need? Because of our dismal and disappointing performance in the past decade, we have come to think of the old 3 percent annual productivity growth rate as the target. I suggest that target is now too low; it will not allow us to keep pace with our main competitors.

One has only to look at Mr. Evans' charts which were so excellently presented this morning to see how much we are lagging behind our competitors, and to see Mr. Kuper's comments on the importation of machine tools, to see that 3-percent productivity will not bring about enough change.

We know that productivity is a function of capital, technology, and people. But we must continually bear in mind that nothing happens until people—that is, labor and management—make it happen.

It is widely believed that technology in particular determines the level of productivity, and that technological advance is the main cause of productivity growth. There is much truth to this belief, but there is also a good bit of illusion. Technology can never represent more than a potential for productivity. Let a machine, a process, or a system be ever so brilliantly contrived, yet it cannot produce more than the people managing and operating it want it to, or know how to do. My hunch is that we would see far more investment in capital, technology and R. & D. if productivity growth were on a rising trend.

I would like to turn to a few points for the sake of time. Since 1970 there has been a feeling in the United States that many things have been happening to productivity in response to the changes in rising expectations of the people. So Work in America Institute, with the cooperation of New York University, took a look at what has been published in the United States since 1970, and we found that over 103 companies reported experiments to improve productivity in the United States, which cut across a great variety of occupations and businesses, and we expect those published reports are just the tip of the iceberg.

We know there are a great number of things going on that the companies are not ready to discuss or to have come out before the public in print with regard to them. We found there were 14 categories of intervention that the companies were using to improve productivity, varying from training and instruction—and training being one of the most prevalent and effective—to manage-

ment by objective, goal setting, compensation, job redesign, organizational structure revision. We are now publishing a book of in-depth studies of major improvements that have taken place, including the massive work going on at General Motors, particularly at the Tarrytown plant to improve quality, reduction of waste and reduction of cost, without changing the technology one iota, or without changing the production line at all.

As I mentioned in my prepared statement, Mr. Chairman, we believe that four conditions have to be met by labor and management to improve productivity.

The first is that nothing will happen unless management sees the need and addresses itself to that goal; second is gain sharing between the parties; the third is job security; and the fourth is an interchange of ideas.

Fortunately, more and more employers are venturing into experiments that meet these conditions, and the benefits they derive are often impressive and rarely less than satisfactory, but these employers, unfortunately, constitute a small minority of the economy.

We look about us, and what do we see? We see management determination to deliberately raise productivity as being conspicuously absent. Very few companies measure productivity. They only look at the bottom line of the profit and loss, which can often be more a function of tax policy than productivity.

Unions also face a dilemma. Suppose an employer stops investing the amounts necessary to keep abreast of technological change, as we have seen in the railroad industry and the steel industry. What should the union do? It cannot raise the issue effectively without invading management's proper sphere of decisionmaking.

I spoke with the chairman of one of America's largest corporations recently, and he said they were fortunate if they were getting a 60-percent effort on the part of their employees.

A very small fraction of employers share productivity gains in a manner which carries conviction with employees and reinforces future effort.

Particularly with regard to the important element of waste that takes place in society, and with regard to quality of product, is this the case.

With few exceptions, neither unionized nor other employers provide enough job security to take the worry out of productivity improvement. Attrition and other forms of protection are, indeed, practiced more than they are promised; but when security can be granted or withheld at the employer's sole discretion, it undermines the purpose of getting people to cooperate with productivity change.

Free interchange of productivity ideas between management and labor remains a rarity, in spite of all the thousands of books written on the subjects of communications and organization development. It should give us pause that Japanese employers, whom we tend to think of as authoritarian, do far better than we at tapping their workers' ideas.

What, then, can be done to encourage labor-management cooperation for faster productivity growth? In particular, what should the Federal Government do? It is ironic to note that the National

Center for Productivity and Quality of Working Life, which has worked so hard over the past 8 years under inadequate funding limits, will be going out of business on September 30. Many people in labor, management, academia, and public life, even those who felt that the Center's efforts fell short of what was possible and desirable, will construe its demise as a sign that the Government has lost faith in labor-management cooperation as a means of raising productivity.

We are inclined to agree with the GAO report that the country needs a strong, well-financed and firmly backed National Center for Productivity.

As that report points out, the countries which have outstripped us in productivity growth are the very ones which have the most strongly backed governmental centers. That is no coincidence. Although the traditional, inherent conflict between labor and management on matters of distribution does not exclude cooperation on matters of mutual interest, adversary attitudes tend to push cooperation into the background when external encouragement is lacking.

It may well be that foreign forms of intervention will not work under U.S. conditions, particularly in the private sector. The principle, however, stands. I, for one, would like to see Government action take the form of a national foundation, on the model of the National Science Foundation or the National Endowment for the Arts. The Foundation's principal function would be to encourage, stimulate, and advance efforts throughout the Nation in the private, public, and not-for-profit sectors to improve productivity and the quality of working life for all Americans. It would undertake an energetic program of grantsmanship, aimed at expanding institutional efforts at State and local levels, within the universities, and in other freestanding, not-for-profit organizations. It would also provide seed money for practical applications of knowledge to industries and communities where work reform, innovation, and the most advanced methods for managing human resources can be tested. It should not regulate, evaluate, or have any hands-on relationship to the funded programs.

I think when we look at West Germany, which has a so-called work humanization program in the Ministry of Research and Development which is funded at $80 million a year, and Japan funds the program at $25 million a year over the last decade, and Holland, Belgium, the United Kingdom, and Canada, all are establishing programs in this way, and we see that the United States is out of step with the rest of the world by abolishing the National Center.

To summarize, I would say, yes, management and labor can improve the rate of productivity growth significantly in the United States, through cooperation. Some companies are improving productivity at 10 percent a year. They are very consciously concerned about the human factor.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Rosow follows:]

PREPARED STATEMENT OF JEROME M. ROSOW

My name is Jerome M. Rosow and I am president and founder of the Work in America Institute, Inc., which is a nonprofit, tripartite organization seeking to improve productivity and the quality of working life in America. I served as assistant secretary of labor, 1969–71, and have served as chairman of the Advisory Committee on Federal Pay since 1971. I have just been reappointed to a second six-year term by President Carter.

The question posed to me is: Can labor and management improve productivity in the U.S.? My answer, only slightly flippant, is: If labor and management cannot, then no one can.

How great an improvement do we need? Because of our dismal and disappointing performance in the past decade, we have come to think of the old 3% annual productivity growth rate as the target. I suggest that target is now too low; it will not allow us to keep pace with our main competitors.

We know that productivity is a function of capital, technology and people. But we must continually bear in mind that nothing happens until people—that is, labor and management—make it happen.

It is widely believed that technology in particular determines the level of productivity, and that technological advance is the main cause of productivity growth. There is much truth to this belief, but there is also a good bit of illusion. Technology can never represent more than a potential for productivity. Let a machine, a process, or a system be ever so brilliantly contrived, yet it cannot produce more than the people managing and operating it want it to, or know how to do. My hunch is that we would see far more investment in capital, technology and R & D if productivity growth were on a rising trend.

Conversely, labor and management often underestimate, sometimes grossly underestimate, what can be achieved with a given mix of resources. For example, I know of a major petroleum refinery which, after its white-collar and blue-collar staff had been cut by one-third, and while management waited with bated breath, fearing the worst, somehow turned out more product at higher quality than ever before! Why? Because the work of those who remained behind had been radically re-designed and more soundly planned, and because they understood more clearly than ever what had to be done. The technology itself had not changed a whit.

In another case, a highly mechanized plant in the drug industry, management and workers were certain that no significant rise in productivity was possible except perhaps through full automation. Yet, when they were faced with a governmentally-imposed refusal of any wage or salary increase unless it could be paid for out of savings, union and management put their heads together, arbitrarily selected the target of ten percent for an increase, and somehow found ways to reach it! Again, with no new technology.

Or take a better-known case. Lincoln Electric Company, of Cleveland, Ohio, relying not on dramatic technological breakthroughs, but on single-minded attention to unit-cost reduction, maintained an average productivity growth rate of 7½ percent a year over a period of 40 years. By this means it steadily reduced the constant dollar prices of its products even while the constant dollar price of its principal ingredient—steel—soared.

The Lincoln Electric story contains several lessons. One is that sustained, rapid productivity growth cannot be achieved without labor/management cooperation. Another is that cooperation stems from the expectation of mutual advantage. What advantages should management and labor expect from higher productivity?

In management's case the principal interests are lower unit costs, more effective use of resources, greater ability to meet domestic and foreign competition.

Labor's interest in productivity is at least as strong as management's. Graphs of real hourly earnings plotted against productivity, over the past century at least, leave no doubt that those two key measures grow at almost identical rates. Any earnings increase in excess of productivity increase is dissipated through inflation.

Nor has labor less interest than management in competitiveness. The preservation of American plants and jobs, as against both domestic and foreign competition, depends in large measure on productivity growth. For example, Japanese competition has very little to do with low wages or subsidies. Japanese wages in the past twenty years have risen much faster than American wages, but Japanese productivity has risen faster still. Their competitive threat has a solid basis; it is self-delusion to believe otherwise.

The American labor movement has been aware of its direct interest in productivity growth since the 1920s. A number of farsighted experimented in labor/management cooperation to increase productivity were conducted in the decade between the end of World War I and the Great Depression; the best known were Baltimore &

Ohio RR and Naumkeag Steam Cotton Co., Salem, Mass. These experiments succeeded for a while and then fizzled out, partly because of the Depression. Although their ultimate failure left management and labor with a bad taste, they showed clearly that joint efforts to improve productivity were both feasible and mutually advantageous. However, they showed also that, in order to survive, such experiments had to meet four basic requirements:

1. Management must have the determination to raise productivity, not rely on labor to do it for them.
2. Resultant gains must be equitably shared.
3. Management must allay real and perceived dangers that productivity improvements might lead to insecurity of jobs, incomes, or union.
4. There must be a free interchange of ideas between management and labor as to how productivity should be improved.

These conditions are as essential in 1978 as they were in 1928. During the intervening half century, however, a great many techniques for creating them have been evolved; the state of the art has moved far. One of the new emerging employee demands in Western Europe and the U.S. is for increased economic participation. This reflects a growing desire on the part of workers for some share in the economic performance of the business. This may take many forms, including: profit-sharing, cost-reduction sharing, Scanlon plan, employee stock ownership, possible application of stock options, stock appreciation rights, bonuses, deferred compensation.

The growing concern of job security in a high unemployment economy is also closely tied to improving employee productivity. Job security can be improved through a combination of methods short of tenure or of guaranteed lifetime employment. These include:

An employment policy which provides for continuity, so that the employee is reasonably secure about the future.

The application of sound long-range manpower planning so that attrition is used in lieu of layoffs.

Recognition of past service and performance with formal rules and policies regarding retention, layoffs, and removals.

A set of policies and practices which do not place the entire burden and costs of change on the individual worker.

Opportunities for retraining, reassignment and transfer in lieu of separation.

Early warning systems to alert employee to economic changes in the organization with advance notification and severance pay graduated with service.

Early pension vesting and pension portability as critical factors in long term economic security for employees facing relocation.

Again, literally hundreds of organizations have experimented with joint committees to stimulate the exchange of productivity ideas between labor and management, and for other cooperative purposes. A recent Harvard Business Review article by Edgar Weinberg and Bill Batt, of the National Center for P&QWL, gives an excellent survey of the field. I should like to add that such interchange is at the heart of what is called QWL. When workers are invited to contribute their thoughts—and they feel that management will really listen—they are only too happy to tell what aspects of the work environment need improving, as well as what can be done to step up productivity in the plant or office.

In addition, the past 50 years have witnessed more and more experiments with the nuts and bolts of productivity improvement. The number of cases reported has increased even more. Recently Work in America Institute commissioned and published a book by Dr. Raymond Katzell, containing digests of 100 cases reported between 1970 and 1975 alone. The methods used in these experiments fall into the following 14 categories, of which only one or two are directly related to technology:

1. Selection and placement.
2. Job development and promotion.
3. Training and instruction.
4. Appraisal and feedback.
5. Management by objectives.
6. Goal setting.
7. Financial compensation.
8. Job design.
9. Group design.
10. Supervisory methods.
11. Organizational structure.
12. Physical working conditions.
13. Work schedule.
14. Socio-technical system.

A follow-on book, now in preparation, will describe a dozen of the experiments in detail.

Thus, it is not knowledge that is lacking. Any employer who really wants to increase the rate of productivity growth of his firm can find the means to do so. What is lacking is the will, or the recognition of the need, and an appreciation of the hidden potential.

As I mentioned earlier, four conditions have to be met: management determination, gainsharing, job security, interchange of ideas. Happily, more and more employers are venturing into experiments that meet these conditions. The benefits they derive are often impressive and rarely less than satisfactory. But these employers constitute a small minority of the economy. If we look about us, what do we see?

1. In large areas of the economy management determination to raise productivity is conspicuously absent; e.g., areas in which price competition is weak or absent; or where top management's prime interest is financial gameplaying; or where senior managers have only a nodding acquaintance with the work done by their rank and file. In fact, unions face a dilemma in this. Suppose an employer stops investing the amounts necessary to keep abreast of technological change. What should the union do? It cannot raise the issue effectively without invading management's proper sphere of decision making.

2. A very small fraction of employers share productivity gains in a manner which carries conviction with employees and reinforces future effort.

3. With few exceptions, neither unionized nor other employers provide enough job security to take the worry out of productivity improvement. Attrition and other forms of protection are, indeed, practised more than they are promised; but when security can be granted or withheld at the employer's sole discretion, it undermines the purpose.

4. Free interchange of productivity ideas between management and labor remains a rarity, for all the thousands of books written on the subjects of communications and organization development. It should give us pause that Japanese employers, whom we tend to think of as authoritarian, do far better than we at tapping their workers' ideas.

What, then, can be done to encourage labor/management cooperation for faster productivity growth? In particular, what should the federal government do? It is ironic to note that the National Center for Productivity and Quality of Working Life, which has worked so hard over the past eight years under inadequate funding limits, will be going out of business on September 30th. Many people in labor, management, academia, and public life, even those who felt that the Center's efforts fell short of what was possible and desirable, will construe its demise as a sign that the government has lost faith in labor/management cooperation as a means of raising productivity. We are inclined to agree with the GAO report, that the country needs a strong, well-financed and firmly-backed National Center for Productivity.

As that report points out, the countries which have outstripped us in productivity growth are the very ones which have the most strongly backed governmental centers. That is no coincidence. Although the traditional, inherent conflict between labor and management on matters of distribution does not exclude cooperation on matters of mutual interest, adversary attitudes tend to push cooperation into the background when external encouragement is lacking.

It may well be that foreign forms of intervention will not work under U.S. conditions, particularly in the private sector. The principle, however, stands. I, for one, would like to see government action take the form of a national foundation, on the model of the National Science Foundation or the National Endowment for the Arts. The foundation's principal function would be to encourage, stimulate and advance efforts throughout the nation in the private, public and not-for-profit sectors to improve productivity and the quality of working life for all Americans. It would undertake an energetic program of grantsmanship, aimed at expanding institutional efforts at state and local levels, within the universities, and in other free-standing not-for-profit organizations. It would also provide seed money for practical applications of knowledge to industries and communities where work reform, innovation and the most advanced methods for managing human resources can be tested. It should not regulate, evaluate, or have any hands-on relationship to the funded programs.

To summarize:

Yes, labor and management can improve the rate of productivity growth significantly in the U.S., through cooperation.

The principles for achieving successful cooperation are well established.

Placing these principles into practice requires careful planning and the setting aside of some deeply ingrained habits of thought and behavior.

The government can, and should, play a part in encouraging management and labor to prove to themselves that cooperation works to the advantage of all.

Representative BOLLING. Thank you, Mr. Rosow.

I would like to ask unanimous consent to insert in the record at this point, on behalf of Senator Orrin G. Hatch, a prepared statement commenting on the statements of the panelists and, in particular, on that of Mr. Mike Evans.

[The prepared statement of Senator Hatch follows:]

PREPARED STATEMENT OF HON. ORRIN G. HATCH, A U.S. SENATOR FROM THE STATE OF UTAH

Gentlemen, I want to thank you very much for your appearance before this committee this morning. I particularly share Dr. Evans' concern about the declining investment, productivity, and economic growth that our economy is experiencing, and I am convinced that these serious problems are almost entirely the result of the economic policies that have been pursued by the Congress and the executive branch over the past years. To my mind, the source of our economic problems is the analytical framework that is now institutionalized in the Budget Committees of the Congress, in the Congressional Budget Office, in the Office of Management and Budget, and in the economic forecasting models. This analysis assumes that fiscal policy impacts only, or primarily, on disposable income and on aggregate demand. Thus, the main purpose of economic policy is to increase spending in the economy.

The result of this positive emphasis on spending is a negative attitude toward saving. A recent report by the Congressional Budget Office titled "Closing the Fiscal Policy Loop: A Long-Run Analysis," published in December 1977, is characteristic of the pro-spending, anti-saving attitude that dominates public economic policy.

In the CBO's analysis there is no supply—only demand. Demand consists of Federal demand and non-Federal demand. Federal demand consists of Federal Government spending. Non-Federal demand consists of private consumption and investment, State and local government purchases, and net exports. The CBO states that "strong non-Federal demand contributes directly to rapid economic growth." According to CBO, nonfederal demand, and economic growth, will be the stronger the less the consumer save. The CBO believes that if people save in excess of 7 percent of their disposable incomes, then the nonfederal impetus to economic growth will be weak. For the economy to attain desired growth targets when the savings rate is 7 percent or greater requires greater spending by the Federal Government—that is, larger budget deficits.

When the Congress is asked to deal with foreign aid matters and with problems of economic development in third world countries, the economic experts explain to us that these countries are so poor that they cannot afford to save. Living standards are so low, we are told, that the people have to consume everything that they produce in order to stay alive. Therefore, they cannot save. And since they cannot save, they cannot invest, And since they cannot invest, they cannot grow. Thus, they are trapped in the vicious circle of poverty.

When the Congress asks about rapid rates of growth in real GNP, labor productivity and real wages in other developed countries—Japan, for example—economists tell us that the examples of superior progress are precisely those countries with high rates of saving and investment.

It seems to me, Dr. Evans, that American economists have two theories of economic growth. One for the United States and one that is quite different for the rest of the world. In the United States we can produce rapid economic growth by spending everything we have and more through Federal budget deficits, but if we save we have weak demand and the economy declines. In the rest of the world, however, from Japan to the third world, it is savings and investment that produces rapid economic growth. I doubt that even the CBO would ever dream of recommending to the third world the growth prescription that they recommend to us.

Notice that it is the CBO's view that our economy grows faster the less are the savings in real terms to finance the growth. In the CBO's view, the main determinant of our economic growth in the long-run is aggregate demand or total spending. In the CBO's view, increased savings is a threat to economic growth.

In the CBO's analysis investment is treated as a component of demand, and investment demand is defined as strong when real private investment grows 2 percent faster than real GNP. But what makes real investment demand grow?

Apparently not real after-tax rates of return or profitability, but, rather, strong Federal and non-Federal demand. We seem to have a magic formula here, if only it worked, whereby the less we save the more we demand, and the more we demand the faster we grow.

It seems tome, Dr. Evans, that as long as the CBO, the Budget Committees, and OMB believe that we can have growth and investment without savings and profitability, then we can look forward to a continuation of the adverse economic trends that you have described.

Representative BOLLING. In the meantime, I would like to ask the last panelist, Mr. Rosow, to expound a little bit on two points made on his last page of his prepared statement.

In our last panel, we had a little conversation between a representative of the machinists and a representative of Mr. Mills, and an institution that deals with the quality of worklife.

We got to the point that you mentioned on the top of your last page that adversary attitudes tend to push cooperation into the background when external encouragement is lacking apropos your comment about the United States doing differently from other countries which have done better than we on productivity, and then at the very end of your statement, "And the setting aside of some deeply ingrained habits of thought and behavior."

I would like you to expand on those two. No. 1: Are they connected? and, No. 2: If they are not connected, what are you talking about in the second phrase?

Mr. Rosow. Thank you, Mr. Chairman.

Turning to the second—well, first, with regard to adversary rule attitudes, we had a conference 2 weeks ago on the future of America, and we had the good fortune to have people from the administration and the Hill as well as leaders from business and labor. In that meeting one of the things that surprised many of us was that the labor leaders were very upset about the labor legislation now under filibuster in the Senate.

His position was that there have been many overtures that started with President Kennedy to have management-labor committees at the national level. He was urging that the dialog would remain open and that cooperation would remain active and progressive, but there was strong objection to the labor legislation and it was out of keeping. That was at a macro level.

At the plant level, the company level, the problem is that the unions feel necessarily that they must maintain an adversary posture in order not to be co-opted by management. We saw that in the case of Mr. MacDonald in the steel industry when he was too close to management, he failed to get reelected.

We almost had the same thing in the recent steel election because of the national experimental agreement which for 7 years worked for the interest of the workers, but was construed by many of the rank and file as a kind of a sweetheart relationship. So, on the one hand, the unions have felt a need to maintain their purity by being adversarial. On the other hand, with the growth of codetermination in Western Europe, where labor has come forward with management, there has been a growing concern in the United States that this could really undermine the capitalistic system if we ended up with worker directors on the board with a change in the managerial processes.

I think that people like Irving Bluestone in the United Automobile Workers of America, vice president for General Motors, epitomizes what I mean. In that case, the UAW had been working with the company apart from collective bargaining and developing labor-management committees at the plant level to improve productivity, and to recognize that the problem of foreign imports and the rising costs of automobiles and the effect on sales over the long term and that cooperation means jobs to the workers on the line.

They have in the General Motors Corp. at this time various interventions affecting more than 60,000 of their workers, which are having very decided effects on the efficiency of the organization, and we hope they will report more and more of this, to create "models of excellence" for others in industry to follow. On the one hand, you can preserve your legitimate adversary relationship, but on the other hand there are other areas for cooperation between the parties.

When I spoke of ingrained habits of thoughts and behavior, Mr. Chairman, what I had in mind was the feeling on the part of our society and industrial society generally that the human resource decisionmaking, technological decisionmaking, and maybe to a lesser extent, decisions to invest in R. & D., although that involves a longer term type of decision, seem to attract less management attention than technology, rates of return on investment, and short-term types of responses, and tend to dominate American management decisionmaking. Human resources tend to take a very low priority, except in those industries that have been affected by serious labor-management conflict, where they have been forced to escalate the concerns over human factors.

What I meant by ingrained habits of thought and behavior was that an insufficient amount of attention was paid to the fact that people, every day on the job, can have a great effect, sometimes unknowingly, over the cost of production and over the efficiency of the firm.

I would just illustrate with one anecdote.

Back in the early 1960's when I was with Exxon, we were in a heavily automated refinery and we asked George Schultz, who was then dean at Chicago, to take a look at our refinery and see whether or not the impression of our management was that people didn't matter. The refinery was automated; we had over $100,000 invested per worker, and it wouldn't matter how we managed the work force as long as we had the technology out there.

After a summer's work, he found that the management and accountants and engineers were agreed on controllable costs. That was the cost of catalytic chemicals going into the process, energy, and labor. Those three things, they said, did vary. The cost of crude oil was fixed, and there was no use counting that.

So they went back over 5 years and looked at the days of production that were similar. There had been no change in the capital mix except for the replacement of the same type of equipment. We had 100,000 barrels of throughput per day, and they found that the people were affecting this by a variance of 30 percent—the same level of production.

The question was how do you get the people to relate to this, to recognize how much power they used was significant, and how

much catalyst and the hours they put in. There are cases of this in many, many instances, so that what this said to the manager is that people are important, and when this thing was brought to the board for presentation in 1960, the chairman at that time, Mr. Rathbone, said: "I always suspected the people out there were important." [Laughter.]

Mr. WALLACE. May I ask a question on this? Many labor-management contracts contain escalator clauses which provide that wages increase in accordance with the cost-of-living increases.

Now, these contracts, going back 25 years, have been called an engine of inflation, because every time wages go up, it increases costs. Then you have the cost-push in addition to the demand-pull inflationary forces.

Do any labor contracts that you know of have clauses for productivity increase-sharing?

Mr. ROSOW. The most important of those is the auto agreement, which in the late 1940's put in the so-called "annual improvement factor" of 3 percent. It is interesting it hasn't been reduced. It was linked to the national number at that point, and the fact that it hasn't been reduced shows that the auto industry is doing better than the national average.

The thing to be said about the escalator, and not necessarily in its defense, and I don't disagree with your point, is that it was a buy-out for labor peace. It was a concomitant with the 3-year and 5-year labor agreement, by which the country wanted to get away from the instability of the annual bargaining, and one of the quid pro quos for that was some insurance against inflation.

It tended to go up and down with the cycle of inflation in the 1950's and early 1960's, and then when we got into the serious double-digit threat, more and more unions opted for that type of settlement. The larger companies that don't want to give it have to take as a trade-off more direct negotiations or a higher price on the front end in lieu of an escalation. It is a stabilizing factor in labor relations.

In fact, in the steel industry in 1970, when they got the national experimental agreement for the first time after treacherous, long-term strikes and a buildup of inventory, the agreement, which provided for a no-strike provision and compulsory arbitration if the parties didn't agree to settle by themselves, resulted in a major influx of new capital investment because the management felt they had stabilized the labor situation.

Representative BOLLING. I would like to get into this because I have to leave early as I have to preside over the next bill that has been scheduled on the House floor. I have to leave a little early.

One of the things that occurs to me is that as I listen and look, I am sure I understand and I didn't hear Mr. Perkins' speech nor have I seen a copy, but I think I understand why he is upset about that particular bill, and I am sure the Senator whose statement I put into the record would not agree with this, but I have a feeling, looking at the almost unmentionable fact that organized labor has not grown but has shrunk in relative terms, that there are two different kinds of labor relations in this country—at least.

On the one hand you have strong unions and strong companies that have a relationship that becomes what I would call "more

civilized" as they find each other strong enough to compete effectively, and on the other hand are where weaker unions and weaker managements that are still in the more primitive state of labor-management relations. And when you put this together in this very complicated country, where I repeat for the umpteenth time that the regions of the country are more different from each other than France and Germany, even though they presumably have a common language. You get a mix of situations where there is today, in this year 1978, a very real feeling of insecurity in the labor movement as to whether it will survive, and that feeling of insecurity leads then to an excess of an adversary approach which makes it virtually impossible to achieve the kind of rational common approaches that have been achieved in the strong—some of the strong companies with the strong unions.

It seems to me that this is much more a national problem than a labor relations problem or a problem of economics. It is a problem of very fundamental attitude, and I just wonder if I am taking a set of points and turning it into a general philosophy in a way that makes absolutely no sense.

Mr. Rosow. It does, Mr. Chairman. I applaud your statement, because I feel we are really dealing in the long range with an institutional question rather than a mere question of shares of power. The labor organization has declined to less than 25 percent of the labor force. The evidence submitted by our economic friend this morning showed what has happened to the rise in education and the shift toward the professional people in the work force, the major growth of women in the labor force, groups that the labor unions have not necessarily attracted to their membership.

There is a feeling that they haven't kept up with the changing nature of the society in that regard. But with the people they do represent, we have a union movement in this country that is very procapital. When we look at the capitalistic system which favors strong private investment and profits, they are for that. It is not a movement such as we see in Western Europe, which is often politically opposed to the status quo.

If we look at our own history in the 1930's to the present, we must look at the labor union as a force for a strong democratic society. This is not to say that people should join unions unless the unions have something to offer those people for the dues and for the membership requirements, but I think it is one of the balance wheels in our democratic process and should be seen traditionally in that sense.

Representative BOLLING. Mr. Kuper.

Mr. KUPER. Two points to amplify your observations.

One, the National Center, although it is scheduled now not to live beyond the 30th of September this year, was suggested by forces in the organized labor movement in this country, particularly the steel workers.

The second point that I think is an interesting one is that the major proponent for productivity improvement within Government now comes from the organized labor movement. I think that is a significant factor.

Representative BOLLING. I have to leave now, and I am going to turn it over to Representative Brown, and when you leave, to Mr. Sheldon.

Representative BROWN of Ohio [presiding]. Let me pick up and ask which came first, the chicken or the egg. I wish I could think of something besides the chicken and the egg, because it seems to me there are three angles: One is productivity; the other is, in fact, work satisfaction and the relationship between management and labor; and, finally, our total economic picture that may affect work satisfaction and productivity at the same time.

Let me try to clarify that rather obscure remark this way.

Is it a matter of getting people happier with the idea of labor-management cooperation, of investment in new technology that may, in fact, terminate some jobs, but raise the general standard for those people still working that should come first, or should we have a system impact from some other source that would stimulate the expansion of the economy so that during an expanding economy the modernization of plant and the increase of technological development could be accepted because even though it may cause someone to lose his job, there is another job down the block that he could go pick up?

Do you understand my question or my comments about the relationship between the expanding economy versus the static economy and the question of improvement of the acceptance of technological development?

Mr. ROSOW. I would like to respond, if I may, by saying that I think everyone here on the panel would agree that the stimulation of economic growth, in the macrofactor, is fundamental to the economic welfare and the economic welfare of all of us.

Now, with regard to your other point, and I think it is just a choice of words, but I would like to put in the record that there is no intention in improving productivity to make workers happy. Unfortunately, that word has been cheapened to mean that there have been studies which show that there is no link between job satisfaction and productivity. It is not suggested that they are opposed to each other, but I would say "motivated" rather than "happy."

Representative BROWN of Ohio. If the real wages of any worker, or a whole raft of workers, are going down, and I would submit that is what is happening in today's society, with inflation moving faster than the wage increases, and taxes taking out more because of the inflation factor in the tax system, that doesn't necessarily make a happy worker nor a productive worker.

Mr. ROSOW. Yes. I think one of the economic questions of the worker and his family are as you describe. It obviously must have an effect on motivation, because you feel you are on an economic treadmill, and if you run hard, you hopefully stay where you are.

I just returned from a month in the People's Republic of China, and I cite this illustration because it just came to mind because of something Congressman Bolling said, about the question of worker productivity.

We went to several communes, where 40,000 people live on a single commune. The Chinese told us, in response to questions, that workers are organized into teams—it is interesting that they would

call them "production teams"—and they measure the output of each team, work the same land in the same environment and rotate the same kind of crops.

The team is about a hundred workers. Each team has an accountant that works with the team to see how many hours you were there, and whether you worked extra effort at night, and they told us that the production between teams varies by sixfold.

Now, they were using the same technology, in the same land, producing the same crops, in a society where everyone was working for the state. They were getting paid on the basis of "productivity" of their teams. They were charged for fertilizer, and so forth, but there was a variation of 6 to 1.

This is the essence of my point, that the potential of people to perform on the job is much higher than the level at which they are generally.

Representative BROWN of Ohio. Let's go back to the current economic situation here. There is this treadmill situation, which sees us all slipping back, whether it is the Federal employee, and the President is going to put a 5 percent lid on their increases while the cost of living may be going up 7 percent, or whatever it may be.

What is the impact? What is the order in which we should try to address the problem? Is it to say, "Now, folks, you have to try to accept the fact that management and labor should get along better together, and put in labor-saving devices, or should we address the motivation problem?"

Mr. KUPER. Mr. Chairman, in our experience in dealing with industry, it is clear that the self-interest of everyone involved has to be responded to. You are not going to get anybody to do anything different by exhortation. One, if it is acknowledged that self-interest is being taken care of, then it is proper to deal with the broader issue of somebody else's self-interest.

I was at a meeting a month or 2 ago in which we had a group of labor leaders and a group of management leaders from a specific industry. They were talking about some technological innovation that would restructure the industry if adopted, and it will require 20 percent fewer people in that industry. The leader of the labor people said that he understood the implications to his membership by adopting this.

He felt that x number of secure jobs 6 years from now was better than y number, a larger number, of insecure jobs now, which he saw, working on management's agenda, as being in his own interests.

The point that I think I tried to make in my prepared statement was that if we can get people to sit down and talk about the problems in a commonsense way, in a common-understanding framework, they can see what they want to achieve and the chicken-and-egg problem falls out of the way.

Representative BROWN of Ohio. Mr. Kendrick.

Mr. KENDRICK. I want to point out that I think it is important that workers generally realize that their increase in real earnings will depend in the long run or even in the intermediate run on increases in productivity.

If you look at the trend over the last 30 or more years, you see that real average hourly earnings in terms of purchasing power have risen very much in line with output per hour, and I think that is a very strong, basic motivating factor to try to get cooperation of workers in improving productivity, and that this close parallelism was recognized in the UMW contract with the annual improvement factor of 3 percent.

I think that is basic. The restrictive work rules that some unions impose which have lowered productivity in certain areas have been due to fear of job insecurity. I think that national policy is to try to maintain relatively full employment in various ways, including training opportunities for displaced workers.

I think that will help in reducing such attempts to spread the work, and I think that individual companies might be able to do more toward guaranteeing jobs within limits to remove this fear of working oneself out of a job which has led to some restrictionism.

I think we should not minimize the fact that there are restrictive work rules of union and restrictive work practices of nonunion workers which I think are significant in reducing the ratio of actual-to-potential output. This is the point that Jerry Rosow and other groups are trying to deal with; that is, how to raise this.

In the long run, I submit that it is technological progress which is associated with investment and new plants and equipment which is the important factor in raising productivity, and that we have to see that there is enough incentive for the investment, a sufficient investment, to increase the quantity and quality of capital per worker. In that respect, there is one other comment.

I would take exception with Mr. Rosow's comment that there are wide areas in which management's determinations to raise productivity is conspicuously absent, to quote his words, because I think in our kind of economy where that is true the firm is going to be in trouble, because given even some degree of competition in an industry, unless management is trying to reduce costs it is not going to be able to preserve profit margins. It has the incentive of trying to reduce costs by increasing productivity ahead of its competitors in order to widen the profit margins, because it is given a certain price and if it can cut its costs by productivity increase it can temporarily get a higher profit. I know he restricts himself to areas where competition is not so effective, but I think in almost all areas of our economy there is quite a high degree of competition from similar products, and, of course, competition for the consumer dollar generally, and even in the regulated public utility area there are incentives, if only from the regulatory lag.

The commissions allow the utilities a certain rate and the utility finds its wage rates and other costs going up. It is getting squeezed unless it reduces costs, and cost reduction is the opposite side of the increased productivity coin. They are opposite sides of the same coin.

So you raise productivity to try to mitigate the squeeze on profit margins in between the time-consuming rate cases that the commissions have to hold. But I think the regulatory commissions could do more by allowing a higher rate of return for companies that have a higher productivity increase and a lower rate of return

for companies falling behind. But there are all kinds of ways in the regulated area that you could do something.

But I do think in the competitive area that management is inevitably trying to cut costs. The problem is that it takes investment to increase productivity, and if the incentive—if the rate of return is insufficient, they don't have enough internal funds to finance the investment and there is less incentive to invest if the rate of return appears to be lower than the cost of funds, the interest rate on that investment for the future.

That is why in my prepared statement I stress certain measures, particularly reductions of business taxes. It would raise the after-tax rate of return to get this investment, which I am sure managements would make if the prospects are favorable enough.

Representative BROWN of Ohio. Working our way back up the line, you suggested that it takes certain macrosteps to create the climate, and the improvement in labor relations is easier because of the dynamic nature of the economy.

Mr. Evans.

Mr. EVANS. I will see if I can muddy the water a little more here.

The thought on the overall growth of the economy in the last decade, I think, has been particularly damaging because it has come at the same time there has been an emphasis on equal opportunity. I think when this was originally planned, I think the economists thought this would be carried out only during a period of rapid growth, so that those who were less fortunate on below-average jobs could move into new jobs that were being created.

When this occurred at the same time there was a slowdown in real growth, there has been a lot of antagonism between those who have the jobs and those who would like to have them. I think that protection of jobs has taken on a new urgency that it didn't have before, because of the conjunction of those two events; namely, the slower growth rate and the push to equal opportunity.

Representative BROWN of Ohio. You wouldn't limit it to opportunity, lest the ladies take offense at us superior males here. Would you include other factors?

Mr. EVANS. Yes, I would include measures which specify work practices, and——

Representative BROWN of Ohio. So it includes OSHA perhaps?

Mr. EVANS. Yes, OSHA is significant. In the coal mining industry the productivity, which used to grow at 6 percent a year, now is at 3 percent, and that is basically because of the Federal Mine Standards Act. This has created a feeling of antagonism on the part of some of the workers and less active participation in productivity because the fruits of this are less visible than they used to be.

Representative BROWN of Ohio. You mentioned in your testimony the difficulty of getting data on how people really do respond to incentives and how supply reacts to after-tax rates of return.

Has the study of supply been done extensively by anyone, or the question of supply in this question of satisfactions?

Mr. EVANS. Actually, it has been almost neglected. Our national income accounts are set up in order to measure demand factors, how much was spent and how much people spend of a given amount of income, but there is really no way of measuring, or

there has been in the past, no way of measuring what happens if you increase someone's incentives to work better.

If you increase incentives, you could expect some people to work harder to earn more income, but these figures are simply not available. No one has done a study?

Representative ROUSSELOT. What have you done on it?

Mr. EVANS. I am trying to gather data so I can go ahead on it. You can't work without the data. Otherwise, you end up as all economists do, pontificating from preconceived positions.

Representative ROUSSELOT. In the private sector, are you and others trying to generate that data?

Mr. EVANS. Yes, to the degree it is available. We are trying to work and generate these sorts of data to see what happens when incentives increase and tax rates were cut and other advances were given to see if there really was an increase in the amount of investment done by businesses.

So it is an undertaking which we are beginning to gather some data on, but as I say, it is a long road to go.

Representative ROUSSELOT. On many occasions some of us on the Budget Committee have asked the Congressional Budget Office for analysis of different kinds of tax cuts, and what that impact would be.

Mr. EVANS. Yes.

Representative ROUSSELOT. For some reason they are not able to distinguish between tax cuts that affect rates of return at the margin and those that don't. They seem kind of bewildered by this for some reason.

Is this a data-gathering problem or are macroeconomists always forgetting their basic price theory? You are looking into this problem, you mentioned. What success have you had?

Mr. EVANS. We are really just starting on it. We haven't collected the data yet. Some macroeconomists forget their price theory, and there has been a preponderance of models which look only at the demand side and not the supply side at all.

Unfortunately, a recent——

Representative BROWN of Ohio. And that is an aggregate demand. Usually is it not rather an individual demand?

Mr. EVANS. That is right. They sort of take the opinion that a dollar spent is a dollar spent, without realizing that it has any effect other than putting it in the person's pocket that day. So they fail to distinguish between the long term and the short term, and while it is true that if someone receives a dollar, today he won't spend it, but over the long run he can put it to various methods of saving or spend it on various productive assets and so on and so forth.

So there is a wide variety of models, many of which I am pained to say, because I am an econometrician myself, give different answers, even differing in direction as well as magnitude as to whether a tax cut would benefit the economy or not.

Representative BROWN of Ohio. It depends whether you emphasize the marginal impact, and whether you are dealing with the short term or the long term?

Mr. EVANS. That is correct.

Mr. WALLACE. Mr. Evans, in figure 5 of your prepared statement, you point out that following the enactment of investment tax incentives, we had an increase in investment.

Mr. EVANS. Right.

Mr. WALLACE. But what impresses me about this chart is how the increases petered out. It appears to me that they have been like heroin. We get a shot in the arm and it perks us up temporarily, but from then on we have lower revenues without any investment kick until we enact another incentive. By the same token, Mr. Kendrick had recommended that if we lowered the tax rate for corporations to enable them to get a better return on their investment, this would probably increase investment. But the other side of that coin is that if we lower the tax rate, we increase our deficits which has an impact on inflation.

Wouldn't it be better to cut the deficit and cut inflation and give an incentive to invest by reducing the rate of inflation?

Representative BROWN of Ohio. The other question is whether that has a short-term impact or a long-term impact.

Mr. WALLACE. The investment credit and cutting the corporate tax rate, both of these, relate to incentives. How can we bridge the problem of deficits, because new investment tax credit or corporate tax cuts also increase the deficit. Do you understand the problem?

Mr. KENDRICK. Yes, let me say that studies of capital plans show that these are closely related to corporate profits after taxes, partly because the retained earnings are the source of funds and also the rate of return is an incentive to investment which is one reason why I advocated a cut in the corporate tax rate in order to get more investment. I think that most models show that this increase in profits would bring about an increase in investment.

Now, as far as the loss in revenue is concerned, as you know, our tax system is so geared that it tends to produce surpluses at the full employment level, particularly in inflationary periods when individuals are moving up into higher brackets with higher rates, and therefore periodic tax cuts are possible for Government without creating a full employment budget deficit, and it is this kind of fiscal dividend that I would envisage as going, in part at least, in the form of corporate tax cuts.

By the way, on this question of the supply side may I say something about that? That is that I happen to know that the American Council on Capital Formation is sponsoring a study by Arthur Laffer, which will be a supply-side model, an econometric model of the U.S. economy, where they look at the effect of changes in taxes on the supply of labor and capital.

Representative ROUSSELOT. When do they say they will have that?

Mr. KENDRICK. It happens I am on the advisory committee, and we will be meeting tomorrow to look at progress on that model. They are shooting for the end of July, as I recall.

Representative ROUSSELOT. The end of July?

Mr. KENDRICK. Right. I think that is important, because, as I point out in the paper, Martin Feldstein, president of the national bureau, makes a big point that the income tax generally drives a wedge between the return on investment and the return to savers. Savers get about half as much as is realized by companies as a

return on the investment, and he claims that this means there is too little saving in the economy. Once we get up toward full employment in another year or so, we have to think in terms of increasing saving as well as increasing investment in order to mitigate the inflationary tendencies that we would otherwise have if we stimulated investment without regard to the savings side of the equation.

I think payroll taxes drive a wedge between what the workers are worth to the business and what the worker gets. With the payroll tax, he is getting less than he is earning, and that tends to reduce the supply of labor in the economy, I think. There is lower return. I think these matters should be investigated further, but I am not an expert on that.

Representative BROWN of Ohio. I would like to put Mr. Wallace's questions in a somewhat more whimsical way. I am inclined to think that timing is everything in politics, humor and romance, and I guess that is maybe true in economics, too, is it not? Isn't there a moment at which you get a stimulative effect from tax cuts, and that that has perhaps a real life cycle to it?

I guess I might as well say this the way I am thinking it. The late chairman of this committee, Mr. Humphrey, used to talk about how things were handled in the Depression as a model for how things might well be handled now. It occurs to me that in the Depression you needed something else. You needed to get the money out of the mattresses and into the investments and the banks.

Now perhaps this is a moment at which we need to get the money into the hands of individuals who will undertake entrepreneurial activity for the expansion of the system or into the banks to reduce the interests rates or something else. Nobody wanted to organize a union after Henry Ford started producing automobiles and reducing the costs of those automobiles each year and increasing the return to the labor that was putting them together each year. It wasn't until suddenly you got the assembly line kind of syndrome and things weren't going so well and guys were being laid off and the income level was stabilizing or you were not getting increases as fast as the gains. That's when it is easy to start a union. I think we go back to Mr. Wallace's question. How long is that gap between the time we get a tax cut and get the incentive for expansion? There is a $60 billion deficit. Can that be sustained? That is the point of the argument.

The people who resist tax cuts say we can't afford it because we have such massive deficits in the country, and the people who support the tax cut say it would expand the economy and the deficit might possibly disappear.

Mr. ROSOW. I am not an economist, but I want to comment on it from another angle.

Representative BROWN of Ohio. Is it going to focus on the question?

Mr. ROSOW. It is right on the question.

Mr. Kendrick and others made reference to the payroll tax and the effect of the social security tax, which is really a general tax increase on incentives to work and productivity.

Representative BROWN of Ohio. The same work, less pay?

Mr. Rosow. Yes, an immediate cut in take-home pay next year, and if they go through to 1987, they are going to triple the tax to the worker and the employer, and have an adverse effect.

I would submit we would do much better in the United States to go back, to roll back the social security tax than to give a tax cut, because the effect on purchasing power would be immediate. It would be in every paycheck per week. Whereas, if we give a general tax reduction of this type, we are not sure that it goes to the working people. It may go to people who are not working. It doesn't go into the paycheck each week.

It is a one-time sort of objective. We are not sure whether we are driving to more consumption or more savings.

Representative BROWN of Ohio. If I understand your comment, it puts you on Mr. Evans' side and still addresses the question Mr. Wallace raises of what happens——

Representative ROUSSELOT. Do I understand that you are opposing decreases in personal income taxes?

Mr. Rosow. No. I am saying given a choice between the two, I would rather see a rollback in the social security tax rather than raising social security tax, on the one hand, which is a general tax increase for most Americans, and, on the other hand, giving from time to time a tax reduction to try to jack up the economy.

Representative BROWN of Ohio. But you have again the problem of what happens to the social security system, which has to be financed from somewhere. It seems to me the problem is not much different from cutting the tax, because of the $60 billion deficit we sustain.

Mr. Rosow. I think they are all related, because I think it is a question of the social security so-called fund versus paying those things out of general revenue. One thing is missing in the whole social security tax increase that I haven't seen anything about, and maybe the Congress has taken it into account. If you are going to triple the taxes of the persons paying into the fund, you have to do something for the benefit. The benefit can't remain static when you triple the tax.

Representative ROUSSELOT. It increases.

Mr. Rosow. Only on the cost of living. If I triple my tax, I am not going to be happy with an increase——

Representative ROUSSELOT. We are working hard to find other ways to improve the system. It is called national health insurance.

Mr. KASSALOW. On the point Congressman Brown was raising, I would like to ask Professor Kendrick a question. You referred to the Data Resources model——

Representative BROWN of Ohio. Could we get their comments, though, on that point before we get off on modeling again?

Mr. KASSALOW. It is the question of timing, what happens to the return.

Representative BROWN of Ohio. All right. Go ahead.

Mr. KASSALOW. Roger Brinner last year noted that if you effect a shift to a larger investment share of output, presumably by a tax cut, this does bring a temporary increase in the growth of capital formation. But he also notes that as they run their Data Resources model out, eventually the larger stock generates larger replace-

ment needs and so forth, but this reverts back to the original investment level once the life of your capital runs out.

Are you familiar with the way they modeled this? That effort to increase the rate of capital investment by tax cuts seems to in the end come back to, and turn, a cyclical maneuver, so to speak, and you fall back, as Bob Wallace seems to suggest, to the original rates of investment.

Mr. KENDRICK. I am not familiar with that model, but I think the acceleration of the growth rate of investment is temporary, but that thereafter the level of investment would be higher than it otherwise would have been if you have a higher rate of return. Would that be your point?

Mr. EVANS. Not only the level of investment, but the investment ratio is higher. That is even higher after the tax rate change. If you lower the tax rate, you get a higher investment ratio.

I want to go back to Congressman Brown's question, which is that if you want to get rid of the deficit, you have two choices. You can have spending grow slower or taxes grow faster, and that is a political choice.

Let's assume, since I don't see any great interest, at least in the majority of Congress, to have spending grow slower, that we are talking about taxes growing faster. Even there, you have two choices: Raise taxes or stimulate the economy. You can stimulate the economy best through expanding production possibilities, which means producing more goods and services and getting the productivity rate up and getting the rate of inflation down.

The only way you do that is with incentives and reducing tax rates. You don't give everyone $50 and hope they spend it on something or other. You have to get at the problem, that productivity incentives are lower than they were 10 or 15 or 20 years ago.

Representative BROWN of Ohio. Does it make any difference where the rates are cut?

Mr. EVANS. You get more bang for the buck if the corporate rates are cut rather than personal. Everybody doesn't agree with it, and I am pointing out my view is not unanimous. I am convinced that if you cut corporate tax rates, you get more bang for the buck than if you cut personal income tax rates. By that I mean you stimulate more growth and you have a smaller increase in the deficit, and if you roll back the capital gains, you don't get any increase in deficit at all.

Those are our options.

Representative BROWN of Ohio. Let's go back to Mr. Rosow, who says workers have more pay and spend it on something.

Mr. Rosow. And have the incentive to work, too.

Representative BROWN of Ohio. And work harder. The question I would ask is, are we seeking a system that says he would work harder, but he wouldn't spend it all? He would save more in some nonconsuming way, an investing way? Is that preferable to his consuming it? Do you follow my question?

Mr. EVANS. You have to make a list, and that is not the top of my list, and the reason is that those cuts don't affect people over a certain limit. It moves up every year, but it doesn't affect people over a certain limit, and you get into the upper income brackets

where the changes for productivity are greatest, and you are not doing anything for the people at the margin.

Representative BROWN of Ohio. Let me phrase the question again, because I am not sure you didn't blur my question in your answer.

The suggestion about social security taxes was that if you cut those taxes, you would increase the incentive to work harder, and increase consumption.

Now, my question is: Is that our objective, or is our objective to increase effort and also increase investment and productivity, or is it to increase consumption? Do you understand my question?

Mr. EVANS. Increasing consumption in my personal opinion is way down the list.

Mr. KENDRICK. Particularly at this stage of the expansion, we are getting pretty close to the full-employment range. Economists differ, but most think full employment is 5 percent or over now, comparable to the old 4 percent because of the change in the age structure. Also, the rate of utilization is 83 percent in manufacturing, compared to 86 percent at the peak in 1973.

So we have to be concerned about increasing savings more than stimulating consumption, because if we are going to get the capital outlay share of GNP up, we also have to get savings up, and so I think we are at that stage now where the emphasis should shift from stimulating consumption by tax rebates or personal tax cuts, to getting more savings and investment through corporate income.

Mr. Rosow. There is no reason why the cut in the social security tax doesn't give the option to use it either way. There is no way of predicting how that would be allocated between savings and consumption, whereas the theory on a one-time tax cut is that it stimulates the economy through rapid consumption. There are diverse views. I don't know what the hard data show, but if a worker's pay goes up, he has a choice to save or to spend.

Representative BROWN of Ohio. Should we try to direct it more into savings? In other words, the question I am trying to get to here is that there are a lot of choices we can make. The accelerated depreciation rate is a tax cut, the social security tax cut is a tax cut. The income tax cut is a tax cut. It depends where you make it in terms of income structure. Someone suggested we should go to a consumption tax rather than an income tax here a couple of days ago.

Representative ROUSSELOT. You are not really talking about a tax cut. You are talking about restraining an increase, a rollback in the increase?

Mr. Rosow. Yes.

Representative BROWN of Ohio. The tuition tax credit is another kind of tax cut, and certainly if we gave a tax reduction for savings, as for buying stock, and that is one of Senator Javits' favorite ways to get people to invest, or put it in a savings and loan at the bank, for the first $100——

Mr. Rosow. Reducing the taxes on dividends is another method. If you are going to get as much money by putting your money in a 6-month savings bond, 8 percent, and you look at the return on the average corporation on the stock exchange, unless you are going

for speculative investment, you are better off with the money in the bank.

So it is a factor.

Representative BROWN of Ohio. My question still is, should we in the Congress try to direct that tax cut in some area that—well, what should the objectives be?

Mr. Evans says that social security tax cuts is low on his list because he wants investment rather than consumption, but it does add the incentive of harder work presumably.

Now, what is the order of our preferences? Is it investment, is it incentive to work harder, is it consumption?

Mr. KUPER. Let me try to get into the discussion at the tail end and pull it together, because I am not sure I understand where it is going from a productivity point of view—if the desire is to stimulate investment—but not just plain investment without definition of it, but investment in productive capacity. It is of little relative value from a productivity standpoint to stimulate investment in real estate.

Representative BROWN of Ohio. To use Mr. Evans' term, it is not as high on his list.

Representative ROUSSELOT. But you are not excluding from that construction?

Mr. KUPER. Sorry.

Representative ROUSSELOT. The construction of homes?

Mr. KUPER. Construction is productive capacity.

Representative ROUSSELOT. Thank you.

Mr. KUPER. From the standpoint of whether or not you create an incentive to work harder by stopping the increase in social security tax or by a personal income tax reduction, I don't think it will make a lot of difference. I think the peripheral issues are ones that take place in the workplace and not peripheral to the workplace. Those are the kinds of issues that Mr. Rosow was getting to earlier in his remarks, the kind of question of how do we utilize human beings in the workplace today, and capital lies both in terms of utilizing them as individuals and giving them equipment and materials to work with.

Representative BROWN. of Ohio. Well, what concerns me is that I am struck by figure 2 and figure 3 that Mr. Evans has put into his prepared statement. They are not dissimilar to other statistics of a similar nature we have had, in the Joint Economic Report for this year, and that is where Japan is going versus where the United States is going. Maybe in a unified world we shouldn't worry about those things, but I hate to be on the question of job opportunities for our people versus the job opportunities for the Japanese.

Figure 2 over there, which shows that the United States will be at the bottom and Japan at the top, and with the Netherlands and Belgium at the top, is scary. The way to get us higher up on the chart—I don't think that we want to drag the Japanese down or the Dutch, but how do we get up?

Mr. KUPER. It is not just what we do with taxes.

Representative BROWN of Ohio. We are off the sequence a little bit onto where is the priority of method. I gather that we want investment in plants, in productive equipment, more than we do in bowling alleys and racquet clubs. Is that fair to say?

Mr. KENDRICK. Well, I think the directions of investment are affected by market forces. If people want bowling alleys, then that is a productive investment just as steel mills are, too—I believe in letting the market direct the resources, including investment, in accordance with people's wants.

What was the other part of the question?

Representative BROWN of Ohio. How do we get the productive investment? Can we make a list of tax cuts, for instance, and styles of tax cuts that would stimulate productivity?

Now, I am going back to the earlier question to Mr. Evans. Do we have enough data on this to know where the tax cuts would be most effective? And maybe we could learn from the Japanese and the Belgians and the Dutch as to the kind of tax structures they have in their countries.

Mr. EVANS. First of all, the United States has the highest rate of capital gains tax of almost any industrialized country. There is an obvious category of rollback. I have always favored a cutback in the corporate tax rate.

Next to that would be the valuation of depreciation at replacement cost, and these have all been suggested many times, but nobody ever acts on them. I would say if you got those three in, you would accomplish the bulk of what you could do with tax legislation.

Representative BROWN of Ohio. I heard a disturbing story from the Ambassador to Italy, and that is that the Italians have invited the IRS over to help them improve the tax structure. [Laughter.]

Mr. WALLACE. I would like to ask Mr. Kendrick and Mr. Evans one further question on incentives for investment.

Isn't it a fact that one of the major inhibitions to investment is the high rate of inflation and cost of production? If we could lower the inflation rate, would that not have a great influence on productive investment? So why shouldn't we cut expenditures of the government—State, local, and Federal—and reduce the inflation rate to give a better return on investment?

Mr. KENDRICK. I agree 100 percent that inflation has been a major reason that the net income of business has dropped. The fact that the depreciation allowances are inadequate with higher inflation and the important thing is that the Federal Government in an effort to hold down inflation has pursued macro policies that have tended to squeeze profit margins in years of high-level activity, like 1966, 1969, 1973, and again, more recently, more restrictive monetary and fiscal policies which tend to keep prices from going up as much as unit costs, and I think this also is an important reason why profit rates are considerably lower now than they were in the mid-1960's.

This really poses a dilemma, because obviously in a free economy where you don't want to resort to price controls, macro measures do tend to restrain price increases at some point below the increase in unit costs.

Representative BROWN of Ohio. The real earnings of the steel industry are actually negative, are they not, over the last decade?

Mr. KENDRICK. I wouldn't be surprised, and general profit rates are well below what they were.

Representative BROWN of Ohio. I am familiar with the steel industry in Ohio. Of course, they are not now competitive with foreign producers, and that is one of the problems. It is the steel industry that got asked to hold their profits down and their prices down, which had that impact, I think. I am trying to sustain your point.

Mr. KENDRICK. One other point: The reason why in my testimony I advocated permitting the indexation of depreciation allowances for tax purposes—that is, indexing up the depreciation from original costs to replacement costs which would cut taxable income of corporations—the reason I suggest that is to mitigate the unfavorable effect of inflation on corporate profits. I think that would really help to stimulate investment.

Representative BROWN. of Ohio. Mr. Rosow.

Mr. ROSOW. I would like to make a comment referring to Mr. Kendrick's earlier remarks about my testimony. I did not want him to take anything unintentionally out of context to suggest that my emphasis on the human factor in productivity would imply any less of an interest on my part in encouraging investment or adding rates of return to capital.

What I was dealing with, and I think it is important to have it in the record, is the incremental effect. Obviously those things are under this and must be there, but even when they are there, we are not getting the productivity up in our country as fast as we should. So there has to be something more.

If we don't have good return to the private sector, we are not going to grow as an economy. Whereas I support many of the tax proposals discussed this morning, I don't want to leave the impression that it is also the Government's job to cut taxes to improve the productivity of the Nation.

Mr. KUPER. I am troubled by thinking in terms of cutting taxes as being the solution. I am not certain that from a productivity standpoint that is the answer.

My concern is that from a Government standpoint, and keep in mind that the Government is a major marketmaker, it is in terms of purchasing goods and services. To reduce that, we are seeing, Congressman Rousselot, effects in your part of the world, and they are going to be politically traumatic, you think, if they are not already. I am not sure that what we shouldn't be considering is the reduction of other kinds of governmental behavior and the modification of those kinds of behavior.

Representative ROUSSELOT. Services produced?

Mr. KUPER. I am thinking more in terms of what we are trying to achieve on behalf of Americans generally, clean air and water and so on. All are very worthy objectives, but achieved without appropriating dollars to achieve them or spending business' dollars to achieve them.

Representative BROWN of Ohio. Are you telling me they are not trying to achieve the same things in Japan, Belgium, and Germany, and so forth?

Mr. KUPER. Not by the Government determining how it will be achieved.

Representative BROWN of Ohio. So the way in which we address these problems is important?

Mr. KUPER. Exactly. Why do we need to have specific particles per million achieved by a certain year? Because politically we decided it is necessary to achieve the goal rather than looking at the cost of achieving the goal at a slightly different rate.

I think if you look at the problems on the regulatory front, they are very local problems. They are industry—if not company—specific, and at the same time one sits here in town figuring out macrosolutions on how to achieve them.

Representative BROWN of Ohio. It is very difficult politically to buy time for cleaning up dirty air.

Mr. KUPER. I don't think it is a tradeoff.

Representative ROUSSELOT. It is the degree of purity.

Mr. KUPER. Once again, it is not a tradeoff. We must have clean water, clearly. We require that from our natural—from everything that we stand for in this country. We need to have clean water by 1981, by 1982, or 1983. Does the steel industry have to conform with the textile industry effluents at the same time into the rivers——

Representative ROUSSELOT. On savings, I come back to our Congressional Budget Office. They tell us that saving is basically a bad thing, because it reduces spending. At least that is the answer we get back.

Now then, the growth experts tell us that we need savings, both personal and corporate, in order to fund investment.

Can you comment on these two different theories?

Mr. KENDRICK. First of all, the national accountants who have based the national income and product accounts on the Keynesian type of macroeconomic theory, proceed on the fact really that savings are equal to investment after the fact. There is an accounting identity on savings and investment. An increase of investment tends to generate increased savings by having a positive effect on income growth and with higher income growth as a result of the higher investment saving increases along with the investment.

The important thing is that there is sufficient investment demand to absorb the savings which people and corporations and possibly the Government may wish to make at a high level of income. I think that given an adequate level of investment demand on the part of private industry, that it will bring along the saving, but if you want to further increase investment at full employment, then you have to be concerned about providing incentives to save so that that further increase in investment will not be inflationary.

In other words, there would have to be some reduction in the proportion of the increment to income that is consumed in order to accommodate a higher proportion of investment. Therefore, at that point, thought has to be given to increasing saving initially—I mean not to let it increase just as a result of increased investment.

Mr. EVANS. The CBO study is actually a landmark in incompetency. I would say it set the economics industry back 40 years.

Mr. Keynes' general theory is the theory of depression, and that was in 1937, and since then most economists have been aware of that fact and have built econometric models which take into account that when we are at full employment and relatively high inflation, national policy prescriptions are different from those of the 1930's.

All models built in the last 30 years have taken this into account, and then we have the CBO masterpiece which took a new direction in econometric method. While I realize that is a Government product and subject to a lot of discussion, I don't find that it is——

Representative ROUSSELOT. But in our budget process we base a lot of our great decisions on that.

Representative BROWN of Ohio. You don't think it is close enough for Government work? [Laughter.]

Mr. EVANS. It is for light humor——

Representative ROUSSELOT. Pass that back to Mrs. Rivlin.

Representative BROWN of Ohio. Does anyone want to take back any comments he made? [Laughter.]

Mr. KUPER. I would like to return to what the Government can do. We did an examination of one set of regulations passed by the Congress 12 years ago. It had to do with tire quality grading standards. It was a broader law dealing with tire safety.

Tire safety provisions were to be responded to in two years. There was an agreement on the part of the industry and people buying tires that safety was important. The tire quality grading standards still do not exist after 12 years, something on the order of $20 to $30 million being spent by the Government and industry together, trying to establish the standards, and we are still trying to establish the standards. It seems to me one thing we can do in the Government right now is to establish a mechanism to review what we have put into place heretofore.

We don't have a mechanism to start——

Representative ROUSSELOT. How about the sunset laws?

Mr. KUPER. Sunset is a start.

Representative ROUSSELOT. I would like to put one on the Energy Department.

Representative BROWN of Ohio. Tomorrow morning we meet again at 10 a.m., in the Capitol, in room S-207. If any of you who were on the panel today would like to come back and watch us pry at others, you are welcome to come back.

Thank you.

[Whereupon, at 12:23 p.m., the committee recessed, to reconvene at 10 a.m., Wednesday, June 14, 1978.]

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SPECIAL STUDY ON ECONOMIC CHANGE

WEDNESDAY, JUNE 14, 1978

THE FUTURE OF WORKTIME

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to recess, at 10 a.m., in room S-207, the Capitol, Hon. Richard Bolling (chairman of the committee) presiding.

Present: Representatives Bolling and Brown of Ohio; and Senators Sparkman and McGovern.

Committee staff present: John R. Stark, executive director; Louis C. Krauthoff II, assistant director; Mark Borchelt, administrative assistant; and Charles H. Bradford, M. Catherine Miller, and Mark R. Policinski, minority professional staff members.

Special Study on Economic Change staff present: Charles S. Sheldon II, research director; Robert Ash Wallace, research director; George D. Krumbhaar, Jr., counsel; Richard D. Bartel, staff economist; and Paula J. Dobriansky and A. A. "Chip" Sayers, research assistants.

Also present: Everett M. Kassalow, Congressional Research Service, Library of Congress.

Representative BOLLING. The committee will be in order. Largely because of problems that I face this morning, I am going to proceed with the discussion even prior to the arrival of our last panelist, primarily because of a quadruple emergency before the House Rules Committee and I have to go to that quite early. Representative Brown of Ohio has agreed to come and preside, and I hope to get back. So I am going to leave rudely in the middle of somebody's statement, but I will have had a chance by the time I get back, if I get back, to look over the prepared statements. And I know that Representative Brown, although we do not always agree on every substantive detail, will do a good job presiding in my absence.

In the opening statement that I made at the beginning of the first hearing, and have not repeated, I laid down the ground rules that we hoped the various members of our very excellent panels would try to follow, and that was that we sought a conversation rather than just a formal hearing. Therefore, we would appreciate it if the members of the panel could summarize their prepared statements, which will, of course, be included in full in the record, as much as they can toward 10 minutes.

I have to admit that I have not been very strict about that, but it helps the operation of what we hope will be a different approach if members of the panel can summarize.

Our first witness is Mr. Robert Clark, assistant professor of economics at North Carolina State University. He is a native of Mississippi. He received his B.A. from Millsaps College and his M.A. and Ph. D. in economics from Duke University.

He has done research in the areas of life-cycle labor supply, concentrating on the patterns of hours of work and labor force participation of age, sex, and racial groups. In addition, he has examined the retirement decision and the economic status of the elderly. He is currently a project director for a social security grant on Retirement, in the Dual Career Family and is the principal investigator for a National Science Foundation grant on Age Structure and Economic Change.

He is the author of a recent monograph of the National Commission for Manpower Policy, Adjusting Hours To Increase Jobs.

Mr. Clark, please proceed.

STATEMENT OF ROBERT L. CLARK, ASSISTANT PROFESSOR, DEPARTMENT OF ECONOMICS AND BUSINESS, NORTH CAROLINA STATE UNIVERSITY

Mr. CLARK. Thank you. My assignment for today was to describe briefly the long-term trends that have existed in the 20th century in terms of hours of work for the average worker in the United States.

Between the years 1900 and 1940 there was a sharp and significant downward trend in the average hours of work in the United States. The average workweek dropped from 60 hours per week to approximately 40 hours in this period, a decline of about 8 percent per decade.

Since 1940 and the postwar period this decline seems to have moderated, if not stopped altogether.

If one looks at the average data in terms of the total private sector of the economy, he notices that the average workweek for production workers has declined from about 40.3 hours in 1947 to around 36 hours in 1977. That, perhaps, is a bit misleading, however, since during this period of time there has been a very significant change in the composition of the labor force which has included a strong and continuing influx of women, especially married women, into the labor force, and also an influx of young people into the labor force.

If one isolates the change in the composition of the labor force, it is noted that there has been little or no decline in the average workweek for nonstudent, male employees. It has stayed around 40 or slightly above 40 hours per week.

The reason, therefore, for the apparent decline in the postwar period is the increase in the participation of women, who work fewer hours than men—about 34 on the week—and a rise in the number of employed students who typically work about 20 or 22 hours per week.

Thus, controlling for the changing composition of the labor force, the apparent decline in hours of work tends to disappear. Several studies have shown this to be the case.

The obvious question then would be, why has this occurred. Some speculation has centered around the postwar increase in the

demand for goods and services and an increase in the fertility rate at that time which forced a demand for income rather than leisure.

Other people have suggested that perhaps higher educational attainments and more career orientation, have decreased the tendency for reduced hours of work.

One point which I examine in the monograph the chairman mentioned is the fact that there has been an increase in institutional constraints imposed that raises the fixed cost of hiring an employee rather than the increasing variable cost of an hour of work by that employee. When a firm is faced with a higher cost of employing a worker, and benefits are tied to the employment of that worker, the employer will probably use workers already hired longer hours.

Another series of studies in a related matter trying to look at the portion of potential productivity gains allocated to leisure time have also shown a decline in the proportion of these increases going for leisure. Prior to 1920 it was estimated that 50 percent of productivity gain went toward reducing the workweek. In 1920 to 1950 about 40 percent went toward reduced hours of work. From 1940 to 1960 it was estimated at about 11 percent, and through the 1960's only 8 percent. So, a decline in the proportion of potential income going to reduce the workweek is consistent with the fact that there has been a cessation of the tendency toward a reduced workweek in the postwar period.

There has also been a change in the composition of the desired increase in leisure that people are receiving, as other members of the panel will note there has been an increase in the desire for days off as opposed to reduced hours in a day. In a variety of new collective bargaining agreements it has been shown that leisure gains have been more concentrated toward days off than toward reduced hours per day.

Another factor that I think is very important is the rise in dual-career families in the United States—the increase in families that have both the husband and the wife working.

Now, despite the fact that we still talk about a typical family having the husband as the primary breadwinner and the wife remaining in the home, that is no longer true. Wives are in the labor market with their husbands in about 40 percent of the families. The rise in dual-career families has had an impact on the hours of work of the male, previously the sole earner in the family.

I think this is an important factor that cuts across other economic issues, and I would urge you to consider it in your future work. For example, what impact does the fact that two family members work have on the unemployment compensation program? Would it make people more or less likely to search longer for employment?

Retirement in dual-career families is another issue that I have studied. Would a family with a long history of two earners retire earlier or later? If there are two pensions based on two career earners, will they tend to retire earlier or later?

Even if the long-term secular decline in hours worked has abated, there remains a definite cyclical pattern of hours worked. These tend to rise during recovery portions of the business cycle, the boom portions, and to decline during the recessionary periods.

That is clearly noted in all of the hours-of-work data, whether overtime, "moonlighting", or average hours of work.

One must be very careful when comparing two points in time to pick out similar points on the business cycle. If one wants to draw a long-term inference, it must be clear that one is not also picking up the cyclical nature of the hours of work.

Despite reduced hours, there are still a large number of people who bear the brunt of the recession in the form of unemployment. In my prepared statement I examine the implications of making hours more flexible—that is, reduced hours of work—to try to offset some of the unemployment impact of a recessionary economy.

Finally, I would like to emphasize in my last few minutes what I had mentioned earlier, the fact that the Government, with a variety of programs, has built up a framework which increases the fixed cost associated with hiring a worker. The use of payroll taxes that have ceilings that apply only to earnings below the maximum; that is, the unemployment compensation program or social security, makes hours above that ceiling relatively cheaper for the employee compared to new hirings.

Similarly, preferential tax treatment for fringe benefits tends to encourage the use of fringe benefits. If the fringe benefit is tied to the worker being employed rather than to how intensively he is used, the cost of hiring the worker is raised relative to the hourly cost of using that worker, and the firm will tend to use workers more intensively for more hours.

By the same token, some of the programs of the Government, such as unemployment compensation, may make workers more reluctant to accept reduced hours. Older workers may become reluctant to accept reduced hours, especially if retirement benefits are based on their final years of work. If they accept reduced hours, they would also be lowering their retirement benefits in the future. So for a variety of programs which I examine in my prepared statement, the Government has assumed a position of increasing the fixed cost associated with hiring, and this has been one of the principal reasons contributing toward retarding the long-term trend of reduced hours per week.

I would urge this committee to look further into this, especially if it is interested in assessing the tradeoff between hours of work and employment decisions of firms. It is unconscionable that the Government would ever be in a position of favoring unemployment of workers over reduced hours, especially in light of the high rate of unemployment in the last few years. Thank you.

Representative BOLLING. Thank you very much. Without objection, Mr. Clark's prepared statement will be placed in the record.

[The prepared statement of Mr. Clark follows:]

PREPARED STATEMENT OF ROBERT L. CLARK *

Work Time: Trends and Prospects for Change

INTRODUCTION

This statement examines the decline in the length of work time during the twentieth century as well as recent innovations in the composition of hours of work. Rising real incomes that stimulate increased demand for leisure and dramatic shifts in the age-sex composition of the labor force are shown to be important determinants of the fall in the average workweek.

The demand for reduced work time is expected to intensify, in part, because of the growth of dual-career families and further increases in the number of older workers. The final section of this report notes the legislative barriers to a more flexible policy of hours of work. Through a series of often unrelated programs, the federal government has taken positions that retard the downward flexibility of hours.

HOURS OF WORK: A LONG-TERM DECLINE

The hours spent in market work have declined with increases in productivity and real income as workers historically have chosen to allocate a portion of their income gains to leisure activities. Twelve-hour days were the standard work schedule in the mid-nineteenth century. The workweek declined over the next century, and in the immediate post war period the average length of the workweek in the private nonagricultural sector was approximately 40 hours. Table 1 shows that by 1976 the average weekly hours for this sector was 36.2. This postwar decline in hours has not been continuous primarily due to fluctuating economic conditions.

TABLE 1.—AVERAGE WEEKLY HOURS OF PRODUCTION OR NONSUPERVISORY WORKERS ON PRIVATE PAYROLLS: ANNUAL AVERAGES, 1947–77

Year	Total private	Mining	Construction	Manufacturing	Wholesale and retail trade	Services
1947	40.3	40.8	38.2	40.4	40.5	NA
1950	39.8	37.9	37.4	40.5	40.5	NA
1955	39.6	40.7	37.1	40.7	39.4	NA
1960	38.6	40.4	36.7	39.7	38.6	NA
1965	38.8	42.3	37.4	41.2	37.7	35.9
1970	37.1	42.7	37.3	39.8	35.3	34.4
1971	37.0	42.2	37.2	39.9	35.1	34.2
1972	37.1	42.5	36.9	40.6	35.1	34.1
1973	37.1	52.5	37.0	40.7	34.7	34.0
1974	36.6	42.4	36.9	40.0	34.1	33.9
1975	36.1	42.3	36.6	39.4	33.8	33.8
1976	36.2	42.8	37.1	40.0	33.6	33.5
1977	36.1	44.1	36.9	40.3	33.3	33.4

Source: U.S. Department of Labor, "Monthly Labor Review," May 1978, table 14, p. 89.

The increase in nonmarket time has not been a smooth and continuous process. Much of the reallocation of time occurred during the first two decades of the twentieth century, when the average workweek declined from 60 to 50 hours and during the depression of the thirties. The long-term decline has been the product of a desire for increased leisure, the changing composition of the labor force, government policies, and cyclical reductions in hours that are not fully reversed. The decline in the number of weekly hours worked appears to be slowing. Thomas Kniesner, examining the twentieth century trend in hours of work, concludes that the significant fall in average weekly hours ended around 1940.[1] A review of previously available data[2] shows that the average work week of males working full

* The author is assistant professor, Department of Economics and Business, North Carolina State University, Raleigh, N. C. This statement is based on research related to the preparation of Adjusting Hours To Increase Jobs, Special Report No. 15, National Commission for Manpower Policy, September 1977.

[1] Thomas Kniesner, "The Full-Time Workweek in the United States, 1900–1970," Industrial and Labor Relations Review, October 1976, pp. 3–15.

[2] John D. Owen, The Price of Leisure, Rotterdam: Rotterdam University Press, 1969 and Ethel B. Jones, "New Estimates of Hours of Work Per Week and Hourly Earnings, 1900–1957," Review of Economics and Statistics, November 1953.

time declined at a rate of 8 percent per decade between 1900 and 1940. He finds that since 1940, hours of work have remained constant and this is attributed to increases in education and the wage of wives.

John Owen also argues that adult workers have achieved no net gain in leisure time in the last thirty years.[3] Hours of work for nonstudent men employed in nonagricultural industries averaged 42.7 per week in 1947 and had increased slightly to 43.5 in 1969 before declining in the subsequent recession years to 42.5 in 1975. When these figures are adjusted for growth in vacations and holidays, the same pattern is observed. Noting the increased number of working women and youths, Owen concludes that "a decomposition of the measured statistical decline in average working hours does not indicate that any significant reduction in paid work actually took place in the total work force."[4]

The changing composition of the labor force has generated an increased demand for part-time employment that is partly responsible for the apparent decline in the average workweek. Table 2 indicates that the incidence of part-time employment is greater among women than men at all ages. In addition, the part-time rate for the young and the old is greater than for those in the prime working years, ages 25 to 54. With the exception of older workers, these groups have increased their importance in the labor force.

TABLE 2.—WORK EXPERIENCE OF THE POPULATION, 1975

Employment category	16 and over	16–24	25–54	55–64	65 and over
Both sexes:					
Full time	78.9	63.0	86.9	84.5	51.7
Part time	21.1	37.0	14.1	15.5	48.3
Males:					
Full time	87.6	66.9	96.3	93.3	58.8
Part time	12.4	33.1	3.7	6.7	41.2
Females:					
Full time	67.0	58.5	72.0	67.8	39.3
Part time	33.0	41.5	28.0	32.2	60.7

Source: U.S. Department of Labor, "Work Experience of the Population in 1975," Bureau of Labor Statistics, Special Labor Force Report No. 192 table B-1, p. 14.

Further support for the hypothesis of a slowing down in the rate of decline in work time is found in a series of studies that indicate that the proportion of productivity gains allocated to additional nonmarket activities has declined. Clark Kerr concluded that prior to 1920, leisure gains absorbed half of the increase in output per man-hour; whereas between 1920 and 1950 only about 40 percent went toward reduced hours of work.[5] The leisure component of productivity advances was estimated by Peter Henle to have declined to 11 percent from 1940 to 1960.[6] A continuation of this pattern is observed in the estimates of Geoffrey Moore and Janice Hedges that workers in the 1960s took only 8 percent real productivity growth in the form of reduced work time.[7]

Workers increasingly have taken nonwork time in the form of extra days away from the job rather than reductions in the workweek. Juanita Kreps and Joseph Spengler estimated that 90 percent of the reduction in the number of hours per year between 1890 and 1960 was attributed to fewer hours per week.[8] Henle concluded that the most significant development in the allocation of productivity gains between 1940 and 1960 was the increased proportion going to vacation and holiday time. He showed that 50 percent of the growth in annual leisure was due to six additional days of paid vacation and four extra paid holidays.[9] The preference for extra days off continued into the 1960s. Of the 50-hour increase in nonworking

[3] John D. Owen, "Workweeks and Leisure: An Analysis of Trends, 1948–75," Monthly Labor Review, August 1976, pp. 3–8.

[4] Ibid., p. 4.

[5] Clark Kerr, "Discussion," American Economic Review, May 1956, p. 219.

[6] Peter Henle, "Recent Growth of Paid Leisure for U.S. Workers," Monthly Labor Review, March 1962, p. 256.

[7] Geoffrey Moore and Janice Hedges, "Trends in Labor and Leisure," Monthly Labor Review, February 1971, p. 11.

[8] Juanita Kreps and Joseph Spengler, "The Leisure Component of Economic Growth," *Technology and the American Economy*, Appendix Volume II, National Commission on Technology, Automation, and Economic Progress, 1966, pp. 355–65.

[9] Henle, "Recent Growth," p. 257.

hours per year achieved during this decade, 20 hours were taken in the form of additional vacation and holidays.[10]

The continuing desire for additional days of nonwork is reflected in the incidence of paid vacations and their length. In 1940, only one out of every four organized workers was covered by a contract providing for a vacation allowance, and many of these agreements required lengthy eligibility standards. By 1972, over 90 percent of the 6.3 million workers in firms with agreements covering 1,000 or more workers were employed under contracts calling for paid vacations. Only 14 percent of the collectively negotiated agreements in 1952–53 provided eight or more paid holidays; by 1972, however, 81 percent of the contracts required this level of holidays.[11] The increase in days away from the workplace raised the cost of paid leave in 1972 to 5.6 percent of total compensation for private nonfarm employees, with sick leave benefits comprising an additional 0.7 of a percentage point.[12] A 1975 survey by the Chamber of Commerce found that payments for vacation, holidays and sick leave represented 10 percent of company payroll.[13]

Two of the best known collective bargaining initiatives increasing the paid leisure for members were negotiated by the United Auto Workers and the United Steelworkers. The UAW won 12 additional holidays over the duration of the 1976 contract. This increase brings the total days off per year for the average auto workers to 45. Union representatives argued that the increase in holidays might result in a 5-percent increase in employment in the automobile industry and that "there is a need in the union and the country to shorten work time to create more jobs and lower unemployment."[14] Management counters that the outcome of reduced workdays will be increased costs and that these higher costs will prevent significant employment gains.

In 1963 the steelworkers reached an agreement with the major producers for an extended vacation of 13 weeks every five years for the senior half of the work force. By reducing annual hours by 2 percent, the steelworkers had hoped to create approximately 10,000 new jobs. Although about 40,000 workers per year take advantage of this extended leave, the impact on employment appears to have been marginal.[15]

These changing patterns of the allocation of productivity gains are significant for this study. For example, Owen speculates that if the distribution of increased productivity had continued its trend from the first half of the century, the average manufacturing workweek would now be approaching 35 hours. He argues that the postwar demand for goods increased fertility, and expansion of educational goals prevented the further decline after World War II. Speculating on the future course of working time, Owen outlines three possible scenarios. He concludes that a gradual reduction in hours is the most likely and that a rapid drop in hours is somewhat more probable than a continuation of no reduction.[16] On the basis of limited available evidence, it appears that many workers will prefer further reductions in worktime. This decline is likely to continue to be in the form of extra days away from the job.

CHANGING COMPOSITION OF THE LABOR FORCE

The dramatic influx of married women into the labor force combined with the equally significant decline in the participation of older men has altered the sex and age composition of the civilian work force.[17] The labor force participation rate of married women has risen from 20 percent in 1947 to 48 percent in March 1978. Married women represented only 11 percent of the 1947 labor force; in the following three decades, however, this proportion rose to 23 percent. During this period, women accounted for 60 percent of the growth in the labor force, and married women constituted 40 percent of the total increase. The life cycle evidence indicates

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[10] Moore and Hedges, "Trends in Labor," pp. 5–6.

[11] Rich Galleher, "Time Off: More Vacations and Holidays," American Federationist, January 1974, p. 6

[12] U.S. Department of Labor, Employee Compensation in the Private Nonfarm Economy, 1972, BLS Bulletin No., 1873 (1975), p. 8.

[13] U.S. Chamber of Commerce, Employee Benefits 1975, Washington, D. C., 1976.

[14] "The Issue that Drove Ford Workers Out," Business Week, September 27, 1976, p. 29.

[15] Sar Levitan and Richard Belous, Can Unemployment Be Fought with Shorter Hours? Center for Social Policy Studies (Washington, D. C., 1976, p. 39.

[16] Owen, "Workweeks," p. 5.

[17] The changing composition of the labor force is described in detail in Juanita Kreps and Robert Clark, Sex, Age and Work: The Changing Composition of the Labor Force (Baltimore: Johns Hopkins University Press, 1975); Glen Cain, Married Women in the Labor Force (Chicago: University of Chicago Press, 1966); and Valerie Oppenheimer, The Female Labor Force in the United States (Berkeley: Institute of International Studies, University of California, 1969).

that an increasing proportion of women in most cohorts is in the labor force as the cohort ages.

At the same time, older men began to withdraw from the labor force. The labor force participation rate for males over age 65 declined from 47 percent in 1947 to 20 percent in 1976, whereas the drop in market activity for men 55 to 64 years old was from 90 to 75 percent. More recently, the entrance of the "baby boom" cohort into the working years has stimulated a rapid rise in the number of youths in the labor force aged 16 to 24 from 14 million in 1965 to over 21 million in 1976. Youths represented 24 percent of the total labor force in 1976, up five percentage points since 1965.

These shifting patterns of market activity and the structure of the labor force have significant implications for the functioning of the economy. The demand for shorter hours and part-time work is influenced by the sex-age composition of the work force and as noted earlier, this is the principal reason for the apparent decline in average weekly hours. For example, women average 34 hours of work per week and male students only 22 hours. These two groups have comprised an increasing proportion of the labor force, thus giving the appearance that the average workweek has been declining. Demographic trends may also affect the unemployment rate, the supply of skilled workers aggregate productivity and labor force mobility.

LABOR SUPPLY IN THE DUAL-EARNER FAMILY

Perhaps the most important trend in labor market behavior in the American economy has been the increase in the proportion of married women in the labor force. Significant increases in market activity have occurred at all ages between 16 and 64. The rise in the participation by married women in the labor market has invalidated to a considerable degree the traditional family model of husband-wage earner and wife-homemaker. In 1976, 48 percent of the husband-wife families had both the husband and wife in the labor force, whereas the husband was the sole earner in only 28 percent of these families.

The attachment of wives to the labor force is increasingly a permanent bond, and the commitment to career paths is growing. In 1974, 69 percent of wives with work experience were employed more than 35 hours per week, with 43 percent of all working wives employed full-time for 50 to 52 weeks. The contribution of working wives to family income has been increasing with the rise in female market work effort. In 1950, the median family income (1974 dollars) for a family with the wife in the paid labor force was $8,200, compared to $6,791 when the wife was not in the paid labor force. The 1974 median income of a family with a working wife was $16,928, in contrast to $12,082 for families in which the wife was not in the paid labor force. The relative size of the wife's contribution to the family income was dependent on the extent of the wife's market work—greater market participation increased the proportion of family income from the wife's earnings (see Table 3). A more detailed examination of the income distribution of working couples would reveal the very significant contribution of many wives to their family income.[18]

TABLE 3.—WIFE'S CONTRIBUTION TO FAMILY INCOME

Wife worked	Median family income 1974	Median percen of family income contributed by wife
Full time:		
50 to 52 weeks	$17,000	38
27 to 49 weeks	14,400	29
Part time or: 1 to 26 weeks full time	13,500	12

The increase in the market activity of wives influences labor market aggregates such as the unemployment rate and average weekly hours because of the higher incidence of unemployment among females and a greater desire for part-time work. The allocation of the time of family members should be viewed as a simultaneous decisionmaking process. Thus, the entrance of the wife into the labor market may affect the labor supply of the husband. Thomas Kniesner argues that higher educational attainment and increased wage rates have brought married women into the labor market. The increased labor force participation of wives may have been

[18] Carolyn Shaw Bell, "Working Women's Contribution to Family Income," *Eastern Economic Journal*, April 1974, pp. 185–201.

responsible for ending the long-run decline in average weekly hours of males noted earlier. Kniesner argues that the nonmarket times of husbands and wives are complements (not substitutes) in home production. Therefore, increased hours of work by the wife will increase the market effort of her husband.[19] The influence of increased market work of wives on the labor supply of their husbands remains an unresolved issue. The continuation of the rising career orientation of married women will increase the significance of those measures of intra-family time allocation. This interaction of labor supply of family members may be one of the primary determinants of future changes in hours of work.

HOURS OF WORK: CYCLICAL MOVEMENTS

There is a definite pattern of cyclical fluctuations in average weekly hours. Employers react to declines in the demand for their products by reducing work schedules in conjunction with layoffs. Overtime is reduced, the average workweek declines, and involuntary part-time is increased. The fixed or quasi-fixed costs of hiring and training are the dominant influence causing this response to reductions in demand. During a recovery, firms expand hours in lieu of some additional employment.

In May 1977, over 18 million wage and salary workers or 27.4 percent of fulltime workers were employed for 41 or more hours per week on a single job. This was an increase of 2.7 million over the recession low in 1975 and exceeded the previous peak of 18 million who worked long hours in 1973. These fluctuations in overtime hours follow the historical pattern of declining hours during recessionary periods. Many of these individuals worked hours far beyond the normal week. Approximately 5.4 million were employed in 1976 for 49 to 59 hours, whereas over 3.3 million worked 60 hours or more.[20]

Multiple jobholding, or moonlighting (mostly involving only two part-time jobs), is one form that long hours can take. The incidence of multiple employment for men was 6.2 percent in 1977, down 0.5 of a percentage point from its 1973 level. For males, this index of employment has shown no secular trend over the last decade and a half, varying from 7.4 percent in 1963 to 5.8 in 1976. The proportion of employed women holding two or more jobs has risen steadily from 2.0 percent in 1962 to 3.4 percent in 1977.[21]

In a recession, shorter hours are also introduced in the form of involuntary part-time work—less than 35 hours per week. In 1976, 3.5 million workers were on part-time schedules due to economic reasons,[22] down slightly from the recession high of 3.7 million in 1975. This figure was, however, substantially above the levels for involuntary part-time work in the 1960's and early 1970's. The incidence of involuntary part-time work rises before the unemployment rate as the economy enters a recession. Statistical evidence indicates a strong positive relationship between the level of economic activity and involuntary part-time work on the down side of the business cycle. The unskilled, the poorly educated, the young, and blacks have disproportionately high rates of part-time employment by economic factors.[23]

The available evidence indicates that hours are responsive to economic pressures; overtime rates fall, average weekly hours decline, and more workers are forced onto part-time schedules. Despite these cyclical adjustments, unemployment rises, while many workers continue to be employed for long hours. The result is that a small proportion of the labor force bears the burden of the recession, while most workers are unaffected.

INNOVATIONS IN WORK SCHEDULING

A variety of work-scheduling innovations and experiments has been receiving considerable publicity in recent years. Alternatives to the standard workweek have included flexitime, the four-day week, job sharing, and phased retirement.

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[19] Thomas Kniesner, "The Full-Time Workweek in the United States, 1900–1970," Industrial and Labor Relations Review (October 1976), pp. 3–15.

[20] Earl Mellor, "Working A Long Week and Getting Premium Pay," Monthly Labor Review, April 1978, pp. 46–48; U.S. Bureau of Labor Statistics, Long Hours and Premium Pay (May 1976); Special Labor Force Report No. 196 (1977); Diane N. Westcott, "Trends in Overtime Hours and Pay, 1969–74," Monthly Labor Review, February 1975, pp. 45–52.

[21] Scott Campbell Brown, "Moonlighting Increased Sharper in 1977, Particularly Among Women," Monthly Labor Review, January 1977, pp. 27–30.

[22] Includes persons who worked less than 35 hours during the survey week because of slack work, job changing during the week, material shortages, inability to find full-time work, etc. Data are from the Employment and Training Report of the President, U.S. Department of Labor (1977), p. 183.

[23] Robert Bednarzik, "Involuntary Part-Time Work: A Cyclical Analysis," Monthly Labor Review, September 1975, pp. 12–18.

Flexitime allows workers to vary their hours on the job while maintaining their standard workweek. Under this arrangement, the workday is divided into a core period during which all workers must be present and a period of flexible hours, usually at the beginning and ending of the day. Flexitime is now widely used in the European countries, with 40 percent of all Swiss wage earners and approximately 50 percent of white collar employees in West Germany operating under some form of flexible scheduling.

In the United States, an estimated one million workers are employed with flexitime by ten major firms, along with 70,000 civil service employees.[24] Unless flexitime is combined with some form of hours reduction, its implementation would be expected to have no major influence on total employment or hours or work. To the extent that absenteeism is reduced, the labor force needs of individual employers may be reduced.

The four-day workweek has been adopted by perhaps as many as 10,000 firms.[25] The Bureau of Labor Statistics estimates that approximately 850,000 wage and salary workers are on four-day schedules, representing 1.4 percent of all full-time nonfarm employees, whereas a total of 2.3 percent of the total full-time workforce normally works a 3- to 4½-day schedule. Shifts to 4-day weeks should also have only negligible employment effects if 40 hours per week remains the standard. Such an alteration in scheduling, however, might hasten further declines in weekly hours as workers strive to regain the 8-hour day.

Job sharing is a voluntary arrangement that enables two persons to divide the responsibility for what was previously one full-time position. Compensations, including fringe benefits, are prorated to each individual in accordance with time worked. These shared jobs become permanent part-time positions for employees who desire to work less than the standard workweek. Permanent job sharing corresponds to work sharing in the presence of high rates of unemployment and does hold the promise of increased employment opportunities. During the past recession, considerable attention has been focused on the use of short hours or work sharing as a policy tool to reduce unemployment. European countries have adopted formal work sharing programs.[26]

Phased retirement is in practice in special case of job sharing. Firms that provide for phased retirement permit employees gradually to reduce their work effort as they approach retirement. This practice allows older workers to maintain their labor force ties and earnings while freeing the resources of the firm for new hirings and promotions. Problems may arise with respect to determination of pension benefits that will limit the usefulness of phased retirement. Recent discussion has also centered on the desirability of scheduling longer periods of leisure during the working years and thus reducing the retirement period in late life.[27]

During the twentieth century, a significant reordering of life cycle labor supply has occurred. Individuals enter the labor force at later ages as the duration of full-time schooling has been extended. In addition, an increasing proportion of years in late life is spent in retirement. Early retirement is a spreading phenomenon, stimulated by the expansion of social security, private pensions, and mandatory retirement. These reductions in the number of years the average worker spends in the labor force constitute a substantial proportion of the total decline in hours spent at work over the lifetime of an individual.

LABOR SUPPLY AND PUBLIC POLICY

Workers may choose to withdraw from the labor force rather than work reduced hours. The unemployment compensation program will pay benefits if a worker is totally unemployed but does not pay partial benefits for reduced hours. This regulation is one of the primary factors retarding the use of work sharing during recessionary periods. It may also have implications for any long-run reduction in hours.

Thus, this system encourages workers to choose layoffs and unemployment benefits rather than reduced hours with no compensating benefits. Moderate declines in income are offset by increased hours at home. Supplementary unemployment benefits provided by the firm or union would tend to exacerbate this tendency. There-

[24] "Set Your Watch for Flexitime," Worklife, March 1977.

[25] Joan Lublin, "The Four-Day Week: Employee Lives Change as More Firms Adopt New Work Schedules," Wall Street Journal, February 16, 1977, p. 1. For a description of experience with four-day weeks, see Riva Poor, (Ed.), 4-Days, 40 Hours, Cambridge, Mass.: Bursk and Poor Publishing, 1970.

[26] Charles Stewart, Recent European Manpower Policy Initiatives, a special report of The National Commission for Manpower Policy, Washington, D.C.: November 1975.

[27] Juanita Kreps, The Lifetime Allocation of Work and Income, Durham, N.C.: Duke University Press, 1970 and Fred Best and Barry Stern, "Education, Work and Leisure: Must They Come in That Order?" Monthly Labor Review, July 1977, pp. 3-10.

fore, the structure of this program, which provides benefits for layoffs but not for reduced hours, stimulates workers and their unions to accept reduced employment rather than fewer hours per worker.

One of the dominant influences on the labor supply of older workers is social security. The availability of benefits provides individuals with a flow of income that is guaranteed for life and that is indexed against inflation. These benefits may be enticing older workers to leave the labor force. During periods of high unemployment, the government has increased benefits and lowered eligibility requirements in an apparent effort to distribute jobs away from older persons and to the unemployed young and middle-aged workers. Most examinations of the labor supply decisions of individuals in older cohorts have found that eligibility for social security benefits has lowered market activity rates, expecially over the last 25 years. Private pensions reduce market activity in much the same manner. To the extent that reduced earnings caused by fewer hours of work lowers retirement benefits, older workers are even more reluctant to accept a decline in their workweek. Of course, the incentive effects of taxation, subsidies, and welfare programs will also influence the desired length of the workweek.

EMPLOYMENT COSTS AND THE COMPOSITION OF LABOR DEMAND

The preceding discussion focused primarily on the desired length of the workweek by employees implicitly assuming that employers are indifferent to the number of hours worked per individual. If all labor costs were strictly variable, then the sole manpower concern of any firm would be to utilize the appropriate number of hours irrespective of the number of workers. However, a company generally incurs a variety of hiring costs when it expands employment by hiring new workers. Prospective candidates must be located, interviewed, and tested. References are checked and frequently medical examinations are given before the new employee is added to the payroll.

Fringe benefits represent another form of quasi-fixed compensation, which now average 35 percent of total labor costs and which have been increasing twice as fast as wages. Life and health insurance, along with disability coverage, that are provided for full-time employees become a fixed cost of hiring. Vacation and pension credits may be accrued by days on the job rather than by hours per day. Thus, the existence of benefits associated with employment raises the relative price of new hirings compared to increased utilization of a firm's current work force.

The training and orientation of new workers is also a necessary expenditure of employment expansion. In our mechanized society, firms are required to make substantial investments in the training of their workers. The job-specific skills obtained in training programs and by learning on the job have increased the productivity of senior workers. Therefore, new employees will be less productive and will necessitate capital outlays for training.

These costs may vary over the course of a business cycle. For example, a company recalling workers that it had previously laid off may incur only minor rehiring and training costs compared to a company doing new hiring. In addition, several institutional barriers may limit the use of flexible hours in response to demand fluctuations. Overtime premiums—whether governmentally imposed or privately negotiated—raise the cost of longer hours. Collective bargaining agreements may set a maximum number of overtime hours that a worker can be compelled to accept. Physiological or emotional limits such as worker fatigue and morale may also prevent firms from resorting to excessively long hours to meet their manpower requirements.

The manpower decision that the profit-maximizing firm faces is to determine the combination of men and hours per man that minimies labor compensation for the optimal output. For a firm to make the appropriate manpower decisions involving hiring and training, a multiperiod time horizon is required that can incorporate cyclical fluctuations. A firm's expectations of future market events will govern its investment decisions concerning physical and human capital.

Incorporating these costs into a model of labor demand, we can obtain the implications of the minimization process. First, increases in fringe benefits not related to hourly compensation imply that overtime will be substituted for additional hiring, since these are cost-per-worker and not costs-per-man-hour. Second, changes in the costs of hiring and training have the same impact as a shift in the quasi-fixed costs of fringe benefits. Rises in payroll taxes with earnings ceilings also stimulate the firm to extend hours at the expense of new jobs.

An increase in the hourly wage or the overtime premium will raise the attractiveness of new employees relative to overtime, as will a decrease in the length of the straight-time workweek. The costs of altering manpower requirements are not sym-

metrical and depend in part on whether employees are working at the limit of the straight time.

EXISTING PUBLIC POLICY INFLUENCING EMPLOYMENT DECISIONS BY FIRMS

Over the post-World War II period, the Congress has enacted or expanded a variety of programs and policies that influence firms' decisions toward providing shorter workweeks. In general, these programs have raised the cost of employing new workers as compared to cost per hour of utilizing existing workers. Thus, firms may now be more reluctant to reduce the average workweek. The existing public policies that affect the employment decisions by firms are examined below.

Payroll taxes

Any tax levied against the payroll of a firm that cannot be fully passed along to workers in the form of lower wages can be expected to reduce the manpower demands of a firm. If such taxes cover all wages paid by the firm, then the relative prices of altering employment and modifying hours per worker would be unaffected. However, when earnings ceilings are incorporated into the tax structure, wages for longer hours may not be subject to tax payment. Thus, employers are encouraged to substitute variability of employment for flexibility in hours.

In 1978, the employer portion of the Old Age, Survivors, Disability, Hospital Insurance (OASDHI) tax is 6.05 percent of the first $17,700 earned by each worker. The employee has an equal amount deducted from his paycheck until he exceeds the earnings ceiling. The final incidence of this is a point of controversy in economic literature, with most studies indicating that the worker bears the full burden of the employee portion and much of the employer part of the tax.

Over the past three decades there has been a dramatic increase in the tax rate and the arnings ceiling. In 1950, the tax rate required to finance the social security system was 1 percent of the first $3,000 of earnings. Thus, in the past thirty years, both the tax rate and the ceiling have risen by over 500 percent. The 1977 amendments require substantial future increases in both the ceiling and the tax rate.

High tax rates that change the relative price of manpower options will alter the optimal size of the labor force of a firm. Table 4 illustrates the cost impact of the OASDHI tax and the ceiling on earnings in 1977. A company would be required to pay over $200 more in taxes if it used two part-time employees earning $10,000 each than if it employed a single full-time employee earning $20,000. The reason for this differential is the earnings ceiling. If the tax applied to all wages, no savings from hours expansion could be realized. This is shown by the equivalent tax liabilities when the combined earnings are less than $16,500 as illustrated by the three lower earnings records in Table 3. Unemployment compensation is the other major social insurance program financed through a tax in the payroll of companies. Due to its taxable ceiling, this tax has a similar effect on relative prices; a specific example is given in Table 4.

TABLE 4.—PAYROLL TAX PAYMENTS BY EMPLOYER IN 1977

Total wages	$5,000	$10,000	$15,000	$20,000
	Tax payments for OASDHI [1] by combined salary			
2 half-time workers	$292.50	$585.00	$877.50	$1,170.00
1 full-time employee	292.50	585.00	877.50	965.25
Difference	0	0	0	204.75
	Tax payments for unemployment compensation [2]			
2 half-time workers	160.00	268.08	268.80	268.80
1 full-time employee	134.40	134.40	134.40	134.40
Difference	25.60	134.40	134.40	134.40
	Combined payroll tax payments			
2 half-time workers	452.50	853.80	1,146.30	1,438.80
1 full-time employee	426.90	719.40	1,011.90	1,099.65
Difference	25.60	134.40	134.40	339.15

[1] Tax payment based on tax rate of 5.85 pct on first $16,500 of earnings per employee.
[2] Tax payment based on a tax rate of 3.2 pct on first $4,200 of earnings per employee.

The ceiling on taxable earnings also may influence the employment opportunities of the low-wage, disadvantaged worker relative to skilled employees. In the same manner that longer hours become less expensive when compared with new hirings, the relative price of using craftsmen with earnings above the ceiling is lowered compared to the time of the unskilled worker whose wages are subject to the payroll tax. Therefore, to the extent that the skilled employee can be substituted for semiskilled or unskilled employees, the employment of disadvantaged workers is reduced.

Fringe benefit policies

Since World War II, there has been a rapid expansion of the proportion of labor compensation that is composed of fringe benefits. The increase in paid vacation and holidays has already been discussed; however, workers today are more likely to receive paid life and health insurance, disability coverage, pension credits, sick leave, professional leave, dental insurance, and a variety of other in-kind payments.

The method that is used to determine the level of benefits that a worker receives is important for this study. If benefits are directly and proportionately related to earnings, then the existence of fringe benefits will not influence the hours-employment decision by management. However, benefits that are provided to all employees without regard to the number of hours that they work become a quasi-fixed cost of production. These benefits will make the firm more likely to utilize longer hours to meet increasing manpower requirements.

Federal tax policy significantly encourages firms to provide fringe benefits and employees to accept them. At present, many fringe benefits are not subject to the personal income tax. Thus, a dollar's worth of fringe benefit costs to the firm may provide more value to an employee than a dollar in direct wages. For example, a worker in the 25 percent marginal tax bracket would need $1.33 of pretax earnings to be able to purchase nontaxable fringe benefits that the company can provide for one dollar. Pension contributions are taxed not as current income but only when received as benefits during retirement. In addition, the earnings of pension funds are not taxed. As a historical note, the federal government also encourage the spread of fringe benefits when direct wages were frozen during World War II but fringes were not.

Overtime legislation

In the thirties, two pieces of legislation were enacted to encourage employers to substitute new hirings for longer hours. The Fair Labor Standards Act of 1938 required that all covered employers pay an overtime premium of 150 percent of normal pay for all hours over 40 in a work week, while the Walsh-Healy Public Contract Act limited the hours of work to eight in one day unless overtime was paid, for all firms with government contracts in excess of $10,000. These laws are still the primary government tool for biasing the manpower decisions of employers toward increased employment.

A POLICY AGENDA

This testimony examines the desire for reduced work time by workers and the governmental constraints to any future decline in the work week. I have concentrated on the long term trend in market work due to the purview of these hearings. Many of the same arguments could be made as they relate to the adjustment of hours during recessionary periods of business activity.[28] A review of the existing programs reveals that public policy has increased the costs to firms and individuals of opting for fewer hours and increased employment. This bias is expected to further retard movement toward reduced work weeks. In addition, government policy that aggravates unemployment when the nation is struggling to extricate itself from a prolonged period of above normal unemployment should be unacceptable.

To improve the welfare of these workers desiring shorter hours and promote employment during cyclical downturns, this statement concludes with a series of policy recommendations directed at congressionally approved programs that have altered the relative price of hours and employment. Each of the programs that has produced the bias in the relative prices of the manpower options was adopted for a specific set of objectives. Thus, prior to any modification removing the increased governmental costs of shorter hours, these changes should be examined for their impact on the goals of each program. Subject to a review of their influence on other social objectives, the following policy recommendations are offered.

Employer payroll taxes for those who are newly hired should be removed during periods of high unemployment. The elimination of these taxes would reduce the

[28] See Robert Clark, Adjusting Hours to Increase Jobs: An Analysis of the Options, Special Report No. 15, National Commission for Manpower Policy, September 1977.

incentive for management to utilize its current workers for longer hours. Wage credits for new employment is equivalent of a temporary reduction in payroll taxes.

Any reassessment of the taxable nature of fringe benefits should include their impact on the quasi-fixed costs of hiring and the related bias toward longer hours. While this factor alone may not be sufficient to alter tax policy, its inclusion in the review process along with other concerns will strengthen the arguments for such a modification.

Prior to the institution of a national health insurance system, the employment effects of alternative funding programs must be examined. The impact of an additional payroll tax on total man-hours demanded, as well as the influence on the marginal decision of longer hours for current workers versus additional hirings, should be analyzed. This recommendation applies to any other program to be financed from payroll taxes.

To stimulate employment, immediate attention should be given to restructuring the unemployment insurance system in order to provide compensation for involuntary reductions in work schedules. This modification would remove much of the incentive for workers to favor layoffs over reduced hours. Benefits could be keyed to reduced hours per week or could be provided to workers who are laid off for one day per week. To further encourage work sharing instead of unemployment, the government should explore the possibility of compensating firms for a portion of the added costs incurred by retaining workers. The implications of this type of program on the secular trend toward reduced hours must also be assessed.

This statement evaluates past decline in hours of work and briefly speculates on the future course of work time. The above recommendations provide an agenda to restore public policy to a neutral position in its influence on the hours per man or employment decisions that firms encounter. In general, no proposals are offered that would bias firms toward reducing hours beyond a point determined by private costs and efficiency. Thus, specifically not recommended is an increase in the overtime premium. Most of the available evidence indicates that overtime legislation is an ineffective means of increasing employment, while at the same time it raises unit labor costs.

Further research is needed in the following areas to enhance future policy initiatives that influence manpower decisions as well as the labor supply of individuals.

It is imperative that additional research be carried out on the labor supply and demand effects of payroll taxes. If current demographic trends continue, substantial increases in these taxes will be necessary. Therefore, the relative merits of increased tax rates or higher earnings ceilings must be assessed, and consideration should be given to their influence on the hours of employment options that employers encounter.

The increased labor market activity of married women has been one of the most significant changes in the labor force during this century. Yet our understanding of the simultaneous decisionmaking process within the family unit is severely limited. Further research is needed on the impact of the entrance of married women into the labor force on the demand for part-time work and shorter hours; on the labor supply of their husbands; and on unemployment, job search, and retirement patterns.

The distinguishing characteristics of part-time workers need to be examined, and efforts should be made to project the future proportion of the labor force that will desire shorter hours. Demand for part-time employees by industry could be analyzed and the impact of the shifting industrial composition of the economy assessed. A comprehensive review of the impediments to part-time employment should be made, along with the impact on national output if the incidence of part-time work increases.

Representative BOLLING. Next is Mr. John Zalusky, presently with the research department of the American Federation of Labor and Congress of Industrial Organizations and formerly research director of the Allied Industrial Workers, AFL–CIO, located in Milwaukee, Wis.

Prior to his becoming research director for AIW he had been an international representative for the International Brotherhood of Electrical Workers. He has continued his membership with local union 160 of the IBEW, which he joined in 1953. Previously he spent 2 years as an organizer and joint board business agent for the Amalgamated Clothing Workers. He did both his undergrad-

uate and postgraduate work at the University of Minnesota from 1956 to 1962.

I had indicated that I had to leave early, and that is why I started a little earlier. I also suggested that we were trying to get our witnesses to summarize their prepared statements as much as they could and as close as they could to 10 minutes. We are glad to have you.

STATEMENT OF JOHN L. ZALUSKY, ECONOMIST, RESEARCH DEPARTMENT, AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS

Mr. ZALUSKY. Thank you. I am here to share the views of the federation on decreasing the working life of American workers.

We believe that unemployment is still the major problem faced by our society today. We have had an unemployment rate of 8.7 percent when the people who are forced to take part-time jobs when they wanted full-time jobs and those too discouraged to look for work any longer are considered. We are concerned about this. These people are dependent on the productive capacity of the rest of society. The unemployed pay no taxes and their productivity can never be recovered. Retirees, workers on vacation, and the workers working a shorter workweek are also dependent on our production. The difference is how they got there and how they feel about it. The unemployed not only are a cost to society, they feel alienated, unneeded, and are deprived of the dignity of work.

Retirees have earned their retirement and the dignity that goes with it through a lifetime of work. Workers enjoying holidays and vacations or shorter workweeks with pay are simply taking time off, but they have the dignity of a job and retain their standard of living. The unemployed, however, do not have this opportunity, and it is a valuable resource lost to us. Their productivity can never be recovered.

We are talking about creating more jobs through reducing time on the job with no loss in pay or benefits; that is, a full-time job but less hours of work per day, per year, and per lifetime. We are skeptical about creating a whole new subclass of workers holding part-time jobs hoping to get full-time work or adding to the 3 million already in this group. Work sharing can also be viewed as sharing the hardship of unemployment.

The idea of work sharing was suggested by President Hoover in 1932, and this idea of work sharing, of permanent part-time work, has been going on for some time. It is not new. But we find it difficult for the American worker to accept.

Having been a field representative for a union, I feel I know what the reaction of the average American worker will be to work sharing. If you suggested this to them and the duration of the reduction in force were unknown, you would find fewer that would accept work sharing than if the duration were fixed and certain. If it were to occur in June as opposed to January, you would find more would accept the work sharing. If the time off were to occur in large blocks like a week with no loss in wages or benefits still more would accept. But generally people in this country that work in organized shops, with labor agreements have the right to a job based on their seniority that entails a full income, and they need

that to meet their bills. They cannot afford to take a reduction in hours of work with reduction of pay, regardless of how much it is.

We think we have been reaching the shorter worker year through a variety of devices at the bargaining table. If we take a look at what has taken place in a few of the major bargaining settlements, we get a fairly clear picture.

In 1938, when the steel workers first organized, the United States Steel agreement had no holidays with pay; they had three without pay, and those were available to workers who did not work continuous operations; and continuous operations in steelmills are the rule.

When Lockheed was first organized by the IAM in 1938, there were 7 holidays, all without pay. Today there are 13 paid holidays.

A.T. & T. in the 1940's was considered one of the better employers. In its first agreements with unions there were 5 or 6 paid holidays. Today there are 10 paid holidays plus 1 personal day off with pay and 2 without pay.

In 1945, the first International Brotherhood of Electrical Workers agreement with Commonwealth Edison, the Chicago electric utility company, provided 7 paid holidays. Today this agreement provides for 12 paid holidays with 1 additional day off with pay every other year for congressional elections.

Vacations have also gone up. The first United Steelworkers' agreement with United States Steel Corp. provided 1 week paid vacation for those with 5 or more years of service. Today steelworkers get 1 week after 1 year, 2 weeks after 3 years, 3 weeks after 10 years, 4 weeks after 17 years, and 5 weeks after 25 years. Today there are, with the vacation time and what they call a sabbatical leave, 39 days of vacation per year. When this is combined with holidays, these workers have on the average 43 days off per year, nearly 1 day a week.

The first IAM agreement with Lockheed in 1938 had no vacations. The current one provides 2 weeks after 1 year's service and 3 weeks after 4 years. There were 7 holidays listed without pay. Today there are 13 paid holidays, including the entire week between the day before Christmas and New Year's Day.

From the above, I think we can build a rather substantial case that time off the job through vacations and holidays is becoming the vehicle that workers have been pursuing through the collective bargaining process.

When we look at retirement, we will see more time off with pay. I think the steelworkers' experience is a very good example. When they first freely negotiated pensions,—pensions were not a mandatory bargaining matter until after 1949—that early pension provided retirement at age 65 with 15 years of service. The present pension plan provides for retirement after 30 years of service with a supplement until the worker is able to draw social security.

The actuarial reduction for early normal retirement was eliminated long ago, as was the social security offset; and pensions have been increased to make early retirement a meaningful option. The situation now is that a worker who entered United States Steel Corp. in 1950 at age 20 will be able to retire in just 2 years at age 50, under what is called "30 and out."

The average age of retirement at the present time is 60 to 61 years of age. A few years ago it was 58 years of age.

I agree with Mr. Clark with regard to some of the impediments to shortening the workweek, but there has been a decrease in the number of hours regularly scheduled as opposed to those actually worked, and I think it really amounts to a narrowing of the distribution. The percent of workers scheduled to work 40 hours per week has remained relatively unchanged over the last 28 years at 45 percent, but the percent scheduled to work more than 40 hours per week has decreased dramatically from 27 percent in 1948 to 11 percent in 1976. Those scheduled to work less than 40 hours increased slightly from 8 percent in 1948 to 14 percent in 1976. A shift to shorter scheduled hours has occurred and there is a more concentrated distribution of scheduled hours at slightly less than 40 hours per week.

Workers usually are paid time and one-half or double time for work over the scheduled workweek. In a situation with time and one-half for work in excess of 40 hours per week, labor costs are not increased by the half-time premium. Most fringe benefit costs are related directly to the worker rather than the hours worked—for example, vacations, pensions, and hospitalization, which amount to more than 25 percent of total compensation. Under these circumstances, it is to the employer's advantage to use overtime rather than hire more workers.

A legislated premium of double time for all hours in excess of 8 hours per day and 40 hours per week would discourage most regularly scheduled overtime.

There is no way of accurately determining the number of jobs that would be created by increasing the overtime premiums to two times the standard wage rate. In 1971, Ronald Ehrenberg estimated that increasing the overtime premium to double time would increase employment 1.6 percent. The cost to employers would be small. Their cost would be related to the difference between hiring more workers rather than working the existing work force overtime. This is, of course, offset by the improved quality and dignity of life enjoyed by unemployed workers who would be obtaining jobs not otherwise available. And very importantly the decreased cost of maintaining these people as unemployed.

Things have changed since this data was collected, which was about 1976, and I expect that figure would be somewhat less. However, depending upon whose numbers you used, decreasing the unemployment something in the area of 1.6 percent would save the Government $20 to $30 billion in unemployment costs and other costs related to unemployment and improve the tax revenues.

The last time we increased the premium overtime was in 1966, with regard to the people in the retail fields through the Fair Labor Standards Act amendments. It was found that nonsupervisory employees working more than 40 hours per week decreased from 24 percent to 21 percent and this is an industry highly populated by part-time workers. The impact would not be as great as in an industry working the basic 40-hour week. There was also an increase in employment; it was found that high users of overtime decreased overtime hours and added workers.

There is also need for the shorter workweek, and the only way that we see that it can be obtained is by going to a 35-hour workweek under the Fair Labor Standards Act, with double-time penalties for hours in excess of 7 per day and 35 per week.

This would probably have to be done in increments, but the need is to provide more full-time jobs. We do not think there is any doubt but that doing so would create more jobs, but exactly how many is unclear. Consider the level of unemployment we would have today if the average workweek were still 50 to 60 hours per week as it was around the turn of the century. If the workweek were again 48 hours, as it was in the late 1920's, we would probably have more than 15 million unemployed.

But decreasing the workweek 14 percent to 35 hours per week will not create a proportionate increase in jobs. Many workers, such as executives and professionals, are not covered by the hours provision of the Fair Labor Standards Act.

Also, there would still be some overtime worked; there would be an increased substitution of capital for labor and a variety of other factors.

We also believe that the hours of work should be decreased in increments over a period of time and that legislators should consider this a part of America's future.

We in organized labor are decreasing the hours on the job in negotiated settlements. Workers are expressing the desire to allocate more and more of our productivity toward leisure time. Leisure time not only for its own sake but also for the job security of those who now have jobs; and leisure time creates openings for those who need jobs. I have attached to my prepared statement three articles on this subject.

Thank you.

[The prepared statement of Mr. Zalusky, together with the articles referred to, follows:]

PREPARED STATEMENT OF JOHN L. ZALUSKY

Mr. Chairman, my name is John L. Zalusky. I am here to share with this committee the views of the AFL-CIO on reducing the time Americans spend on their jobs.

We believe that unemployment is still the major problem faced by our society today. Unemployment appears to be stuck at around six to seven percent. In May 1978 when the people who are forced to take part-time jobs when they wanted full-time jobs and those too discouraged to look for work any longer are considered, the unemployment rate was 8.7 percent. These numbers are better than they were a few years ago, but nothing comforting. Eight to nine million people who can't find work, or too discouraged to look for work, or forced to take part-time jobs when they need full-time work are more than this society can afford in many ways.

These people are dependent on the productive capacity of the rest of society. The unemployed pay no taxes and their productivity can never be recovered. Retirees, workers on vacation, and the workers working a shorter workweek are also dependent on our production. The difference is how they got there and how they feel about it. The unemployed not only are a cost to society, they feel alienated, unneeded, and are deprived of the dignity of work. Retirees have earned their retirement and the dignity that goes with it through a lifetime of work; workers enjoying holidays and vacations or shorter workweeks with pay are simply taking time off, but they have the dignity of a job and retain their standard of living. In short, they are a part of the system. The unemployed feel unneeded, but we cannot afford the waste of our most valuable resource.

What we in the AFL-CIO are talking about is creating more jobs through reducing time on the job with no loss in pay or benefits; that is, a full-time job but less hours of work per day, per year, and per lifetime—the shorter workweek more

vacations and holidays, and earlier retirement. We are skeptical about creating a whole new subclass of workers holding part-time jobs hoping to get full-time work or adding to the three million already in this group. Work sharing can also be viewed as sharing the hardship of unemployment.

Let us suppose the White House issued the following statement to a group of business leaders and bankers: "It is doubtful whether any action we could take at this time would so greatly accelerate our progress, save the welfare of our unemployed millions, or so quickly give us as a nation the benefit of widespread spending power as the further spreading of equitable plans of sharing the available work." The President then appoints a committee to implement this program, and its slogan is, "Job Security by Job Sharing."

From what we have been reading about work sharing, permanent part-time and other spread the work plans, we suspect this committee, appointed by President Hoover in 1932, has been secretly at work all these years with basically the same focus—spreading the available work with less take-home pay.

In April 1978, the Bureau of Labor Statistics reported three million workers working part-time for economic reasons, up from 2.9 million in April of 1977. These are workers who want full-time jobs and the opportunities, income, and dignity that goes with what we know as full-time employment.

The reduced workweek with less pay and/or permanent part-time jobs will simply add to these numbers, which in turn will add to the cost of unemployment and spread worker dissatisfaction.

How would a worker with a job view a proposal to share the work? Let us assume that you are a worker in a shop and there is likely to be a reduction in force of unknown duration. The option presented is that you can go on a shorter workweek to share the available work with a small reduction in take-home pay. Or, under your labor agreement you have the right to keep the job based on seniority and protect your income. Would you elect to take shorter hours of work?

My experience has been that a few workers will accept reduced hours and income, but most will not because of other family priorities; that is, bills. If the time period is known to be short, then more workers will elect job sharing; but very few will if the duration is uncertain.

We believe that our unemployment problem needs to be attacked in a number of ways. One way is less time on the job, and much can be done through collective bargaining while legislation is needed in other areas. The shorter workweek and working career is an approach labor has been doing for itself at the bargaining table for some time. Higher premiums for overtime can be dealt with both through legislation and at the bargaining table. Training workers to meet anticipated job openings is handled at the bargaining table but also needs government support. And, above all, we need an overall commitment by government fo full employment as contained in the Humphrey-Hawkins bill.

The shorter working experience takes a number of different forms, including holidays, vacations, retirement, starting a career later, and shorter scheduled workweeks. All of these factors have been changing over the past decades to decrease the time spent on the job over the American worker's lifetime and at the same time provide more job opportunities. We are not a great deal different from other countries of the world. In short, we see a continuing preference for leisure time without a loss in pay.

Holidays with pay have been increasing through the collective bargaining process. A few collective bargaining histories bring the picture into focus. In 1938 the United Steelworkers—U.S. Steel agreement had three unpaid holidays. These holidays were for workers who did not work continuous operations—in steel mills, continuous operations are the rule. Now, in 1978, there are ten paid holidays with one more to be added next year.

In 1938 the Lockheed agreement with the International Association of Machinists and Aerospace Workers listed seven holidays without pay. In 1978 there are 13 paid holidays, including the entire week between the day before Christmas and New Year's day.

AT&T's first Long-Lines agreements with the Communication Workers of America had between five and six paid holidays in 1940; in 1978 there are ten paid holidays plus one personal day off with pay and two without pay.

In 1945 the first International Brotherhood of Electrical Workers agreement with Commonwealth Edison, the Chicago electric utility company, provided seven paid holidays. This agreement now provides for 12 paid holidays with one additional day off with pay every other year for congressional elections.

In 1975 the most common number of paid holidays in major private sector labor agreements was ten. In the three years that have passed we believe the number is now nearer 11.

The growth in negotiated vacations shows a similar pattern. The first United Steelworkers' agreement with U.S. Steel provided one week paid vacation for those with five or more years of service. The steelworkers now get one week after one year, two weeks after three years, three weeks after ten years, four weeks after 17 years, and five weeks after 25 years. In addition, the senior half of the work force is entitled to 13 weeks paid leave every five years. Combined, the estimated average vacation time per year for the average steelworker is 39 days. In fact, at the end of the current agreement through added holidays, the average steelworker will have 43 days off per year, or nearly one day per week.

The first IAM agreement with Lockheed had no vacations. The current agreement provides two weeks after one year of service, three weeks after 10 years, and four weeks after 20 years.

The first AT&T agreements with CWA and IBEW had one week after one year, two weeks after two years, and three weeks after 15 years of service. The current agreements provide one week after six months, two weeks after one year, three weeks after eight years, four weeks after 15 years, and five weeks after 25 years. The estimated vacation time is over three weeks per year for the average employee.

The first agreement between the IBEW and Commonwealth Edison in 1945 had two weeks of vacation after one year and one additional day for each additional year of service over 14 years. Now the agreement still provides for two weeks after one year, with increments that now yield three weeks after seven years, four weeks after 16 years, five weeks after 25 years, and six weeks after 30 years. The average vacation is estimated at 22 days per year.

In addition to the holiday and vacation provisions, these agreements provide additional time off with pay for sickness, jury duty, and bereavement.

The above agreements are not typical, but they serve to make the point that leisure time is growing. When workers have the right to choose through the collective bargaining process, paid time off has grown. Just through vacations and holidays the steelworkers now have 40 days off per year, IAM at Lockheed has nearly 28 days off per year, CWA and IBEW with the telephone companies have about 24 days off per year with pay, and IBEW with Commonwealth Edison has 36 days off per year. It is apparent that many workers have negotiated what amounts to one day off every other week. The fact is they are negotiating the shorter workweek and overall time on the job through vacations and holidays and early retirement.

American workers are also decreasing the time on the job through entering the labor force later in life and retiring earlier. Unions did not have the clear right to compel the employer to bargain on pensions until 1949, and the effect of this clear right was not implemented until the early 1950's.

Tracing the implementation of collective bargaining rights on retirement from 1950, in the same agreements we find that the retirement age has been reduced directly and indirectly. The steelworkers negotiated the first noncontributory pension plan with U.S. Steel in 1950. It provided retirement at age 65 with 15 years of service. The pension was reduced by an amount related to that paid by social security. The present pension plan provides for retirement after 30 years of service with a supplement until the worker is able to draw social security. The actuarial reduction for early normal retirement was eliminated long ago as was the social security offset, and pensions have been increased to make early retirement a meaningful option. The situation now is that a worker who entered U.S. Steel in 1950 at age 20 will be able to retire in just two years at age 50, under what is called "30 and out".

Under the early IAM-Lockheed pension, the retirement age was 65 and the workers were able to draw the pension even though they continued to work beyond age 65. The first truly negotiated pension plan in 1957 was non-contributory. This plan provided for early retirement at age 55, but with such a reduced benefit it realistically was not available. Early retirement then at age 55 yielded 28 percent of the normal retirement benefit. Today a retiree would get 75 percent of the normal pension.

The early CWA-AT&T pension provided for early retirement for men at age 60 and women at age 55 with 20 years of service and any employee with 30 years of service at the discretion of a company pension committee. Today, workers are able to retire after 30 years of service as a matter of right. And the pension combined with social security very closely approaches prior earnings.

The IBEW-Commonwealth Edison agreement provided for retirement at age 65 in 1950. Now early retirement is available with a benefit reduction from age 55 and a

supplement to make up two-thirds of the social security benefit otherwise available at age 65. There is also an escalator clause that adjusts the retiree's pension with changes in the Consumer Price Index.

These agreements have decreased eligibility for retirement to age 50 from age 65 in less than 30 years. We think that the American worker is expressing a strong desire for more time off the job.

Many writers dealing with the decreasing time spent by workers on the job note that the average workweek has been stuck at close to 40 hours since the 1930's. This is both accurate and inaccurate. It is inaccurate because the scheduled workweek has been decreasing while the actual workweek in manufacturing varies around 40 hours.

The scheduled workweek or usual workweek has decreased from 41.1 hours in 1948 to 38.2 in 1976 according to the Bureau of Labor Statistics' current population survey. The percent of workers scheduled to work 40 hours per week has remained relatively unchanged over the last 28 years at 45 percent. But, the percent scheduled to work more than 40 hours per week has decreased dramatically from 27 percent in 1948 to 11 percent in 1976. Those scheduled to work less than 40 hours increased slightly from eight percent in 1948 to 14 percent in 1976. A shift to shorter scheduled hours has occurred, and there is a more concentrated distribution of scheduled hours at slightly less than 40 hours per week.

Workers usually are paid time and one-half or double time for work over the scheduled workweek. In a situation with time and one-half for work in excess of 40 hours per week, labor costs are not increased by the half-time premium. Most fringe benefit costs are related directly to the worker, rather than the hours worked—for example, vacations, pensions, and hospitalization—which amount to more than 25 percent of total compensation. Under these circumstances, it is to the employer's advantage to use overtime rather than hire more workers.

A legislated premium of double time for all hours in excess of eight per day and 40 per week would discourage most regularly scheduled overtime.

There is no way of accurately determining the number of jobs that would be created by increasing the overtime premiums to two times the standard wage rate. In 1971, Ronald Ehrenberg estimated that increasing the overtime premium to double time would increase employment 1.6 percent. The cost to employers would be small. Their cost would be related to the difference between hiring more workers rather than working the existing work force overtime. This is, of course, offset by the improved quality and dignity of life enjoyed by unemployed workers who would be obtaining jobs not otherwise available.

Does increasing the overtime premiums increase employment? The experience to date indicates that it does. Our most recent experience occurred when overtime coverage was extended to the retail trades in 1966. It was found that nonsupervisory employees working more than 40 hours per week decreased from 24 to 21 percent. This is an industry highly populated by part-time workers, so the impact would not be as great as in an industry working the basic 40-hour week. There was also an increase in employment, and high users of overtime decreased overtime hours and added workers.

What about decreasing the average workweek from 40 to say 35 hours per week?

There is also need for the shorter workweek, and the only way that we see that it can be obtained is by going to a 35-hour workweek under the Fair Labor Standards Act with double-time penalties for hours in excess of seven per day and 35 per week. This would probably have to be done in increments, but the need is to provide more full-time jobs. I don't think there is any doubt but that doing so would create more jobs, but exactly how many is unclear. Consider the level of unemployment we would have today if the average workweek were still 50 to 60 hours per week as it was around the turn of the century. If the workweek were again 48 hours, as it was in the late 1920's, we would probably have more than 15 million unemployed. But, decreasing the workweek 14 percent to 35 hours per week will not create a proportionate increase in jobs. Many workers, such as executives and professionals, are not covered by the hours provision of the Fair Labor Standards Act. Also, there would still be some overtime worked, there would be an increased substitution of capital for labor, and a variety of other factors.

We also believe that the hours of work should be decreased in increments over a period of time and that legislators should consider this a part of America's future.

The fact is that we in organized labor are decreasing the hours on the job in negotiated settlements. Workers are expressing the desire to allocate more and more of our productivity toward leisure time. Leisure time not only for its own sake but also for the job security of those who now have jobs, and leisure time creates openings for those who need jobs.

In the last few years, we in the AFL–CIO have been paying particular attention to the negotiated reduction in the amount of time workers spend on the job. Attached are copies of three articles that appeared in the AFL–CIO American Federationist dealing with the subject.

ATTACHMENTS

1. "Vacations–Holidays: Tools in Cutting Work Time," by John L. Zalusky, AFL–CIO American Federationist, February 1977.
2. "Shorter Work Years—Early Retirement," by John L. Zalusky, AFL–CIO American Federationist, August 1977.
3. "Shorter Hours—The Steady Gain," by John L. Zalusky, AFL–CIO American Federationist, January 1978.

Vacations-Holidays: Tools in Cutting Work Time

By John Zalusky

The wide acceptance today of paid vacations and holidays is the product of a long struggle to shorten the worker's time on the job, improve the quality of life and narrow the social differences in America. This acceptance is a tribute to U.S. collective bargaining for most other industrialized nations handle such matters through legislation.

And since collective bargaining has given U.S. workers a real voice in how much of the wage package will be spent on leisure time and how that time will be taken, vacations and holidays have reflected the needs of workers at the time. In the 1930s, for instance, time off ranked low on what workers wanted; but at other times, especially when wage increases were unattainable because of government controls, as during World War II, vacations and holidays were given a much higher priority.

Vacations were known at the turn of the century, but were normally restricted to the salaried workers, the professional, clerical or white-collar employees. Production workers, the blue-collar hourly wage earners, were even then more likely to be represented by unions and were often not included in vacation plans because their unions concentrated on bargaining for a living wage or reducing the work day. In more recent times, the union contract has virtually wiped out the distinction in vacation treatment between salaried employees and hourly wage earners.

By the 1920s, vacations were widespread, but became virtually extinct during the depression years of the 1930s. U.S. vacation patterns underwent rapid development during World War II and immediately afterwards—so much so that their history is largely a postwar study.

Today vacations are almost universal to union members, but there is a wide variation in the amount of vacation, the way it is calculated, when it can be taken and the money received. Basic vacation plans are of three types:

- The "graduated plan," the dominant method, expands the amount of vacation according to length of service. Graduated plans were used in 80 percent of the major contracts that had vacation plans in 1975.
- "Ratio to work" plans relate the amount of vacation for a year to the amount of work performed during that year. This method is used in only 4 percent of the major contracts, but it yields the same results as most funded plans with individual accounts like those used in the building trades. Thus approximately 19 percent of the workers with vacations covered by major agreements actually have their vacations related to hours worked during the year.
- "Uniform plans" give everyone the same amount of vacation. These are quite rare, appearing in less than 1 percent of major agreements.

Thirty years ago, at the end of World War II, the

JOHN ZALUSKY is an economist who specializes in collective bargaining for the AFL-CIO Department of Research. *This article examines vacations and holidays as primary ways in which working time is shortened for American workers.*

standard graduated plan was one week of vacation after one year and two weeks after five years. While available data don't provide a precise figure on the standard vacation of today, some generalizations can be made from Bureau of Labor Statistics (BLS) figures. These are taken from the private sector and in most cases only from "major" union contracts covering 1,000 or more workers. While this obviously misses some innovations in agreements covering less than 1,000 workers, it does serve to outline national trends.

About 3 percent of all workers covered by major agreements now receive at least one-half a week's vacation after six months of employment. When workers who have ratio-to-work type plans are added in, approximately 15 percent of the workers with vacation plans under major agreements are entitled to some vacation after six months.

One week of vacation after one year is still the most common pattern in major agreements. Sixty-seven percent of the agreements provide for one week after one year, another 30 percent provide for two weeks after one year. Two major agreements, covering 40,950 workers, provide four weeks of vacation after one year.

Thus in 25 years of development, 30 percent of agreements now yield the same vacation after one year that was once considered standard after five years of work—two weeks.

After five years of service, two weeks of vacation is still the most common provision in major agreements. But 18 percent of the agreements provide for three weeks of vacation at five years and 1 percent provide four weeks after five years of service or less.

Examples of vacation for short seniority workers are the Graphic Arts' agreements in Chicago, Detroit and Pittsburgh providing four weeks of vacation after one year. At Caterpillar Tractor, an agreement bargained by the Machinists, Auto Workers and Allied Industrial Workers provides three weeks of vacation after one year, with one of the weeks taken at Christmas, and as much as 78 hours additional vacation for good attendance.

In short, the World War II "basic vacation plan"—one week after one year and two weeks after five years—still applies to many workers. But many workers are now entitled to vacations after six months, and nearly 20 percent of the agreements give more than two weeks of vacation after five years.

Over the years, the more obvious improvements have been made in the long-term vacations of five, six and seven weeks.

The new BLS data on major agreements in 1975 show this improvement. Agreements covering 13 percent of workers under major agreements provided for six or more weeks of vacation. This represents more than 685,000 workers. Not all of them have the seniority to enjoy this much time off now, but they are under agreements that let them look forward to longer vacations.

Thus six weeks of paid vacation—an impossible dream 30 years ago—is today expected by more than 500,000 workers and the trend in major agreements is toward even more improvements. Between 1972 and 1975, the BLS reports that the number of major agreements with six or more weeks of vacation increased from 78 to 165, or more than doubled.

Other evidence shows a significant increase in the maximum amount of vacation provided in union contracts between 1972 and 1975.

In 1972, BLS reported that 50 percent of major agreements provided four weeks or more vacation. By 1975, 50 percent contained provision for five weeks or more.

A survey of agreements by a private group, the Bureau of National Affairs (BNA), although not as broad a sample as BLS data, gives an idea of the length of service required before a worker is eligible for five weeks of vacation. It finds five weeks of vacation are provided before 20 years of service in 5 percent of major agreements and after 20 years in 38 percent. Another 36 percent of major contracts provide five weeks vacation after 25 years of service.

Of agreements providing six weeks of vacation, 65 percent require 30 years of service, 25 percent require 25 years of service and 11 percent require between 15 and 20 years.

Notable examples of longer annual vacation in major contracts include the Oil Workers' agreement with American Metal Climax, Inc., and the Steelworkers' agreement with Rockwell International, both of which provide for 7 weeks vacation after 20 years of service. The Woodworkers' agreement with Boise Cascade provides seven weeks of vacation after 25 years and the Rubber Workers have seven weeks of vacation after 30 years in the rubber industry. Contracts negotiated in 1976 show the trend is continuing—as in the Transport Workers' agreement for flight attendants at TWA, which provides six weeks of vacation after eight years of service and nine weeks of vacation after 25 years.

History of Vacations

In the 1920s, unions usually represented production workers, or hourly wage earners, and they clearly preferred money in the paycheck to paid time off. Thus what paid vacations were granted went largely to salaried workers, usually clerical, to attract and hold them. Employers viewed vacations as a productivity incentive since employees would work harder before and after the vacation so that a replacement would not be hired. An early typographical union agreement contained a one-week vacation clause which provided that the ". . . remaining workforce use every effort to get out the edition regularly." An early teamsters' agreement required that vacation be made up with overtime.

These 1920s agreements and the idea of paid time off fell apart in the depression of the 1930s. Employers simply did not need vacation to attract and retain

workers. The National Industrial Conference Board estimated that half of the vacation plans in operation during the 1920s were dropped by 1935. In fact, by 1935, only 10 percent of all wage earners received vacations, even though 80 percent of the salaried workers did.

This disparity between clerical and production workers has remnants that persist today, even though unions have succeeded in narrowing this difference.

Between 1935 and 1940, concurrent with the growth of unions as a result of the National Industrial Recovery Act and later the Wagner Act, vacation coverage grew to 50 percent.

Unionization—or sometimes just the threat of unionization—tended by 1936 and 1937 to break down the vacation gap between salaried workers and hourly wage earners. To show workers that they didn't need unions, vacation plans were put into effect to reward continuous and faithful company service. General Electric installed its first vacations for production workers in 1935 and the steel industry instituted vacations for 100,000 wage earners in 1936, as did International Harvester. These firms were followed by many others. The Republic Steel vacation plan provided that workers could collect their unused vacation pay at Christmas with interest—in fact a wage supplement rather than a vacation. When the union organized the steel industry, a survey found that these workers preferred time off the job to the extra pay.

One of the early breakthroughs in union vacations was the vacation fund—similar to that now used in the building trades—for longshoremen in a 1940 contract. In those negotiations, a vacation was treated as an entitlement earned by past work, a concept quite different than the previous employer view that a vacation was an investment for future increased productivity. Thus an employee need not go back to work to earn rest with pay. In those 1940 longshore negotiations, both sides knew that vacations could help workers over brief periods of unemployment.

In a 1941 dispute between the railroads and 14 railway operating unions, attention was called to vacations in a report to the President prepared by an emergency fact-finding board. The report said the defense effort could benefit from the potential greater productivity of rested workers. The railway workers won the vacation benefit and the War Labor Board extended the concept during World War II.

Since employers generally supported the higher productivity concept, the War Labor Board gave paid vacations and holidays a big push during World War II. However, this was also a period of intense competition for workers because of the "cost-plus" contract. The steel industry continued the practice of paying workers for vacations but not providing time off. A survey of these workers reported that 80 percent wanted the paid time off, not just the increase in pay, and consequently early steelworker contracts provided for time off "when possible."

A major impetus for vacations came when the War Labor Board departed from the Little Steel Formula in 1943 and concluded that vacations were a working condition that could be improved without adding to inflationary pressures. Initially, the board opposed the concept of pay in lieu of vacation, but later allowed these payments on the grounds wartime conditions would not allow all workers to take the time off.

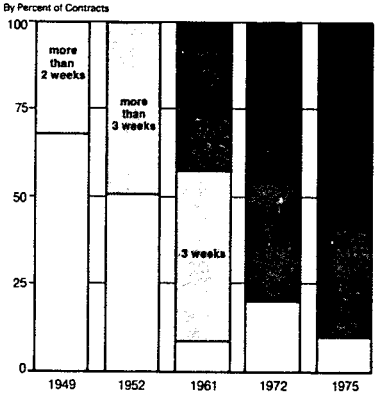
Later in 1943 that "basic vacation pattern" of one week after one year and two weeks after five years was adopted. By 1944 the Department of Labor estimated that better than 80 percent of the wage earners, excluding office workers, had this basic vacation plan.

For a period after the war, unions concentrated on catching up on wages for the losses of the war years. However, worker interest in vacations quickly returned, and by 1949 the Department of Labor reported 93 percent of the contracts provided paid vacations.

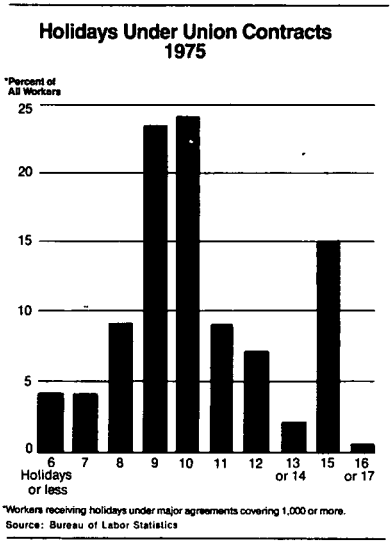
During this same period, the concept that vacations were an earned right for past work was firmly established. An arbitration decision between Automatic Electric Company and an International Brotherhood of Electrical Workers (IBEW) local ruled that workers were entitled to vacation pay on separation as an earned right for previous work and discarded the employer view of vacations as an investment toward future productivity. Essentially the same issue was arbitrated regularly during the next 10 years, but the cases subsided as the principle became more firmly established.

The percentage of major agreements with vacation

Vacations Under Union Contracts 1949-1975



Maximum vacation in major agreements covering 1,000 or more workers
Source: Bureau of Labor Statistics



clauses has remained fairly stable at around 92 percent for all of the years since 1949. The major group of workers without paid vacation plans are in the building trades, where frequent layoffs and working for more than one employer make vacation plans less desired and much harder to administer. By 1975 two-thirds of the construction workers covered by major agreements had some vacation arrangement, but construction agreements covering more than 1,000 workers are rare. The more common agreements, covering less than 500 workers, are less likely to have vacation fund agreements.

Extended Vacations & Plant Shutdowns

A significant change in the vacation concept has been provided by extended vacation or "sabbatical leaves." By July of 1975, the BLS found that 7 percent of the workforce covered by major agreements had such extended vacations in their agreements. Between 1973 and 1975 the number of major agreements reporting sabbatical leaves increased 8 percent.

One of the pioneers in the "sabbatical" leave, the plan negotiated by the Steelworkers in 1962, is unique in its application to separate employment situations. It is not based exclusively on years of service, but provides that the senior half of the workforce is entitled to the 13 weeks every five years. Thus in an older plant a worker might need 20 years to get into the senior half while in a newer plant it might require only 10 years service. If unused this benefit may be taken in a lump sum as a retirement benefit if retirement falls within that five-year cycle. Workers are encouraged to take their extended vacations when eligible, but experience shows little encouragement is needed—steelworkers look forward to their extended vacations. This plan creates more jobs with the initial impact occurring when it was first installed.

The Brewery Workers in Milwaukee have adapted their longer vacation plans to fit into the seasonal nature of their work. Although the vacation plan does allow as much as seven weeks vacation a year, some of this time is banked against the customary fall and winter layoffs. Vacations are then scheduled to offset layoffs and create jobs for those not yet entitled to the long vacations.

The plan provides for six weeks of vacation after 17 years of service and seven weeks after 20 years. The time in excess of five weeks is banked to be taken during the winter months. These workers may schedule two weeks of the remaining five weeks during the summer and three weeks during the winter months. Workers with lesser amounts of vacation time must also schedule the largest share of their vacation during the slow winter months. If senior workers have vacation time banked, but don't use it during their layoffs, they may then take the time as they like, during the summer, or to offset other absences from sickness or injury.

This plan works out somewhat like vacation plans in the building trades, where the money in the vacation fund provides income when work is unavailable or the firm shuts down.

The extended vacation concept has developed a number of variations. For example, an agreement with Dow Chemical by the Steelworkers and the IBEW provides extra weeks of vacation—for that year only—on every fifth anniversary date. A worker gets an extra two weeks off during the fifth year, an extra three weeks during the 10th year and so on.

An IBEW agreement in Tennessee provides one extra day of vacation for each year of service without a lost time injury and UAW agreements in the agricultural implement industry provide an extra hour and a half of paid leave for each week of perfect attendance.

Vacation plans also have been adapted to help meet other worker needs like preparation for retirement and seasonal layoffs.

A Longshoremen's agreement with American Sugar Co. in Baltimore has a vacation program designed to ease workers into retirement. At age 57 the worker gets 8 weeks of vacation and this increases each year until it reaches 12 weeks the year prior to retirement. The IBEW-Minnesota Power and Light agreement provides for an additional four weeks of retirement adjustment leave for workers age 62 and 63.

The idea of scheduling vacations to meet business shutdowns for model changes or inventory is still very common, but is decreasing slightly. Today 26 percent

of the major agreements relate vacations to periods of plant shutdown and about half of the agreements in manufacturing provide for plant shutdowns.

The plant shutdown presents problems since many workers may not have sufficient vacation rights to bridge the period of shutdown, usually two weeks. The movement of the eligibility date closer to the shutdown period increases the number of people covered during these shutdown periods. Since vacation coverage nears 100 percent in these cases, it is a far more costly item to employers than such innovations as granting a seventh week of vacation to the very few employees with 30 years of service.

Allowing vacation to take place over the year is less costly than the shutdown for an employer who has no seasonal demand or model changeover considerations. When vacations are scheduled through the year, others in the workforce can absorb enough of the load that plant and equipment aren't idle and profit opportunity lost. But as paid vacations grow to cover the whole workforce during the shutdown period by increasing work eligibility, the shutdown becomes less popular with employers. The BLS records a decline in both the number and proportion of major agreements scheduling plant closure as part of a vacation. Workers prefer flexibility in scheduling vacations in times other than the plant shutdown and this flexibility becomes more important as the number of working spouses increases.

Vacation Bonuses

Vacation bonuses —a sum paid to the worker in addition to regular vacation pay—are relatively rare in the United States, but have an extensive history in Europe.

The BNA reports that 8 percent of the major U.S. contracts included such bonuses in 1975. The Allied Industrial Workers' contract at Caterpillar, for instance, provides a flat $135 bonus regardless of the amount of vacation. Other agreements, such as the Steelworkers' contract at Kennecott Copper, vary the bonus according to the time of the year the vacation is taken. It is $50 per week if taken during the winter months, and $40 per week if taken during the summer months.

In 1976 the Teamsters negotiated 50 hours of vacation pay per week of vacation for the employees of a Chicago oil company. The Meat Cutters at Chef-Boy-Ar-Dee in Pennsylvania improved their bonus plan to $20 for the second week of vacation, $25 for the third, $40 for the fourth and $50 for the fifth.

From the worker's point of view, the bonus provides the opportunity of full use of vacation time and tends to insure that workers take the vacation due them—thus aiding somewhat in creating new job opportunities.

The BNA survey of vacations reveals that a habit prevalent in World War II—taking vacation pay but not taking time off—is still widespread. Only 8 percent of the agreements BNA studied specifically prohibit work in lieu of vacation. Of the ones that do permit management to require work instead of time off, only 28 percent require individual or union consent. And 62 percent specifically provide for pay in lieu of vacations.

In addition to fulfilling the definition of vacation as time away from the job, the vacation bonus also helps correct the problem for workers who get less pay during vacation than they normally take home. This happens when vacation pay is exempted from cost-of-living increases or because vacation is paid at straight-time contract rates rather than average earnings. BNA reports that when the choice between straight-time and average earnings is faced, only 7 percent of contracts provide for payment of the higher of the two.

Holidays

Since the Monday holiday law was passed in 1971, expanded holidays have provided "mini-vacations." Thus the trend to more holidays carries the same benefits that vacations do.

Like vacations, holidays were once a benefit reserved primarily for the salaried worker. And today, white-collar workers still enjoy more holidays than production worker. But, according to the BLS, union contracts are closing the gap.

In 1972-74, production workers received an average of 8.4 paid holidays per year, while office workers received 8.9 per year. In 1960-61, the Department of Labor reported 7 paid holidays for plant workers and 7.8 for office workers; in 1966-67 plant workers averaged 7.4 paid holidays 8.1 for office workers. Thus paid holidays for all workers have increased and the difference between white-collar and blue-collar workers has narrowed. In fact, the most recent 1974 report shows production workers in manufacturing, the more unionized sector, with 9.1 holidays and office workers with 8.9.

Eighty-six percent of the workers covered by major labor agreements in 1974 had paid holiday provisions in their contracts. The remainder simply did not make reference to paid holidays or were in the construction industry, where holiday pay is not common. Since some of those not mentioning it undoubtedly have holidays, the 86 percent figure is low.

Of those having paid holidays in their agreements, not quite 2 percent had less than six paid holidays while 50 percent had more than nine. In fact, nearly 20 percent of the workers covered by major labor agreements get a least 15 paid holidays per year.

Innovative approaches to time off include that of the 1976 Auto Workers settlement. Paid holidays off the job had been increased from 12 days to 14 days in the last year of the three-year agreement signed in 1973. A large share of this increased time off was placed in the Christmas-New Year holiday period, amounting to seven days off with pay in 1974 and 1975.

During the 1976 holiday period, Christmas and New Year's Day fell on the weekend, which decreased the paid holidays during the period. This helped the

union and auto industry add floating holidays in the second and third year of the 1976-79 agreement. The result is that the new 1976-79 contract will yield 13 days in the first year and 14 days the second year. An extra day off making July 4 a longer weekend was added, as were five individual floating holidays. In 1979, the last year of the agreement, it provides 13 normal holidays and seven personal floating holidays. Since the individual floating holidays are set up to be used outside of the normal vacation periods and to create three-day weekends, the new UAW contract is a step toward the shorter work year. To be eligible for these extra days off with pay, the worker must have one year of seniority and work the scheduled day before and after the individual holiday.

Most agreements already provide for paid holidays during the Christmas-New Year period.

The 14 most common paid holidays in descending order are: Thanksgiving Day, Christmas Day, Labor Day, Independence Day, Memorial Day, New Year's Day, Good Friday, Washington's Birthday, the day before Christmas, the day before New Year's Day, the day after Thanksgiving, Election Day, Columbus Day and the employee's birthday.

Ninety percent of the organized workers receive the six basic holidays of Thanksgiving, Christmas, Labor Day, July 4, Memorial Day and New Year's. And when the holiday falls on a weekend most workers get the preceding or following work day off with pay.

A number of current union contracts are shifting holidays around to provide for the week off with pay between the Christmas and New Year's holidays. This doesn't always use up the same number of holidays. For example, because both Christmas and New Year's Day fall on weekends in 1976-77, six normal work days must be paid. In other years, five to seven days are involved when the day before Christmas is counted.

The employee's birthday or anniversary date of hiring has now become a holiday for more than 400,000 workers. However, there is movement toward just designating these days as personal days off. This avoids some of management's administrative problems and prevents problems of having the birthday or anniversary fall during a vacation period or other holiday. It also allows the worker a frequently needed day off for personal leave during the year.

The Cost to Employers

Just as workers place a higher value on some holidays—a Monday off is more valuable than a Wednesday—so does the cost to the employer vary. It's much easier to negotiate a floating holiday or the worker's birthday off than it is a fixed date like Washington's Birthday, which requires a plant closure.

Similarly, the type of employee getting the holiday can mean a completely different situation for the employer. Secretaries often catch up their own work after a day off, but a plant guard, school bus driver or the only electrician on the night shift poses a quite different circumstance for the employer. In one case, there is little or no real cost; in the other, there is the real cost of the replacement.

Also, employers who already have relief workers on the rolls face less real cost and may actually prefer a schedule of holidays adequate to cut down on absenteeism. The same is true of vacations that are set up as a plant shutdown as compared to those scheduled through the year.

In vacations the number of workers eligible is the most important consideration. One week of vacation after six months is much more difficult to obtain than adding one week after 10 years of service. Vacation at the low end of the seniority list nears 100 percent entitlement while only a few workers would enjoy the extra week after 10 years service.

The added week of vacation is clearly worth the week's pay to the worker regardless of whether the worker has one year of service or 20. Yet, the cost to the employer of adding a week's vacation after 20 years service is not the 1.9 percent of wages often discussed. Since it is unlikely that more than 10 to 15 percent of the workforce will have 20 or more years of service, the payroll value is more like two tenths of 1 percent. In short, the value to the worker with long service is much greater than the relatively low cost to the employer. To a large extent, this explains the growth of plans with six, seven, and eight weeks of vacation for workers with long service.

Union and nonunion workers fare far differently on fringe benefits. In 1972—the latest comparison—total compensation was $5.83 per hour for the union worker and $3.53 for the nonunion worker. The percent of payroll spent by the union employer for paid leave was more than 50 percent higher than that of the nonunion employer—6.1 percent compared to 3.7 percent for the nonunion employer.

On holidays the union worker's employer spent 2.1 percent of total compensation, while the nonunion employer spent only 1.5 percent. That's about 12¢ per hour for the union worker and 5¢ for the nonunion worker.

Not every worker has paid vacations and holidays. Based on 1972 employee compensation in the private, nonfarm economy, the Department of Labor reports that 5 percent of the employees worked for employers that spent nothing for paid leave of any kind. Six percent worked for employers who paid nothing for vacations, and 13 percent worked for employers who paid nothing for holidays.

In summary, holidays, vacations, and other forms of paid time off the job have been increasing. More time off the job is going to the longer service worker through longer periods of vacation and all workers generally enjoy some vacation—a benefit that not many years ago was unique to the salaried worker. Also, holidays have nearly doubled in 20 years.

Thus the current structure is far superior to the World War II standard of six holidays with one week's vacation after one year and two weeks after five years.

Shorter Work Years-Early Retirement

by John Zalusky

Organized American workers are spending less time on the job. Paid holidays, vacations and a variety of other days off with pay now shave nearly five weeks off their working careers.

A major way work time is being reduced is by earlier retirement. Age 65 is no longer the normal retirement age in America; most workers are retiring much earlier. If retirement income is adequate, workers look forward to retirement, carefully planning in terms of Social Security benefits, negotiated pensions and savings for the day they can leave work. Some workers enjoy working as long as possible, but most look forward to retirement and as early as possible if retirement income is sufficient to maintain their chosen lifestyle.

The fact that 32 percent of the labor force in the age group 62-64 is now retired and drawing Social Security benefits is startling when one considers that 16 years ago only 8.6 percent were in this category. Since labor force figures include persons who are not eligible for Social Security benefits, these figures are even more dramatic.

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The fact of earlier retirement before age 65 comes through clearly in a Social Security Administration retirement study which followed the lives of workers nearing the usual retirement age. The study began in 1969 with a sample of all workers between the ages of 59 and 63. In the 1973 interviews, the study found that one-fourth of those age 62 and working in 1969 had already retired in 1973, before they were 65. The same report found that at age 65, 40 percent had already retired.

A similar study by the University of Michigan's Survey Research Center and its Institute of Social Research looked into the plans of workers regarding retirement nationally and compared that to union members in the auto industry. A principal finding was an increase in early retirement planning. In the national sample portion of this study, approximately one-quarter planned to retire before the age of 65 in 1963. In 1968 the proportion increased to one-third.

The study then compared the national sample to that of auto workers who had negotiated a liberalized early retirement plan. This study found that of those union members able to retire between 1964 and 1967, the time of the study, approximately one-third had already retired, one-third planned to retire before age 65 and only one-third planned to continue working

and make no use of the early retirement benefit. In a followup in 1969, two years later, two-thirds had retired—so those who planned to retire did in fact retire. Clearly, a much higher proportion of these union factory workers planned and in fact retired earlier than those in the general population.

This University of Michigan study also explored the reasons for planned early retirement. Financial factors were the main consideration. This was true of both the national sample and the union members. Proportions of those planning early retirement differed largely because of the liberal early retirement options available to the auto workers at that time and not generally available to those in the national sample.

As clear evidence that early retirement is preferred, officers of Chrysler and General Motors testified in the 1977 hearings before the House Select Committee on the Aging that of those workers retiring in 1976, nearly 90 percent were under 65 and about a quarter were under 55.

A second, and tragic, factor causing planning for early retirement is the state of workers' health. Both studies found that approximately half of the workers felt they had health problems sufficient to limit their ability to continue working full time and yet not severe enough to qualify them for disability benefits.

As a vehicle to meet the special problems associated with job loss or marginal health problems, early retirement with reduced benefits has been around for some time.

Nearly all union negotiated pension plans contain some form of early retirement provision allowing workers to retire early at a reduced benefit. A need for this type of program is obvious since workers retiring early take a 20 percent reduction in their Social Security benefits if they retire at age 62. The early retirement option fills this gap between disability retirement and normal retirement for the worker with marginal health. The U.S. Department of Labor's Digest of Selected Pension Plans lists 103 negotiated retirement programs. Only five do not contain an early retirement option. These early retirement provisions permit the worker to retire before the normal retirement age with a reduced benefit.

The most common requirements are 10 years of service and age between 55 and 60. However, there are a number of variations with regard to both age and years of service. For example, the General Foods agreement with the Meat Cutters has no service requirement and permits early retirement at age 55. However, benefits available to the worker with less than 15 years of service are severely reduced. This option is available to those in marginal health.

The early retirement option normally contains provisions for reduced benefits. Between 1970 and 1975, 20 percent of the major plans analyzed by the Department of Labor improved the benefit reduction formula. The usual method of reducing benefits was formerly called an actuarial reduction, which represents the additional cost of early retirement averaged out over the life expectancy of the retiree. An actuarial reduction works out to 0.667 percent per month for each month under the normal retirement age of 65, or 8 percent per year. In fact, Social Security reduces benefits at 0.55 per month or about 7 percent per year. Union negotiated plans are improving on these formulas and a reduction rate of 0.25 percent, or 3 percent per year, is becoming common.

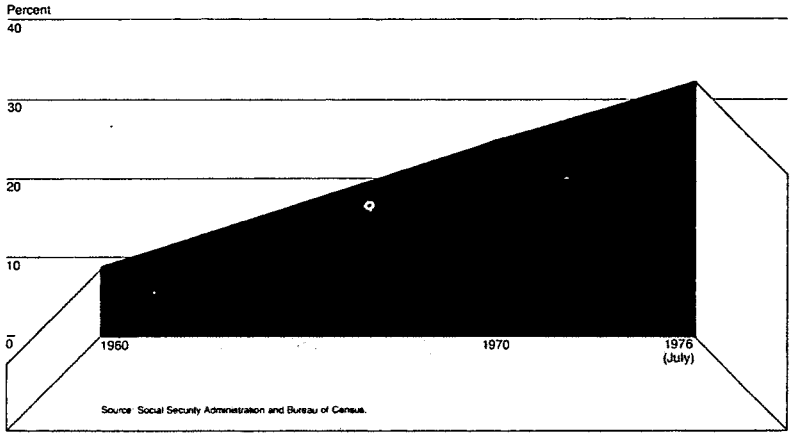
Prospective retirement income is the major determining factor in whether or not a worker can retire. For most workers, Social Security or Railroad Retirement benefits are the principal source of retirement income. Neither offer retirement benefits prior to age 62 and then they are reduced 20 percent, from what is now about $400 per month per couple at age 65 to about $320. Thus, early retirement prior to age 62, and to a lesser extent between 62 and 65 is a hardship option. It was available to those too sick to keep working but not sick enough for disability insurance, and those who have lost their jobs in the later years of life.

To meet the needs created by this gap in post retirement income, many unions began to negotiate special early retirement provisions in the 1960s and early 1970s. The growth in these plans has been dramatic. In an analysis of the changes in major retirement plans between 1970 and 1974 the Department of Labor reported nearly 20 percent of these plans contained special early retirement provisions and these were almost all negotiated plans. A major early retirement plan was included in the auto settlement in 1964, improved in 1970 with the "30 and out program." Thus, in 10 years their growth has been significant. The Department of Labor indication of growth did not take into consideration the improvements that have taken place in the early plans. Special early retirement programs have been negotiated by the Rubber Workers, the Steelworkers, Fire Fighters and UAW.

The Auto Workers plan with the three major auto companies allows a worker to retire with full benefits after 30 years of service regardless of age. The normal benefit is $9.75, $10, $10.25 or $10.50 per month per years of service depending on job classification. An early retirement supplement is then added to bring the pension to $650 per month. This amount goes to $700 per month for those retiring after Oct. 1, 1978. The worker retiring now receives the $650 per month from the plan from retirement age to age 62 when he is eligible for the reduced Social Security benefit. From age 62 to age 65 the pension is supplemented to maintain the $650 pension level. After age 65 the normal benefit is paid—for example, $10.50 times 30 years equals $315, plus a lifetime supplement of $80 per month and a $7.20 health insurance supplement.

Thus, before age 62, a single worker would receive $650 per month directly from the plan, between age 62 and 65 $400 per month from the plan plus reduced Social Security of $260 or $660 per month and after age 65 reduced Social Security of $260 plus the pension of $315 the, $80 lifetime supplement and the $7.20 insurance supplement or approximately $662 per month. These are approximations of the Auto Workers early retirement benefits. Because Social Se-

Percent of Population Age 62-64 on Social Security Retirement



curity benefits will change as the cost of living changes, no one worker would fit this path of earnings, and the basic program undergoes regular change. For example, during the 1976 negotiations a $600 inflation bonus was provided for the workers already retired even though the pension plan was not negotiable at that point in time.

The Steelworkers' pension agreement with U.S. Steel is representative of industry agreements on early retirement. These pension plans are particularly interesting because they relate early retirement, supplemental unemployment and other programs with the whole problem of worker income and job security.

At the outset the "normal retirement" age is defined as age 62 with 15 years service or 30 years regardless of age. By common definition this "normal retirement" is early retirement, yet there are even earlier options. The basic formula is $12.50 times years of service for the first 15 years of service; $14 times each year for the second 15 years; and $15.50 times all years over 30 years. Thus, the basic benefit to a worker with 30 years service would be $397.50 per month. With Social Security the steelworker would receive about $660 per month. After 1979, retirees will receive an additional $30 per month through improvements in the basic formula. There is also a second formula based on a 1.1 percent of earnings during the best five of the last 10 years up to 30 years and 1.2 percent thereafter, plus 5 percent of the result. The worker is entitled to best of these two formulas. At the time of retirement the worker is also entitled to a lump sum payment of 13 weeks pay less any vacation used during the preceding year, the pension payments beginning in the fourth full month of retirement.

The 1977 negotiations resulted in the new rule of 65 designed to meet the income security needs of steelworkers in addition to the older rule of 70 and rule of 80 plans. The rule of 65 retirement plan allows steelworkers with 20 or more years of service on the last day worked to retire when confronted with loss of their jobs or if they are disabled. Of the 340,000 workers under these agreements, about 140,000 have more than 20 years service. Under the rule of 65 plan; workers with 20 or more years of service (20 years service plus age equals 65) who are affected by a plant shutdown, extended layoff, or disability are entitled to normal retirement benefits plus a $300 supplement.

The supplement continues until the worker is eligible for Social Security. The worker continues to receive these benefits until he obtains suitable long term employment. These workers continue to receive the pension, but if they lose the new jobs the supplement resumes.

The other early retirement plans are the rules of 70 and 80. These rules are similar except for conditions to qualify for the benefits. Under the rule of 70, the worker is eligible with a minimum age of 55 and 15 years service—equalling 70 when combined. The rule of 80 has no minimums—age and service must equal 80. Both provide a $300 pension.

The Steelworkers extended and improved on the income security plan in their negotiations for the 32,000 workers in the aluminum industry. The age plus service equaling 65 plan including the $300 supplement is available as a straight forward early retirement program. Pension benefits were increased to $12.75 to $16.75 per month per year of service.

The Rubber Workers' B. F. Goodrich agreement has a "normal retirement" at age 62, with a separate early retirement plan with income supplements. "Normal retirement" is available to workers with 10 years of service and age 62 or 30 years and age 55. The benefit is $11.75 per month per year of service, capped at age 65 with a $6 age 65 benefit or $7.20 medicare supplement. A worker retiring with 30 years of service and not yet eligible for Social Security is entitled to supplemental benefits ranging from $77.40 to $145 depending on age, service and date of retirement to age 62. Under this plan workers taking early retirement average 58 years of age with monthly benefits of $470.

A special early retirement benefit is available to those who lose their jobs through "involuntary retirement under mutually satisfactory conditions." Under this part of the pension plan in the rubber industry a worker with 10 years of service and 55 years old is entitled to double the normal benefit times years of service until eligible for the unreduced normal Social Security benefit at age 65. After this they receive the normal benefit.

The Seafarers recently announced its pension plan was offering what amounts to a 20-year retirement plan after reaching 55 years of age. After 20 years of service and age 55 the seafarer is eligible for a monthly pension of $350. By staying in the service additional credits can be earned at the rate of $15 per year for a monthly pension of up to $455. The retiring seafarer is also eligible for a lump sum pension supplement ranging from $4,560 to $5,460 based on service.

The Seafarers' "early retirement" option of 20 years and age 55 with a supplement is significant in demonstrating how widely accepted early retirement has become.

One early program, the Fire Fighters, pays benefits without bridging the period between "normal retirement" and eligibility for Social Security. Social Security is often not available to these workers. The Fire Fighters early retirement really stems from the nature of the work; that is, it is not in the best interest of the community or the firefighter to have these workers in anything but the best and prime years of health.

The Washington statewide Fire Fighters' program allows early retirement at age 50 with five years of service. However, most workers retire with at least 20 years of service because few workers choose this line of work when they are over 30. Assuming a worker retires at age 50 with 20 years of service, he would receive approximately half his current monthly salary, or about $750 per month. This pension is adjusted for changes in the Consumer Price Index or relative to the current salary of the last position they held whichever is higher.

The idea of adjusting early retirement pension to the salaries of those presently working not only adjusts for changes in the cost of living but generally should allow the retiree to maintain the same relative life style.

In negotiating pension plans, unions have tried to make retirement programs attractive to older workers. However, as noted earlier, workers carefully assess their economic status prior to retiring. If inflation averages 6 percent per year, $100 of retirement benefits today is worth less than $75 in five years. With a longer life expectancy and the recent history of double digit inflation, the purchasing power of the retirement benefit has concerned workers contemplating early retirement.

Fortunately, Social Security now adjusts on an annual basis for changes in the cost of living. These adjustments are based on the changes in the first quarter of the current year relative to the first quarter of the prior year. The Social Security check received in the month of July restores the lost purchasing power. Unfortunately, the adjustment of benefits occurs about 18 months after the retiree began paying the higher prices.

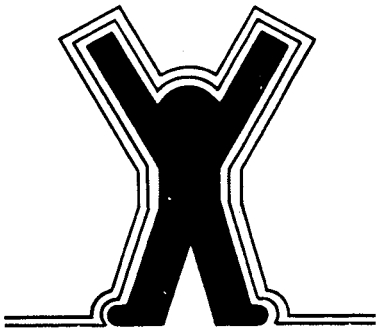
The pensions of federal government employees are also adjusted for changes in the cost of living. Until recently these pensions had an adjustment factor to make up for the delay between the impact of higher prices and restored purchasing power. Although this is no longer available to the federal employee, the concept itself was sound and the fact remains that they receive adjustment in their pensions to in part make up for loss of purchasing power.

As noted earlier, many of the Fire Fighters' pensions contain escalator clauses or tie the pension to the present salary of the position the retiree left. This approach adjusts the pension with the wage rate of the non-retired worker, which relates to changes in the cost of living as well as changes in productivity.

Although these concepts are relatively more common in the public sector, they are just beginning to be adopted in the private sector. During the 1974 negotiations, the Steelworkers negotiated an adjustment for changes in the cost of living for their retirees. In the last negotiations auto workers were able to negotiate $600 pension bonus to help retirees with the problem of inflation.

However, this approach of increasing pensions for retirees after retirement is not available in many smaller bargaining relationships because of the Supreme Court's Pittsburgh Plate Glass decision, which found that retirees were not employees, and therefore the employer did not have to bargain on their pensions unless it wanted to. One of the approaches open to the union in private industry is to bargain pensions that adjust for inflation automatically.

An example is the International Brotherhood of Electrical Workers' agreement with the Commonwealth Edison in Chicago. This IBEW agreement pro-



vides for early retirement at age 55 with a reduced benefit. The benefit is then supplemented up to the value of two-thirds Social Security at age 65. The pension escalator clause adjusts the pension of retirees for the loss in purchasing power and annually based changes in the consumer price index. It adjusts the pension upward after the CPI increases more than 3 percent in the year. The limit on the adjustments is 5 percent in a year and a lifetime adjustment of $200 per month. These adjustments are limited to the first $400 per month of pension and scaled down for the marital and family annuity and surviving spouse benefits.

When one compares this escalator clause to those adjusting the wages of current employees in the basic labor agreements, room for improvement becomes apparent, yet it is a major step in the right direction of protecting the purchasing power of pension benefits.

For early retirement to be a meaningful option, purchasing power must be secured against the damaging effects of inflation and to insure that the retiree shares equitably in our increasing national wealth through productivity. The retired workers laid the foundation for the productivity gains and it is a cruel hoax for a worker to voluntarily retire early, expecting to enjoy the gains of his previous efforts, only to have those gains slowly eaten away by inflation. Yet there are workers who are involuntarily retired due to plant closure, unfairly competitive foreign trade, automation and other factors.

As pointed out earlier, one of the major achievements of the 1977 steel and aluminum industry negotiations was the intergradation of early retirement into the overall plan for job and income security. Although at the present time these are the leading plans, many others have negotiated pension plans that help soften the blow of job loss in the later years of a worker's industrial employment. Though there are laws prohibiting age discrimination, jobs are still hard to obtain for workers in their 50s. When new employment is found, it often means starting all over again. The new job usually means lower benefits, lower wages and little job security.

Early retirement is used in many agreements as an alternative to unemployment or to soften the blow of job loss in many negotiated pension plans. One in five of the major pension plans analyzed by the Department of Labor contains special early retirement provisions in lieu of layoff.

Characteristic of these special early retirement plans is the Machinists agreement with Union Carbide Corporation. This agreement provides that in the event of involuntary termination for any reason other than discharge for cause the worker is entitled to normal benefits if the worker meets any one of the following criterias: age 53 with 33 years of service; age 58 with 28 years of service or age 60 with 8 years of service.

With early retirement options common and many workers retiring before age 65, there is the question of how 65 became established as the normal retirement age. There is nothing to support it but custom and the custom is changing. The United States copied the age 65 normal retirement concept from the German social-welfare system introduced in the 1880s. At that time the male worker's life expectancy was just over 40, and few lived to enjoy retirement.

When the United States adopted the Social Security System in 1935, age 65 retirement had taken on meaning. The average life expectancy for males had improved to 62 and many workers lived to enjoy retirement. Life expectancy has now improved so that the worker retiring today at age 62 can expect 17 years of retirement, while the worker retiring at 65 can expect 14 years of leisure.

By the end of World War II many private pension plans had been established with normal retirement established at age 65. As a result, age 65 had become institutionalized before unions could demand that the employers bargain the terms and conditions of retirement. It wasn't until 1949 that the right to bargain on pension plans was established.

In retrospect, collective bargaining has brought great change to the custom of retirement at age 65. In this period, unions first improved basic pensions in the 1950s, established early retirement options were added by the mid 1960s, 30 and out plans were implemented with the early 1970s. Early retirement has become a part of lifetime income security in 1977 and meaningful cost of living clauses are spreading to private pensions.

The average retirement age is decreasing and it's decreasing because workers are looking for more leisure. Hardly a contract proposal is developed without a proposal for earlier retirement and better pensions. As a result, many workers can now look forward to retirement in their mid or early 50s with a pension that will allow them to maintain their relative standard of living. There can be no doubt that American workers are on their way to shorter working careers.

Shorter Hours—The Steady Gain

by John Zalusky

The logic of a shorter work week creating more job security and jobs is an historically valid method of dealing with the problems of unemployment and the improvement of the worker's standard of living.

In the 1860's, the average work week was estimated at 68 hours per week—the 12-hour day, six days per week was common. The colonial laws of the Massachusetts Bay Colony in 1630 established the hours of work for building tradesmen at 5:00 A.M. to 8:00 P.M. during the summer and from the "spring of day to night" during the winter. Sunday was the only day of rest from these long work weeks. Retirement and paid holidays were unknown.

If we currently worked 70 to 75 hours per week without vacations, holidays, and early retirement the unemployment rate would be near half the work force. The effect would be a working elite with high incomes and the other half on unemployment and welfare, supported by those working. The shorter work week has historically created jobs along with retirement plans, holidays, and vacations. In 1938, the Fair Labor Standards Act provided a penalty of time and one-half for work over the 40-hour work week. This was done as a means of providing more job opportunities. Many writers looking at weekly hours of work feel that it's been stuck at nearly 40 hours since the 1930's.

It is true that hours of work have not decreased as rapidly since the 1930's as they did before, but hours of work have been decreasing. The results of higher overtime rates, voluntary overtime clauses, and negotiated shorter work weeks are beginning to have an effect. But time and one-half for hours over 40 per week has not deterred overtime even while other workers are being laid off. And, that is part of the problem in looking at BLS data on hours of work; too many look at only the average hours of work rather than the scheduled hours and scheduled days of work. Scheduled hours of work have been decreasing.

As pointed out earlier, it was common in colonial times through the 1930's to work six days a week. And even today, BLS data points out the work days of more than five days are still more common than those of less than five days. Workers working less than 35 hours are not considered full time by definition. Thus, those who have work weeks of less than 35 hours are not included. This excludes some of the better labor agreements from the statistics. Workers scheduled to work less than 40 hours a week normally work five days per week. Of those with schedules between 35 and 39 hours, 93.4 percent worked five or more days per week in 1974.

The Bureau of Labor Statistics' Current Population Series on hours of work shows a steady decline from 41.1 hours per week in 1948 to 38.2 in 1976 for nonagricultural wage and salary workers. This series is based on household interviews and closely approximates the "usual work week." The percent of workers who work a 40-hour week has remained relatively unchanged since 1948—45.2 percent in 1948 and 45.5 percent in 1976. The significant change reflected in this series is the shift on either side of the 40-hour week. In 1948, 26.6 percent worked between 41 to 48 hours per week. This proportion dropped to 10.9 percent by 1976, while the proportion on the shorter work week picked up. Those working 35 to 39 hours per week increased from 4.2 percent in 1948 to 7.9 percent in 1976, and the proportion working 30 to 34 hours per week has increased from 3.7 percent in 1948 to 6.1 percent in 1976. Although this data includes regularly scheduled overtime, it clearly demonstrates that the usual hours of work have been shifting to less than 40 per week.

The Bureau of Labor Statistics' Area Wage Surveys also demonstrate the trend to the shorter work week. These surveys separate plant workers and office workers and the regions of the country. Both categories of workers have been working shorter work weeks when compared to ten years ago.

In 1964-65, the average scheduled work week for office workers was 38.9 hours per week, while for plant workers it was 40.4 hours. The same series reported the average scheduled hours decreased in 1973-75 to 38.7 and 40.1 respectively. However, more important than this decrease in the average is the way the average was arrived at. There has been a large decline in the percent of workers working more than 40 hours and an increase in those working less than 40 hours, particularly for production workers.

In 1964-65, 81 percent of the plant workers were scheduled to work 40 hours per week, and 11 percent were scheduled to work more than 40 hours with only 8 percent scheduled to work less than 40 hours. By 1973-75, the percentage of plant workers scheduled to work over 40 hours per week had dropped two percent to nine percent of those covered by the survey. Some of these workers were absorbed in the group scheduled to work 40 hours since that increased one percent to 80 percent. The groups scheduled to work less than 40 hours per week increased from eight percent to eleven percent.

The regional differences in the scheduled work week still exists with the Northeast region having the shortest work week and the South having the longest. However, the pattern toward the shorter work week is national with the South decreasing the percent of plant workers scheduled to work more than 40 hours by five percent and those scheduled less than 40 hours increasing from five percent in 1964-65 to ten percent in 1973-75.

The trend toward shorter work weeks for office

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workers has not been as rapid largely because they have historically worked fewer hours than production workers. In 1964-65, 62 percent were scheduled to work 40 hours per week; by 1973-75, this figure dropped to 58 percent. The percent working more than 40 hours dropped from one percent to less than half a percent. Those with scheduled work weeks of less than 40 hours increased from 36 percent in 1964-65 to 41 percent in 1973-75 with 11 percent scheduled to work 35 hours.

There are distinct regional patterns to scheduled hours of work. The Northeast region of the United States has noticeably shorter hours than any other region. Office workers in Newark, New Jersey, averaged 36 hours per week with New York City averaging 36.4 hours per week and Boston 38.7. Plant workers in the same area were very close to the 40 hour week. In the far West, there is little difference between plant and office workers, and the scheduled work is close to 40 hours per week for both. The same is true of the North Central region. But the South has shorter hours for office workers—the average is 39 hours per week, while plant workers average 40.

Scheduled work weeks of less than 40 hours are growing in labor contracts slowly but steadily. In the 1972 BLS study of major private sector collective bargaining agreements covering 1,000 or more workers, 9.6 percent of those that described the work week had scheduled weekly hours of less than 40, and this represented 8.5 percent of the workers covered by these agreements. By 1975, the ratios had increased to 11.1 percent of the agreements and 11.0 percent of the workers.

In the public sector labor agreements—state and local governments—seven percent of the agreements and five percent of the work force covered by these major public sector agreements had scheduled work weeks of less than 40 hours.

Clearly there is movement toward a shorter scheduled work week quietly taking place in negotiated settlements. But, the shape of these work weeks is just as important as the trend itself. Of those agreements having work weeks of less than 40 hours, 65 percent had 35-hour work weeks, all of them on a five-day schedule. In 1975, only two agreements with 1,000 or more workers reported four-day weeks, and both had nine-hour days, not the ten-hour days often discussed in the press.

The printing trades, including the International Typographical Union, Graphic Arts International Union, Printing and Graphic Communications Union, and The Newspaper Guild, generally have achieved the 35-hour work week. Among the Graphic Arts' "Printing Center" agreements with 35-hour work weeks are Boston, Chicago, Cleveland, Detroit, Kansas City, Los Angeles, Rochester, Milwaukee, Cincinnati, Philadelphia, St. Louis, Seattle, Twin Cities, and Washington, D.C.

The shorter work week also exists in the construction industry. Since many construction agreements cover less than 1,000 workers, they are not a part of the BLS analysis of major agreements. One union, the International Brotherhood of Electrical Workers, reports 51 U.S. construction agreements with shorter work weeks. Twenty-five of these agreements have work weeks of 35 hours or less. The Carpenters reported a number of 35-hour work week agreements. One of the larger agreements is the Keystone District Council agreement which includes Pittsburgh.

The Air Line Pilots and Transport Workers in the air transportation industry generally have a short work week for flight crews. These schedules are extremely complex. But in general, there are three time structures, "block-to-block time," "duty time," and "time away from home. Block-to-block time begins running when the chocks are pulled at the beginning of the flight and the plane is ready to move until the wheels are chocked at the next terminal. This is typically 50 hours per month for pilots and 65 for cabin attendants or 11.5 and 15 hours per week, respectively. "Duty time" begins to run when they report for duty until relieved after the flight. For pilots, duty time is typically 100 hours per month, and for cabin attendants 120, or 23 and 28 hours per week, respectively. Thus, these workers have a short work week, in the usual sense, but one must also remember that spending time away from home waiting for the return trip isn't really the same as time off the job. When this time is added in, their work week is typically between 35 and 40 hours per week.

The Service Employees' agreement covering 12,000 workers in the Metropolitan New York Nursing Homes provides a 35-hour week and is one of several of that union's contracts with shorter work weeks. The San Francisco Master Window Cleaners' Agreement has a 37.5-hour work week, as do the Building Owners and Managers Association and Maintenance Contractors Agreement. In Los Angeles, 8,000 workers under Maintenance Contractors Agreement also have a 37.5-hour work week.

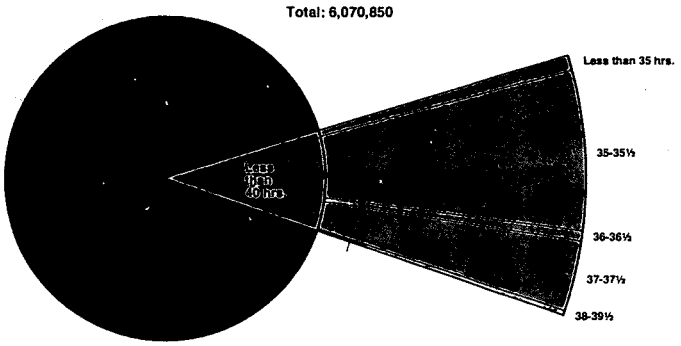
The 35-hour work week is a way of life in the New York garment industry and has been for years. For example, the Clothing and Textile Workers and the Ladies' Garment Workers have bargained the 35-hour week for years. However, this is not unique to the New York garment industry. The ILGWU has also negotiated the 35-hour work week with the garment industry of St. Louis.

Over the last few years there have been changes in some labor agreements increasing the hours of work. In these cases, competition for the workers' jobs forced these concessions.

The electricians in New York City have returned to the 35-hour work week from 25 hours. The union felt compelled to return to the historic 35-hour week due to unfair competition from nonunion contractors. The nonunion contractors worked 40 hours per week at straight-time rates. The same condition recently forced the New York Bricklayers to increase their scheduled hours of work.

Many of the rubber agreements went to the 40-hour

The Workweek Under Major Union Contracts



Source: Bureau of Labor Statistics, characteristics of major collective bargaining agreements, Bulletin No. 1957, as of July 1, 1975.
Under major (1,000 or more workers) contracts. Contracts mentioning scheduled weekly hours total 1,323 and cover about 6.1 million workers.

week from 36. The principal reason was that the companies were opening southern plants on 40-hour weeks threatening the jobs of the workers in older northern plants. In this way, employment security was achieved by extending hours of work. However, Goodyear has retained a 36-hour work week in Akron, Ohio, as did a number of other locals.

The increase in the hours of work under these agreements are forced due to unique competitive pressures and are not representative of trends.

In the last few years there has been a lot of experiments and discussions in academic journals about "alternate work schedules."

"Flexible working hours" essentially means that a worker can come in later or earlier and make up the time later in the day, week, or month. As a part of these plans, there is a time period when all the workers are expected to be on the job, known as "core" time. Flexible time on the daily basis presents few problems to labor; in fact, the Communications Workers have negotiated it with three Bell Telephone operating companies.

However, when the idea is extended to span a week or a month, employees feel there is a conflict with a number of federal statutes that require premium pay for the hours of work over an eight-hour day, and the Fair Labor Standards Act which requires time and one-half after forty hours per week. Generally, labor is not prepared to compromise the legal protections of the majority of workers to benefit the few who may be able to enjoy a flexible work week or month. The flexible work day is another matter. Workers like the idea of coming in an hour late and being able to make it up at the end of the day. It avoids the hassel of tardiness and being docked for being late. Most executives have enjoyed it for years and so have many clerical workers. In fact, the flexible work day is quite pleasant.

Overtime payments tend to decrease under flexible time. This may be due to using flexible hours to balance the employer's manpower needs. This can be dealt with by contract language insuring that workers voluntarily schedule their own work times and that overtime is paid when supervisors ask a worker to come in early or stay late.

Many workers resent the usual requirement that they punch in and out on time clocks when it has not been the practice before. The use of time clocks regardless of the record keeping desires of the employer conveys the impression that the worker is less trustworthy than management. Management, of course, is not required to punch in and out in most situations. Interestingly, the holder of one of the major copyrights in consulting on flexible time is the seller of time-keeping systems.

"Work sharing" is essentially taking a full-time job and making it two or more part-time jobs. The claimed reason is to provide jobs for those who would like part-time work but cannot find it. The examples often cited are students and housewives. "Permanent part time" in some situations would make sense. But, today because of generally high unemployment, it would aggravate the job situation. There are 3.2 million part-time workers who want to work full-time jobs. To the extent that "work sharing" decreases employment opportunities for those looking

for full-time jobs, it presents a problem.

An often cited example of permanent part-time success is the Control Data Corporation experiment in St. Paul, Minnesota. Mothers on welfare and students in St. Paul work part-time in printing, collating, and binding computer manuals and the firm's reports. The hourly wage rates are half the going rates for union workers working under the local Graphic Arts International Union agreement. For example, Control Data pays the part-time machine operator $3.40 per hour while the union rate is $8.40 per hour. Additionally, there is reason to believe that the union shops in the area can do the work in much less time. This experiment really demonstrates that "work sharing" is not more productive, it's simply a profitable method of obtaining cheap labor—students and mothers on welfare.

Part timers often work cheaper and are willing to forego the fringe benefits that a worker looking for a full-time job must have to care for a family. Even if the employer prorates the medical care program, the result will be inadequate coverage for a worker who needs full medical benefits. Turnover is likely to be higher on part-time jobs—in fact, some employers expect high turnover, reducing the costs of service related benefits; for example, vacations and pensions.

The Retail Clerks and many other unions represent part-time workers. However, they are part-time jobs created by the nature of the business—they are not former full-time jobs.

The "compressed work week" or the 10-hour day, four-day, 40-hour week concept has been suggested in this country since the late 1960's. One firm has compressed the work week to 12-hour days, three-day week, 36 hours per week. A BLS study found that this concept has not caught on. This 1974 study of days of work reported only two percent of the work force worked less than five days a week and only ten percent of this group worked 10 hours per day.

There are a few situations where the compressed work week has been negotiated, but usually in the service industries where it meets the peculiar needs of the business. Workers, unless they are single and look for long weekends, have expressed little interest in the idea.

The eight-hour day is a basic labor standard in many agreements. If the employer wants to work ten hours a day, then time and one-half for all hours over eight per day seems a reasonable solution. The effect is a 10 percent increase in wage costs, but a smaller percentage on total compensation.

There are a number of laws that relate to hours of work. The Contract Work Hours and Safety Standards Act, Walsh-Healy Public Contracts Act providing overtime premiums for hours of work over eight per day for people working for employers with government contracts. The Federal Pay Act providing, among other things, the eight-hour day for federal government employees has now been modified to allow experimentation with flexible hours over the week. And finally, the Fair Labor Standards Act provides premium pay for hours of work over 40 per week. This is the act that has broadest control on hours of work and the one labor seeks to amend to 35 hours per week with double time for overtime. When considering a shorter work week in negotiations, these statute's regulations must be carefully considered.

For example, the Fair Labor Standards Act's regulations require that lunch periods of 20 minutes or less may not be treated as time off the job when calculating the employer's overtime obligation. Thus, the half hour or hour lunch break is more economical to the employer than a 20-minute lunch period. When considering hours of work on jobs that are a part of operations that require 24 hours per day coverage, the meal period becomes a real consideration.

Some shift work plans provide the day shift with four hours of work, a lunch period of one hour staggered between employees to maintain coverage, and four hours in the afternoon. The day shift, in effect, has the standard eight-hour day, 40-hour week. The afternoon shift then works a full eight hours with a paid half hour or 20-minute lunch on the job. The real working time is seven hours and 40 minutes or a little more, but coverage is eight hours. The last shift then works seven hours for eight hours pay with the lunch period paid for in the same fashion as the second shift. The result is six hours and 40 minutes of work, seven hours coverage to complete the 24 hour coverage, and one hour and 20 minutes shift work bonus.

Another approach is to pay eight hours for seven and a half hours of work with staggered lunch period to provide 24 hours of coverage.

On the face of it, these appear to be a shorter work week and many describe them as such. It is clearly less time away from home and an improvement over the basics required by law.

In summary the need for a shorter work week, earlier retirement and generally more time off the job with pay stems from the necessity to provide job security. A shorter working career is not the only answer to job security and unemployment, but it is one the workers can implement through collective bargaining, and they have been doing so. Another route is through legislation, such as amending the Fair Labor Standards to provide a 35-hour work week and double time for overtime.

The evidence indicates that not only is retirement occurring earlier but that longer vacations are being negotiated as are more holidays, and the scheduled work week has been decreasing.

The AFL-CIO's call for the shorter work week is geared to producing more total hours of work by getting the unemployed back on the job. Part of the appeal for a shorter work week is a demand for more leisure time, but the strongest push comes from a desire to protect and increase jobs.

Representative BOLLING. Thank you, Mr. Zalusky.

Next is Mr. Jack Carlson, vice president and chief economist for the Chamber of Commerce of the United States.

During 1977 he testified 40 times before committees of the Congress and met with business and financial leaders on public policy in Western and Eastern Europe and in the Middle East.

I thought you had been before the Joint Economic Committee 40 times.

He was president of a small business. He has had broad experience in government: Assistant Secretary of the Department of the Interior, 1974–76; assistant director of the Office of Management and Budget, 1968–74; senior staff economist with the President's Council of Economic Advisers, 1966–68; and assistant to the Secretary of Defense in the Air Force, 1964–66; plus a variety of other experiences.

He has a bachelor's and master's from the University of Utah and a doctor's from Harvard University, where he was subsequently a fellow. He has taught at several universities.

You are on, Mr. Carlson.

STATEMENT OF JACK CARLSON, VICE PRESIDENT AND CHIEF ECONOMIST, CHAMBER OF COMMERCE OF THE UNITED STATES, WASHINGTON, D.C.

Mr. CARLSON. You can see that this is appropriate. I can't even hold a job. Also in terms of testifying 40 times, my productivity is very low given the results.

Bob Clark and John Zalusky have indicated some of the descriptive material, but let me generalize. During the 20th century workers have taken about 75 percent on the average of their gains in output in the form of increased real income and consumption. About 25 percent of workers' gains were taken in the form of reduced hours of work.

During the period 1900 to 1940 the length of the workweek declined from nearly 60 to 40 hours. Since 1940, the workweek for full-time workers has stabilized at 40 hours until today. However, a larger proportion of workers is working part time now.

This has meant that the average workweek for both part-time and full-time workers has declined to about 36 hours in recent years and can be expected to decline further in the future because of the addition of part-time workers.

During the period from 1935 to 1950 work hours were reduced by adding paid holidays and paid vacations. By 1950, 16 to 20 days of paid vacation or holidays were well established in many sectors of the economy.

Since 1945, workers have also reduced working hours by delaying entry into the labor force and accepting earlier retirement.

Following World War II, Congress initially encouraged later entry into the work force by subsidizing education for returning veterans through the GI bill. The pattern of late entry on the job became widespread even after the GI bill benefits became less significant. By 1970, 90 percent of those people born during 1945 and later had completed high school compared to only 25 percent of the population in 1940. By 1970, one-quarter were college graduates compared to less than 5 percent in 1940.

Also, more education meant more productivity. Moreover, the worker today is more productive, which, in turn, is leading to fewer routine and repetitive type jobs.

The expanding social security system encouraged people to retire at age 65 and penalized their working longer, even though their life expectancy was increasing and they would be idle for a longer time period. While only 55 percent of men over 65 were retired in 1950, the proportion has risen to over 75 percent in recent years.

There is no reason to expect workers in the future will deviate from the trend of the past leading to shorter workweeks with increases in productivity. Rocognizing, however, that productivity growth has been significantly declining in recent years, the trend toward shorter career lives with increasing life expectancy does not appear likely. Rather, shorter workweeks and days appear to be the wave of the future, such as a 4-day workweek, a 6-hour workday and flexible part-time work schedules. Already some industry work schedules are close to a 4-day workweek, such as in the automobile industry. More and more full- and part-time jobs are subject to flexible scheduling. By the turn of the century 4-day workweeks of 32 hours and many variations of flexible time schedules are likely to prevail in some sectors.

At the same time as the average workweek, the average workyear and average lifetime work hours declined, married couples were experiencing a marked increase in hours of work. The average married couple worked for pay about 68 hours per week at the turn of the century, with the male spouse working almost all of those hours. In sharp contrast, an average married couple today works about the same number of hours, but the female spouse is working nearly as long for pay as the male spouse. Female spouses are increasingly working full time as are their male spouses. This is reflected by the increasing participation rate of women in the work force which is now over 55 percent for women 25 to 64 and is forecast to reach 70 percent by 1990.

Business people will face a major challenge to adapt to these trends:

Business will need to consider the employment needs of both husbands and wives in its plans, moves or promotions, vacations, schedules, et cetera.

Business will need to develop different supervisory techniques for the greater flexibility in working schedules.

Business will need to review the role of older workers.

Business will need to structure jobs that are more challenging and can use the greater capability and competence of more highly educated and trained workers.

Business will need to consider location of their facilities to accommodate more closely with the interests of their workers, which in recent years has been interpreted as moving to the Sun Belt or the West. Coordination with public authorities will have to increase, such as highway use to and from work.

Similarly, workers, consumers and Government will be challenged to meet the changing worktime in the future as we see the trends of the past going.

[The prepared statement of Mr. Carlson follows:]

Prepared Statement of Jack Carlson

Work Time in the Future—Challenge for American Business

I am Jack Carlson, Vice President and Chief Economist for the Chamber of Commerce of the United States and I welcome this opportunity on behalf of the National Chamber to present our comments on Work Time in the Future—Challenge for American Business.

During the twentieth century workers have taken about 75 percent of their gains in output (productivity) in the form of increased real income and consumption. About 25 percent of workers' gains were taken in the form of reduced hours of work.

REDUCTION IN THE WORKWEEK

During the period 1900 to 1940 the length of the workweek declined from nearly 60 to 40 hours. Since 1940, the workweek for full-time workers has stabilized at 40 hours until today (figure 1).

Figure 1

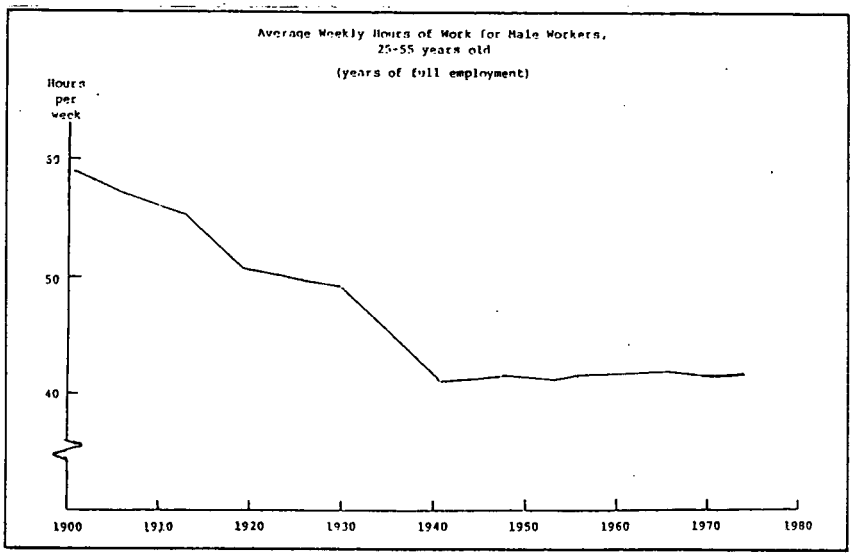
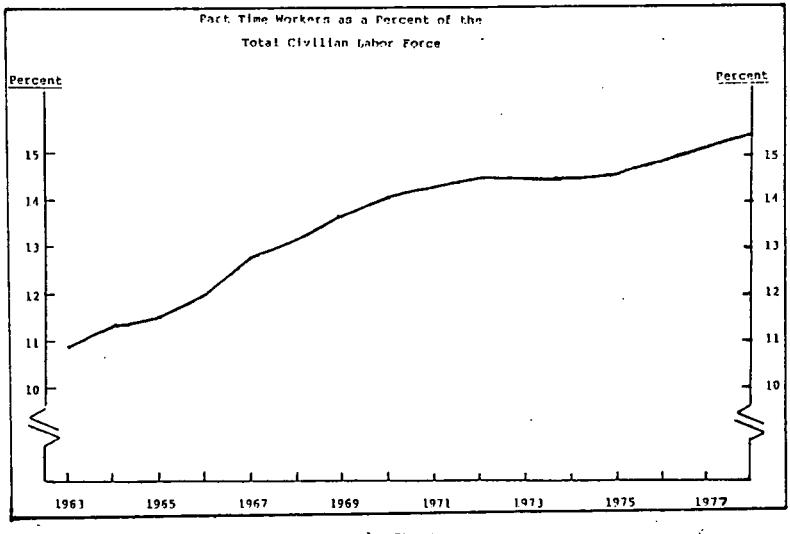
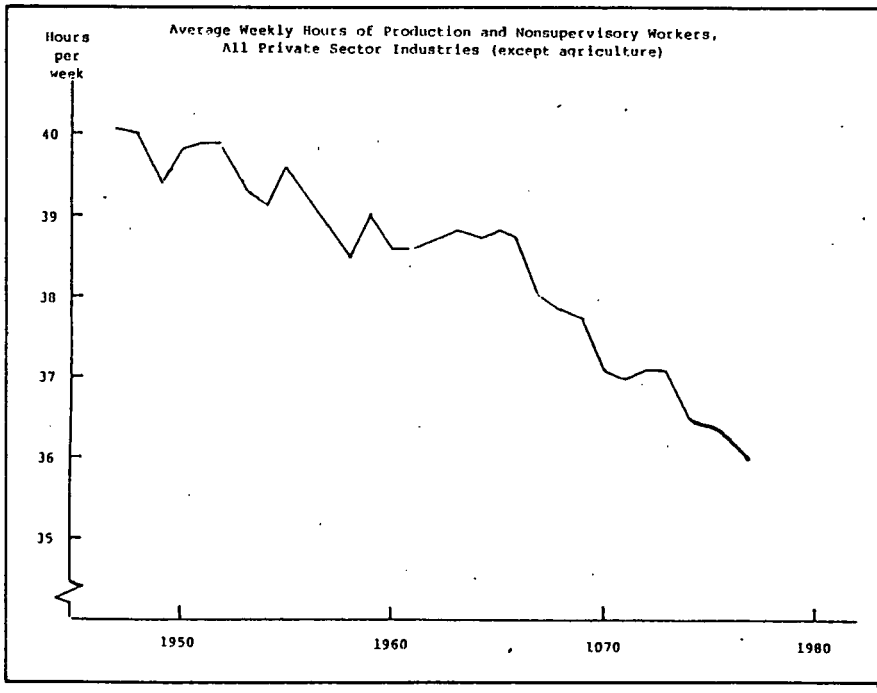


Figure 2



However, a larger proportion of workers is working part-time now (figure 2). This has meant that the average workweek for both part-time and full-time workers has declined to about 36 hours in recent years and can be expected to decline further in the future (figure 3).

FIGURE 3



REDUCTION IN THE WORK YEAR

During the period from 1935 to 1950 work hours were reduced by adding paid holidays and paid vacations. By 1950, 16 to 20 days of paid vacation or holidays were well established.

REDUCTION IN THE WORKING CAREER

Since 1945, workers have also reduced working hours by delaying entry into the labor force and accepting earlier retirement.

Following World War II, Congress initially encouraged later entry into the work force by subsidizing education for returning veterans (GI Bill). The pattern of late entry on-the-job became widespread even after the GI Bill benefits became less significant. By 1970, 90 percent of those people born during 1945 and later had completed high school compared to only 25 percent of the population in 1940. By 1970, one quarter were college graduates compared to less than 5 percent in 1940.

Also, more education meant more productivity. Moreover, the worker today is more productive which in turn is leading to fewer routine and repetitive type jobs.

The social security system encouraged people to retire at age 65 and penalized their working longer, even though their life expectancy was increasing and they would be idle for a longer time period. While only 55 percent of men over 65 were retired in 1950, the proportion has risen to over 75 percent in recent years.

REDUCTION IN THE FUTURE

There is no reason to expect workers in the future will deviate from the trend of the past leading to shorter work weeks with increases in productivity. The trend towards shorter career lives with increasing life expectancy does not appear likely. Rather, shorter work weeks and days appear to be the wave of the future, such as a four day workweek, a six hour work day and flexible part-time work schedules. Already some industry work schedules are close to a four day workweek, such as in

the automobile industry. More and more full- and part-time jobs are subject to flexible scheduling. By the turn of the century four day workweeks of 32 hours and many variations of flexible time schedules are likely to prevail.

INCREASE IN WORKING HOURS FOR FAMILIES

At the same time as the average workweek, the average work year and average life time work hours declined, married couples were experiencing a marked increase in hours of work. The average married couple worked for pay about 68 hours per week at the turn of the century, with the male spouse working almost all of those hours. In sharp contrast, an average married couple today works about the same number of hours but the female spouse is working nearly as long for pay as the male spouse. Female spouses are increasingly working full-time as are their male spouses (figure 4).

This is reflected by the increasing participation rate of women in the work force which is now over 55 percent for women 25–64 and is forecast to reach 70 percent by 1990 (figure 5).

FIGURE 4

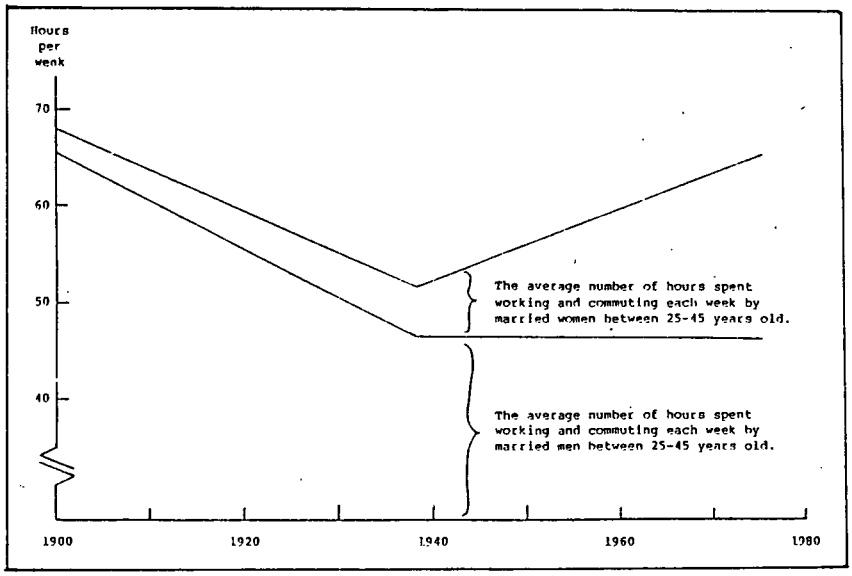
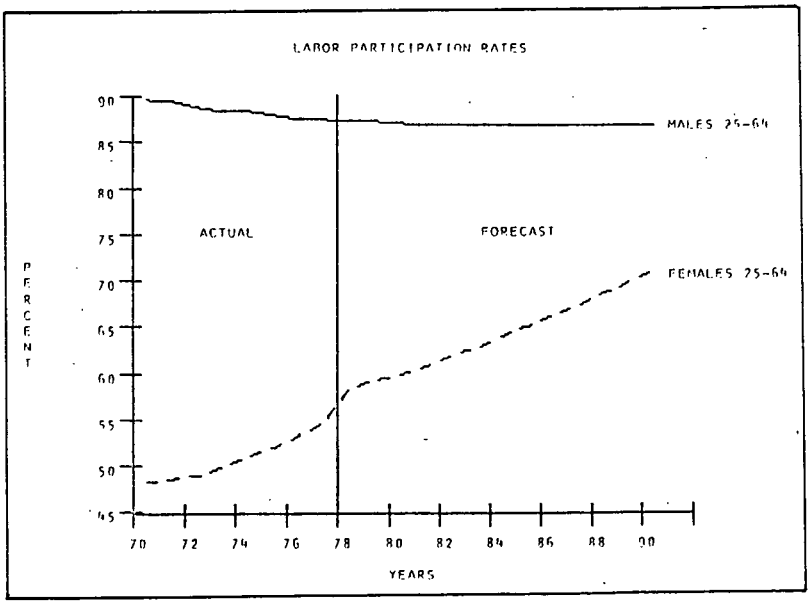


FIGURE 5



Business people will face a major challenge to adapt to these trends:

Business will need to consider the employment needs of both husbands and wives in its plans, moves or promotions, vacations, schedules, etc.

Business will need to develop different supervisory techniques for the greater flexibility in working schedules.

Business will need to review the role of older workers.

Business will need to structure jobs that are more challenging and can use the greater capability and competence of more highly educated and trained workers.

Similarly, workers, consumers and government will be challenged to meet the changing work time in the future.

Representative BOLLING. Thank you.

Next is Mr. Howard Young, special consultant to the president, United Auto Workers, Detroit, Mich. He was a UAW staff member from 1960 to 1971, returned to UAW in 1974; with a wide range of assignments in areas of direct interest to the UAW president. This covers collective bargaining as well as public economic and social policy. Activity includes analyses and recommendations regarding policy provisions, preparation, implementation, and adaptation of programs in collective bargaining negotiations and participation in congressional and similar hearings.

His assignment also includes responsibility as director of the research department and of the information systems—computer—department. We are delighted to have you.

STATEMENT OF HOWARD YOUNG, SPECIAL CONSULTANT TO THE PRESIDENT, INTERNATIONAL UNION, UNITED AUTO WORKERS, DETROIT, MICH.

Mr. YOUNG. I will cover the material that is in my prepared statement, but I will not stick to the same sequence as there. Actually, many of the points have already been said, so I would like to reemphasize a few concepts, indicate where we at the UAW see the future going, and tell you briefly about the program we innovated in 1976 to move ahead in the area of reduced worktime.

I think that it is important to emphasize the distinction between work or whatever term one wants to use, meaning human effort directed toward production, and employment, work which takes the form of a paid job. Employment does not cover all the work in our society, and I would like to come back to that later since we think that has implications for the whole question of the feasibility and the trend of automation.

Second, the distinction between employment as it is motivated by the need to get enough work input to produce the output desired and, on the other hand, employment as it is used in our society to establish a claim on the output to give everybody an income.

Employment related to the production of output ought to be thought about in terms of the hours of employment. But employment related to income ought to be thought of in terms of jobs; and frequently, when one sees projections of the future, that distinction is not made.

Now, looking to the future, it seems to us in the UAW more likely there will be too many looking for jobs rather than too few unless the hours per job continue to decrease. I think the others have clearly made the point that there has been a decrease in the past, but it is interesting that so much of the public discussion about reduced worktime in the future seems to treat that as a new

or novel development. The three speakers made it clear that that is not true.

The alternative to reducing work hours per job is unemployment, which itself is a form of reduced worktime but a very inequitable one.

Now, in the short run, such as the current situation, unemployment would be better soaked up by expanding output. There is a lot that needs to be done, but these are not the hearings to get into that.

In the longer term the alternative to unsatisfactory levels of unemployment is fewer regular scheduled work hours per job. I would like to emphasize that fewer hours per job does not necessarily imply fewer aggregate hours of work. The labor force will grow, so we can certainly have more total work in the economy with fewer hours per job.

What we anticipate is that the aggregate output and demand for output will not grow fast enough to maintain the present level of hours per job and there will be a continuing growth of unpaid; that is, nonemployed work, provided by the ultimate consumer of the output.

The question is not whether output will grow. We think there is no doubt that that will happen; but whether its growth will be large enough to overcome the combined increase in the labor force and in productivity. And we seriously doubt that that will happen.

Instead, what we foresee is, as in the past, a simultaneous increase in per capita real income and reduction in worktime per job.

We anticipate that productivity increases will continue to be substantial, especially because of computer-related developments. We think that the implications for the service sector, where productivity growth has not been as great in the past, are just enormous, and we are really on the threshold of learning how to utilize the breakthroughs that have been made in that area.

Just take the banking industry, which has been in the past the epitome of a person-to-person service industry. Not long ago the idea of doing your banking without going to a teller who physically counted your money as you stood there and watched it was inconceivable. Now we have the tremendous changes taking place with people walking up to a machine and either putting money into the machine or getting it back out with very little human interaction at that point.

That also is part of the work shifting item that I referred to. Take the illustration of the telephone company.

The phone company has automated to a great deal and allowed an operator to handle many more calls. But the other thing the phone company has done is it has shifted some of the work the operator did to you and me when we make a long-distance phone call. Instead of asking her to place a call and telling her the number, we punch into the phone 10 digits. That is not a great deal of work for you and me to do, but in the overall it moves a great deal of work out of the employed sector and over to the ultimate consumer.

You do not even have to have the sophistication of the telephone to see that kind of thing happening. There is the growth of self-service gasoline stations, where instead of having a paid individual

come up and put the gas in your car you drive up and pump it. Work has been moved out of the employed sector.

Coming again to banking, one of the ways in which the banking automation is working is by enabling the consumer to interact with the bank's computer without the intermediary such as the key puncher or a teller or anyone else; but instead you and I walk up and work directly with the machine.

For all of those reasons we think it is almost selfevident that there will be reduced worktime in the future.

Let me tell you briefly about the innovation we developed in 1976, to move ahead in this area; what we call our paid personal holiday program, which is at all of the major auto companies and at some supplier companies.

We had three basic goals which we felt had to be met: One, that workers had more leisure time; second, that there would be a stimulus for the employers to hire more people; and third, that we would not undercut the employer's ability to utilize their capital equipment.

There were two other very practical considerations that had to be faced up to. First we wanted to develop a program which would be built on incrementally. We knew we were not going to the 4-day week overnight, and we have long-term experience in bargaining of getting to an ultimate goal in small steps. And second, but running somewhat contrary to that, the point which has been noted before, that it does seem that people would rather have full days off rather than some small shortening of the workday or even of the workweek. People would rather have a full 8 hours off than going to 7 hours and 24 minutes or 2 hours off Friday or anything of that nature.

We, therefore, ultimately designed and negotiated a program which gives individually scheduled mandatory days off.

This past contract year, which runs roughly from September through June, every worker had 5 days which were scheduled for him, assigned to him in advance, and he simply was mandatorily out of the plant on that day. He could not come in and say he would rather work. From his point of view, to all intents and purposes it was a holiday. Next contract year that will be 7 days off.

The most difficult part of the entire discussion, aside from the question of whether or not there should be a new benefit, was the whole concept of how that scheduling would work. It has been eminently successful as far as we could see, and perhaps the interesting thing about the interdependence of all of these issues is I suspect this is the first benefit we designed that could not possibly have been implemented without computers. The scheduling is quite complex, but it works very well.

Let me just give you a flavor of that with data from our experience in the Ford Motor Co. There is an eligibility requirement that people have a year of service in order to be scheduled for the days off. Out of a work force of 180,000 people, roughly, about 160,000 were eligible to be scheduled for each day off; 90 percent of those have actually had those days away from work and they received pay. For various reasons the other 10 percent either did not qualify for the day off—perhaps on a long-term layoff, for example, prior

to that—or because of excessive shifting within the plant it was necessary to give them pay instead of the day off.

There is a provision in the program that recognizes that that can happen. But despite that, 90 percent had a day off.

There is an escape hatch in the program because there was concern that there would be situations in which it would be absolutely necessary to call people into work. They might be people whose skills were in short supply, and there was some concern that that might lead to abuse; that people would come in and work on the day off and undercut the employment. Only one-tenth of 1 percent of all the people have been called in on their day off to work.

One of the major disincentives for such call-in is the company treats it as a regular holiday. The individual ends up with an equivalent of triple-time pay, and we always find that that is excellent incentive for the company to make a program work.

Finally, while we cannot quantify the employment impact because we cannot separate what is obvious growth in the work force from the other things happening, such as the change in auto sales and productivity increase, we do know that at the current rate roughly 6,000 people a day have been scheduled out of the plant; and it just stands to reason that there is no way you can take 6,000 people out of 160,000 workers and not replace a substantial number of them. The best rule of thumb we have been able to come up with is perhaps 80 percent have been replaced with new employees, which means in that relatively small part of the total economy employment has grown by perhaps 4,700 jobs larger than it otherwise would have.

In looking down the road, it seems to us that what we face in this area, as in so many others, is the need to adapt to economic changes that occur. We must provide ways of protecting the local groups of people who would suffer from the progress like automation or technology change while everyone else benefits. Reduced worktime is one way to do that. It is part of a more general problem of adaptation in our society to protect people against all forms of economic dislocation, whether it be automation, plant closings, shift of Government contracting or whatever you may have. Thank you.

[The prepared statement of Mr. Young follows:]

PREPARED STATEMENT OF HOWARD YOUNG*

Jobs, Technology, and the Hours of Labor: The Future of Work in the U.S.

The terms "employment," "work," and "labor hours" are often used interchangeably. In many instances, this creates no confusion: when referring to someone who has been laid off, for example, it makes little difference whether we use the term "unemployed" or "out of work." But at other times, we must distinguish between work—the application of human effort—and employment—work which takes the form of a paid job. It is our belief that, looking toward the next century (which is only 22 years away), the level of aggregate output will not grow fast enough to provide a satisfactory level of employment unless hours per job decrease substantially. That is, the economy will not require paid labor time to increase as fast as the labor force grows; therefore, public policy to combat unemployment—which is itself an inequitable form of reduced work time—must face up to the centrality of reducing the regular scheduled hours of paid work.

*Special Consultant to the President, International Union, UAW. Presented at hearings of the Joint Economic Committee's Special Study on Economic Change, Washington, June 14, 1978.

Thus as concerns the issue of work time in the longer run, we do not agree with the recent JEC report on "U.S. Long-Term Economic Growth Prospects: Entering a New Era." That report indicates that the labor surplus of the 1974–1978 period, which furnished much of the impulse to intensified interest in reduced hours, could prove to have been only temporary. Due to slower growth of the work-aged population, and as a result of rising energy and raw material costs and the "maturing" of the manufacturing sector, by 1990 labor might again become a scarce factor of production. Labor surplus gives way to labor shortage, with the interactions of demography and markets producing the full employment that has for so long eluded social policy. In our view, such a scenario is likely to have a relatively short run at best.

It is true that a valid case can be made in the short term for high utilization of our labor, and other, resources. There are serious inadequacies in housing, railroads, and other areas, and supply shortages in various services. However, at most, that would indicate significant reductions in work schedules might be premature, and the continuing unsatisfactory level of unemployment contradicts even that argument.

In any event, looking further ahead, we disagree with the report's conclusion of a developing long-lived labor shortage. Implicit in it are several assumptions to which we do not subscribe.

First, we question whether aggregate output will in fact grow so much faster than the labor force. Historically, periods of slow population and labor force growth have been characterized by at best sluggish increases in output. The report itself notes the prospect of "relative satiation with material satisfactions * * *"; if this proves out, the demand side impetus to rapidly growing output will decrease.

Second, all historical evidence indicates workers' ongoing desire for greater leisure; even the JEC report notes, "It is uncertain that * * * working hours will remain as high as now projected * * *." As the hours per job decline, however, higher labor force participation—counteracting forecasts of labor shortage—is likely. As institutional rigidities about hours decrease, more Americans will seek paid employment. For example, participation rates of women and young workers are known to be positively correlated with the availability of jobs with fewer hours. Consider also the effect on participation rates of partial retirement schemes, which would keep many people in the labor force longer.

Third, the prediction of tight labor markets implies that desired output will grow faster than the combined increase in labor force and productivity. But the cumulative long term impact of the latter is more likely to lead to labor surplus. Continuing productivity growth is to be expected, especially from widespread application of computer-related technology. In addition to these opportunities for profitable investment, there is a semi-autonomous trend toward replacing direct labor with capital goods (indirect labor). As long as it is not prohibitively expensive, management simply prefers machines to people: precision, predictability, and—perhaps most important —an inability to strike or otherwise act independently all combine to produce the trend. In fact, we see every reason to believe that this trend will, over the next several decades, swamp the effects of changing demographics. While it may well be the case that, on average, labor will grow scarce in 1988 or 1933 or at some other specific time, it is almost certainly true that over the long haul technological change will reduce per capita requirements for direct labor.

This should also be our goal: to free up people from boring, repetitive, tedious tasks that their mechanical creations can do for them.

To amplify these ideas, this short paper will begin by describing the UAW's policies in the field of working time. From there, we proceed to an examination of the effects of technological advance on the hours of labor. Finally, certain conceptual questions about work, labor, and economic development will be covered.

WORK TIME: THE UAW RECORD

At the UAW's first Constitutional Convention in 1936, delegates urged that the "hours of labor be progressively reduced in proportion as modern industry increases productivity." Reaffirming that principle, the Union's 1976 Special Collective Bargaining Convention directed negotiators to work toward (1) reductions in the time worked each week; (2) reductions in the time worked each year; or (3) reductions in lifelong work time.

The UAW has been quite successful in reducing lifelong work time. In 1964, retirement prior to age 65 with adequate pension was first achieved. In 1973, building on the gains won in previous agreements, the Union won an unrestricted "30-and-Out" provision, making members eligible to retire with full benefits after 30

years' service, regardless of age. GM reports that the average age at retirement of their hourly employees declined from 70 in 1950 to 58 in 1975.

Over the years, holidays (when the entire plant is closed)—most notably a full week off from Christmas to New Year—and vacations have been negotiated. A major achievement in 1973 was winning restrictions on compulsory overtime work. In the agricultural implements industry, we have negotiated Earned Time-Off Bonus plans, which today allow many workers at Caterpillar and Deere to earn 1.5 hours off for each full-time week worked.

In 1976, the UAW developed the new concept of individually scheduled days off, in order to achieve the joint goals of increasing workers' paid leisure time, allowing full utilization of company capacity, and providing expanded employment. Under the new plan, workers will have a total of 12 new Paid Personal Holidays (PPH) over two years. By the spring of 1979, these days will occur at approximately one month intervals, so that about five percent of the work force will be scheduled off each workday.

For the worker, the plan means a periodic break in the 40-hour week. In U.S. manufacturing, weekly hours have fluctuated narrowly around the 40-hour level since that standard was adopted more than forty years ago. Now, that is changing for auto workers, as they are scheduled for a balanced combination of extended weekends and mid-week days off. Such variety and spacing of the days off was an essential aspect of making the time off mandatory, something which might not have been feasible if, for example, the plan required a worker to take off a single block of days at one time.

For the company, the plan means that, unlike a holiday in which the entire work force is off, full capacity can continue to be utilized. In particular, while it is expected that the plan will require more workers on the payroll than would otherwise be the case, the number on the job each day is stable. Thus the company does not need additional plant and equipment.

Of course, by basing the plan around individual, personal days off, we created the need for sophisticated scheduling techniques. We suspect this is the first benefit program which could not have been implemented without computers. Scheduling periods of varying lengths; insuring a balance between mid-week holidays and Mondays and Fridays; keeping schedules flexible with respect to production needs without eroding the mandatory aspect of the days off—all of these had to be controlled to achieve our aims. Happily, the PPH plan has worked smoothly, and reports indicate as many as 4,000 new jobs at Ford alone resulting from the plan.

The PPH plan may have other benefits, including job creation and protection at supplier companies: without the plan, the Big Three might find themselves with more "surplus workers" in periods when sales slow down. Due to Supplemental Unemployment Benefits, insurance programs, etc., it is increasingly expensive to lay those workers off. Therefore, the Big Three now tend to keep them at work, producing parts that would otherwise come in from suppliers. Hence, the PPH plan not only means reduced work time (RWT) for Big Three workers, but may provide some protection for those who work for supplier firms even if they have not negotiated similar plans.

For some workers who without it would be unemployed, the plan means a job opportunity. That was the overriding goal behind the drive for reducing work time. In pre-bargaining conferences, the membership's message was clear: jobs are the issue. Auto workers will not soon forget that over a quarter million of their number were on layoff in early 1975. Nor is the problem merely cyclical. An automobile that could be built with, say, 250 hours of labor time in 1940 can be built today with just 100 hours of labor time. Small wonder, then, that production employment in the auto industry has stagnated at an average level of about 750,000 since the early 1950s, even though more than twice as many cars are produced today as 25 years ago. We are also aware of the disproportionate impact of layoffs on women and minority workers. UAW members—like other workers—want their union to do something about technological "progress" which produces the social problems of high unemployment.

Furthermore, even more severe problems lie ahead. A projection procedure prepared by the Federal Energy Administration yields an estimate that domestic auto production in 1990 will be 47 percent higher than in 1976. While historical data on output and hours in the industry includes trucks and other products besides cars, total hours divided by cars provides a reasonable index. Analysis by UAW economists indicates that index will decline from 146 in January 1976 to just 103 by 1990. Hours worked in auto production, then, will grow a scant 5 percent over a period when the U.S. labor force will increase over 20 percent if the JEC's predictions prove correct. That poses a terribly clear choice: fewer workers or fewer hours per

job. Of course, auto does not have to carry the entire burden of technological advance. There may be proportionately fewer autoworker jobs in the future even with RWT; but that only underlines the need for shorter hours throughout the economy.

As the table below shows, the estimated work year in auto has declined substantially over the years. Obviously, however, it has not declined enough to completely stem the erosion in the numberof jobs in the industry. If workers are to be the beneficiaries of technological progress rather than its victims, further reductions must be made.

UAW-GM agreement of—	Work Year reduction won	Estimated full-time straight-time work year [1] (hours)
1937		2,080
1940	40 hr (annual paid) vacation with 1 yr seniority	2,042
1942	80 hr vacation with 5 yr seniority	2,011
1946	60 hr vacation with 3 to 5 yrs, seniority	2,009
1947	6 (paid annual) holidays	1,961
1950	120 hr vacation with 15 yr seniority	1,947
1955	100 hr vacation with 10 to 15 yr seniority; additional 2 half-day holidays	1,933
1964	Paid absence allowance, 40 hr holidays, 9	1,892
1967	20 hr vacation with 3 to 6 mo seniority; 40 hr with 6 mo seniority; holidays, 11 by 1970	1,872
1970	160 hr vacation with 20 yr seniority holidays, 12	1,847
1973	Holidays, 15 by 1975	1,824
1976	Paid personal holidays, 12 over 3 yr, 7 per year by 1979	1,768

[1] Assumes no layoffs, a 40-hr week, and the GM seniority distribution as of Oct. 11, 1977 i.e., 4.6 percent less than 1-year service, 22.1 pct less than 5 yr, 43.8 pct less than 10 yr, 66.1 pct less than 15 yr and 74.6 pec less than 20 yr. Figures do not reflect either rest periods or relief time.

TECHNOLOGY AND LABOR HOURS

Some may object that claims that technological advance would bring disaster to working people have been shown time and again to be false. In fact, though, hours have declined substantially: the average work year in manufacturing has declined from about 3,100 hours in 1860 to about 1,900 today. Where we once fought to postpone the start of people's working life by outlawing child labor, today we have the luxury of hastening its end through earlier retirement.

Thus, one must distinguish between the per capita, as opposed to the aggregate, volume of direct labor hours. The latter has increased, but the former has decreased. That has been the case for many years, and we see every reason to believe that trend will continue rather than change: society's demand for hours of employment will not grow as rapidly as the labor force.

The forecasts of the "cyberneticists" of the 1950s were not wrong; they were merely overly apocalyptic. Automation has not been a "revolution," but the cumulative impact of small evolutionary changes. Of course, as the JEC report hints, productivity growth is not an even, balanced process. Rather, certain industries take the lead in introducing new technologies, new labor processes. Over time, new technologies diffuse, and allow a cheapening of goods and services. It is critical to understand that this means that a given quantity of goods and services comes to embody less total labor. In the period from the 1890s to approximately the late 1960s, the industries which led the technological march, which drove the economy by cheapening key consumer and producer goods, were railroads, steel, auto, and petroleum (listed in order of chronological contribution). Railroads meant a national market and, equally important, economies of scale in steel production. The cheapening of energy production allowed a faster rate of substitution of motor-driven machinery for human effort, reducing production costs. It also spawned the petrochemicals industry, the growth of which has significantly cheapened food and clothing.

It is possible that future total demand for output could grow very rapidly, but that seems unlikely especially since in some of the areas most central to economic growth in the past—housing, heavy appliances, automobiles, farm equipment, steel, and even aircraft—more and more of demand is replacement demand. For example, in the early 1950s, two new cars were sold for each car scrapped, with the number of cars in use growing 5-8 percent per year. In the mid-1970s, however, only three new cars are sold for every two cars scrapped, with fleet growth of less than 3 percent annually.

That is not to claim that the relative stagnation of the western economies in recent years is a permanent event; rather it is a short-to-medium-term phenomenon associated with the decline in the growth rate of the "heavy metals complex"—steel, auto, rails, etc.—that has been the engine of growth since the 1890s. Much of that decline has been discretionary: we have allowed our rail and transit systems to fall into disrepair. We have failed to prepare for the modern period of increased world trade, allowing much of our basic steel industry to operate with outdated equipment and techniques. Sound policy can produce a stabilization in this sector, and in the short-run, meeting such social needs is the best way to deal with our current unemployment problem. In the long-run, however, the dynamic push this time around is likely to come from the electronic controls/semiconductor/microprocessor sector, the technologies from which can be expected to diffuse throughout industry, cheapening costs and thereby allowing increases in real living standards. However, there is good reason to believe that the growth emanating from this sector will be qualitatively more displacing of direct labor than economic progress has been in the past.

Drastic reductions in direct labor can be expected to follow the progressive introduction of so-called "numerical control" (N/C) equipment. One example of this will serve to make the point. Where a machinist now produces a moderately complex finished part, involving paring metal from stock and working with a cutting tool, in five minutes, new technology will soon allow him (her) instead to insert the metal into a vise and then guide two joysticks—one for each axis—controlling high-speed cutting tools, allowing completion of perhaps one part per minute. In addition, a computer costing less than $1,000 can monitor the cuts, continuously printing out dimensions to guide the operator. Moreover, training time is minimal: the system just described can be mastered—from total unfamiliarity to the machinist programming it for a series of five complex cuts—in about three hours! Small wonder that GM President Pete Estes was willing to predict that computers will control "about 90 percent" of all new machines in GM plants by 1988.

In GM's Lordstown, Ohio plant, huge Unimate robots spot weld car bodies, according to a simple program that relates model types to welding subroutines. Observing the line, a supervisor punches, say, "95:3, 3, 1, 2, 4, 4." This means 95 cars per hour line speed, arranged 2 Chevrolet Monza hatchbacks (3), a Pontiac Astre (1), a Buick Starfire (2), and 2 Monza non-hatchbacks (4). The company that built Lordstown's Unimates has doubled robot production each of the last three years, and while the current output of about 50 "robot arm systems" a month is not exactly "mass production," their cost has fallen an average of 15 percent each year. Critical to our argument, Lordstown now produces 20 percent more cars per hour using 10 percent fewer workers. Knowing the cost of Unimates, we can be certain that the effect of their introduction was an absolute decline in total labor time, and not merely a shift from auto industry labor to steel and robot industry labor.

Equally important, the new microprocessor-based technologies are invading white-collar service work, the very sectors which until now have expanded quickly enough to absorb people displaced from manufacturing—and then some. A recent German study[1] concludes that: "As the possibilities of rationalization in (manual work) * * * have been extensively (albeit not yet totally) exploited, the factor of salary costs becomes the focal point * * *." This has become obvious to management in recent years, the study continues, as "personnel costs * * * grew in relation to the value of output."

Computerized cash registers replace some tellers and check-out personnel, not to mention some CPAs. Inventory control, billing, and other functions are mechanized. Electronic funds transfer (EFT) systems are proliferating. Electronic calculators, with capabilities including multiple regression and path analysis, that cost $5,000 in the late 1960s can be purchased for under $300 today. (This last point is important: labor time is reduced not only when a machine does what people used to do, but also when a cheaper machine—i.e., one embodying fewer labor hours—replaces a more expensive machine.)

Much of the innovative equipment just described—and much, much more as well—is based on what the microcomputer industry calls "chip technology," the storage and processing of information on tiny, ultra-thin slivers of silicon and gallium arsenide. Information that took up 1,800 feet of half inch-by-2 mil computer tape in 1965 can now be stored on a microdisc the size of a thumbtack. More

[1] Werner Moericke, "Charakter zukünftiger Tarifverhandlungen unter Berücksichtigung der Angestelltenprobleme," paper presented at the Seventh IMF World Auto Conference, Detroit, May 1978 (translation by Peter Unterweger, UAW).

important, that microdisc can be produced for literally a hundred times less money—and labor time—than the tape it replaces.[2]

Note that these technologies fulfill the two requirements of economic dynamism discussed above: they are embodied in new goods and services and they cheapen existing goods and services (computers, cars, data storage). Even those commodities, such as energy, that the JEC report foresees rising in price and falling in availability, are cheapened—and hence labor is saved—by these new innovations. For example, electric power produced by photovoltaic cells directly from sunlight has fallen in price along a "learning curve" from which the DOE extrapolates that it will undersell coal- and nuclear-generated electricity by the mid-1980s. Photovoltaic cells embody the latest chip and wafer technology.

WORK TIME THEORY: SOME IDEAS

Work serves several different purposes in our society. First, work qua effort is needed—and always will be—to produce the goods and services that society requires and/or desires. Second, work qua employment is the primary way that our people earn a claim on some of society's stock of goods and services. If this appears obvious, that is because it is; what is less obvious and far more important is that the first function of work listed above merely tells us that a certain number of labor hours must be worked, while the second points to the need for jobs.[3]

What is the connection between work and total output? We can assume that work plus time creates at least the potential for output. (Obviously, by "work" we mean both current, direct labor and the older, indirect labor embodied in both machinery and the organization of the production process.) It could be inferred that output always expands to the maximum produceable by all available labor, and that improvements in technology produce quantum increases in the level of output. But that inference relates only to the realm of theory; in the real world, the level of demand plays a role in determining the level of social output.

As society grows in wealth and in income security, the character of demand shifts in two predictable ways.

First, more and more of both the goods and services demanded are not necessities, but "optional consumption" that can (at least potentially) be traded off for other satisfactions, such as "leisure." The popularity of increased paid vacations and holidays suggests that such trading off will continue—and even accelerate—in the future. The implication of the shift toward optional demands is obvious: to the extent that they remain optional in people's minds, technological change is likely, on net, to satiate rather than expand demand.

The second shift is toward proportionately more services, rather than goods, and its implications are more ambiguous. Services have tended to be more labor intensive, and—largely because they are more tailored to the individual consumer's needs—more difficult to automate. However, past difficulties do not preclude future advances of this kind, especially with computer capabilities. Computerized cash registers, EFT, word processing in offices, and automated subway fare card dispensers are just a few examples of new technologies that will (at least once the 'bugs" are out) save labor hours. Another characteristic of services is that the potential always exists to shift some of the work from paid labor to the consumer.

Consider telephone service: the phone company has reduced the number of operators needed, partially by automating so that an operator can handle calls faster, but also by requiring the consumer to provide some of the work input previously done by operators. That is, instead of telling an operator that he (she) wants to place a person-to-person call to some out-of-town number and having the operator dial that number, the consumer now dials (or pushes buttons for) perhaps ten digits. The caller provides the labor input an operator had been employed to do. The result: paid jobs in the U.S. communications industry have declined 100,000 just since 1974. One need not even look to so sophisticated a system as telephone communications. Look at the self-serve gasoline station. There again, employment (i.e., paid work) is displaced by the consumer's work input. In an economic sense, labor is saved.

The point is that technological developments and work organization changes do not merely do away with or reduce the need for labor input; they also result in a shift of work from employment—i.e., a paid job for someone—to unpaid work

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[2] The new N/C and microprocessor technologies also displace U.S. jobs as a result of the transnational character of production in the industry. One company markets a $20 calculator, parts of which are made in Taiwan, South Korea, Singapore, Hong Kong, and the U.S.

[3] Many people argue that there is a third purpose served by work activity, in the psychological dimension of creating self-worth, self-esteem, and self-knowledge in "appropriating nature for social ends." It may be, however, that this "psychological value" stems not from work qua creative activity, but from the fact that work is the means to earning social entitlement to income.

activity by the consumer.[4] Computer utilization is clearly on such a trend line. Consider banking: the use of automated teller machines and electronic funds transfer depends on the consumer interacting directly with the bank's computer and providing some of the labor needed. Thus, the long-term issue is not merely whether the total amount of work needed to make our productive facilities function will grow rapidly enough to provide adequate job opportunities, but also the extent to which that work will be divided between paid employment and unpaid consumer input. We seem headed toward an economy in which employment (i.e., paid work) will not grow as rapidly as the work force.

From management's standpoint, the goal of all this is increasing the value of output per paid labor hour. That effort is composed both of shifting work from paid to unpaid status, and of increasing productivity in previously labor-intensive activities. The German study cited above notes that "an ever-increasing number of jobs are put on a piece-work basis. An example from word-processing: in central typing pools—under piece-work, stimulated by premiums—* * * 80,000-100,000 keystrokes per day is no longer exceptional. The result: average personnel savings of 40 percent * * * Programmed text processing * * * will bring a performance increase of 600 percent over the traditional office * * * Once written material is standardized, and the major portion retrievable from (computer) storage, * * * a large number of jobs requiring decision-making (will be) * * * superfluous.

"In design departments, decisive changes are announcing themselves. In the future, designers will * * * spent most of their day in front of video screens (as today's journalists now spend theirs at CRT consoles). Instead of making a (complete) drawing, they will recall images of pre-programmed parts (of designs) from computer storage and join them."

From the worker's standpoint, these changes mean the threat of unemployment, or at least displacement, for some while others benefit.

That means that certain adaptations will have to be made. There are likely to be increasing divisions within society about the forms and goals of new technologies that displace paid direct labor; some groups may flatly oppose technological change, particularly if they are made to absorb a disproportionate share of its costs. The dual aims of progress and equity, then, require us to affirm our commitment to labor-saving modernization, but to constrain our support by requiring a redistribution of its costs.

What—if not the reduction in the necessity for structured work—is the social purpose of technological change? For owners of capital goods (who also tend to be purchasers of other people's labor-power), new techniques are introduced if and to the extent that they add to profitability. To the extent that those increased profits are reinvested, the resulting growth may benefit society as a whole. Even if they are not, however, the fact that the new technology was used means that more salable output was produced per unit of labor time input. Assuming that the output had some positive net value, society was made better off.

Even though society was made better off, some workers—those whose labor was actually replaced by the new technology—usually are rendered far worse off. If we are correct that, as time goes on, technological progress will be more and more labor-replacing, we can expect, ceteris paribus, that more and more workers in our better off society face the potential of being made worse off! Society must bear the costs, as it reaps the benefits, of such "progress." The current system of putting individual workers in a position of lacking a claim on output—often as a direct result of their contributing to an increase in the volume of total output—is grossly irresponsible.

Reducing the hours per job—while it cannot solve problems of micro level economic displacement or put an end to all types of structural unemployment—is critical to resolving the problems raised by a situation in which paid labor hours grow more slowly than the labor force, and where participation in the labor force is typically a requirement for a claim on output.

The alternatives are either unrealistic or unappealing. Unrealistic, because breaking the link between income and employment is not even on the agenda of any significant constituencies, no less the government. Unappealing, because wasting work is such an affront to logic. The total amount of human labor expended as work is and should be determined by the total output desired, not by the problems we have in figuring out how to allocate claims to shares of that output. For instance, some people have suggested that retirement occur at later ages in the future; it has

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[4] Some cite the counter-example of increased restaurant-going (from 15 percent of meals in 1948 to almost 35 percent in 1976). But once that trend slows, the phenomenon we are describing will be clearer: more and more "restaurants" are of the fast food variety—customers wait in line rather than being served, bus their own trays, etc.

even been suggested that full benefits under Social Security not be available until age 68, rather than age 65. Such a policy cannot be justified on the grounds that the economy of the future will need additional labor input (e.g., from people age 65–68) in order to produce the desired level of total output. Even though projections indicate an increasing ratio of retirees to working age population, that is only part of the story. Using the same assumptions, the projected number of children is so low that the total dependency ratio (i.e., those under age 18 as well as those over 65, as a proportion of those 18 to 65) decreases. In addition, that conclusion reflects work force participation rates for females which are more likely to be understated than overstated. Thus, in the future, workers will be a larger percentage of the total population than now, rather than a smaller percentage. There will be enough output for all without delaying retirement ages; the suggestion that older people work longer reflects our hang-ups about how to allocate a reasonable share of that output to those older people.

We have quite a distance to travel before the level and composition of output can be decided on in a responsible and democratic manner, rather than being controlled by market forces. That distance must be traveled, though, because to the extent that technological change increases the impact of society's options, our choices will become increasingly important and will therefore have to be made more and more by political means. To do that well, we must avoid confusing the concepts of work, labor time, and employment. The hours of employment are dependent on the paid work needed to produce desired output; the number of job slots are dependent on the need to allocate that output. That has always been the case, but unemployment has been the balancing mechanism. To equate those two more equitably, we will have to reduce the number of regularly scheduled work hours per job.

Representative BROWN of Ohio. Thank you very much, Mr. Young.

We have been through the group, I gather. I apologize for my tardiness. As the only House member, I may have to get up and leave you at different times. Senator McGovern, do you have questions you would like to address to the gentlemen?

Senator MCGOVERN. I have just one question, Mr. Chairman. I think there is growing support for reducing the number of working hours spent per day, per week, or per year.

One commonly raised concern in this regard in the potential impact on the cost. What will happen if we move to a 35-hour workweek? How will an employer respond if we retain essentially the same income per worker for less hours worked?

Will employers respond by tending to lay people off or by raising the price of the product; and if so, how do we manage the resulting anxiety about the potential inflationary impact?

I wonder if each one of the panelists might be willing to respond to that question. It is the only one I have.

Mr. CLARK. Senator McGovern, the question that you raise is one that I have grappled with myself, and that is one of the reasons I tend to favor reducing the fixed cost of hiring through some of the programs I outlined as opposed to trying to shorten the workweek through the use of a greater overtime rate, which, in effect, raises the variable cost of an extra hour of work per employee. When you tax or you put a premium on the use of extra workers, the firm has the option either of using a worker at that overtime premium and incurring the higher cost or of hiring new workers, which presumably is a higher cost than otherwise would have been incurred by the firm. So, either way the firm goes, it encounters higher labor costs if overtime premiums are instituted as the method of reducing the workweek.

By contrast, though, what I have tried to show is some artificial or institutional barriers that have been instituted, perhaps for very

good reasons. That is why I am reluctant to advocate their removal. But clearly when you go through the list of programs that affect the cost of hiring workers as opposed to using present workers an extra hour, you come to the conclusion that the Government is in a position of having increased the extra cost of hiring a worker; therefore, there is a larger incentive for a company to use their workers longer hours or to oppose individuals' or unions' collective bargaining arrangements toward reducing hours. If the Government could return to a more neutral position, not biasing that choice, I would expect you to see a possible decrease in the rate of hours per week.

Mr. ZALUSKY. We view this as a total problem, one that cannot be looked at as a single problem. We have millions of people unemployed whose productivity capacity is lost to us forever. We can never recover lost productivity.

It is our belief that by encouraging employers to hire more workers, that will decrease the tax cost of paying these people for being unproductive; in effect, give them a job working fewer hours and have the dignity of employment.

We cannot ascertain what the cost to an individual firm would be, because it would have to be done over productivity changes in terms of better use of capital; as Mr. Young pointed out, use of technology. These productivity changes would decrease the impact to the firm, and eventually lead to greater reductions in the workweek.

We believe that over time there would be a decreasing amount of time on the job and that the total cost to society would not be as great as taxes lost and paid out, and the human cost of not having a job with the social problems caused by being unemployed.

Mr. CARLSON. I agree with the point. What you suggest would be a 12½-percent increase in some costs, labor costs, that would have to be paid by the consumer or productivity would have to increase dramatically if you did it quickly. Overtime productivity could compensate as it has during the time in this century. If you went too fast, you would end up with either less output or a stronger incentive to substitute capital for the workers, because the per-hour cost for humans would increase.

We have fixed costs, social security, other costs on labor, that adds to the cost of having a worker and going to shorter hours would actually add more proportionately to the cost.

Also, to pick up on Mr. Carlson's point, we have tended to discourage hiring of unskilled workers because of these fixed costs and mandated costs. Now, there has been some offset on that. The President's proposal for subsidizing unskilled workers so they are paid according to what the productivity is and the difference between that and the wage they receive would be a subsidy in a form of the NABS program or tax credit program to help in that direction.

But clearly if you went there fast, it would be cost-push inflationary. If you went slowly, yes, that is part of the trend we have seen, and there is no reason to believe that trend would not continue through the remainder of this century, and you can facilitate that by public policy. You are discouraging that kind of trend to occur by having higher fixed costs for labor.

Mr. YOUNG. I think basically the points have been made.

The two I would emphasize is that the comparison has to be this year versus next year rather than two different situations this year. At a given point in time changing to reduced worktime with no increase in income, would mean higher costs. We recognize in our collective bargaining that any benefit is a part of an overall package and is an alternative to something else.

The other point is, and it was well made, there are a lot of hidden costs of not doing this and some times we get bemused with the obvious cost and lose sight of the hidden cost.

Senator MCGOVERN. Thank you.

Representative BROWN of Ohio. Thank you, Senator McGovern.

Senator Sparkman.

Senator SPARKMAN. Mr. Chairman, I regret that I was not able to get here at the beginning to hear all of the discussion. But it has been a very pleasing discussion to me. It seems to me that more thinking has been put into the presentation of the views today than sometimes has been the case.

I want to say that I have been on the Joint Economic Committee ever since it was organized, January 1, 1947, if I remember correctly, or right at the end of 1946, and I have sat in on many discussions over the years and I have enjoyed them. But it seems to me—this is just the impression that I got from hearing the discussions here this morning—that it is about the clearest thinking to my way of seeing it that I have ever experienced in the years I have been on this committee, and I think it is most helpful.

In talking about what we were going to do in order to keep things rolling, naturally my thought went to productivity, and I was glad to hear the discussion on that point. I think we will pull through all right.

Representative BROWN of Ohio. Thank you very much.

I would like to throw out a kind of general question. We had somebody suggest a couple weeks ago in these hearings that the 40-hour workweek had a mathematical attractiveness to it in terms of the 8-hour day, 5-day week; in terms of 8 hours being one-third of the day so you could have three shifts; in terms of the way of organizing the workplace.

In Mr. Carlson's prepared statement, and I do not know whether the other members have that statement, there is a figure showing that the workweek has fallen from about 60 in 1900 to about 40 in 1940, and it has stabilized at about 40 hours a week for the last 30 or 40 years.

Is that due to legislation? Or is it due to the desirability of a time frame of 40-hour weeks. Or do you see a problem of dropping the week to 4 days, or 6 hours, or 7 hours, or whatever the reduction might be that would foul up work schedules and make it difficult to make that break below 40 hours?

Mr. KASSALOW. Before you answer, could I clarify one thing about the figures here because it is right on the point you are raising.

Table 1 of Mr. Clark's prepared statement where it has the overall hours per week shows a total drop of 40.3 in 1947 to 36.1, but as Mr. Clark pointed out, that was largely because a change in

the participation rate of women and young people which caused that drop.

Representative BROWN of Ohio. What I would like to ask Mr. Clark is if these figures assumed that a person on vacation or a holiday is working that day?

Mr. CLARK. The numbers, are for paid hours. So that if they are on holiday it would be paid.

Mr. KASSALOW. So that then, when Mr. Zalusky pointed out that steelworkers have 43 days per year, or roughly 1 day per week, then the actual effective hours per week would be nearly 8 hours a week less than the figures shown here, would it not?

Even after the studies that Mr. Clark is referring to, allow for the increase in vacations and paid holidays, the decline in the workweek in the 1960's has been moderate, offset by some other factors.

Mr. CARLSON. Even though compared to the cuts in the worktime, in the past studies on full-time males have indicated very little drop in the average workweek compared to the kinds of drops that we have experienced, let us say, in 1900 to 1940, even if you factor in the paid vacations and paid holidays. There are data that we can submit, if you wish.

Representative BROWN of Ohio. I was going to also ask about the absorption of the lunch period, the increase in coffeebreak time and so forth. Is that factored in also?

Mr. CARLSON. I do not think that rest periods and coffeebreak time are factored in anywhere. The lunchtime, if it is a paid lunch, might be in some cases.

Representative BROWN of Ohio. What you are establishing is that these are paid hours in your testimony. Is that right?

Mr. CLARK. Yes.

Mr. CARLSON. The same.

Mr. CLARK. I would like to reiterate a point noted by Mr. Kassalow; that is, Mr. Carlson's data include only males, and those are the data usually taken by experts in the field to get a long-term trend.

The magic figure of 40 hours is not so magic, I would suggest, in that if you simply look at the figure just referred to in my prepared statement, you see that whereas for a total private production worker hours, 36 hours is as an average week, in various industries illustrated there, hours range from 33 to 44 hours per week. So, different industries have considerable differences in the average workweek.

Looking at the distribution of hours within these industries one finds a similar diversity. At the same time, looking at any particular point in time, one sees that there is a considerable part of the labor force working substantially over 40 hours. For May of last year there were 18 million workers or 27 percent of the full labor force working over 41 hours per week. In terms of a longer workweek, 5½ million persons had a workweek of between 49 and 59 hours.

Representative BROWN of Ohio. Retail stores, which may be open 10 hours, may be included in there?

Mr. CLARK. Right. At the same time, there is an increase in the number of people working part time, a cyclical increase in the

number of people involved in part-time work. So although we talk about being stuck at 40 hours per week and think of everybody out in the community as working 40 hours, this is an incorrect observation and 40 hours is not the magic number.

Mr. YOUNG. In fact, the reference to lunch periods was interesting, because in the auto plants an 8-hour day is an 8½-hour shift, including an unpaid half-hour lunch shift.

Mr. RASSALOW. Is that true on the night shift?

Mr. YOUNG. No. To the extent there are around-the-clock operations frequently one way of compensating night-shift workers is by the same pay for somewhat shorter worktime, so that fills out the 24 hours.

Mr. ZALUSKY. Shifting your question again and taking a hard look at it, you find that Europeans are concerned about the impact of shift work on workers as human beings. Some of the things they have done is work the night shift fewer hours with a larger number of shifts. Instead of four shifts they often have a five-shift routine, so when the workers hit the night shift it is for a short period of time. The physiological impact of shift work on people is improved with shorter hours on the night shift. They also expect an improvement in the domestic lives and divorce rates for shift workers.

The symmetrical arrangement that you diversified with 24 hours divided by 3 has some other costs that are not considered. There are a lot of arithmetical solutions that can be worked out that have lower worker costs.

Mr. KASSALOW. Can you account at all for the greater interest in Europeans for avoiding shift work as compared to the relative lack of discussion or interest even on the part of the labor movement in the United States in discouraging shift work where it can be discouraged? Do you have any explanation at all?

Mr. ZALUSKY. No, I do not have any explanation. We checked back a number of years and found that one of the early British labor laws dealt with the night shifts through fewer hours. Our first solutions were to assess a premium for night shifts of 5 cents on the hour and then later 10 cents. In the 1950's we tried that again because at the bargaining table we discussed the fact that you may have a higher divorce rate; and we tend to look at the disadvantages of shift work in the more obvious social context—not being able to go to the movies with your friends. This is really not the problem. The result came down to an economic type of solution, a social, and physiological problem, which we are beginning to regret today.

Representative BROWN of Ohio. Let me pursue the question a little further, because you have presumed the next point I was going to raise, Mr. Zalusky. Is there a differential in the kind of work done? Has anybody done studies that would establish the differential between the kind of work done and the effectiveness of the person during the work shift?

I had in mind an 8-hour day for an assembly line worker where the work is the same repetitively. I know there was a lot of discussion about boredom on the assembly line, versus the person who is in retail business where he may deal with different customers every few minutes or during the course of each hour; versus some-

one who is doing perhaps somewhat more creative work in an artistic situation, say, writing or illustrating or doing something like that.

Mr. ZALUSKY. You do see something like this, Congressman. When people have to do this type of repetitive work day in and day out, you have to have an allowance built into production standards for people so that they can take time off the job because of associated fatigue. But we tend to deal only with physical fatigue rather than mental fatigue. We have all experienced times when we have looked at the page and have not seen it; read it but not comprehended it. We tend to provide time for physical fatigue but not for mental in production standards.

Mr. CARLSON. Having shift hours and routine type jobs has been largely due to the large capital requirement, and we are finding that those industries are becoming a smaller proportion of our economy and the areas that are growing are subject to making a job more interesting and less routine, change the work more easily than in the manufacturing areas, the service area. So I think the prediction of going below a 40-hour workweek is because of the shift in industry to more service and the computer capability, as Howard Young brought out, to schedule. You do not have to have a supervisor there 8 hours a day to schedule; you can do it more easily with the computer capability. So you can go to odd schedules more easily than in the past.

Representative BROWN of Ohio. I am curious that nobody has really done much in the way of study of productivity. However, I know the unpopularity of the guy with the stop watch or the time study, but it seems to me that either the Chamber of Commerce or the AFL–CIO, somebody should have done some study to see what the trends are in the ability of the person, the average person, to respond.

Mr. ZALUSKY. There really has not been a great deal done. There is a rule of thumb applied by industrial engineers, and it is not well applied. They roughly allow about 3 percent off for fatigue, 3 percent off for personal time, and 3 percent for unavoidable delays. These allowances recognize that a worker is not a machine; they have to go to the restroom, they tire, and they have various other needs. These allowances vary, upward if you were in a heavy physically demanding situation like material handling, say, TV sets or tubes. There would be higher allowances for that kind of work.

Representative BROWN of Ohio. There are some big jobs in the automobile industry that are physically exhausting, where people have to work together, such as a stamping operation. It surprises me with that kind of job for 8 hours, that they do not have to carry the people out.

Mr. ZALUSKY. These are pretty much arbitrary allowances, 5 percent, 3 percent, whatever is needed to get the work out without too much protest from the workers. There is really no hard research on work standard allowances. It works and the productivity stays up, then they stay with 5 percent. If it does not, then they give a little more time off. The industrial engineers are more artists than scientists.

Going to what Mr. Carlson was saying a moment ago, one thing we are noticing is not that we have greater utilization of capital, but the problem of shift work also stems from the nature of the service; police work, hospital work, that sort of thing, where you have to have shift work. But we now have a new phenomenon. The time-of-day pricing for utilities is causing shift work, and we ought to take a look at the problems caused workers by time-of-day utility pricing.

Mr. YOUNG. If I can——

Representative BROWN of Ohio. Let me comment. Congressman Bolling and I have something to do with the utility pricing situation. If your wife is willing to do the laundry and get dinner after 11 p.m. and before 6 a.m. you can save a hell of a lot of money. But I am not sure what the impact of that is, or who would want to do it.

Mr. YOUNG. If I can follow up on that, the more significant concern is the extent to which time-of-day pricing might motivate a shift in industrial activity. We had an experience with the Kohler Co. in Wisconsin, which because the Wisconsin utilities went to time-of-day pricing, they emphasized nightwork and it created a lot of concerns and unhappiness.

Whether it will lead to real opposition to shift work is unclear. There is no question that we have not had the same kind of opposition up to now as elsewhere, but there is a lot we do not know about shift work.

On the point you made about heavy jobs in the auto industry, and I am sure it is true elsewhere, I think the response to that is not so much it is OK to do heavy work for 5 hours a day rather than 8, as how do we make the job less taxing during the 8 hours; either by getting more people power on it or by getting equipment to help handle the heavy piece; for example, by balancing the piece so all the worker has to do is move it horizontally rather than vertically. Now we are seeing a movement toward lighter materials, which is affecting that significantly.

Representative BROWN of Ohio. There will be another change and that is in the work force. I have in mind one of those nostalgia things that showed granny with her Ben Franklin glasses with the rivet gun in her hand during World War II coming into work on the assembly line to take the place of some young man in the service. That may be a more common picture in the future because of the graying work force.

It seems to me again that either the AFL-CIO or the Chamber of Commerce ought to do a study on what happens to a force that shifts from 35-year-olds to 45-year-olds. Obviously, Senator Sparkman can outthink the rest of us, but the situation changes when it comes to the physical work of a job in an assembly line situation or even a police job or in a hospital nursing service job. It seems to me that there would be some impact in the increased average age factor we are going to face in this society relative to other societies in our terms of ability to complete. Would you want to comment on that?

Mr. CARLSON. You have the added dimension that goes against some of the things we have talked about here, and the average life expectancy——

Representative BROWN of Ohio. You mean a 45-year-old is as good as a 35-year-old?

Mr. CARLSON. I would not want to pass value judgments on the age, but clearly, cutting off a person at the age of 65 may be a serious problem. There is the mental health of our older people, and the Congress has responded by increasing the requirement age.

In some areas you find out that the more mature worker is better, certainly in the case of some areas of mining—not necessarily 70 or 80—but the average experience and being older, it is a safer situation than when you have young miners or new miners coming in at a much faster clip.

Let me hit another point. Senator Sparkman brought it up on productivity. It is a situation where productivity has declined in recent years and capital increase in equipment, tools, and modernization. We have had no addition to net fixed investments since 1973, and it is no wonder, the productivity being one of the causes, no wonder the productivity has declined to a very low level for this business recovery in comparison with all other recoveries. So in terms of people having more income in the future, we do have to face up to this slow growth of productivity which has now haunted us for half a decade or a decade.

Representative BROWN of Ohio. I want to deal with the early retirement. I would like to separate that early retirement question from the other question; that is, the impact of the graying of the work force; the ability of a 45-year-old cop to chase a criminal as rapidly as a 35-year-old cop.

Mr. CLARK. There were a number of studies by the Department——

Representative BROWN of Ohio. I am advised that the criminals are getting older, too. [Laughter.]

Mr. CLARK. There were a number of studies—economic studies as well as physiological studies—looking at productivity of workers by age, looking at the ability of people to respond over the life cycle and at the ability to respond to their productive capability.

In most of those studies, across broad age groups, workers do not tend to lose productivity and productive capability with age. With the more stressful, heavier jobs, as an individual ages productivity declines, but again, it may be only in the sixties that people begin to be unable to perform some of those tasks. But the labor force, as you imply, will be composed of more older people, whether over age 40 or 50. Most of the studies have shown that productivity does not decline sharply at age 30 or 40 or 45; that perhaps there begins to be some decline in certain areas, depending on what part of the economy. Those parts of the economy are the ones that are diminishing in importance, whereas in others that are increasing in importance in the economy, older workers show less productivity decline. Typically, when you look at age structure, the distribution of productivity clearly overlaps.

Mr. YOUNG. I am just curious what Mr. Carlson meant when he said productivity is declining. Do you mean growth in productivity?

Mr. CARLSON. Yes.

Representative BROWN of Ohio. Yes, I try to clean these things up on the record in case anybody ever reads the record.

Let us speak to the question that the Congress has addressed, being fully aware of the politics of aging, and that is the 65-year-old social security retirement age versus raising the mandatory retirement age to 70.

A lot of us, when that issue came up, thought the labor movement was peculiarly silent on this in view of the fact that mandatory retirement is one way of dealing with providing jobs for younger people or those people who are unemployed. who wish to enter the work force. Mandatory retirement seems to put an underscoring on the desirability of early retirement systems.

I do not want to embarrass you if you are not ready to "take a position," but have you come to any conclusion about the question of where we are heading with retirement?

Mr. Carlson, in his remarks, I believe, said it is clear that there will be more interest in people working longer.

Mr. YOUNG. Our own view in the UAW was that mandatory retirement age itself would not have a tremendous impact; that there has been such a strong trend toward early retirement that this would not significantly change the overall result.

There was a lot of mixed emotion on whether or not it was a good idea to change the law, including the entire removal for Federal employees, for example. But there is another aspect that I would like to come to. It seems to me that this question of whether we are going to have to have a higher retirement age in the future is an excellent illustration of this dichotomy of whether we will ask people to work longer, either directly or indirectly through social pressure, because we need that much more labor input into the society; that is, because we cannot, in fact, produce the things we need or whether we cannot see how to give them a legitimate claim on income unless they work.

It seems to me that if one looked objectively at what the output will be in the 21st century the problem will not be lack of goods or services, it will be in terms of giving them a share of income. The question is will we, through a tax system or otherwise be willing to give them such a large percentage of what the people who are working seem to be earning. It is that allocation problem, I think, that has really forced us into this issue much more than it is the question of whether we will have enough labor input in order to produce what we want.

Mr. ZALUSKY. There are a number of variables that enter into retirement age and whether or not it should be reduced. I think I pointed out in my testimony the experiences steelworkers had with retirement. Some few years ago people were retiring at 58 years of age in the steel industry on the average. As economic uncertainties arose the retirement age increased to 61—the retirement age is voluntary but varies with the purchasing power of the pensions.

Representative BROWN of Ohio. You mean inflation?

Mr. ZALUSKY. Yes.

Another problem is you have conflicting values. No one understands a person's financial situation before retirement better than that individual himself. Thus pulling a worker into retirement with a good pension is better than forcing them into retirement at a fixed age or cutting social security back so that they must work. Some thought there would be new jobs created by manditory retire-

ment. Unfortunately, I don't think this is the case. I think if you pay attention to age of hotel clerks and some pumping gas, you will find many of the people retiring through compulsory programs just have to get other jobs to support themselves. So compulsory retirement, too often, pushed a worker out from a good job to a poor job. If inflation were under control more workers would retire voluntarily which is what we want to see happen.

Mr. CARLSON. I might just add one other dimension to this. Because of the small proportion of certain age groups, we do run into the problem of the workers in the future when we get to the turn of the century having on their shoulders from their perspective a larger group not working that has been promised retirement benefits taking a larger part of their productivity to give to that group, and I frankly think the group producing at that time may object to that because the burden will be so much greater. So you have that burden problem of the future work force carrying a larger mandated retirement group that we have seen in the past partly because family planning, birth control, fewer people coming along and having a bulge of older people.

Representative BROWN of Ohio. I think that is already here. Those of us who campaigned door-to-door would hear that question, because people tend to express themselves more in the protection of their own homes. If they come into your office or if you meet them somewhere else the issue of social security, its value, is not raised. But it is a question that I have frequently run into when you campaign door-to-door. People wonder whether it is fair to them as workers—maybe I hit them when they are getting ready to go to work or coming off the shift—but they want to know why all of that money is going out of their paychecks to take care of somebody else and whether or not the system will be operative when they get there to retire.

Mr. YOUNG. This is a problem of looking at a piece of the total picture. It is interesting to contemplate what would have happened if we had not had a slowdown in the birth rate. The issue would not raise its ugly head; instead, we would be overpopulated and depleting our resources. So I think what we really got is a psychological and sharing problem.

Representative BROWN of Ohio. I wonder if the organization system might not make a difference, and I think it does make an economic difference, if you will allow me to say so. You might want to comment on that, that if you had an investment system rather than a payin-payout system where social security funds or benefits were invested so that they felt there was going to be productivity down the road that would pay them off, rather than the need for younger workers to pay them in a payin-payout system. Then they might be a little more secure about it.

Mr. YOUNG. May I take a crack at that?

Representative BROWN of Ohio. Sure.

Mr. YOUNG. For one thing, even if that happened, while you can contemplate that it would mean at some future date there would be a larger total output to divide, if those people were retired, they still would be receiving it from the current effort of the productive workers. They would be receiving it as some kind of a legal claim of a debt payment rather than a tax system, and maybe people

would feel more comfortable paying some interest rather than taxes, but I do not believe that. Maybe your point is true, but my point is that in a proportionate sense the situation would be similar. Those people who are older and not working would still be taking a tremendous share of output.

Mr. CLARK. The idea of social security having an influence on the tax rate is true, and it is going to increase.

I assume from your comments that you have received some flak about the tax increase. Now, the recent study of the board of trustees, shows that even this legislative tax increase under the intermediate assumptions will not be sufficient to take the system through the middle quarter of the next century. From 2010 to 2030; that is, the payout begins to exceed the payin because of demographic factors. So you will have an increase in the tax rate that future Congressmen will have to face. The cost of social security and the liberalness of the benefits is one of the important determinants of whether the individual withdraws from the labor force, so when a benefit level is set that seems to be appropriate for the needs of the elderly, a standard is set that may induce more people to retire from the labor force. Keep in mind that when they retire, they are no longer contributors but recipients; thus there are two effects raising the cost of the system.

The age of eligibility is an important factor determining the future cost of the social security system. A lowering of the retirement age could be catastrophic in terms of cost implications. An increase in age would have a clear moderating impact on the tax revenues to support any particular level.

Personally, I think we would be better off with a higher age eligibility than we would be by letting the replacement rate or level of benefits go downward.

Representative BROWN of Ohio. Let me ask Mr. Zalusky and Mr. Young to comment on that, in view of their earlier comments, particularly Mr. Zalusky's earlier comment about the steelworkers.

He mentioned in his testimony that the 20-and-out or 30-and-out retirement system at age 50 was in some ways a frustration or did not have the social and economic impact that it was originally believed to have. Are we looking at the day when the labor movement may say that shorter worklife is not desirable; that maybe a longer worklife has some merit?

Mr. ZALUSKY. I think you misunderstood me. With regard to the steelworker experience, we believe it is having the impact that it was designed to have. Because of circumstances outside of that; namely, inflation, retirement age has crept upward to some extent; because of the uncertainty of income in the future people are not going to voluntarily retire. If workers cannot make some reasonable assessment as to the income they will have 10 years from now they will not retire. The impact of inflation on a person that retired in 1970 is that the private pensions' purchasing power is half of what it was in 1970. That presents a real problem. What we want to see is more indexing of present pensions but this is expensive.

Representative BROWN of Ohio. Does it present a problem from an actuarial sense, from the standpoint of unions, in some of the

craft unions, where they run the retirement program as opposed——

Mr. ZALUSKY. Yes.

Representative BROWN of Ohio [continuing]. To the industry running the program, as the International Harvester-Ford system?

Mr. ZALUSKY. There may be fewer openings in the crafts because fewer workers retire early. The pension may not be adequate to support them. However, they must be concerned about how they can increase the unions' dues to support some of the pension funds.

Representative BROWN of Ohio. One way is to make them work longer.

In connection with the remarks made by Mr. Clark——

Mr. ZALUSKY. The negotiated private pension funds in the craft unions usually allow workers to retire when they want to, providing they have reached the minimum retirement age or service. Most are not mandatory plans. These workers are able to retire when they have a sufficient income. If they want to reenter they can come back, pick up their active card.

But I think we are looking at this as part of a total picture, and when people retire they normally also create job openings, and we have to look at the cost of unemployment as well. Instead of having a dependent population at one end, we have got a serious problem at both ends retired and unemployed. Both are dependent on our productive capacity. So I think if we do increase the retirement age, we are going to decrease the job opportunity in the structure today and the opportunity for people to get into the crafts.

Mr. CARLSON. This concept that there is only so much labor that can be employed in the economy, I think, is really in dispute. I think the economy can absorb those able and willing to work, especially if they have got something near the mix of skills that the economy is demanding or the economy may adapt to. So I do not believe if we keep the older worker that somehow we will not be able to employ these able and willing to work elsewhere.

The thing is now to move against the argument that there is only so much work. I do not think we can do away with the employment problem that easily.

Representative BROWN of Ohio. I will try to subside from the discussion and let Congressman Bolling take over.

Representative BOLLING. Don't do that.

Representative BROWN of Ohio. You know I wouldn't do it anyway.

Representative BOLLING. We read each other perfectly.

Representative BROWN of Ohio. I would like to have you comment on something if you will just follow me very briefly with this point: It occurs to me if you have 95 million employed Americans, currently, and they are working an average, for simple numbers, 40 hours, then that is 3.8 billion hours, or whatever hours of labor, that is to be done in our society; and we still have people unemployed who do not fit into that anywhere. We still have people who are retired who do not fit into that. One way to handle that is to divide it up; 35 hours rather than 40 hours. Another way is to say because you are black and young or because you do not have the experience, or because you are old and gray, we will not give you a job, or because you are ready to retire.

The trouble with that is that you do not manage people. Clearly that guy who is old and gray goes to Florida, and he does not take out his building trades card; he builds houses as a nonunion worker on his own in Florida and he has beaten the system, the system you have just described.

Or the person that is cut to 35 hours gets another 35-hour job as well; instead of doing automobile work, he is working as a clerk in a sporting goods store. Thus you get somebody working 70 hours in two different jobs while somebody else does not have any job. And the two-job man has to work because we are taking so much out of his pay to take care of the person who is not working. Do you understand the kind of problem I am now presenting to you? What we need to do is to expand the economy.

Now, we recently had the finance minister of one of the European countries here, and it was very clear that the German standard of living as a nation is good because they are living off of exports. In our country for the most part we are living off each other. By comparison, their exports are five times ours, and maybe what we need is some way to make the economy much more productive so we can compete better abroad, get our share of those exports or in some way encourage the underdeveloped nations—this is Senator Javits' idea—extend credit to the nations so they can buy things. The only fear is we will extend credit and they will buy from the Japanese. But we must do something to enhance our economy.

We had people in yesterday who seem to agree for the most part that one of the ways you do that is to cut taxes in certain kinds of ways more than others and that would resolve much of the problem.

You absorb all of these blacks and they will be, in the terms you used, Mr. Zalusky, a tax producer rather than a tax user.

With that stream of consciousness, which does not make the best logic, would you want to comment on all the relative choices that are suggested in those different bits and pieces?

Mr. YOUNG. I think the choices are very different for the short run and for the longer run. I have no question that if you are talking about what do you do this year or next year; the answer should be to push the economy to expand so that we do, in fact, put those people to work. When one talks about exports or domestic needs, there is clearly a need for that.

But it seems to me that is a different question from what do you contemplate as you look toward the year 2000 or 2010. Do you want the economy to operate at that point, in light of some reasonable projection of productivity and the size of the work force, to operate at that head of steam with what that means for utilization of resources, or what it means in terms of energy needs? Are you saying do not give workers as many resources or energy and have them work harder to produce whatever we want? So I really think there are two very different questions, and in the short run I have no question that what we should do is expand the economy as much as we can, because there is so much to be done.

Representative BROWN of Ohio. Including expanding energy. I wish you would relay that to the people who lobby for you.

Mr. CARLSON. Part of those people are unemployed because you gentlemen have made them unemployable. If I can be candid with

you, the increase in the minimum wage, the increased fixed cost of social security and all the other items have made it difficult to hire unskilled people and has made it more of an incentive to buy more machinery or have lower output.

You could go in the way of where you had a farm target price and you let the market work so people could find jobs and you subsidize them up to the level of income you thought that particular group should receive, as opposed to making sure no one could be employed unless they were productive up to a level to cover the costs related to social security. So much of the problem we have with those people having difficulty is because of public policy.

Mr. CLARK. I think one problem you noted in terms of trying to divide hours and give everybody a piece of work is clearly that workers are not homogeneous. So the concept of taking, however, many hours there are and dividing them by the number of people and coming out with the decline in hours needed to lower the unemployment rate by a percent clearly is an erroneous approach.

Perhaps it is worth doing to see how little you need to vary the workweek, but as far as a particular incentive toward any public policy, it is not very useful.

In the long run, Mr. Young is considerably more pessimistic than I in terms of the ability of the economy to recover and maintain itself at a relatively low rate of unemployment compared to today. I tend to believe that in the future we will need to continue to try to maintain older workers in the labor force. As the labor force reduces its rate of growth older workers will become more important.

There are problems associated with an aging labor force that we cannot go into today, but I argue that we do need to begin to consider ways in which to maintain older workers in the labor force, and that is without arguing with the material presented here, that the current tendency or desire is for earlier retirement and not for late retirement.

Mr. ZALUSKY. Your question is so broad that I do not know where to go at it.

I think our position on foreign trade has been quite clear, that of the federation. We feel that we have one of the finest bargaining devices, mainly, our marketplace, and that we are doing an inadequate job in the way we are negotiating on tariffs. The Nation could use some of the people at AFL-CIO in these negotiations.

Representative BROWN of Ohio. I would tend to agree with the inadequacy. I am not sure I know who ought to do the bargaining.

Mr. ZALUSKY. We seem to be exporting our frontline technology, which is costing us the ability to compete in this country and subsequently costing jobs. We have the idea of using trade adjustment assistance to try to compensate for loss of jobs in this country, which bothers us greatly. I have gone through a number of plant closures, and I had one fellow in Government explain to me that Kawasaki was building a plant in Omaha, Neb., and that somehow evened out the loss of jobs in the Harley-Davidson plant, and we are losing jobs largely because we are dropping our trade barriers while other countries are putting them in and restricting our ability——

Representative BROWN of Ohio. Your answer does not imply, does it, that you would like for us to insert the same trade barriers that they have, but rather you would like to see us encourage other countries to drop their trade barriers to our level?

Mr. ZALUSKY. Not to our level necessarily.

Representative BROWN of Ohio. To a level where we could compete with them in the marketplace?

Mr. ZALUSKY. Yes.

Mr. CARLSON. I agree with that. We are in unanimous agreement on that approach.

Representative BROWN of Ohio. Congressman Bolling, anytime you are ready.

Representative BOLLING [presiding]. I have one question. I have just finished glancing over Mr. Young's prepared statement, and I do not want to duplicate, so if I start, tell me and I will be happy to stop. But has the panel been asked to comment on the last paragraph of his prepared statement?

Mr. YOUNG. I did not read it previously, although I alluded to it. Our point is that since we are going to have to balance, in our view, this availability of work and the number of people who want to work, that one way that has been happening is through unemployment, and that is inequitable.

We think the alternative to that is to reduce scheduled worktime, and as I indicated, we think this is just part of a broader problem of adapting to economic change in the society and not simply saying that the marketplace will somehow work it out, that the Kawasaki plant in Omaha will replace the plants that are closing somewhere else; but that we have to have mechanisms in the society, whether they be reduced worktime or whatever, that will protect the groups that are hurt while the rest of us are benefiting.

It is not a question of being optimistic or pessimistic.

I want to get back to the point Mr. Clark made. I am not pessimistic about the ability of the economy to absorb people or to grow. I am optimistic about our ability to get along with a lot of leisure time, and it is a question of which you consider desirable at that point. But the major thrust of our last paragraph is that we think that as these issues affect more and more people there will have to be more and more social mechanisms that will supplement the market.

Representative BOLLING. I understood that and I am curious to see if everybody agrees with that; just that broad generality, and I am curious about some of the specifics, because I thought—I am not sure I heard him—in one of the statements that he made in the last few minutes he might have indicated support for not a guaranteed income, but something close to it.

Mr. CARLSON. I was criticizing—and no one picked it up—the policy approach we have chosen, that it has made people unemployable. Then I came back and said if you believe certain groups should benefit the way they did in the farm area where you did not affect the market price, the person could still sell his output, and the Government would make up the difference so you would not make people unemployable.

Representative BOLLING. I understand that, but you were, in effect, saying we would have something like the Brennan plan for income. You let the market clear its supplies, and then you paid a subsidy to bring it up to some preagreed upon target to the farmer. Now that is essentially what in one form or another, a guaranteed income is, or whatever euphemism you choose to state. You will subsidize people so they do not fall below a certain level, and you can make a tremendous argument that the present welfare system is so inefficient at both ends of the scale—it does not take care of the many people that need it and some people ride it—that you would be better off if you could figure out some mechanism—there are all kinds of ingenious approaches. But I was just curious whether the implications of what I heard were real.

Mr. CARLSON. Obviously, it is a judgment call on the amount of restriction you have, and that is what the argument is, and not necessarily the mechanism.

Representative BOLLING. But we are hung up in an interesting way. I have, with very real trepidation, voted for two welfare reform programs because I wanted to get them over to the Senate to be discussed. This is some time ago. But we are hung up on a grossly inadequate welfare system, and there are better alternatives probably if we were willing to accept the kind of social approach suggested by Mr. Young. That cannot be done in conflict. I mean we will not succeed in doing that through adversary techniques.

Mr. CARLSON. I would come differently. I would say Mr. Young was talking about more Government intervention versus a negative income tax. I personally like the freedom of individual choice being expressed by workers as to deciding what the work schedule would be and whether they want to work late, and the same with the consumer, as opposed to taking more of that away and being made collectively by the Government.

Representative BOLLING. Do you think if we left—we are not talking about market forces controlling everything—but to reduce Government intervention, and I go back to welfare again, the amount of intervention involved in the welfare programs is as high as you will get. Now, the theory is that you could reduce the intervention in the lives of people by having some other system——

Mr. CARLSON. Yes.

Representative BOLLING [continuing]. that is not in conflict with either, because you surely are not going to have a guaranteed income or whatever you choose. It is not going to be administered by the market. It will be passed by the Federal Government, won't it?

Mr. CARLSON. No, I think there is a big difference, and you would probably agree with this. In having many people intervening, passing judgments, on a wide range of eligibility requirements and whatever else you can spend our funds for, it is much more intervention than a simple negative income tax.

Representative BOLLING. Absolutely, but I do not think the gap is so big between the approaches. I do not think he is saying anything very different from what you are saying. I do not think we are that far away. One has a preference for leaving as much as possible to

the marketplace and one is not as concerned with that as coming up with a solution.

I think you are as concerned about a solution as he is and a negative income tax might be a meeting ground, but you are not going to pass any kind of change in this institution, regardless of whether we are talking about the Senate, the House or the two together, until we lower the level of policy conflict. That is all I am getting at.

Mr. CARLSON. The institutional range we have now continues to protect its continuance, so going to the negative income tax base requires a huge buy-in cost and requires a restriction of income that stops people.

Representative BOLLING. That is not a limitation on what the Congress might adopt. That is where you get back to what I happen to believe, that much of what we have been talking about in the last several days has been about rearranging institutions somewhat rather than talking about the economy.

Mr. YOUNG. On a fundamental level, I think the difference, probably, between our positions is that the UAW's view is certainly the market is going to have to be an operational mechanism, but that we have to overlay that with whatever kind of additional social mechanisms are necessary to achieve the overall result we want, and that we are not satisfied to say that the market itself will achieve that overall result.

Now, that can come through in many different ways, and whether it is a Federal stimulus toward reducing worktime, whether it is a protection of those individuals who are displaced because of technological change, whatever it is, there has to be a very strong envelope that goes around the market result in order to assure a better overall result.

Mr. CARLSON. I would say the envelope around the market now has actually created the more apparent problem of the unemployed people in this country and we ought to remove some of that envelope and the market forces will help solve our employment problem. So I would say it differently.

Representative BOLLING. But you have to have a package, because we come back to politics, and if I read what is going on in the political process today, right now, this year, you have an almost total stalemate in terms of the achievement of "desirable" options, and this is characteristic of the history of the country. We run into situations like that and sometimes we get out pleasantly, but sometimes we do not. Sometimes we deal with them with some intelligence and forethought, and it usually involves the difference in the relationship of institutions one to the other; not just the formal institutions but the informal ones.

I do not think you can solve—and I do not mean to grind this ax and to drive everybody crazy with it, but you run into problems. For example, the Government is never going to solve inflation. Anybody that has good sense knows that. If they will take an objective look at OPA, World War II, and Korea. There are advocates——

Mr. CARLSON. The Government could prevent that from occurring. Social security, minimum wage, farm-price supports, and some others have added 52 percent——

Representative BOLLING. But you see that is some sort of pleasant theory that we might just as well not even talk about because both conservatives and liberals alike are going to vote on social security.

Mr. CARLSON. And the reformation has to go quite broadly.

Representative BOLLING. That is correct, and the only way you will get a reformation that is effective is when the institutional groups which support the different political parties and attitudes figure out how to come together a little bit.

Mr. CARLSON. I agree with that.

Representative BROWN of Ohio. Will you yield?

Representative BOLLING. Yes.

Representative BROWN of Ohio. The way to do that is by the man on horseback, but it appears from the recent issue of either Time or Newsweek that it is the man in a reclining chair with his shoes off, Jarvis, who at the age of 75 has gotten the revolution going in the other way.

Representative BOLLING. But only temporarily.

Representative BROWN of Ohio. Who knows?

Representative BOLLING. You can be pretty sure.

Representative BROWN of Ohio. Well, it occurs to me that the easiest time to make these adjustments is at the time when everybody is least likely to make them from the standpoint of political pressure, and that is when you have the maximum of employment and euphoria with reference to the political attitudes about the economy and the most productive time in the economic cycle, and that is as it approaches the top.

Of course, we are all good Keynesians at the bottom but not at the top, so we do not address the social problems at the top of the cycle. You can reform your welfare system and the employment compensation system most easily when you do not have any people unemployed. But when you have got them unemployed, when they are on welfare, that is the most difficult time.

It seems to me the key may very well be in this business of encouraging a dynamic expansion of hours of work in the United States, and the method by which that is done, at least by the Pied Piper tune that we heard yesterday, was that you reduce Federal involvement and taxes in some way so that the private sector of the economy, whether it is the union worker looking for two jobs or the company that wants to invest all of its money in productive assets rather than paying dividends to the people who do not need money, that those two things are going to be encouraged by this reduction of taxes and reduction of Government activity. This may be forced by Mr. Jarvis and that kind of attitude that says we are fed up with the system as it is working now, for whatever worthy or unworthy reasons. Make us back away from this degree of Government involvement.

Representative BOLLING. My disagreement with that—and if I could say, at the risk of becoming a dreadful bore, at least to the regular staff of this committee, I would repeat that we had a remarkably good 20 years from, say, 1946 to 1966, and we had it through different administrations and we had it primarily because of two different attitudes. One was the attitude in domestic policy and one in foreign policy.

You can find them from the Employment Act and the Marshall plan. How did we get both of them, each of them? Very simple. One motivation on one and another motivation on the other, and what they did was they forced together the various component parts of society. You had the kind of approach toward employment and inflation that you had because everybody after World War II was terrified of a depression. Therefore, the various elements of the community came together and worked out a plan that worked pretty well.

The same kind of thing happened when everybody in the community, the businessmen, the financiers, the labor leaders and agricultural leaders took a look at the world and came up with a foreign policy that worked well for quite a long time despite the revisions.

And I suggest that today is a very good time for the people of all the different communities to be as fearful as they were then of the common enemy, because we do not have the vaguest idea in this country how to restore ourselves if by any chance we slipped into a depression.

Representative BROWN of Ohio. Can I respond and qualify my response. I also remember the Brennan plan. I was around after World War II.

Representative BOLLING. And if it had been passed, we would have saved storage space.

Representative BROWN of Ohio. At that time we had a different situation. We were rebuilding the world and we had the only means to do that.

Representative BOLLING. Absolutely.

Representative BROWN of Ohio. And we had a very positive economic situation; labor, farmers, everybody else, was out there deciding we were going to make a nickel by trade, by rebuilding and refilling our own peacetime demands, and we were making plenty of money to lend or give it to anybody who wanted it so that we could——

Representative BOLLING. It did not come that way. It came because we consciously made it happen, not as a government, but as a people. And that is the difference; we consciously made it happen, deliberately. I am not suggesting that we use the same plans as in those days. The only possible excuse for this study is the assumption that things have changed dramatically and we better start looking at what the changes are to try to figure out new policies.

Representative BROWN of Ohio. But I do not think we can suddenly convert our society into a situation where the UAW will line up outside the plant and start singing the International Harvester song the way the Japanese do.

Representative BOLLING. Heaven forbid. I would have wasted a lot of time in my youth working with Walter Reuther. But that is not what I am talking about. You have a higher level of adversary attitudes today, more bitterness between labor and management, more difficulties than you had at other times, but not any more difficult than you had potentially before we began to have a relatively full-employment policy which dealt with an attempt to do something with the world. The policy came first.

Representative BROWN of Ohio. Look at the social security system. We had a presidential candidate attack the social security system and he was laughed out of the campaign. Now when you express concern about the social security system everybody sits there and nods.

Representative BOLLING. I am not arguing with you. The situation is entirely different. I am saying that conceivably the solution that has worked historically might be considered this time, too.

Mr. CARLSON. We have politicized decisionmaking in the last 20 years, and it is much more difficult to come up with a collective decisionmaking process than it was with individual units coming in to make those decisions. It tends to minimize losses, not maximize gains.

Representative BOLLING. That depends on your view of the political process.

Mr. CARLSON. I think the conflicts you fellows have are much more stressful because government is much bigger.

Representative BROWN of Ohio. We have a lot of inaction over these stresses and the result is, with all due respect, that the Mr. Jarvises are taking it out of our hands and perhaps out of the hands of the Chamber of Commerce.

Mr. CARLSON. We never had it.

Representative BROWN of Ohio. When Mr. Jarvis started his argument not only the political leaders but the Chamber of Commerce and the labor unions did not like the idea because it was shaking our foundations.

Now, I have told this story before, but I represented a community that was so frustrated that it denied the local government the right of eminent domain, quite unconstitutionally, I think, but everybody voted for the initiative to take that right away because the city was involved with Federal programs with regard to urban renewal. But I don't know, you get—in this case the community finally got to the point where they decided that they had to develop a dynamic growth pattern in some way and had to do certain things as a governmental unit and went to the local labor council, the Chamber of Commerce, the League of Women Voters, church groups, and everybody else to restore the right to the municipal government to take action to resolve the problem.

I would have to say that maybe we have seen the reverse process in California. We have seen the unwinding of those coalitions that are progressive in the community——

Representative BOLLING. I think you are giving me the answer.

Representative BROWN of Ohio [continuing]. To where the people just said, you know, never mind what my institutions all think; I am fed up with it. And now all the institutional people, I venture to say the Chamber of Commerce and labor unions, are soul sampling and saying that is what we meant all the time. We have been with you all the time.

Representative BOLLING. I think you have the secret: Fear of Jarvis can bring us all together.

Representative BROWN of Ohio. It may bring us together in support of Mr. Jarvis; that is the point.

Representative BOLLING. You make your choice on that and I will make mine.

Mr. ZALUSKY. What I was saying a moment ago in regard to foreign trade is we have to look at our own jobs here and protect our jobs and then be in a position to compete in foreign trade. But we cannot do it if we do not protect our jobs. If you went to Japan today you would not see the police riding Harley-Davidsons, but we see them riding Hondas in Washington.

Representative BOLLING. Does anybody else have questions?

Mr. KASSALOW. In your testimony, Mr. Clark, you made a couple of policy suggestions to neutralize the Government impact on work hours, trend of work hours. You talked about removing the disincentive to employ more people by somehow modifying the unemployment compensation and social security tax impacts.

Second, you talked about the European experience, apparently favorably, about doing something about changing the unemployment compensation system so that short-time workweeks could be worked and people might claim partial unemployment, as an alternative, as a potential way of moving, perhaps, toward shortening work hours in the long or short run, depending on how you look at it.

I am curious to know what each of the other witnesses thinks about those proposals.

Mr. ZALUSKY. I have got serious problems with this. First, in the industrial situation as opposed to the craft, you have workers in this country that have a vested right in terms of seniority to a job at a certain income. If we are talking about subsidizing employment through shortening the workweek and the workers have any voice at all, they will probably say, "No, I want to maintain my daily income or biweekly income so I can meet my bills."

You would have to subsidize earnings on some concept that would maintain each take-home pay, not an average, workers incomes vary.

Representative BOLLING. Less than full pay?

Mr. ZALUSKY. No. A tool—maker and diemaker who will be laid off or have a short workweek will fall short of the average income for full employment, but some at the lower end wage structure will come out well. So I think you will have real problems matching subsidizing income and without it the work force will not be likely to accept the idea.

Our attitudes toward jobs in this country are substantially different from those in Germany. I spoke to a German yesterday and he commented that in the United States we seem to have millions of individual entrepreneurs seeking jobs on that basis; whereas, it is his view of the German experience that they get a job and enter into an employment contract of a long duration, and that unemployment and loss of a job in Germany is viewed as a substantial problem; almost a show cause kind of situation where the employer has to show why these people are laid off to the community as a whole. It does not take place here, we pretty much accept layoffs.

Representative BROWN of Ohio. Is that because of the organization of German industry in smaller units?

Mr. KASSALOW. The concentration is not much different, maybe even greater in Germany.

Mr. ZALUSKY. There are really different social attitudes. In a craft situation we have a different situation, however, and you will

notice that last month the electrical workers in New York agreed to go to work-sharing. But the building trades do not have the vested job right based on seniority. In the trades, workers are laid off regardless of seniority when the job is finished and then are referred to the next job by the local union on a first-in-first-out basis. In the trades work sharing is a more viable option and locals adopt programs as needed. The IBEW has had a number of work-sharing plans for years. If unemployment goes up such and such amount, they go to a shorter workweek. But they are, in effect, sharing the hardship.

Mr. KASSALOW. How about the problem of the burden of social security taxes and unemployment compensation taxes, which Professor Clark said might be eased out?

Mr. ZALUSKY. I am not an authority, but it strikes me that if you start tampering with people's social security you will get full attendance at the polls at election time.

Mr. CLARK. May I clarify two points? One, the proposal or program I was reviewing on short time would provide some benefits to those people who were put on short time through the unemployment compensation system. Though their take-home pay would be reduced, they would receive some compensation through the unemployment compensation system. Workers would be compensated for short-time work similar to the way in which European countries do now. They would suffer some income loss, but not the full loss of salary. If unemployment compensation benefits are set at a 50-percent rate, workers would lose 50 percent of 5 hours rather than 5 hours of wages.

Second, I think the emphasis on the payroll tax perhaps would be consistent with President Carter's proposal last year which was defeated in that it would infuse general revenues, thereby lowering the payroll tax for new hiring. It is the equivalent of a wage credit for new hirings, so if you did not want to tamper directly with the payroll tax rates you would go to a wage credit system and do a comparable offset of costs of new hirings.

Mr. ZALUSKY. If I went to a local union meeting and tried to sell this idea, I would have a hell of a time, but I think a viable solution might be along the lines of a sabbatical with an income supplement so that workers could do something worthwhile with that time. Enhance their educational opportunities or take a trip or something of that nature. But to say to them that their income will be cut slightly and we will share a part of unemployment, there will be no support. I also have the feeling that this program will be borne by the blue-collar worker while others will work full time and take home their same pay checks.

Mr. CARLSON. I think it is worth while looking at these fixed costs, as Mr. Clark brought out in his prepared statement, and not just in the areas you talked about. The regulations are heavy on putting costs on employing people and consequently, one will look at performance versus design standard, even if you think the regulation is wise; and where you have unwise regulations you want sunset provisions to delete those.

On the social security if you had to take less of workers' benefits there would be less cost-push inflation, less labor cost increases, thereby avoiding having to substitute machinery for the worker.

Use a differential in the minimum wage or some other way to take away from the impact of the minimum wage on employment.

I can see there is an argument on the people getting the higher incomes that are still employed and restriction of employment, but you have made people unemployable.

Trying to come back and partially remedy the situation that has been created by public policy on the jobs tax credit. The NABS $400 million program is helpful to partially compensate for this discrimination against labor that has come out of the public policy.

Mr. YOUNG. The trouble is how the Government should be more neutral. We were talking about the Jarvis issue, not only do you cut some burdens, but you cut benefits. It is a question of where do you go from here.

One way to make the social security tax more neutral was the proposal to take off the earning limit on the portion the employer pays.

On the work-sharing issue, we have not taken any formal position on unemployment compensation going to a daily basis, but it strikes me personally as kind of tinkering with the system. There has not been, you know, a complete opposition. We have some people in the auto work force interested in inverse seniority where the older workers are laid off and, in fact, collect supplementary unemployment benefits and allow the younger workers to take work at full pay. But going to a daily unemployment compensation system is almost the equivalent of having everybody laid off for 1 week out of 5, except for the cash flow, and I am not sure if that is better. I guess that is what the electrical workers did in New York in that they went in rotating layoffs. But what strikes me about those kinds of solutions is they sound nice for large groups, but what about the small groups.

One of the problems we have in bargaining for a program like a paid personal holiday plan is it is one thing to go to General Motors and it is another thing when we go to the ABC Widget Factory, because some of these programs will not work unless they are operated on a very large-scale basis, which really gets us back to a social program, otherwise they are not going to work.

Representative BROWN of Ohio. One comment. Some of the suggestions you mentioned, and this relates to what the chairman was talking about a minute ago, are not going to be done because somebody does not like that as a solution.

Mr. CARLSON. Mr. Jarvis is saying that we do not need to accept that as a final answer.

Representative BROWN of Ohio. The government workers, municipal, State, and Federal, did not like being brought into the social security system.

Mr. CARLSON. Many others did not like it that were brought in.

Representative BROWN of Ohio. The point is that you have a Congress today, and I think it is reflected in the administration too—a kind way of putting it—that does not want to alienate any specific segment of the society, and to a great degree they wind up alienating all segments.

The Jarvis movement, extreme though it was, nevertheless, capitalized on this sort of total inaction by taking it out of the hands

of the so-called Government decisionmakers who are not able to make a decision.

I share the chairman's view that the end of the tax revolt phenomenon is not in California with the result of the elections of the other day. There will be repercussions and moderations of the whole thing. It will shake out somewhere, but the impact is there for all of us because we were not able to address the problem in its bits and pieces, because we are afraid to offend one small part of the system to address the nature of the problem.

Mr. YOUNG. I have a concern that you are losing sight of something that I thought was in the framework of your hearings and that is you are not talking about how to fix this year, but where are we going. It is one thing to say I cannot get a solution sold because if we did it this year we would have to rearrange everybody's vested interests. It is another thing to talk about how we share what I think we all agree is going to be some growth in the future. We may be pessimistic about how large that growth is, but without abandoning today's problems, there is a different opportunity if we talk about what kind of institutions we want to structure for down the road.

Representative BROWN of Ohio. My feeling is that we have to be aggressive about improving the growth potential for our society.

The thing that keeps recurring to me as we have these hearings is the relatively low level of the American society as opposed to the other societies in the world in terms of growth and productivity. This was evidenced yesterday by a couple of groups. We have just simply got to do something about that. We can sustain it for a long time, because like Muhammed Ali, we are the greatest at this point. But eventually, you realize that all that youth and vigor and muscle has turned to flab and we have got a serious problem, and it is harder to come back each time because of the nature of our society.

We have got to do something to get back on that vigorous growth trail. I do not care if you call it McKinley's system that calls for the full dinner pail, or——

Representative BOLLING. I think it would be better if you tried something else.

Representative BROWN of Ohio [continuing]. The New Deal or Great Frontier, but we have got to find some system that enables us to get on a growth pattern to resolve all of these problems, because I think none of us want to accept the fact that we are simply rearranging the lack of worktime by deciding whether it is a black teenager or the gray old folks that will be cut out of the benefits of the system, or are we all going to take a little bit less. I do not think we can accept that.

Representative BOLLING. I am going to forgo another short speech. I have enjoyed what I have heard and I apologize for not having been able to be here for all the time. In the process we got ourselves in more trouble in the House Rules Committee dealing with the public works bill.

We thank you all for your participation. We will meet again tomorrow at 10 a.m., in room 345, the Cannon House Office Building. The committee stands in recess.

[Whereupon, at 12:25 p.m., the committee recessed, to reconvene at 10 a.m., Thursday, June 15, 1978.]

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