GOVERNMENT PRICE STATISTICS

1 1c7

HEARINGS

BEFORE THE

SUBCOMMITTEE ON ECONOMIC STATISTICS

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

EIGHTY-SEVENTH CONGRESS

FIRST SESSION

PURSUANT TO

Sec. 5(a) of Public Law 304

(79TH CONGRESS)

PART 2

MAY 1, 2, 3, 4, and 5, 1961

Printed for the use of the Joint Economic Committee

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1961

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington 25, D.C. - Price 65 cents

LIBRARY COPY
(PLEASE RETURN)
JOINT ECONOMIC CTTE.
G 133 NEW SENATE OFF. BL

JOINT ECONOMIC COMMITTEE

(Created pursuant to sec. 5(a) of Public Law 304, 79th Cong.)

WRIGHT PATMAN, Texas, *Chairman*
PAUL H. DOUGLAS, Illinois, *Vice Chairman*

HOUSE OF REPRESENTATIVES	SENATE
RICHARD BOLLING, Missouri	JOHN SPARKMAN, Alabama
HALE BOGGS, Louisiana	J. WILLIAM FULBRIGHT, Arkansas
HENRY S. REUSS, Wisconsin	WILLIAM PROXMIRE, Wisconsin
MARTHA W. GRIFFITHS, Michigan	CLAIBORNE PELL, Rhode Island
THOMAS B. CURTIS, Missouri	PRESCOTT BUSH, Connecticut
CLARENCE E. KILBURN, New York	JOHN MARSHALL BUTLER, Maryland
WILLIAM B. WIDNALL, New Jersey	JACOB K. JAVITS, New York

WM. SUMMERS JOHNSON, *Executive Director*
JOHN W. LEHMAN, *Deputy Executive Director and Clerk*

SUBCOMMITTEE ON ECONOMIC STATISTICS

WILLIAM PROXMIRE, Wisconsin, *Chairman*

RICHARD BOLLING, Missouri	PAUL H. DOUGLAS, Illinois
THOMAS B. CURTIS, Missouri	J. WILLIAM FULBRIGHT, Arkansas
WILLIAM B. WIDNALL, New Jersey	

JAMES W. KNOWLES, *Economist*

SUGGESTED IDENTIFICATION

U.S. Congress, Joint Economic Committee
Government Price Statistics, Hearings, Part 2
May 1, 2, 3, 4, and 5, 1961
GPO, WASHINGTON 25, D.C.

[illegible]

CONTENTS

STATEMENTS

	Page
Adelman, Irma, Stanford University	745
Arant, Willard D., manager, Economic Research Department, Swift & Co., Chicago, Ill	695
Boger, L. L., professor and head, Department of Agricultural Economics, Michigan State University, Lansing, Mich	689
Bowman, Raymond T., Assistant Director for Statistical Standards, Bureau of the Budget	749
Bronfenbrenner, Martin, professor of economics, University of Minnesota	739
Clague, Ewan, Commissioner of Labor Statistics, U.S. Department of Labor; accompanied by Arnold E. Chase and Sidney A. Jaffe	557
Eggert, Robert J., Chairman, Federal Statistics Users Conference and marketing research manager, Ford Division, Ford Motor Co.; accompanied by Roye L. Lowry, executive secretary for the Conference	641
Hamilton, W. E., director of research, American Farm Bureau Federation, Chicago, Ill	703
Jaszi, George, Assistant Director, Office of Business Economics, U.S. Department of Commerce	619
Neiswanger, William A., University of Illinois	747
Seidman, Bert, economist, research department, AFL–CIO, Washington, D.C	684
Stauber, B. R., Chief, Agricultural Price Statistics Branch, Statistical Reporting Service, U.S. Department of Agriculture; accompanied by Byron S. Peterson and Roger F. Hale	611
Stigler, George J., University of Chicago, chairman, Price Statistics Review Committee; accompanied by Richard Ruggles, Yale University, Boris Swerling, Stanford University, Dorothy Brady, University of Pennsylvania, Philip J. McCarthy, Cornell University, and Harry E. McAlister, Washington State University, Secretary of the Committee	528
Teper, Lazare, director of research, International Ladies' Garment Workers Union, New York City	667
Vickrey, William, Columbia University	742
Weidenbaum, Murray L., corporate economist, Boeing Airplane Co., Seattle, Wash	708

ADDITIONAL INFORMATION

Title III. Subtitle A, section 301(A) of the Agricultural Adjustment Act of 1938 as amended by the Agricultural Acts of 1948, 1949, 1954, and 1956	546
Suggested additions to Bureau of Labor Statistics' Consumer Price Index and Wholesale Price Index	624
Statement on use of computers	635
Conference on Federal Price Statistics, Hotel Statler-Hilton, March 17, 1961	658
Letter of Iver M. Olson, National Shoe Manufacturers Association, Inc., to chairman	776
Letter of Wilbur J. Cohen, Assistant Secretary of Health, Education, and Welfare, to Hon. William Proxmire	786
Letter of C. Canby Balderston, Vice Chairman, Board of Governors of the Federal Reserve System, to Hon. William Proxmire	788
Letter of Robert C. Weaver, Administrator, Housing and Home Finance Agency, to Hon. William Proxmire	788
Letter of Hon. Gerhard Colm, chief economist, National Planning Association, to Hon. William Proxmire	789
Letter of James R. Beaton, assistant director of research, National Association of Manufacturers, to Hon. William Proxmire	790
Letter of George Meany, president, AFL–CIO, to Hon. William Proxmire	791

GOVERNMENT PRICE STATISTICS

MONDAY, MAY 1, 1961

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

The subcommittee met at 10 a.m., pursuant to call, in room G–308, New Senate Office Building, Senator Paul H. Douglas presiding.

Present: Senator Douglas, and Representatives Bolling, Curtis, and Widnall.

Also present: John W. Lehman, deputy executive director and clerk; and James W. Knowles, economist.

Senator DOUGLAS. The committee will be in order.

I am temporarily presiding in the absence of Senator Proxmire. I regret that I will have to leave shortly because of an engagement that has suddenly come up. I would like to make a brief preliminary statement for the record.

The first part of these hearings was held on January 24 of this year. At that hearing, Dr. Raymond T. Bowman, Assistant Director for Statistical Standards, Bureau of the Budget, appeared before the subcommittee to present and summarize a report prepared for the Bureau of the Budget, entitled "The Price Statistics of the Federal Government: Review, Appraisal, and Recommendations."

In presenting the report, Dr. Bowman informed the subcommittee that it was the work of a special committee of distinguished economists and statisticians appointed by the National Bureau of Economic Research, under a contract made for that purpose by the Bureau of the Budget.

This committee was know as the Price Statistics Review Committee of the National Bureau of Economic Research, and its chairman was Dr. George J. Stigler of the University of Chicago.

Today, at the beginning of this second set of hearings, we have the pleasure of having before us Dr. Stigler and the members of the committee to explain the findings and recommendations which they reached on the basis of their investigation of the Government's price statistics.

Before calling on Dr. Stigler and his associates, I would like to take a moment to point out that this is one of the most important hearings on Government statistics that the committee has conducted. The Joint Economic Committee has always had an interest in stimulating the development of more adequate and better integrated Federal statistics.

The great importance which, in so many different fields, is attached to factual data on prices of goods and services makes an appraisal of the adequacy of price statistics a matter of great significance. The Government's price statistics are widely used not only by the Government itself, but also by all segments of the economy—business, labor, research organizations—as well as by State and local governments.

The Joint Economic Committee, from its founding under the Employment Act of 1946, has repeatedly given special recognition to the significance of these statistics in evaluating both short-run and long-run tendencies in our economy. Two investigations of recent years have given particular emphasis to this matter of prices: the 1958 study of "The Relationship of Prices to Economic Stability and Growth," during the 85th Congress; and the 1959 study of "Employment, Growth, and Price Levels," during the 86th Congress.

The studies focused particular attention on the need for reliable price statistics and on the danger that both public and private economic policies could go astray if these measures proved erroneous. Therefore, we commend both the Bureau of the Budget for contracting for this study, and Dr. Stigler and his associates for their efforts in providing this review and appraisal of our price statistics and their recommendations for further improvement.

During the remainder of this week—as announced by the subcommittee on April 24—we shall hear from representatives of the various Government agencies which produce and use these statistics; from representatives of the Federal Statistics Users' Conference; from statisticians and economists from labor, industrial, and agricultural groups, and from a number of specialists from the universities.

We hope that the report and the discussion of it in these hearings will provide the Bureau of the Budget with the basis for the design of a long-range program for extension and improvement of the Federal Government's programs in the field of price statistics.

Dr. Stigler, we are particularly pleased to welcome you and your distinguished associates. I understand you have a prepared statement. You may present it in your own way, and the full text will be printed in the record.

Before you begin your statement, may I suggest that you take a moment to introduce your colleagues.

STATEMENT OF GEORGE J. STIGLER, UNIVERSITY OF CHICAGO, CHAIRMAN OF THE PRICE STATISTICS REVIEW COMMITTEE, ACCOMPANIED BY RICHARD RUGGLES, YALE UNIVERSITY; BORIS SWERLING, STANFORD UNIVERSITY; DOROTHY BRADY, UNIVERSITY OF PENNSYLVANIA; PHILIP J. McCARTHY, CORNELL UNIVERSITY; AND HARRY E. McALLISTER, WASHINGTON STATE UNIVERSITY, SECRETARY OF THE COMMITTEE

Mr. STIGLER. I will be happy to. The members of the committee who are here today are Professor Ruggles of Yale University, Professor Swerling from Stanford University, Professor Brady from the University of Pennsylvania, and Professor McCarthy from Cornell University, and the secretary of the committee, Prof. Harry E. McAllister, of Washington State University.

I have a very brief statement.

Senator DOUGLAS. You may proceed.

Mr. STIGLER. Fine. The report of the Price Statistics Review Committee lies before this committee, and we are here today primarily to elaborate and clarify any recommendations which your committee wishes to explore. Therefore, I shall make only a few introductory remarks.

To the extent that this rather novel collaboration between operating statistical agencies of the Federal Government and a team of academic economists and statisticians has been successful—and this is for others to judge—it has been due to the wholehearted and skilled cooperation of both parties.

The Bureau of Labor Statistics and the Agricultural Marketing Service, in particular, have been unstinting in their cooperation, and the committee wishes to express its great debt and gratitude to them. The members of our committee and the authors of the staff papers have in turn dedicated high professional abilities and long labors to their tasks as an act of public service, and I am sure I speak for others as well as myself in assuring them that it has been a public service.

No one will assert that our price indexes are unimportant or ignored, when headlines report the Consumer Price Index each month, and major agricultural policy decisions are geared to the farm price indexes. Yet I suspect that most people do not realize how important a role prices play in governing our economic system, and how incomplete our present knowledge of these prices is. Let me give just three examples.

Whether the outward flow of gold is resumed or reversed depends fundamentally on the level of our prices compared, at existing exchange rates, to the prices in countries which buy from or sell to us. Yet we have only fragmentary knowledge of our export and import prices, and the Federal Government spends less each year on these price indexes than it does on washing the windows of one or two executive department buildings. Perhaps it is as important to see our international economic position clearly as it is to look out on this attractive city.

Of the some 180 million citizens in this country, at the outside we now know the changes in the purchasing power of money income for perhaps 80 or 90 million. The millions in cities who are not members of families, or are members of families whose heads are not wage or lower salary earners, and the further millions who live outside cities but not on farms, are omitted from our present price index programs. No one believes that this omitted half of the population is unimportant, and yet no one can be sure how well our present indexes describe their changing economic fortunes.

Finally, consider the industrial system—that complex of companies and products and services which constitutes the largest productive system in all history. Prices guide investment, incite research, govern the choice of raw materials, reflect the pace of innovation—in fact, pervade every aspect of the productive process.

Yet we know nothing of the prices of business services, little of capital equipment and construction and inventory prices, and have misgivings on the reliability of prices on large sectors of the product markets.

I select these examples of deficiencies in our price statistics program to emphasize the fact that everyone has a stake in improved price data. Our committee of academicians would naturally and inevitably like to have every conceivable price area well covered, but we have exercised extreme restraint in setting forth our recommendations. I believe there is no recommendation in our report that is not defensible in terms of the immediate self-interest of the Nation.

We purposely, and I would say necessarily, avoided detailed prescriptions of the procedures to implement our recommendations. At this stage there arises a host of operating and cost questions, concerning which we lack detailed knowledge, and in which we have full confidence that the operating agencies can reach proper decisions.

We have been requested, however, to indicate those recommendations which we believe deserve first priority in terms of importance. In selecting those recommendations which are most important, we have considered only the contribution the proposal makes to our knowledge of price behavior, not the costs of administrative simplicity of the proposal.

Thus our recommendation that the agencies also issue seasonally corrected indexes does not seem to us of major importance, because users can make such corrections for themselves, but it would be a cheap and easy policy to adopt.

The listing which follows, then, represents our judgment as to the areas in which substantial contributions to our knowledge of price behavior are possible and essential. Our recommendations are classified under a few broad headings, and only first- and second-run priorities are distinguished. Other recommendations in our full report are of lesser importance.

THE PRIORITIES OF IMPROVEMENTS OF PRICE INDEXES

First priorities

Extensions of the price index program:

A major program of expansion and improvement of the export and import price indexes.

We do not believe that the problems of gold flow and the like are solved forever in our history and we believe that adequate information in this price area is needed if we are to be able to deal with these problems rationally.

The assumption of real responsibility by the Federal Government for a comprehensive and reliable construction cost index.

The stake of the Federal Government, itself, in this area is immense, and yet at the present time this is a very unsatisfactory area in which the chief thing the Federal Government does is to collect a series of ambiguous numbers from private sources.

Senator DOUGLAS. Dr. Stigler, could you go any further in this than a weighted index of material cost, a weighted index of labor rates, and then a combined index? This is not a labor cost per unit of construction because of differences in output, and so forth. How would you deal with that situation?

Mr. STIGLER. Well, there are a few areas where we believe actual pricing is feasible. For example, there are standard operations on the construction of highways, with bids for excavation and filling, and

so forth. And indeed, those prices behave very differently from the prices in the index, which are always cost-plus prices and reflect none of the varying impact of competition on builders' margins through time. We do not believe that you can price houses or factories with anything like the simplicity or ease that you can price ordinary consumers' goods, but at the present time we do not even have very good prices of the materials themselves, and we do think that something could be done, especially in the residential housing area, which is a large, continuous, active market.

Senator DOUGLAS. The question I am asking is, Could you go deeper than a weighted index of materials and a weighted index of hourly wage rates, and then a combined index? Could you get any estimate of the cost of construction of a brick house, two bedrooms, and so forth, and so on, in specific items?

Mr. STIGLER. Well, we hinted in our report but did not commit ourselves fully to the possibility that a specified house with blueprints and the like be made up from time to time, and that a series of builders' estimates which would reflect the changing technology and other things, as well as the price of raw materials, be made.

Senator DOUGLAS. Do you think that could be done?

Mr. STIGLER. We think it is worth experimenting with. We were not prepared to say that basically at this stage it was possible to go beyond what you have described.

Our second major first priority was in the reorientation of the major price indexes.

> The Consumer Price Index and the index of prices paid by farmers for family living items should be revised as rapidly as possible in the direction of more precise measures of the changing cost of a given level of living. In particular, the introduction of new products should be accelerated and the measurement of quality change given high research priority.

Since this has been, so far as we can tell, a difficult proposal, I have made up a supplementary statement with regard to this and will be able to go into that if you desire.

(The supplementary statement referred to follows:)

THE PROPER NATURE OF THE CPI

"What distinguishes a cost-of-living index from the more narrowly defined price index is that in a cost-of-living index we would try to measure the changes in the cost of an equivalent market basket of goods and services whereas in a price index we try to measure the cost of the same market basket"—so said Dr. Ewan Clague. And Sidney Jaffe has emphasized the need, because of the wide use of the CPI, to restrict this index to "reflect prices of real transactions," and he states that "as a practical matter, therefore, we use what is essentially a fixed market basket over the period of years between the general index revisions."[1]

The Price Statistics Review Committee, on the other hand, has emphatically recommended that the CPI be made to approximate an index of a constant welfare level of consumption, or what Dr. Clague calls a cost-of-living index. The committee's recommendations take account of the large practical problems of producing an index number each month. The measurement of quality change, for example, is to be undertaken first in an annual index and the extension to the monthly index is to wait upon the development of tested procedures.

The reason for the committee's position is simply this: the index that economics tells us is relevant to the measurement of the welfare of workers, or of the

[1] The quotations are from his paper, "The Consumer Price Index—Technical Questions and Practical Answers," delivered at the American Statistical Association meeting, December 1959.

population at large, is one which measures the cost of a given level of satisfaction. Suppose a worker's annual earnings rise from $4,500 to $5,000; meanwhile an index number has risen from 90 to 100, so "deflated" wages are constant. If this index contains a change in the level of living—perhaps rising too much because quality improvements in goods are ignored, or too little because of incorrect weighting of consumer durables—we simply do not know whether the worker is better or worse off. The BLS is fully aware of this. Mr. Clague has said that "a well-maintained price index has been found to be a good approximation to a cost-of-living index." I don't know where this has been found, but the point is that this is what the CPI is used for.

Is there a real difference between the BLS and AMS, on the one hand, and the Committee, on the other hand? I will be so bold as to say that the chief difference is one of language.

For the larger part of the Committee's position can be restated in two propositions:

First, when two prices at different dates, are compared, it is essential that they refer to the same commodity, not merely similar commodities, and there should be objective methods of determining whether the products are the same. This is the whole point of quality measurement: to make the question of whether this and last year's model are the same question to be decided, not by the judgment of someone writing specifications, but by a set of objective procedures. The Committee's recommendations, exactly contrary to some reactions, are designed to reduce the element of subjective decision in constructing the price index. The BLS now makes thousands of judgments on comparability of prices each decade—and of course it must in a world where a fixed market basket with new 1950 automobiles and 6-cubic-foot refrigerators no longer exists. The Committee wishes to make objective procedures for dealing with quality change an explicit goal.

Second, when consumers change the commodity which they purchase to meet a specific need, the change should be recognized promptly in the index. Again no matter of principle is involved: the BLS shifted from wool to orlon sweaters when consumers so shifted. The Committee wishes these changes to be made more promptly and comprehensively, and again by more objective procedures.

There are lesser questions not covered by these propositions, concerned chiefly with the proper weights for a consumer price index. The BLS implicitly accepts the constant consumption level concept when it excludes security transactions from the fixed market basket, or takes the average over several years of the purchases of durable goods (automobiles and houses in particular) in assigning weights to these categories. The Committee's recommendations amount only to the extension of this logic to all important areas. Failure to do so has led to certain inconsistencies, of which I may mention two:

In the construction of weights, the BLS gives new cars a weight equal to aggregate expenditures on them in the base year minus trade-in values. If a family sells rather than trades in its old car and uses the proceeds to purchase a new car, the full price of the new car is introduced as a weight. Yet the substance of the transaction is the same in both cases.

In current pricing, the BLS uses the interest rate (as part of homeowners' costs) on new mortgages to calculate the interest cost on all outstanding mortgages, when of course the average rate paid is an average of rates on all outstanding mortgages. A parallel treatment of rented dwelling units would require that only the rental for the first month of new leases be priced. The Committee argues that in both cases the current average price on all units be priced.

The only genuine issue is how far and how fast the BLS and the AMS go toward the welfare concept of the price index. The Committee does not believe that a pure welfare index is presently feasible; the BLS certainly does not believe that a price index which ignores the problems of quality change and new goods has either meaning or relevance. The real objection to the present position of the BLS is that the failure explicitly to accept the welfare concept has delayed the adoption of improvements which are desirable and immediately feasible.

I may add comments on two related issues. The first concerns the question of whether a concept of a consumer index number which is complex and cannot be described adequately in terms of the cost of a fixed market basket is feasible with the wide use made of the index by people who are not trained statisticians and economists. The BLS has on occasion given this point considerable weight,

but in light of the foregoing remarks I do not. The present index cannot possibly be described both accurately and simply, and if any layman thinks he knows what the present CPI is, he is deluding himself. Nor do I think that a full, detailed knowledge of a concept is necessary because the concept is widely used: how many of their users can define with any precision concepts such as national income, the stock of money, the balance of payments, the labor force, unemployment, et cetera, et cetera?

The second point concerns the policy implications of a CPI which was a closer approximation to a constant welfare index. I am convinced that such an index would have risen less rapidly during the 1950's, but I do not believe—to comment only on the most obvious question—that this differential behavior would have had any significant influence on the course of wage rates. Any large change in concept of procedure will obviously be introduced only with adequate notice. Since the basic determinant of contractual wage rates is the comparative strengths of unions and employers, the course of wage rates would not have been appreciably different with, say, a 1-percent slower rise in prices in the 1950's. Moreover, a welfare index could move either way in the future: if we again embark upon price controls of the sort invoked in World War II, there will again be substantial quality deterioration and a welfare index would rise more rapidly than the present index.

But it would be inappropriate to end upon this note: the problem is not to get a consumer price index which rises slowly or rapidly but one that represents as closely as possible the thing we are interested in measuring. And the thing we are interested in measuring is the cost of maintaining a constant level of satisfaction through time.

Senator DOUGLAS. I would like to direct a question to your last sentence, where you say that the introduction of new products should be accelerated and the measurement of quality change given higher research priority.

I have always wondered how you reduce qualitative changes to quantitative terms.

Mr. STIGLER. We have one staff paper in our report which exploits a field relative to the consumer price indexes. Its logic is fundamentally this: In a given year, we look across the array of automobiles produced in America, finding them differing in weight, presence or absence of automatic transmissions, and other characteristics.

Perhaps, and it turns out that this is true, you can explain the variation of prices of all the models in a given year in large part by these physical, specifiable characteristics. So it is possible to say that 10 more horsepower costs the consumer so many dollars.

If that is possible, we then in effect can say that next year when automobiles are either smaller, if the compact rage is going, or larger, if we go back that way, that we ought to be able to correct next year's prices for these differences in specifications.

I think that method has a great deal of promise, although I am quite convinced that it will not solve all problems. Again, although we have nothing in our report, we were impressed by some of the preliminary work that has been done in the academic and business areas on problems such as the changing cost of the treatment of a specific medical ailment, let us say, such as an appendectomy.

The present procedure, for example, will price the cost of a hospital room and of the physician's services and so forth. We think it would be possible, not on a current basis, necessarily, to take account of things such as the much more rapid recovery and the much shorter hospital stay now associated with that kind of a case.

There would be many places, of course, where correction for quality change is a very difficult problem, but we do think it is not one in which at the outset you throw up your hands.

Representative CURTIS. Could I carry this a little further? To me this is just as important as you emphasize.

I have used some examples in various questionings of witnesses before this committee and also in a number of speeches I have made, and I think by giving specific examples, as you are doing, we begin to get hold of this problem.

Take air transportation. I have used the example of when I first came to Congress in 1950 it took me about 5 hours to fly from St. Louis to Washington. Today, in fact last night, it was 2 hours and 15 minutes. Yet the cost of air transportation is about the same. In there, too, is the variety of schedules of flights which are now available to me, nonstop.

That obviously is a tremendous increase in quality and choice that is not reflected in the consumer price index, and yet I think in some ways we can grab hold of it if it is no more than just the amount of time saved. I hope my time is worth something and other people's time.

But if we took it on a time-saved basis, we could do something. In the field of housing there is a housing development in St. Louis. In fact, I helped put it together. The houses sell for around $13,000, which is for lower incomes, but they are all air conditioned. The air conditioning unit goes right into the building. Somehow that is quality increase.

I don't know how you measure it, but it is certainly of tremendous value. Compare a house of 15 or 10 years ago that didn't have these conveniences, such as the garbage disposal, which are now in all low-priced housing, and the dishwasher put in as part of the design which saves the housewife time. In fact, older people give up larger houses they have to buy these lower cost residences not for status, obviously, but for the convenience of housekeeping—these are all varying factors.

I have seen a study of the amount of time a housewife saved in preparing meals as a result of the innovation of frozen foods and precooked foods. I think, if I recall, it was something like 2 or 3 hours a day saved by the housewife. Somehow, those kinds of things I think we can at least make a stab at determining them.

Senator DOUGLAS. If I may be permitted to utter a slightly skeptical comment, I would be interested in the relative weights given to frozen foods, garbage disposals, and hardwood floors, and a sink that you don't have to bend down to reach. It would be interesting to find the statistical weighting system to equate these to a common unit.

Representative CURTIS. That is why I suggested that time saved might be one way that you could go into all of these things. We can put some sort of value on a person's time, the housewife's time, the businessman, or whoever uses the airlines, his time, in saving in transportation.

The same could be done in communications. Of course, this gets away from pricing, but it does hit at the same problem. There has been a lot of talk about the shortage of doctors with very little reference to the increased productivity of the individual doctor as a result of the tremendous advancements in transportation and communications.

Many a mother does not have to go to a doctor, or have the doctor visit them, or even go to the doctor's office, because she can get on the telephone and ask the doctor, or give the symptoms of what the child has. So telephone and transportation are timesaving.

All of those things go into the cost, though, of the service, and yet the quality of the service and the availability of the service, or the product, is available to a great many more people.

Let me ask this one question because I noticed language here, and then I will go on.

"The changing cost of a given level of living"—that is the phrase. It seems to me our problem is that our standard of living, which is not a given level at all, but that is the thing that is shifting. The standard of living has been increasing tremendously, and yet we are trying to measure our prices in terms of a given level of living. That is where the difficulty comes.

We have been saying that the increased cost as translated is inflation, a symptom of a money disease, when, indeed, in my judgment, a great deal of it has not been that at all. There has been an increase in quality and choice. So maybe the difficulty lies in not identifying or making it very explicit that all we are doing in the Consumer Price Index is taking a given level of living and measuring changes in prices in regard to that given level of living when we have another variable here.

Would you comment on that?

Mr. STIGLER. Well, this is a basic problem. If you wish, we can go in that direction at this point or, if you wish, we can go through the priorities first.

Representative CURTIS. Why not go through that? I got interested, as Senator Douglas did, in the specifics.

Mr. STIGLER. This is perhaps the most important single area of our recommendations. Shall we finish the priorities?

Representative BOLLING. (presiding). I think you should go on and finish the priorities, but when we get into the interchange, I hope that all the members of the panel will feel free to get into the picture.

You may proceed.

Mr. STIGLER. Our other major reorientation is in the Wholesale Price Index, which should be shifted to the format of an input-output system, to achieve greater comprehensiveness of price coverage and a more rational system of weights.

Scientific procedures of the price collecting agencies:

Full descriptions of the procedures employed in constructing each index should be published after every major index revision.

Separate research units, working in close collaboration with the operating divisions, but free of operating responsibilities, should be created within each agency. This would deal with many of the hard problems, not matters that are settled or routine.

Probability sampling systems should be adopted as rapidly as possible at all stages of index number construction.

Revision policies: A periodic schedule of revisions of the weights should be adopted in connection with each major index. Comprehensive weight revisions should be made at least once every 10 years.

Second priorities

Consumer Price Index:

Extend the coverage of wage and lower salary earners' families to single persons and to the rural nonfarm families.

Produce an index number of consumer prices for the entire nonfarm population of the country. That could then be joined to the farm cost-of-living index to cover the entire Nation.

Wholesale Price Index: Move as rapidly as possible toward the collection from buyers of more realistic prices of finished and semifinished goods. We believe the coded prices now collected have serious limitations.

Indexes of prices paid and received by farmers:

Adoption of stricter specifications of commodities whose qualities vary substantially at one time or change appreciably over time.

Extension of pricing in certain neglected areas such as medical care and purchase of services in production, in collaboration with the BLS where this is appropriate.

Representative BOLLING. Thank you very much, Doctor.

Mr. Curtis?

Representative CURTIS. First, I want to extend my deep appreciation again to the panel for an excellent job in this area. Then I do want to get this back in context to be sure that we do have it in context, because we are now directing criticism of our system.

It is your opinion that today we have a very helpful set of statistics; is that not true?

Mr. STIGLER. Yes, sir.

Representative CURTIS. Sometimes when we get on negative criticisms, people misinterpret it to say that our whole system of gathering statistics is of low value. In relation to statistics in other societies, we still have a much superior system.

Would you say that is true or am I just being pro-American when I say that?

Mr. STIGLER. I do not detect any traces of chauvinism. We have a brief statement in our report saying that we felt we could use our time best by concentrating on things we would like to see improved, rather than praising the many strong points that are already present.

I cannot speak for everyone here, but I, myself, would not want to change our price statistics program for any other country's.

Representative CURTIS. Thank you. I wanted that in context. Sometimes when we direct our attention to areas where we need improvement, some people take it out of context. I am a great critic of our present system and I could be guilty of that myself.

What I am concerned about in this area of your recommendations more than anything else is the recommendation for the mechanics whereby we actually can get these statistics that you say might be obtained. As a legislator, I am concerned with that.

If your group or the group of statistic users and those who are familiar with statistics, and also who know of the data that is being collected for possibly other reasons now, or could be collected by the Federal Government, if you could direct our attention to how we could get these new statistical series or improve the ones we have, then I think we can move forward.

It may mean increased appropriations, and I daresay it does. I, for one, am very ready to recommend increased appropriations in any area where we can improve our statistics, because there a dollar can be spent but hundreds of dollars gained from the results of the information we would then have.

So, on each one of these recommendations, do you have specific suggestions of how we can set up the mechanics to get this information, to get these statistics?

Mr. STIGLER. That is really a very sweeping inquiry. Perhaps at this point the other members of the panel ought to begin to bear some of the burden. Partly that is a problem of sampling. Mr. McCarthy, in a moment, may wish to speak about it. Partly it involves operating questions on which not all of us are experts, but we do have one expert. Mrs. Brady has been a leading figure in this area of price indexes for many years. Perhaps she will, in the case of Consumer Price Indexes, say a few words on your request.

Representative CURTIS. Could I pose two other questions before we go into it? The other major question that would go across the board here, too, is the concern that I have developed for regional accounting, because most of our statistical series have been aggregates.

Any attention of the panelists might be directed to where we could get regional accounting, where the material that the Federal Government now gathers, the data, could, with possibly a little additional effort, be broken down so we get some idea of regional accounting.

Then the final question, which to me probably is the most important, is: What mechanism exists in the Federal Government today to bring about, automatically, suggestions for innovation in constantly improving our statistics, or in proposing recommendations?

Instead of an ad hoc committee, such as yours has been, it seems to me that there ought to be a standing organization somewhere in the Government that is constantly alert to the improvement of our economic statistics, which would be, each year, suggesting to this committee or to the Congress areas where we can move forward.

Representative BOLLING. If I might comment on that later, I would think that that was the function of the Office of Statistical Standards of the Bureau of the Budget, and I think a good illustration of that is the fact that it was that office that, in effect, established this inquiry.

I believe that my experience as a past chairman of this subcommittee is that they have quite systematically and virtually every year tried to come up with studies that would lead to improvements in statistics. I think that is the continuing agency and one of its purposes.

Representative CURTIS. Could I ask this question, then: Have we ever, or could we, if we have not, in this subcommittee, ask for an annual report from that group on this subject? Have we ever done that? I think if we formalized it, if we haven't already, it would help.

Representative BOLLING. Some years ago we suggested, and they complied with the suggestion, that there be a separate, I guess it is, chapter in the budget on this subject. While it does not answer completely the point that I raised, it represented a very substantial piece of progress in that direction.

Representative CURTIS. If we could establish the procedure of just as this committee holds hearings on the President's Economic Report each year, the subcommittee could establish the procedure of holding

a hearing on that report. I think we would formalize it in a manner which I think will be productive. Then they would know that their report was getting the attention it deserves and would encourage them to constantly improve it.

Representative BOLLING. Now, would the members of the panel proceed to pursue the matters raised by Mr. Curtis?

Mrs. BRADY. I am glad to hear the plea for some regional price statistics. Personally, I am greatly interested in price statistics for States, regions, and localities, because I think our developing interest in regional accounts, in State income data and so on, are going to require the price statistics necessary for interpreting these accounts.

There are two kinds of price statistics for regions or localities. First, there are comparisons of the price level in different regions. As I recollect, we say very little in our report about what the economists call an interspatial index. But I know from my experience in the Bureau of Labor Statistics there is a great and I think growing demand for this kind of price statistics—business firms, individuals, institutions, economic analysts—all want to know for their own purposes whether the price level is higher, say, in New York City than it is in New Orleans.

Now, this kind of a price statistics program I am sure we will have to initiate and continue as the interest in regional accounts and regional studies grows. Then, of course, the other type of price measurement is just the same kind of a price statistic for a given region, a given State, or a given locality as we now have at the national level.

To initiate a regional price statisties program I think you would have to envisage a fair expansion of the work of the Bureau of Labor Statistics, an expansion that would allow them to collect prices in more communities at the consumer price level, and in more establishments, more industries, at the wholesale price level.

It is simply a question of adding enough to the date collection program so that you can classify the areas or the industries by region and locality. This does not present any new problems, as I see it. All of the same problems at the national level as are discussed in our report would, with some intensification, apply at the regional level.

The extension of the price indexes in detail at the regional level would give us a great deal of information about operational details not discussed at length in our report. Innovations, new products, new qualities, even today don't come in in every region of the country at exactly the same time and hence would be reflected in the regional indexes over varying periods.

So by extending the program in this way, I think the knowledge gained of the geographic diffusion of these innovations and quality changes, changes in commodities and item substitutes would permit the gradual introduction of these items into the price index for the country as a whole through the regional method.

There is one other thing implied in your question about sources of information. Everything that I have said, and I think by and large everything that the committee has said in its report, is focused on the current collection of price statistics.

For the current collection of statistics I can see no other alternative than to use the interview method to obtain retail prices, and to use mailed questionnaires flowing out to the business establishments. It is

quite another thing if you wanted to collect price statistics on a historical basis.

Years afterwards many kinds of records become available and could be used to compile time series to test propositions about index numbers. Such compilations, I hope, would be part of the activity undertaken by the research units that we recommend.

Representative CURTIS. Could I ask one question there? Do you use a clipping service, for example, on food prices, or just clipping advertisements? There you do have your list of prices of many of your food products.

I don't know whether it would go to other areas, but just a clipping service would provide some information.

Mrs. BRADY. I am not sure. It is some time since I have been close to the operating level. I do know that in connection with the work of two prior committees examining these indexes, that the question of using advertisements as a source of information for food prices and other prices was studied with some considerable care.

It is a little difficult to say with certainty how representative advertised prices might be. As a housewife, I would say I know that a particular advertisement describes a bargain. But, the item on sale might not be a volume seller.

Representative CURTIS. You mean there is a lot of loss-leader selling?

Mrs. BRADY. That is right.

But I do think that this is the type of question that needs to be answered: How accurate are advertised prices and other records that accumulate over time that could be examined by these research units without great cost? These are procedural studies. They would also yield a byproduct, I would hope, by giving us some longer range historical studies and a background against which we can evaluate our own current judgments of the accuracy of the statistics that we are collecting for current purposes.

Representative BOLLING. Is there any further comment from any member of the panel?

Mr. Knowles?

Mr. KNOWLES. Before we get into anything I would be tempted to ask such a distinguished body, I would like to ask a couple of other things of concern to the Congress.

The first thing that concerns Members of the House and Senate when proposals are made is, what is this going to cost us? This is the next thing that somebody does, is to ask for the money.

I am wondering if your committee, which has recommended expanding our price index work in a number of new fields or new directions and fields where we are operating already, exports and imports, construction, deflation of national accounts, transportation rates, etc., has in mind some rough measure of what the cost to the Federal Government would be if your recommendations were accepted by the Government and the agencies came in with budgets to carry them out?

What kind of money would be involved?

Mr. STIGLER. This seems to me to be almost impossible to answer. It would depend on how much you want. Take the import-export price area. At the present time these indexes are made up by two clerks, plus the part-time services of a professional worker. If you

had a little more of that professional worker's time and had one more clerk, there would be somewhat better indexes.

On the other hand, you could, without having people be lazy or employed on useless tasks, increase fivefold the task of getting good prices on the things we buy from abroad and sell abroad.

In most of these matters there is a wide margin of more or less, and you can go quite a ways before you get no return at all, farther than we expect you should go. I have no real intuition in this. My own guess is that on the Consumer Price Index, for example, some of our proposals, like the research organization, are relatively modest.

I should think that if one weren't elaborate, something like $30,000, $40,000, or $50,000 a year would provide the nucleus of a working organization in such an area that would have great value. One could, of course, let it get immensely larger.

Representative CURTIS. Mr. Knowles, could I make a statement for the record?

I make this as a member of the economy bloc of the Congress—at least I think I am a member of that bloc. Whatever the cost is, in my work on the Ways and Means Committee, and we have already mentioned several of the areas where the Ways and Means Committee is a statistical user, this matter always comes up. Take export-import, a very important area when we go into reciprocal trade and tariffs and so forth. Mention has already been made of highway construction.

Our estimates on the highway construction we found were 20 percent off. We are talking now in terms of I don't know how many billions of dollars, a program that we thought was going to cost—what was it—around $30 billion. It ends up costing around $40 billion.

In the field of excise taxes, we are always arguing at what level shall the tax be applied? Last year, on depletion allowances, we were arguing at what level of the processing the percentage figure should be applied.

As a committee that is a great statistical user or which should be, the amount of savings that we could make just through more accurate estimates I am satisfied would be so much greater than any cost. I personally would be willing to make a pledge for whatever it is worth as a member of the economy bloc, that if anyone will show me how we can get these statistics, I will carry the battle to see that we get the money to get them.

Mr. KNOWLES. One reason I asked that, Congressman, is that I thought that would be the reaction, in part, and I thought also it would be clear that even the largest number we are talking about here is really a very small amount relative to the amounts we are talking about in just the Government decisions alone, and this does not allow for the kind of decisions being made on the basis of various statistics, including the price statistics, in the private area, in matters such as wages, capital expansion, the marketing programs, and whatnot.

If these decisions were just a little bit better and made possible even a 1-percent better answer on a $500 billion-plus GNP—and I cannot think of anything that comes within one one-thousandth of that—we are talking about something that returns a huge amount annually.

In business, it is pretty good when you can get 30 percent on your annual investment, but when you can get 1,000 to 1 it is also pretty good.

So far as I can make out from your program, the biggest immediate cost, and correct me if I am wrong, the biggest immediate cost to the Federal program would probably be the establishment, or expansion of an existing operation, in the field of research on improved procedures and improved indexes.

In other words, the biggest immediate and short-run cost would be on the research into developing programs for carrying out your recommendations, not for carrying out the recommendations themselves; is that correct?

Mr. STIGLER. I think in general that is true. In some cases, such as the export-import area, I think they are close enough to being operational. The analogies to the wholesale price problems are close enough so that no overwhelming amount of new research is necessary. There they could be operational. On the quality change, that is not true.

On the other hand, I would like to have Mr. McCarthy, a specialist on sampling, say whether that work is at the operational level, or whether it is still at the research stage.

Mr. MCCARTHY. I think in many situations this would be close to operational levels. The staff of the Bureau of Labor Statistics, for example, is doing research on these problems at the present time, as much as they can and still meet current operating problems.

The same thing is also true of the Agricultural Marketing Service. They are doing research on these problems at the present time, but they are limited. They have to meet day-to-day problems and do not have a great deal of time to do the research which is needed on these problems.

I think they recognize the problems in this situation. On the other hand, if some of these suggestions were adopted about extending the coverage to small areas, regional production of statistics and so on, and reasonable sampling procedures were to be used in these situations, this would probably extend the cost quite a bit.

Mr. KNOWLES. I take it you are talking of an area expanded quite a bit in the first year or two in such a program?

Mr. MCCARTHY. As soon as it was expanded the cost would be extended quite a bit, because in a way you would have to put as much resources in collecting and designing in each area in which you wanted data as you do in the entire Nation at the present time.

Mr. KNOWLES. Do you have any impression from your report as to whether or not the agencies involved in producing the statistics you studied are following, shall we call it, an optimum or best allocation of their resources at present, between competing uses for the money now provided for producing these statistics?

Would a different allocation, even within their present budget, improve matters any?

Mr. STIGLER. There aren't very many heroes at this table, I see.

This is extremely difficult to judge unless one has done what this committee as a whole has not done, and that is live in the agencies themselves during their current operations for a continued length of time. They are conducted by intelligent people who have thrift in mind and who realize that accuracy and comprehensiveness are desirable in price indexes.

I, for myself, for example, would have said that even if I had whatever budget the Bureau of Labor Statistics has had in the last 10 years, I would have forced myself to allow more for the publication of methods on the ground that this stimulates research in the area, in the academic and other sections of the community, and that it builds in a force for improvement. But that would have been a very moderate redistribution. This is the sort of thing that I think might have been done.

Mr. KNOWLES. Anyone else?

Mrs. BRADY. I would like to say that needs have a way of changing faster than one can change a whole operational structure for the collection of statistics. It is not very many years ago that the Department of Commerce, for example, introduced the national product estimates in constant dollars. To some extent, the importance of those estimates has changed the program of the Bureau of Labor Statistics, but not, perhaps, enough.

When I was in the Bureau, and I think this is still true, the major part of the Bureau's allocation to the work of price statistics went to the Consumer Price Index. But for a really adequate system of indexes for the purpose of deflating the gross national product, probably a good deal more emphasis should be put in the wholesale area.

In the aggregate this does not mean a great deal of money, perhaps, but it does imply more people, more experts, to work on particular classes of industrial goods, and so on.

Mr. KNOWLES. We can get away from the procedural points to a couple of factual points which bother people. There is the quality factor first, the proposal to make considerable effort to go into this matter of quality improvement that takes place over time and the effect it has on the problem of constructing index numbers.

This is a rather simple-minded question, perhaps, but necessary at this point, I think, for the guidance of the committee: Does this automatically, does the fact that you have a problem of measuring quality, and perhaps do it not as good as we ought to, does this automatically mean that the CPI and our other price indexes are biased upward, that is, that they are rising faster than they would if you measured the change in quality correctly?

Let's assume for a moment you have succeeded in all the research and you have a perfect measure of quality. Can you give us any judgment at the moment as to whether that would mean, say, that the CPI or the Wholesale Price Index, either one or both, would have moved upward less rapidly than they have in fact done with present techniques?

Mr. STIGLER. I would like to call on a member of our committee who has been silent here, but who had a bold footnote in our report, Professor Ruggles.

Mr. RUGGLES. Well, I think that we discussed this question quite a bit in the committee. I think we all had the same general feeling, although I was the most articulate of the group on this. I wanted to put in an arbitrary increase in quality into the index for each year on the grounds that such an arbitrary increase would warn the reader that, in fact, there was a subjective element here, and that this was probably not zero, which we presently assume it is, and that, therefore, the index itself is a subjective measure.

I don't know how high you want to put this. I would put it fairly high purposely to warn the people using the index so that they would not use it for purposes for which it should not be used.

Representative BOLLING. I would like to get a specific on that "fairly high."

Mr. RUGGLES. As long as we are being arbitrary, I would say 1 to 2 percent a year. But this would exceed, of course, the amount of price increase we have had in the index. So this would give us a falling price index over the period.

Representative CURTIS. And maybe an increased standard of living that has been.

Mr. RUGGLES. It is quite conceivable.

Mr. STIGLER. The trouble with this area is that there is no extensive body of data to which one can point. This is a common impression held by, let us say, 99 percent of the economists in the country, that there has been a steady upward drift on average in quality in peacetime, not, for example, in 1942–45. But if you corner one of these people and say, "Give me the references where I can find these numbers on which your judgment is based," it is a very thin collection of numbers. It is a thing like our staff paper referred to, which argues that automobile prices were considerably overstated in their increase during the 1950's by failing to take account of horsepower, weight, length, and so forth.

This has not been done over many, many areas of commodities at all, and over all others rather casually. When you have heard the subsequent testimony of the agencies and of others, we are already forewarned that this is the point at which they are going to complain the most vigorously and violently, that until one can get completely objective measurements of such quality changes, you would impair the index by paying any attention to it.

There I think we would disagree, and, indeed, I did submit an additional four-page supplementary statement on the proper concept of the CPI, which I believe you have, which argues that on the contrary we wish to be more objective and not delegate to operating people the decision of whether this year's model automobile is the same as last year's or a different one.

Representative BOLLING. What about the charge on the part of some that in certain hard goods there is a built-in obsolescence? How do you define the item of quality involved there?

Mr. STIGLER. Well, there is some literature on this. There is a recent book by Mr. Vance Packer, that had a fair currency. I would have to speak for myself, and other members of the committee will certainly do so, too, when I say that I think that this is a much exaggerated phenomenon.

The chief reason people buy new cars is that they like new cars, and not because advertisements have told them that they will have lost all social status in a community if they drive a car that is 1 year old.

I would like to try to change the perspective of this a little as to the kinds of goods involved. Normally in these areas when we speak of quality, we think about these particular durable goods of consumers that are quite conspicuous. But if you look at the GNP deflator and the Wholesale Price Index, you realize that our

price indexes must apply to large categories of goods in the economy which we cannot really make adequate indexes for.

Electronic equipment, for example, computers, missiles, chemicals—these areas, too, are involved in quality improvements and I don't think they are necessarily controlled entirely by Madison Avenue unless it is via the Defense Department.

In any case, however, if you look historically at what has happened in the United States, we had in 1890 a set of industries for which you could make price and quantity indexes, by and large quite satisfactorily; the flour milling, the steel industry, and so on, were not changing as drastically as our industries are today.

I think by a conservative measure, we probably could have gotten price and output indexes for 80 percent of our industries in those days. Today I think this has dropped very drastically, because of the increase of importance of industries like electronics, machinery equipment, produced as durables and so on and in these areas we frankly do not have a good system of pricing.

So I think it distorts the perspective a little to place it on automobiles and fashionable consumer goods which are only a part of the great industrial output of the Nation.

Representative CURTIS. I am happy to hear you say that because I shudder whenever automobiles are used as an example in this area.

That brings up what I would guess is a philosophical observation and which I think probably should be made at this time: that although it is this increased standard of living that has thrown the Consumer Price Index out of kilter, which is measuring on the basis of a given standard of living, nonetheless it remains true that as far as the individual human beings are concerned, they want to get the best that money can buy.

From the individual standpoint, whether the index has gone up, or the prices have gone up, as a result of quality or inflation, we still have the same human problem of getting the best that money can buy. Take the drug field. Before the mycin drug, you could buy a $1 bottle of patent medicine and you probably were buying the best or getting the best that money could buy. Today the same person has to spend $10 to get a little bottle of mycin drug. Lord knows the quality certainly justified the $10 instead of the $1, the better health that you are getting.

But the human problem still remains of having to dig up the money in order to keep up with the best that money can buy. So, at least for my sake in this discussion, I do not want anyone to believe that because I argue that the Consumer Price Index and other pricing should reveal what it is supposed to reveal, that I am disregarding the fact that the individual human beings are still going to have the problem, whether it is quality that has produced the price increase or whether it has been inflation. We still have that problem of the individual budgets.

If anyone would like to comment on that, I would appreciate it.

Mr. STIGLER. By good fortune, of course, while our demands are going up all the time by any measure of changes in the cost of living, our average incomes have been going up a good deal faster than that. There isn't any real problem whether the working population at large, as a secular matter, can keep up with these rising tastes and rising

provision of goods, but only as to how much standards are improving.

Representative CURTIS. But take the area of medical health, which I am so pleased to see that you direct attention to. Pressures are down here before the Congress and have been for years, particularly on my committee, that because the cost element in health care to the aged has gone up considerably, the insinuation that the people in the health field, the doctors, the druggists, the drug manufacturers, hospitals have been gouging the public, has underlain all of this.

Yet I do not think there is any question that an objective analysis would reveal that people are getting much more health per dollar today than they ever were. This problem is primarily one of individual budgeting because these rapid innovations and this increased cost has come pretty quickly upon us, particularly with our older people.

But if that analysis is accurate, then the problem in health care for the aged is a budget one rather than something going wrong in our economy that has brought about these high prices.

It makes quite a bit of difference in trying to solve a problem of what the analysis is. That is why I wanted to direct attention to that.

Mr. STIGLER. I think some of our talk may be at cross-purposes. We conceive of the task of the Consumer Price Index, for example, to tell us how, during the 1960's, the cost changes of what these families were consuming in 1961 and 1962, or its equivalent.

Much of this other testimony that you refer to says, "We are not satisfied with what they are doing in 1961 or 1962. But we believe that more should be done for certain classes of the community."

That lies outside the framework of the Consumer Price Index and is a reform proposal rather than one describing how our economy works.

Representative CURTIS. But all I am saying is that the series of statistics that we have, which gives us the information, should be accurate so that we know what we are measuring. It should not be abused, as I suggest that it has been, to give information that is not right.

Let me put it more compact, perhaps. If it has been that the increased price in the area of health cost has come as a result of tremendous quality advancements, then the organization in the sector of the health field has been doing an excellent job, and we don't want to direct our primary attention to messing around in that sector, certainly not in a drastic way.

Yet that is exactly the proposals that are before this Congress and have been for years, to mess around in the health care field by having the Federal Government move in, in a very massive way which, if this analysis is correct, could badly damage this very thing that is producing this amazing progress.

I do not want to get this panel, of course, involved in the policy question itself. I am only directing attention to the importance of statistics and economic series in giving us accurate information so we can make policy decisions intelligently.

Again, taking the Consumer Price Index, if, as people have interpreted in the past, this rise has been inflation, that is what I refer to as a blood disease, a disease of money. If our statistics actually would show that there is no blood disease involved in this, but this has been

our inability to measure quality, where the costs involved there are accurate and fair and real costs, then we do not want to try to solve the situation by treating it as a money disease. We want to find out what it is.

I have suggested in some of my statements that we have growing pains because our economic growth has been so rapid. That is an entirely different thing from dealing with a disease.

Representative BOLLING. Mr. Curtis, I am going to use great restraint and forego the opportunity for debate, but I do not think the panel needs to and I do not think they want to debate this.

Representative CURTIS. May I apologize for the record? The only reason other than my deep interest in this that I carry on to discuss policy questions was not to argue my side, but to point out how these statistics get involved and become very basic in these policy questions.

If we had more accurate statistics, maybe there would be a little less heat on this subject and more light.

Mr. SWERLING. If I may, this might be the appropriate point to make a comment or two about the farm price series. These points are relevant to the two questions that Mr. Knowles last placed before us.

With respect, in the first place, to reallocating funds within the existing budget: The Department of Agriculture has itself recommended that the base period for the agricultural price series be modernized, and this, I take it, is not an expensive thing to do, and over the longer run perhaps would save funds and would certainly be consistent with good index-number procedure.

Though I know that this is a recommendation not given major priority by the committee, it is a lesser recommendation which certainly is consistent with the spirit of that question of Mr. Knowles.

With respect also to the question of automatic upward bias: Whatever bias there may be on the consumer expenditure side by farmers, I think that people who have examined the statutory—perhaps I should add something before making this point. As you know, the reason the Department has not been able to modernize the base period for the indexes is a statutory constraint, which is a matter of you gentlemen's department, and not the Department of Agriculture.

Representative CURTIS. Could you supply that for the record so that we would have the actual statute?

Mr. SWERLING. It is not a matter of error, sir. It is a matter of statutory intent.

Representative CURTIS. But I mean which specific statute and why?

Mr. SWERLING. Yes, sir; I will be glad to do that.

(The matter referred to follows:)

TITLE III, SUBTITLE A, SECTION 301(A) OF THE AGRICULTURAL ADJUSTMENT ACT OF 1938 AS AMENDED BY THE AGRICULTURAL ACTS OF 1948, 1949, 1954, AND 1956

SEC. 301. (a) GENERAL DEFINITIONS. For the purposes of this title and the declaration of policy—

(1) (A) The "parity price" for any agricultural commodity, as of any date, shall be determined by multiplying the adjusted base price of such commodity as of such date by the parity index as of such date.

(B) The "adjusted base price" of any agricultural commodity, as of any date, shall be (i) the average of the prices received by farmers for such commodity, at such times as the Secretary may select during each year of the ten-

year period ending on the 31st of December last before such date, or during each marketing season beginning in such period if the Secretary determines use of a calendar year basis to be impracticable, divided by (ii) the ratio of the general level of prices received by farmers for agricultural commodities during such period to the general level of prices received by farmers for agricultural commodities during the period January 1910 to December 1914, inclusive * * *

(C) The "parity index", as of any date, shall be the ratio of (i) the general level of prices for articles and services that farmers buy, wages paid hired farm labor, interest on farm indebtedness secured by farm real estate, and taxes on farm real estate, for the calendar month ending last before such date to (ii) the general level of such prices, wages, rates, and taxes during the period January 1910 to December 1914, inclusive.

Mr. SWERLING. With respect to automatic bias upward: Again we are speaking within a statutory constraint situation, and with respect to the policy use of statistics, which is the question you were directing yourself to, sir. The prices received and prices paid indexes, as you know, and the statutory parity ratio which is computed from them are taken as part of the goal of the price-support program. That is, parity, a value of 100 on this combined ratio is, in a sense, the objective of the price-support system.

Therefore, 100 by this measure is a very important figure and very large sums are spent in pursuit of it. I think that people who have investigated this question would argue that the 1 percent per year upward bias that Mr. Ruggles has suggested for the Consumer Price Index has probably also been shared by the statutory parity ratio over the last 20 years. In a sense, there has been something like a 20 percent understatement of the improvement in real well-being of farmers by this measure.

The reason does not arise so much from the changing quality of goods or even the rising productivity of agriculture, although these are part of the story. But the chief explanation lies simply in the decline in number of farmers and the fact that, as compared with per-capita estimates of income, you get a very serious over-statement of disadvantaged position using this price measure.

I had hoped there might be an appropriate point someplace during the morning to make these comments. This was probably it.

Representative CURTIS. Could I ask a question on the farm sector? How would you go about measuring the increased standard of living on the farm as a result of rural electrification and the fact that you do not have to use a hand pump to get water, and that you have available all the electrical appliances in the kitchen, for example, as well as for the actual production of the farm?

Mr. SWERLING. We all know, sir, that these great improvements have taken place. Their actual measurement raises all the difficulties of quality changes we have spoken of already. It is entirely likely, although this I would not be prepared to document, it is entirely likely that farmers as a group have improved their level of living more rapidly since, say, 1940, than the rest of the population, even though the statistics usually employed for this purpose do not say this.

For one thing, the automobile, communications, easier transportation—these things are more important to farm people who were formerly suffering from isolated conditions. This factor of isolation has been broken down. Electricity and reduction of arduousness of farm work is a separate factor.

Representative CURTIS. Would it be possible, and, of course, this would not be the full measure, but couldn't something be done in trying to get at this quality thing of taking one factor alone, labor-saving as a test—as I suggested as far as the housewife is concerned—then could we measure whether or not the innovation of frozen foods and pre-cooked foods has saved time in preparing meals, or have these innovations saved the farmer time?

Isn't saved time a good measuring stick to measure quality increases to some degree? I am looking for something that you could tie it to. It wouldn't be complete but at least it would give you something to tie quality to, which could be measured economically.

Mr. SWERLING. In a sense, the productivity per man-hour estimates at least are consistent with this route, when one is considering the production side. When one considers the consumption side we don't go at it in these real terms.

Representative CURTIS. We could for the housewife. I know we never have put a value on her services, but even if we put it at the minimum wage, $1.15, or whatever it will be, it would be interesting. Or take the little question I posed on transportation. I do not know what my time or any person's time is worth who uses the planes, but I think we could resolve it. If there have been so many man-hours saved as a result of cutting the schedule from 5 hours to 2½ hours, and you also have a choice, to some degree, the time saved as a result of being able to take a flight in the morning at 8 o'clock or choose one at 12 or choose one at 5, couldn't it be tied to time saved and, therefore, get an economic value on it, a dollar value?

There are many of these things in some areas which would be difficult to undertake, but in other areas don't you think this could be determined?

Mr. STIGLER. This raises the problem of how far one should go and how sure one should be of the step that he has made. I might generalize your question. In one sense the ultimate welfare of people as a whole in the community involves even wider ranges than this. They work shorter hours, have more leisure. When we are talking about automobiles, perhaps we might even pay attention to how good the highways are they are driving on, although aside from toll roads there isn't a price quoted for passage on them, and a lot of other public services being made available to people that do not have prices attached to them. It is clear that if you go all the way and say, "How much better off is a typical citizen now than he was 40 years ago?" that that involves a range of difficulties that is almost stupendous to answer at this point, although statisticians are so brave that within another 20 years they will answer it anyway. We, ourselves, have been more modest, I think. We have, for example, accepted what is a tradition in this field of saying increased leisure to the public is a very valuable thing but we are not going to try to bring it into our measures. This is done in the national income accounts and elsewhere, too. We have, instead, said within the framework of the commodities that are commonly bought, commonly included in the budgets of the consumer, what can we do to be more precise in our determination of whether the quality has changed or not.

Representative CURTIS. Statistics ought to be good enough so that no one makes a mistake in referring to our economy as being sluggish,

when in reality what we have experienced in the way of problems is the result of an amazing dynamic growth. Yet that mistake, in my judgment, is being made throughout the country today and certainly in the legislative halls. Our statistics should not be so poor that that basic error is made by people of good will. Yet, I suggest it is. So in some way we ought to be able to improve our statistics or at least call clear attention to their limitations.

Mr. KNOWLES. Just to keep the record straight, I would like to throw the question back as to whether all of these quality changes that are now troubling us operate within the framework of the present indexes, as they are presently constructed, in the same direction. In other words, do they all cause the indexes to be biased upward, as seems to be the common assumption in what we have been talking about here?

Mr. STIGLER. Let me start, but I hope the other members of the committee will comment. I thought I had answered that implicitly by saying we do not know. If you canvassed people you would find some people saying that most of the trends in automobiles have been displeasing to them for a long time, that they are knocking off the crankcase cap because they are so low, and they are banging their head on the ceiling, and so forth, and there are other areas where it is clear that only taste changes are involved. I guess no one really wants to argue that the hats that ladies wear this Easter marked a technological improvement over the hats they wore last Easter. Indeed, judging from next year they may even have had deterioration over a period of time. We do not propose to touch these matters of pure taste. All I can say is that if we look very closely I am sure we can find cases where there has been deterioration in time.

To take an example, the housing in New York City under rent control. I have no doubt that many of these quarters have been maintained less well over time and that there has been deterioration. I only reflect what I guess is a general reaction, that the dominant tendency has been toward quality improvement, not that it has been universal or without exception.

Mr. KNOWLES. Let's get to the other side of the quality question. Let's assume for a moment that we have a perfect set of measurements for quality, that the agencies have set up the research staffs, and they have spent time and energy and they have come up with perfect techniques for measuring quality change and incorporate this in the indexes. Let's turn to our friend the CPI, which is the center of so much controversy and ask whether or not this means that you can then solve the problem immediately just by solving the quality problem, do you solve the problem of getting a true welfare or cost of living index? Is this the only barrier to getting the cost of living index?

Mr. STIGLER. Does someone else want to speak?

It isn't the only one. There are problems strewn all through the price area. There is the problem of which commodities to price. If you make up a budget of what American consumers consume in 1961 or 1962, that is a little bit out of date by 1963. Some new products have come along and some things have changed. Should we keep the weights of what they bought in 1962, or should we make a new consumer survey for a few million dollars in 1963, and make those tiny differences? From that viewpoint, I would say that even if we had a

perfect solution of quality problems, and I think that is quite a few weeks off, there would still be compromises with ignorance and compromises with prohibitive expense which would keep us from having an utterly precise measure of the kind that, let's say, a physicst can get for certain phenomena in the laboratory.

Mr. KNOWLES. To carry that just one step further, doesn't what you are saying amount to stating, which I understand from the committee reports, that no matter how much research you do on these indexes and how many objective techniques you develop for improved sampling, improved structure, improved processing methods, improved handling on the quality problem and so forth, you will still end up with an index which is in an important way, not just a minor way but in a significant manner, reflecting the judgment of the statisticians compiling, not just objective observations, but judgments which they have to make in the course of gathering and putting the numbers together?

Mr. STIGLER. Within limits, that is true. But it seems to me that the whole purpose of our recommendations was to reduce the element of personal judgment and increase the element of objective procedures governed by describable, comprehensible techniques. For example, all of the recommendations on sampling in effect say "Let's not have a field agent stroll down the main streets of town and decide which stores ought to be priced on the basis of whether they are conveniently located or whether the manager is cooperative or something like that." Let's have a sampling procedure that takes that discretion away. Again, when we are talking about quality change, I would like to read just two paragraphs from this supplementary statement that I submitted entitled "The Proper Concepts of the CPI." I say:

> For the larger part of the committee's position can be restated in two propositions:
>
> First, when two prices at different dates, are compared, it is essential that they refer to the same commodity, not merely similar commodities, and there should be objective methods of determining whether the products are the same. This is the whole point of quality measurement: To make the question of whether this and last year's model are the same question to be decided, not by the judgment of someone writing specifications, but by a set of objective procedures. The committee's recommendations, exactly contrary to some reactions, are designed to reduce the element of subjective decision in constructing the price index. The BLS now makes thousands of judgments on comparability of prices each decade—and of course, it must in a world where a fixed market basket with new 1950 automobiles and 6-cubic-foot refrigerators no longer exists. The committee wishes to make objective procedures for dealing with quality change an explicit goal.
>
> Second, when consumers change the commodity which they purchase to meet a specific need, the change should be recognized promptly in the index. Again, no matter of principle is involved, the BLS shifted from wool to orlon sweaters when consumers so shifted. The committee wishes these changes to be made more promptly and comprehensively, and again by more objective procedures.

Obviously, the BLS will make the change, and we merely wish more objective procedures as to when and with what weights the new commodities are introduced. In that sense, there will always be subjective judgment, but the goal of the statistician is to in effect know what influence that is having on his results.

Mr. KNOWLES. Does anyone else want to comment on this?

Mrs. BRADY. I think I want to say something more about time, in the context of producing statistics. It takes time to do the things

we are talking about in this report. I think we haven't considered that aspect of our recommendations because that would take time, too, to reflect upon the number of weeks, months, man-hours, that would be required, say, to make some of these adjustments for quality, to introduce the new products at just the right date and so on. The price statistics, along with all other economic indicators, are against a real constraint. They must be brought out quickly. They must come out next month. We want the indexes for May right now. But we will see them somewhat after the 15th of June, I daresay. These limitations are quite serious; I would say of the current economic indicators, including the price series in the current economic indicators, which are so much in demand, that immediately after collection of the raw data we would not be able to eliminate the element of judgment. The information that we require in our model system of an index data gathering just is not available until long after the data when pressures have ceased. I have a very strong feeling that the pure index that you described, Mr. Knowles, a minute ago, with all the adequate procedures for adjusting quality, is one that could only be calculated as a historical series. In the long run we want to construct and combine good historical series. I do not mean going back into the 18th century, but going back a few years and improving the statistics as the information comes along. We may have to face the fact that in a world that demands rapid publication of statistics, the judgment element that enters into their construction will remain for a good, long time.

Mr. KNOWLES. I take it even in the case of the current index there are possibilities for reducing the amount of burden of personal judgment which is now in the existing procedure, and even in this stage you do not have to operate with as large an element as we now have, although you will still have a very substantial fraction.

Mrs. BRADY. May I mention something in Professor McCarthy's special field, the sampling area. The ideal would be to construct a continuous flow of new samples—samples of consumer goods and services, samples of retail establishments, and the same for the wholesale level of distribution. But, it takes time to draw good samples. It requires information about the whole universe from which each sample is drawn. This cannot be done monthly, let's say, so that every month there would be a new sample. So, lacking a completely new sample each collection, in one period some reporter may decide he is no longer going to report to you, and then you have to do something which is entirely in the area of judgment to patch up your current sample.

Anyway, in the face of such contingencies, action is always going to have to be based on the best subjective judgment possible at this stage of carrying on an ongoing program of gathering statistics.

I hope Mr. McCarthy will comment now.

Mr. MCCARTHY. There is one thing which I would like to put in here in relation to this, and it has to do with the question that you asked before, Mr. Knowles, about allocation of resources, and things of this nature speak rather individually here now, and not for the committee at all. I am not sure that one would ever be able to, let's say, devise an index which you could be sure of, and I am speaking of a procedural matter now in terms of quality change

things, things of this general nature, but I personally would like very much to see some sort of maximum estimate of error, so to speak, under these circumstances, and actually publish indexes, let's say, or at least, for the professional community, which said something about that the amounts of error that might be due to various sources, overall sources, of what I referred to as procedural error in my discussions of sampling. Once you have those sort of things, then you can see roughly how much of your resources you should allocate to getting large samples of commodities, let's say, large samples of cities, things of this general nature, and if you have a large amount of this error then it does have little good to reduce the other sources of sampling error to a very minute sort of quantity.

Mr. KNOWLES. I had one question related to that. You spoke of moving the CPI, the Consumer Price Index, away from a price index. I take it that this also means that you are moving, in part, away from what is a purely specifications price index to one which measures welfare and some functional effects, as to what it does for people—not what its specifics are but what level of satisfaction it measures. Now let's for a moment assume that we had for the decade of the 1950's two such indexes, one of them a welfare index, and one which was a pure measure of the change in prices corrected for changes in specifications—for example, using the technique outlined in the staff paper for this sort of correction for specifications. What would be the relative movements of these two indexes compared to the present one? Is the present one a compromise between the limits set by these two as outsides? Is it moving above them or below? What is the relative movements of these three kinds of indexes, the one we have, a purely welfare index, and, assuming for a moment you know how to put it together, one which is a pure specifications index of prices for the identical things time after time.

Mr. STIGLER. The reason that is difficult to answer is that there is no opposite pole to a welfare index. A welfare index, in spite of its subjective connotation, simply says what is the cost, year after year, of living as this set of families we surveyed in 1950 lived in 1950. The BLS, of course, has never pretended that its index does that because in 1950 they bought new 1950 cars, and you cannot price new 1950 cars in 1953, 1954, 1955, and 1956. A lot of commodities have advanced and a lot of new ones have appeared. If they adhered only to the commodities they could have continued to price through the period, they would have excluded everything new and improving and dynamic in the economy. So, they have moved part way in this direction of the welfare concept. As I understand your question, if we could get all the quality changes, would that have completed the move? I suppose the answer is "No," partly because things have changed since 1950, and a weight base of 1950 would have yielded a different answer from one which is more current, partly because things that are not priced influence welfare, the services of the Government and things like that.

Representative CURTIS. Could I ask a question for clarification?

As I understand what you are saying, and I am putting it a little differently, suppose you had an index that sought to measure just inflation. Then you would put into that index all the things you are really concerned about, things that are the same. I think maybe we

could keep an index like that that would be based upon a pretty good spread and so would show whether or not there is a change in the value of the dollar. But then the second index has to do with the cost of living, whether that cost has gone up as a result of quality or inflation.

Mr. Knowles, do I grasp what you are getting at or don't I?

Mr. KNOWLES. It is essentially just this problem. That there is the matter of change in price, per se, the thing that we all refer to as inflation, the change in price of identical things between two periods, the thing that can be specified out until you know that you have priced exactly and precisely the same thing on two different months, whatever you want, and the other type is a welfare measurement, which measures in some way, and we will leave that undefined, of what is the equivalent, what has happened to the cost of people getting the same welfare in the two periods. These two are not necessarily the same number.

Representative CURTIS. They are not the same number. I think that we badly need a series that would measure inflation or deflation of the purchasing power of the dollar. That is what the CPI has been used for. Maybe if we would get an index set up solely for the basis of measuring purchasing power of the dollar, to see how it fluxuates, and then direct our attention to this area which in my judgment is equally important, of measuring this problem of cost of living, again the best that money can buy. Surely people can live today as our grandfathers lived but who would? In fact, we would call their living conditions a slum or depressed area. But they in their day were buying the best that money could buy. So we do need to know from a welfare standpoint the cost of living, but we must not confuse it, as I think we have been, with an index that should be measuring the purchasing power of the dollar.

Mr. STIGLER. My own inclination is to wish to identify those two. If we continued to price only commodities which did not change during a period, gradually we would be pricing a smaller and smaller fraction of the Nation's output, and, indeed, after 30 years a tiny fraction of the Nation's output. We would not even have flour and things like that any more, because they have changed nature over this period. Therefore, while we would be measuring the change in the value of a dollar buying those things, we would not be measuring the value of a dollar in buying the things that people really do buy.

Representative CURTIS. Then it would not be a good idex to measure the purchasing power of the dollar. All you have to do is have in that index things that are sufficiently broad samplings so that you know whether the dollar as a measuring stick is constant, or whether it has had inflation or deflation. So, I would think the kind of things that you would put in that index, which you have to revise—and I do not think any index would be any good if you did not change it—would have the sole purpose of getting at the purchasing power of the dollar. The emphasis is on the dollar. But your second index is on values, the cost of living.

Mr. STIGLER. We think an ideal CPI would be one which, if it said that the cost of living went up 7 percent last year for the average family in the index population, then that family would be better off if its money had gone up more than 7 percent and would be worse off

if it went up less than 7 percent. In that sense, we want to measure inflation, too.

Representative BOLLING. Mr. Widnall, have you any questions?

Representative WIDNALL. Something that has always puzzled me in relating prices is the quality factor, just how you arrive at the difference because of a change in quality. I can understand how you would get an absolute relationship on services, dental services, medical services, or on a rose a rose, and a daisy a daisy, year in and year out. But how do you relate this within a price index so that you get a true comparison of the previous year? How do you relate a bottle of milk that is now homogenized and has certain things inserted in the bottle of milk when you relate it to the previous year? Does that show up in the pricing?

Mr. STIGLER. It certainly does.

Before your entrance, we were speaking a good deal about it but not making very great claims for our ability to keep with it. In principle, one can make a good deal of progress, although I think the most optimistic of us would not say that that is something which in the near future is going to be whipped. To take your example, if people prefer a milk that is fortified with vitamin D to one that is not, there are procedures for dealing with it. One is to find out what the cost of the vitamin D is and subtract it out. This procedure is in part used now by the Bureau of Labor Statistics. Another method is to take a time when both of these were on the market in quantity and look at what the price differential was, and use that as a measure of the difference in the quality of the two kinds of milk. But I am afraid that we did not lay out a set of operating procedures to deal with this important and difficult problem. We took the usual academic refuge of recommending extensive research.

Representative WIDNALL. Of course, when you are relating something like a frozen pound of spinach to just raw spinach, and the packaging that goes with it, the new approach to salesmanship, they certainly cannot be normally related one against the other, because there are so many other things that go into it by way of automation. Do you just take the package of spinach one year and then the package of spinach the next year, or do you take into account the change in packaging, as a price factor?

Mr. STIGLER. Well, there is a question of whether they do now and the question of whether they should?

Dorothy, can you answer either or the former of those?

We think they should.

Mrs. BRADY. To take account of the difference in the size or the form of the package?

Representative WIDNALL. The form of the package. It is a much more expensive form of packaging in some instances than it used to be. Or you can take a laundered shirt today. Where you used to go to the Chinese laundry and you just got a shirt back, now it comes back in an elaborate cellophane envelope, with all sorts of things done to it, before it comes back. Yet, you could say that it used to cost 20 cents for a shirt and now it is 30 cents for a shirt. But there are a lot of things that enter into that price factor.

Mrs. BRADY. It is my opinion that the Bureau writes the details of the packaging into the specifications that they use in collecting price

data, just as they specify the quality of the food or whatever else is packaged. And from day to day then the comparison is made for identical specifications. The main problem comes when one type of packaging, one type of processing, goes out of the market altogether. As Mr. Stigler mentioned, the usual procedure is to attempt to introduce the new package before the old package has gone off the market. By this route you establish an overlap so that, say, last year you were relying on the specifications of the first kind of package and with an overlap period you move into using the new kind of packaging but keeping the details of the specification constant during the period in which this particular item is priced in the market.

Representative WIDNALL. I can see that. There is something else I have often thought about. On a cut of meat on the retail level, how can you truly compare with each store the cuts of different things. A pound is a pound one place and a half-pound is a half-pound the other place, depending upon the amount of bone left. But they may be the same quality of merchandise. How do you get a true relationship of price, unless you know what is being handed to the customer as a finished product?

Mrs. BRADY. The main attempt is to hold the type of cut constant in the particular store in which you are collecting the prices so that in this case so long as a particular store did not change its practices you would get these on the numerous cuts provided by a sufficiently large sampling of stores in the community.

Representative WIDNALL. When they sample a community, how far does that sampling go? What percentage of stores would be taken? Is it a small percent?

Mrs. BRADY. I am really not up to date on the sampling coverage. I know that as a matter of historical practice, the number of stores in the area of the foods and other commodities that are now sold in supermarkets is a much larger proportion of the total number of stores in the community than in the case of the other goods and services. But I think I can't give a figure on that.

Representative BOLLING. I will inject at that point that tomorrow we will have Government witnesses on that.

Mr. STIGLER. To the extent that they collect prices from the offices of chainstores rather than the individual chain outlet, the coverage would be that much larger.

Representative WIDNALL. Thank you very much.

Representative CURTIS. I have two questions. I am concerned, pleasantly concerned, about the effect the innovation of computers might mean in the mechanics of getting economic statistics. Did the panel go into that aspect of gathering economic statistics at all, the impact of your computers and the various machines that now are available, in processing data?

Mr. STIGLER. No; the committee as a group did not. I am sure Mr. McCarthy and Mr. Ruggles both have some familiarity with this area if you wish to pursue it.

Representative CURTIS. It is a very dynamic area and something that I think is very important.

The second point is this: I would like some help in getting these various recommendations into bill form. I don't like to just talk about things. If any of these recommendations can be written into

bill form so that we know in detail what we are talking about, I would welcome the opportunity of introducing legislation along this line. I hope that maybe those on the other side of the aisle would join and we would get some legislation introduced to get the show on the road.

I might direct that to the staff, if the staff would follow through with the panel to see if any of these recommendations can be reduced to bill form. I would be very much interested in pursuing it further and getting some practical results out of this work.

Representative BOLLING. The staff is listening, and I am sure that on Friday you can get some suggestions from Mr. Bowman, who happens to be here, but who will be here on the witness stand on Friday.

If there are no further questions, that will conclude the hearing this morning.

We are very grateful to you, Dr. Stigler, and all the members of your committee for your work and being here today.

With that, the subcommitee will stand adjourned until tomorrow morning at 10 o'clock in this room, when representatives of the Department of Agriculture, the Department of Labor, and the Department of Commerce will be heard.

The committee stands adjourned.

(The subcommitee recessed at 11:55 a.m., to reconvene at 10 a.m., Tuesday, May 2, 1961.)

GOVERNMENT PRICE STATISTICS

TUESDAY, MAY 2, 1961

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

The subcommittee met at 10:10 a.m., pursuant to recess, in room G-308, New Senate Office Building, Senator Paul H. Douglas presiding.

Present: Senator Douglas.

Also present: John W. Lehman, deputy executive director and clerk; and James W. Knowles, economist.

Senator DOUGLAS. Gentlemen, will you come forward?

While I was not able to be present during the complete testimony of the Committee on Price Statistics yesterday, I did have the chance to go over their recommendations, and I think I am going to ask Dr. Clague to lead off this morning and I am going to ask him, if he would, to comment especially about the recommendations for measuring to a greater degree the qualitative changes which take place in the goods whose prices are studied, and, second, the recommendation that more frequent budgetary studies be made to develop a better weighting system.

Mr. Clague, if you will lead off.

I am going to ask also the Department of Commerce to comment on the recommendation that the export and import prices be segregated so that we may get comparative indexes of those.

Mr. Clague.

STATEMENT OF EWAN CLAGUE, COMMISSIONER OF LABOR STATISTICS, U.S. DEPARTMENT OF LABOR; ACCOMPANIED BY ARNOLD E. CHASE AND SIDNEY A. JAFFE

Mr. CLAGUE. Mr. Chairman, I have a brief statement here I would like to read, if I may, before taking up your questions.

Senator DOUGLAS. Yes, do.

Mr. CLAGUE. Each of the Government's major price indexes involves many complex concepts, many intricate statistical procedures, and many difficulties in meeting the particular needs of various users of the indexes.

For example, the well-known Consumer Price Index is based on prices for about 300 items which must be selected to represent the movement of prices for all of the many thousands of items that urban families buy.

Next, the items in the index are priced monthly or quarterly by about 160 full-time or part-time employees in stores and service establishments which must be so selected that they will represent the movement of prices in the hundreds of thousands of retail establishments throughout the country.

Many complications arise to add to the magnitude of the job. New items constantly appear on the market, some old items disappear, and others take new forms. Models, sizes, and packaging change frequently. New stores come into business; old stores expand, relocate, or go out of business.

A price decrease for a small item, such as a dozen aspirin tablets, must be properly balanced in an index with a price increase for a large item, such as a new house.

Other complications arise in trying to meet, in one price index, the needs of many different users, such as the Government for economic policy determination, business and labor for wage negotiations, business for market analysis and forecasting, academic economists and statisticians for economic analysis, State and local organizations for adjustments in public assistance, and the general public for understanding price stability, inflation, or deflation. The concepts and procedures most appropriate for one of these important uses are not always the best for others.

Having in mind all of these factors, together with the normal operating problems of obtaining the required information accurately from reporting establishments, it is easy to see that the compilation of a price index to be published each month is, indeed, a complex undertaking.

This complexity is reflected in the report of the Price Statistics Review Committee, and especially in the staff papers which accompany it.

Many of the problems involved are highly technical, and adequate treatment of just one of them would require more time than is available for this hearing.

With the committee's permission, I propose, therefore, to discuss briefly only the major policy questions raised by the report and to submit a more detailed, technical statement to be appended to my testimony.

I would ask, Mr. Chairman, if you would put that detailed statement in the record.

Senator DOUGLAS. That will be printed at the conclusion of your testimony and discussion which may follow it.

Mr. CLAGUE. I would like to say, first, that there are many recommendations in the report which we, in the Bureau of Labor Statistics, have found to have merit. Insofar as possible, they are being taken into account in our program planning, especially in the revision of the Consumer Price Index which is now in progress. Among the recommendations which we believe should be considered favorably, with certain modifications as indicated briefly below and amplified in the statement which I have submitted, are those recommendations with respect to the following:

(1) Probability sampling and replication of samples. That is, multiplication of samples, division of samples into parts so we can check one with the other. We agree with that, although the Bureau's

efforts to use probability sampling techniques in recent years have shown that there are practical difficulties not fully recognized in the report which may prevent their application at some sampling stages.

(2) Weight revisions on a regular periodic basis. The Bureau would prefer 10-year intervals, subject to change only if economic conditions change drastically between regularly scheduled revisions.

(3) Earlier introduction of new products—provided that objective criteria on timing and method of introduction can be established and that some apparent inconsistencies with the sampling recommendations can be resolved.

(4) Specification pricing—which the Bureau adopted many years ago. But the part of the recommendation which calls for broadening the specifications could be accepted only with respect to certain items. Moreover, it is necessary in our judgment to maintain a considerable degree of centralized control over the price collection process in order to maintain the quality of the price data.

(5) Actual transactions prices for the Wholesale Price Index. However, the Bureau wants to profit from its earlier experience in this field. It would place emphasis first on more intensive efforts to obtain actual transactions prices from sellers, resorting to obtaining prices from buyers only where absolutely necessary, because of the great difficulty and expense involved in the latter method.

(6) Extending the scope of the price indexes. We have already reached a decision to cover single-person families and are considering further extensions which may eventually expand the index to represent all nonfarm families.

(7) Collection of price data outside the scope of the official indexes. This would be useful, especially with respect to new products.

(8) More extensive documentation of the indexes.

(9) More research, especially on the quality measurement problem, on sampling methods, and on the types of indexes best suited for various major uses—but the Bureau cannot accept the thesis, which is emphasized in the report, that the procedures which it has used to adjust for quality changes have resulted in any substantial or systematic bias in its indexes.

(10) Organization of wholesale and other nonretail price data within a sector framework, or input-output framework. But it must be recognized that this would entail a substantial expansion of the coverage of nonretail price statistics, that the weighting factors needed for this purpose are not now available, and that an index based on commodity groupings probably would have to be continued indefinitely, since the new form of index would not replace it for many important uses.

Those are the recommendations then which we endorse with the modifications we have suggested.

It is only fair to say that full implementation of the recommendations listed above would require a considerable increase in the funds devoted to price work in the Bureau of Labor Statistics. Also, some of them would require research on the development of proper techniques prior to their adoption.

Certain recommendations, which the report characterizes as cost saving (as, for example, the broadening of specifications), would increase rather than decrease costs, in our judgment.

Some other recommendations probably would produce better results with the same resources, but we cannot find in any of the recommendations significant savings which would permit us to carry on the additional work suggested by the report within our present resources.

There is one very important recommendation with which the Bureau of Labor Statistics cannot agree, even with modifications. This is the recommendation that the Consumer Price Index be reoriented gradually toward a "welfare" or "constant utility" index. We would see some value in having a "true cost-of-living" or constant utility index if techniques can be developed for defining such an index unambiguously, and then for compiling it objectively.

We must emphasize, however, that this is a long-range goal that is now unattainable, may always be unattainable, and at best could be fully attained only after considerable further theoretical and statistical exploration.

We believe that a pure price index, such as the CPI, is needed for many of the important purposes which it now serves, and that it most definitely should not be hybridized toward a welfare index.

The Bureau also questions the soundness of the following recommendations:

(1) Publishing seasonally adjusted indexes. Seasonal fluctuations in the all-items CPI are relatively minor, and many laymen who rely on the index would be confused as to whether they should use the adjusted or unadjusted index.

(2) Retroactive correction of minor errors in the Consumer Price Index—because such corrections go beyond the requirements of statistical purity and might cause disruption of good contractual relations between users of the index merely for the sake of overrefinement.

(3) Use of Census unit value data in the Wholesale Price Index—because tests which we have made show that real price changes cannot be separated from changes in product mix which are reflected in unit values.

From this very brief summary, it is apparent that we have found many good points in the report of the Price Statistics Review Committee. Except for a few major issues, such as the "welfare" index, our disagreements with the recommendations in the report are mainly based on practical considerations.

Senator DOUGLAS. Mr. Clague, if you will turn to your memorandum, you seem to accept the recommendation of the Committee that the weights be revised every 10 years.

Mr. CLAGUE. Yes, sir, I agree with this suggestion which we have included there. If economic conditions change very markedly in between, it might be done more frequently.

Senator DOUGLAS. Now, may I ask about the dates of the weighting systems adopted in the Consumer Price Index and the cost-of-living index which preceded it? As I understand, the weights were originally based on budget studies for the years 1947, 1918, and 1919.

Mr. CLAGUE. That is correct.

Senator DOUGLAS. And for how long did that weighting system prevail?

Mr. CLAGUE. That continued until the new consumer price studies were undertaken in 1934–36, and the final revision of the index was accomplished in 1939. So it lasted nearly 20 years.

Senator DOUGLAS. That covered the period roughly from 1914 to 1939?

Mr. CLAGUE. Well, yes, that is right. But remember that the weights were based on 1917–19.

Senator DOUGLAS. Then the new weights were used from 1939 on?

Mr. CLAGUE. That is right.

Senator DOUGLAS. And when were they revised again?

Mr. CLAGUE. They were revised again in—well, there were some revisions made during the war. I have that included in my longer statement.

At the time of the 1939 CPI revision, the BLS not only recomputed the index back to March 1935 using the 1934–36 expenditure data as the weights, but it also reweighted the price indexes for major groups with the same set of revised weights to introduce a new CPI series for the period June 1930 through March 1935.

Then for the period 1925 to 1929 the CPI was recomputed in the same manner using an average of the old 1917–19 weights and the revised 1934–36 weights.

Senator DOUGLAS. When was the final budgetary study made?

Mr. CLAGUE. The last one? You mean down to date?

Senator DOUGLAS. Yes.

Mr. CLAGUE. We made, Mr. Chairman, several partial studies during the war, I believe in 1941 and 1944, to meet wartime conditions. And then following the war, in 1946, 1947, and 1948, we had a system of doing a few cities each year, three cities each year.

Then we started the big revision in 1949 to 1952. Well, the year 1950 really was the year for which the expenditures data were taken.

We had the advantage of those several preceding years on a few cities that gave us a little backward look.

We carried our weights forward as best we could to 1952, when we shifted to the new index we now have beginning January 1953.

Now we are 10 years, as you can see, 11 years, away from that in making this survey.

I would like to add, Mr. Chairman——

Senator DOUGLAS. So, if I may interject——

Mr. CLAGUE. Yes.

Senator DOUGLAS. Your first system of weights lasted for about 17 years?

Mr. CLAGUE. Yes.

Senator DOUGLAS. Your second system of weights for about 17 years, with some modifications?

Mr. CLAGUE. Yes.

Senator DOUGLAS. And the final system for 9 years? It has been in effect for 9 years?

Mr. CLAGUE. Well, Mr. Chairman, you really ought to count till we make the new revision, which will be 1964, so that you see it will be 11 years.

Senator DOUGLAS. Eleven years?

Mr. CLAGUE. Yes.

Senator DOUGLAS. Has that been authorized?

Mr. CLAGUE. Yes—this program.

Senator DOUGLAS. And money is appropriated?

Mr. CLAGUE. It is appropriated each year as we go. So far the committee has given us substantially—and the Budget Bureau—the funds we require, so that——

Senator DOUGLAS. Have you ever published a bulletin describing each of these and summarizing the whole index from 1914 on and the methods which have been used in construction?

Mr. CLAGUE. Not in any single bulletin do we have this.

Senator DOUGLAS. How many bulletins has your Bureau published? I think I used to be the only man in the country who read all the statistical bulletins the Bureau published.

Mr. CLAGUE. In 1934–36 there was, of course, a great number of bulletins published on those consumer expenditure studies.

Senator DOUGLAS. Is it not true you have published over a thousand bulletins?

Mr. CLAGUE. On prices? Or all?

Senator DOUGLAS. In all.

Mr. CLAGUE. In all, yes indeed.

Senator DOUGLAS. Several thousand? Is that not true?

Mr. CLAGUE. I think we are up approaching two thousand as our latest number.

Senator DOUGLAS. I lost track some years back, but——

Mr. CLAGUE. I think we are around 2,000.

Senator DOUGLAS. Do you not think that one bulletin or a couple of bulletins could be used to summarize the whole index from 1914 on and describe the different methods used at these different times so that we might get a connected picture of 47 years of I would say the cost of living for urban families?

Mr. CLAGUE. The answer is "Yes."

Senator DOUGLAS. The answer is "Yes?"

Mr. CLAGUE. We could do that. I want to emphasize we did in Bulletin 699 back in 1941 publish quite a comprehensive review back at that period.

Senator DOUGLAS. I hope you will take this injunction very seriously, because I think this is extremely important.

I know one gets absorbed in the current tasks and current pressures, but if you could assign a couple or two or three of your people to work on this, I think it would be extremely valuable.

Mr. CLAGUE. Yes, sir; I agree and I would only emphasize that one of the recommendations of this price committee has been a little more money for research.

I would say to you that is one of our great problems—that the current pressure on timing and dates and getting material out——

Senator DOUGLAS. I know.

Mr. CLAGUE. Has overwhelmed us, and we sometimes do not take these longer range views.

Senator DOUGLAS. I understand.

Now, if I may ask a technical question. My memory has slipped on this matter. In computing your countrywide index of the cost of living, do you first take an average of the commodities based on the cities and then weight them by national weights, or do you get an index for each city based on the weights for that city and then combine the index of the cities into a national index?

Mr. CLAGUE. We use the second method you have described.

Senator DOUGLAS. You use the second method?

Mr. CLAGUE. That is right.

Senator DOUGLAS. And what importance do you give to the various cities? Do you use simple weighting or weighting according to population?

Mr. CLAGUE. I think I will ask Mr. Chase to answer that since he is the one who prepares the index. Mr. Chase, do you want to answer that?

Mr. CHASE. These are basically population weights.

Senator DOUGLAS. Well, I am very glad you say that, because I used population weights in computing the nationwide index but I was severely taken to task by many critics who said that it gave excessive importance to the indexes of the huge metropolitan cities such as New York and Chicago and Philadelphia and that it obscured the importance of the smaller cities.

And, as a matter of fact, as the years have gone by I have rather been inclined to think that my critics were perhaps closer to the truth than I was.

Mr. CHASE. Mr. Chairman, there are smaller cities represented in the index.

Senator DOUGLAS. Oh, I understand that. But if the cities are weighted according to their population, you naturally have a much greater sample from the big cities. You have all the big cities but you cannot have all the small cities. There is New York with 9 million, and Chicago with 3½ million, and Detroit with 2¼ million, and I do not know what the population of Los Angeles was this morning, but it has been growing very rapidly. You get those cities in. But then cities like, say, South Bend, Ind., and Springfield, Ill., or Peoria, Ill., or Sioux City, Iowa, and so forth, some of those may be included, but a great many of them are not.

If you merely weight the cities, say, in the 50,000 to 100,000 class by the number of cities so covered or cities from 100,000 to 250,000 where the number is so covered, you give them relatively small weights, whereas the group may be extremely important.

Mr. CHASE. I was just going to say, Mr. Chairman, that some of the larger cities represent only themselves in the index.

Senator DOUGLAS. I understand.

Mr. CHASE. But those of a smaller size on down to the very smallest represent all cities in those size classes.

Senator DOUGLAS. Oh.

Mr. CLAGUE. They are weighted.

Senator DOUGLAS. Well, that is very good.

What are the classes that you use?

Mr. CHASE. The smallest class is up to 30,000 population. The next class is up to 240,000, I believe is the figure. And then there is a third class of 240,000 to 1 million. The fourth class is 1 million and over in the present index.

Senator DOUGLAS. I think that is fine.

Mr. CLAGUE. May I say, Mr. Chairman, that is one of our problems. Our representation of these small cities is not very large when you consider the enormous number of them.

Senator DOUGLAS. Yes.

Mr. CLAGUE. We have only 9 in one of those classes, and we have 16 small ones in the under 30,000 that represent several thousand small cities.

Senator DOUGLAS. Yes.

Mr. CLAGUE. We are not too happy about that. And, by the way, that weight which they have had in the past represented a fifth of the total U.S. population. There is a question of whether our sample is large enough.

Senator DOUGLAS. Now, what do you think of this recommendation which I was very dubious about, as a matter of fact, that price indexes measure qualitative changes to a much greater degree than now?

I asked the committee yesterday as to whether you could measure qualitative changes by quantitative methods. I was not fully satisfied with their reply. But I inferred that they thought they could take the changes in the nature of a commodity on a number of specific points, such as a house, and get an appraisal of the changing quality of a house in terms of different improvements put in.

What do you think of that?

Mr. CLAGUE. Well, we have reservations on that, as you notice from our statement. There is no consumer index in the world, no matter what name they call it, that has ever attained anything resembling this constant utility or this cost of living in this psychological sense. We do not say it cannot be done. In fact, we would like to do some work to see if there are ways and means of doing it. But I would say this: It is not done now anywhere, and we do not see the way to do it in any significant proportion of items.

We now have a price index, which does represent the effect of price changes on the cost of living. Now, admittedly, there are many elements in cost of living other than price changes. It seems to us that the exploration of alternative kinds of indexes is good. We still insist you need a price index of the kind we have, even if you tried to get this constant utility index. But at the moment we would say that we cannot do anything more than try to do some research work and see if there are ways of doing this. We do not know how to do it now.

Senator DOUGLAS. Now, if I may revert again to these past studies, did the use of the 1934–36 family budgets appreciably change the movement of the cost-of-living index as compared to the 1918 weights?

In other words, did the system of changing weights produce a different movement during the periods in which the two indexes overlapped?

Mr. CLAGUE. Well, again, this is covered in my longer manuscript.

Senator DOUGLAS. Well, I have not had time to read that.

Mr. CLAGUE. I know you have not, but I just indicate that the full story can be read there.

I would say here that both the old and the new indexes—this is from March 1935 to December 1939, the new basis—the old and the new indexes showed the same pattern of change with the maximum discrepancy at any time being approximately an index point over that period. The total increase over this 5-year period was 1.8 percent for the new index series as compared to 1.9 percent for the old index series.

So the difference is not very great.

Senator DOUGLAS. Wait a minute. What about the change in the 1950's? You had an overlapping period in the 1950's.

Mr. CLAGUE. We did not have an overlapping period there. Whether we have some unpublished studies that went back over several years or not I do not know. Did we have any?

Mr. JAFFE. The sample of cities was completely changed in the 1952 revision, and there were a considerable number of conceptual changes in the structure of the index. The sample of items was completely revamped so it was not possible to reconstruct the index backward for any length of time.

So we do not have any real comparison for an overlap period for the 1952 revision.

In the 1939 revision there were less serious changes. The sample of cities remained approximately the same. I think one city changed. The structure of the index was pretty much the same. The only important change was the sample of items so that you have a more realistic comparison for the overlap periods.

Senator DOUGLAS. So that if you were to go back and recompute you would be in difficulty because you would have to recompute for each city——

Mr. CLAGUE. Yes.

Senator DOUGLAS. With new weights?

Mr. CLAGUE. And you would have the problem of trying to collect past prices on the new cities. It is very hard to make any comparison.

However, we have always maintained, Senator, that there is not a great deal of difference in these weights from time to time. They must not be ignored, but they are not such a tremendously important factor.

Senator DOUGLAS. Have you experimented with using the different population weights as applied to the cities? That is, I suppose for the 1917–19 system we used the census of 1900. Probably for the weights in the 1930 period the census of 1930. And for the period of the 1950's, for the 1950 weights, the census of 1950? Is that not true?

Mr. CLAGUE. Yes.

Mr. CHASE. Yes.

Senator DOUGLAS. Of course, what we have had during this period has been a great drift of people not only into the cities but into the larger metropolitan areas, and I should not think it would be too difficult in these cases to take your end-year weightings and carry them back and see what the difference is as compared with the base-year weightings.

Mr. CLAGUE. Mr. Chairman, this was the reason we shifted the cities in 1952. You see, as long as we were staying with those same cities, even though they did not all grow equally, we were dealing with cities larger than a hundred thousand and, therefore, the changes would not be so important.

Now, when we reached out and took in the smaller cities, shifted the list, then of course we got quite a different type of index.

It would be possible now to take the current population weights of these same cities that are still in the index and work it backward to 1952, of course.

Senator DOUGLAS. I should not think that would be too difficult either, because you would only be dealing with how many cities?

Mr. CLAGUE. Forty-six.

Senator DOUGLAS. Forty-six? I should not think that would be too difficult.

I think you could compare, therefore, the results under the Paasche formula and the Laspeyres formula.

Mr. CLAGUE. Yes.

Senator DOUGLAS. Then I would like to see you experiment with the Irving Fisher formula which, as I remember, is the geometric average of the product of the Paasche and the Laspeyres formulas. Is that not true?

Mr. CLAGUE. That is right.

By the way, I think we have done some work not exactly on what you are saying but have we not done some work on the comparison of the Laspeyres and the Paasche indexes and the effect of it on certain changes?

Mr. JAFFE. We have been able to do that in a more realistic manner in connection with our Wholesale Price Index, because there we have a program of quinquennial weight revisions because there is a census of industries available. The changes in the structure of that index in recent years have not been as drastic as in the CPI.

The last time we made a weight revision we recomputed, in effect, the index with Paasche weights as well as with Laspeyres weights, and we intend to do it again in the current weight revision as we are incorporating 1958 weights.

We have cited in this longer document some comparisons of the movement of the index over a number of years using the Laspeyres formula and the movement using the Paasche formula, and it is not too significant, if I can find it here.

Mr. CLAGUE. I would say, Mr. Chairman, we would be glad to do it on the CPI for the period back to 1952, because that could be done readily.

Senator DOUGLAS. Well, hitherto we have been discussing the cost-of-living index. Now the Wholesale Price Index has been interjected into the discussion. What are the weights you used on prices in the Wholesale Price Index?

Mr. JAFFE. The weights for the Wholesale Price Index are the shipments data which are derived from the census of manufacturers.

Senator DOUGLAS. Is this value added?

Mr. JAFFE. This is the value of shipments which includes the value added.

In other words, I think the point you are trying to make is that they are duplicated weights.

Senator DOUGLAS. No; I was not originally making this point. I was just trying to find out. You mean that they are total value?

Mr. JAFFE. They are total value of shipments as they leave the establishment which reports to the Census Bureau.

Senator DOUGLAS. Now we will come to this point that you anticipated. Your total values consist of prices and quantities? So you weight prices by prices and quantities? The next question is whether this gives a dual weight to prices.

Mr. JAFFE. Shall I answer?

Mr. CLAGUE. Yes.

Mr. JAFFE. As you aggregate the Wholesale Price Index data to summary levels, you are correct; this does give a dual weight to various commodities which have been processed at different stages and shipped out from one plant to another.

Senator DOUGLAS. Now, the alternative would be to use simple quantities. Can you do that or is that impractical?

Mr. JAFFE. It is really impractical. I do not think we have the data, and I am not too sure what the interpretation of that kind of an index would be.

The recommendation of the Price Statistics Review Committee takes a middle ground, as I recall. They would use real prices corresponding to, say, shipments, but the weights would be net weights, so that as you aggregated shipments the interplant or interestablishment transactions within a category would be washed out, so that you would not build up this duplication of values in your weighting structure.

Senator DOUGLAS. Well, similarly, I suppose in your price index you weight those not merely by quantities consumed by families but by amounts of money spent? Is that not true?

Mr. CLAGUE. Yes, that is right.

Mr. JAFFE. Yes.

Senator DOUGLAS. So you weight consumer prices by prices times quantities on a consumption level, and your wholesale index is similarly prices weighted by price times quantity? Is that true?

Mr. JAFFE. That is true.

Mr. CLAGUE. That is right.

(The following was later received for the record:)

Upon reading the transcript of the May 2 hearings on price statistics, it became apparent that the BLS representatives missed the point of Senator Douglas' question with regard to the weighting of prices by prices and quantities. When value weights (that is, products of prices and quantities) are used in either the Consumer Price Index or the Wholesale Price Index they are multiplied against price relatives and not against prices. Thus there is no double weighting in the sense that Senator Douglas was discussing.

Senator DOUGLAS. Now, do we have a representative of the Federal Reserve Board to testify on the index of production here?

(No response.)

They get an index of production. How do they weight their quantities? Does anyone know in the guild of Government statisticians? Do they weight their quantities by prices or by values which in turn are pq's?

Mr. JAFFE. As I recall—I am not an expert on this subject, Mr. Chairman—I think within industry categories they weight by shipments data. But as they combine the data across industries they use net value added weights.

Senator DOUGLAS. Which in turn are pq's?

Mr. JASZI. Yes.

Senator DOUGLAS. So the pq's are used for weights both for prices and for quantities?

Mr. JAFFE. It is a little different kind of pq as you aggregate across industries.

Senator DOUGLAS. I understand.

Did you ever try taking the geometric average of the end-year weights on your wholesale prices? Or, what difference is there by end-year weights as compared to base-year weights?

Mr. JAFFE. Well, I have some figures that I can cite from this appendix in Mr. Clague's testimony.

We had several major weight revisions in the Wholesale Price Index. There was a completely comprehensive revision in 1947 when the weights of the WPI were revised on the basis of the 1947 census of industries. Actually this was done in 1952, but the census was for 1957.

And at the same time the structure of the index was extended to cover the entire nonretail commodity sector.

Then in 1957 there was another revision of weights incorporating the data for the more recent census.

Now, the all-commodities Wholesale Price Index based on 1947 weights rose 14.4 percent, while the reweighted index based on 1954 weights increased 11.1 percent.

Now, this is as close as you can get to a true Laspeyres-Paasche comparison, because there were no major expansions or changes in the structure of the Wholesale Price Index over this period. There were a few changes introduced at the same time the 1954 weights were introduced, but we washed them out in making this comparison, so this is as close to a Laspeyres-Paasche comparison as we could get.

Senator DOUGLAS. I used to think a good deal on this question. I have not had much opportunity to think about it in recent years. But if you will forgive me, I would like to think about it for a moment now.

Such experimentation as I did with indexes of production in Great Britain and the United States and certain other countries made me tentatively form the conclusion that the commodities which increased most in quantity decreased most in price.

Mr. JAFFE. The next few sentences of this paragraph go into that in connection with this same 1947–54 comparison. Taking the 15 major commodity groups, they showed a generally similar pattern with the 1947 weighted series increasing more (or decreasing less) than the 1954 weighted series in 13 of the 15 cases. Only the group indexes for hides, skins, and leather and leather products, and for lumber and wood products showed the reweighted index increasing more than the official series.

Now, this is in accord with the conclusions that you were expressing I think.

Senator DOUGLAS. Now, I don't know if you use proportionate net values or proportionate consumption figures. I do not know whether this gives a systematic bias in the price index or not, because I think it depends upon the relative elasticity of demand. If you have a commodity which has an appreciable decrease in price and an appreciable increase in production, the question as to whether it forms a greater weight depends upon whether historically its elasticity of demand is greater than unity, so in comparison with other products, it comes to comprise a larger share of the total net value that you are studying.

But this is a very interesting field for research. And the experiments that I had made indicated that, as your comparison does, the use of end-year weights tended to result in a lower index than base-year weights.

Mr. JAFFE. Mr. Chairman, as——

Senator DOUGLAS. But it is not as simple as merely saying that the commodities which have the greatest decrease in "p" have the greatest increase in "q," because you must also get the product of the two, "pq," and in turn the share which "pq" forms of the sum of the "pq's."

Mr. JAFFE. Yes.

Mr. CLAGUE. That is right.

Mr. JAFFE. Mr. Chairman, in the 1947–54 period it embraces some rather important periods of economic change, so that you have to look at that factor in relation to the 3.3-percent discrepancy in the price movement.

If you were to make this same comparison from 1954 to 1957, the WPI recomputed with 1954 weights increased 7.3 percent, whereas the official WPI as originally computed increased 7.4 percent.

So it depends really on what is happening in the economy, how volatile the changes are.

Senator DOUGLAS. This is a prelude to saying that Congress is generous to such institutions as the GeologicalSurvey and the Smithsonian Institution in making appropriations for theoretical research, pieces of which have no practical significance. We have been very utilitarian in the appropriations which we make to Government departments, including the Bureau of Labor Statistics, and the refinement, the statistical refinement, of series has been thrown upon private scholars and private foundations.

This may be a fairly good division of labor provided you get the private resources to carry this out. It suffers from the difficulty that the people on the outside may not know the full intricacies of the figures from the inside and may at times misinterpret the data.

Also at times they make impossible demands, as I think in this case they did, in some instances, upon the Government agencies.

What I am leading up to is this: I am not on the Appropriations Committee, but I think that provision in your budget for some theoretical work on just these issues would be helpful, and somebody at least should try to see that those were approved.

If I know Government agencies, they are always expert in concealing purposes within their budget estimates which hide their true design, and while I do not wish to encourage deception I would say that if there is a practice of deception I do not see any greater ethical wrong in practicing it in this case than in other cases.

Mr. CLAGUE. Mr. Chairman, all I can say is we are very poor at it.

The only time we get any money to do any analytical work at all is when we have an enlarged project of some sort in which we scrape a few people to one side. There is not a recognized field of research such as there is in many other agencies.

Senator DOUGLAS. In that connection, Mr. Curtis, who is a leading minority member, has expressed his regrets that he is not able to be here this morning but wishes to say that he is for an expanded statistical program.

I know Mr. Bolling feels very much in this way.

In the past I have been somewhat skeptical, but I am getting more mellow. Some of my earlier interests are returning to me.

Mr. CLAGUE. Mr. Chairman, you did raise one point that I would like to say just a word on.

Senator DOUGLAS. I wish you would.

Mr. CLAGUE. That is this qualitative matter.

Senator DOUGLAS. Yes.

Mr. CLAGUE. Because I think it has gotten into the testimony so far, the question of quality improvement——

Senator DOUGLAS. Yes.

Mr. CLAGUE. As though it were tied in with a welfare-type index rather than a price index. That is simply not true. We have a problem of taking care of quality improvement, and it must be taken care of, in a price index, and we do try to take care of it.

Senator DOUGLAS. I wish you would address yourself to that question, because you said there was not a systematic bias in the price index, and we have had testimony that with the apparent continuous improvement in the quality of many goods, perhaps in most goods, although there is a degeneration in the quality of others, it is said that therefore there is a hidden factor that for the same commodity you are getting a better product and that therefore this present index exaggerates the real increase in the cost of living.

I wish you would reply to that.

Mr. CLAGUE. Well, first of all, I would like to emphasize that some of this confusion that has arisen on the outside is perhaps due to a lack of knowledge of the way we actually carry on the index.

I would like to make two points.

One is that when there is a change of any kind and a new product comes in, or if instead of the old basket of tomatoes there are tomatoes in cellophane packages, we do it by linking. We do not just show a price increase—the fact that the cellophane packages cost more. We run them both.

The effect of linking is sometimes to produce a downward bias to the index, as you can see.

There may be a real price change involved here, but it does not show up because we have put both items in, and we carry them both from month to month.

Senator DOUGLAS. You mean as a new product comes on the market its original price is higher than it was later?

Mr. CLAGUE. Yes.

Senator DOUGLAS. Although it may come in at a higher level than the old product, you are saying that the cellophane tomatoes start off at a higher price than the plain tomatoes but may become cheaper with the passage of time?

Mr. CLAGUE. Yes; I think I should change my illustration—I used packaged tomatoes. In this case we did make the direct comparison.

But let me take the frozen foods which are a better illustration and have a substantially higher cost in them. But the same thing applies. By linking we may work a downward bias in the index.

Now, secondly, another point——

Senator DOUGLAS. This is very important testimony.

Mr. CLAGUE. Secondly—and, by the way—we make these decisions on linking, and we use it very, very freely, because it is the safest for us. If both items are on the market, we prefer it that way. We would rather let the weights gradually shift and we can make changes in the weights within limits.

For example, we shifted on our initiative from time to time the weights between butter and oleomargarine, keeping the group weight the same, but as the consumption of one went down and the other went up during the war we were able to make those shifts, and we carired both prices along.

Senator DOUGLAS. Now, reversing the statement in the Old Testament, may I say: Tell it, publish it, in the streets of Absalom.

Mr. CLAGUE. The second point I would like to make in connection with quality improvement is that our most difficult situation arises in the durable goods where we have a change of model and then we do not have this overlapping that we can use freely. And it is on that ground that many people think, "Well, the quality changes are the major factor."

But we factor out all of the quality changes that we can detect. For example, in an automobile when the manufacturers put in the automatic transmission, we took the price of that transmission and factored it out of the increase.

Since 1939 we factored out $650 or $700 of the price rise in a car.

Now, somebody can criticize us and say, "You did not take out enough." We did not take out the grillework. We have not taken out the foam-rubber cushions. Anything that is simply appearance or mere comfort was not taken out if that was higher priced.

Senator DOUGLAS. You did not take out chrome?

Mr. CLAGUE. No, we did not take out chrome. And to a certain——

Senator DOUGLAS. What about length?

Mr. CLAGUE. No, we did not take out length.

Senator DOUGLAS. Or breadth?

Mr. CLAGUE. Or breadth. But we took out such things as a hill holder or a radio in the car or types of things that seemed to have some connection with the operation of the car.

So that we have factored out a great deal of it. And one answer to the criticism is that if we had funds to do a little more work on it perhaps we could factor out some more.

But I want to say for the record here to the people who think there is an enormous rise in this index because of our failure to measure quality improvement, it is just not so.

The balance of some of our downward biases and the efforts we make to factor out quality improvements indicate to us that this upward bias is relatively small, if any. I think I would not even want to concede there is any rise at all. But I would be foolish to argue that there isn't any, because I do not know enough to do so.

But we know that we try to take out all the quality improvement we can in every way that we can.

Senator DOUGLAS. Now, did this committee come down to you and go over these facts with you?

Mr. CLAGUE. Our business committee and our labor committee go over these facts so intensively that we spend hours and meetings and days going over them.

Senator DOUGLAS. I mean this committee which testified yesterday. Did they go over these?

Mr. CLAGUE. Oh. The Price Research Committee; yes, they went over these.

Senator DOUGLAS. They knew of the method of linking?

Mr. CLAGUE. Yes, we told them about the method of linking. I think they have the impression, however—you see, they are thinking in terms of this welfare-index concept. They are thinking of the notion of utility that they believe would not be shown by these physical changes in the items.

The question of consumer satisfaction in riding around in a car might be unrelated to any physical changes, but I do not know how to get at that.

Senator DOUGLAS. Well, neither do I.

Mr. CLAGUE. Oh, by the way——

Senator DOUGLAS. When you speak, I remember those lines of Browning, "All the world's coarse thumb and finger fail to plumb." I always thought that there was always a large part of satisfaction that could not be plumbed by figures.

Mr. CLAGUE. One can always say it is worth exploring to see. And I would not reject this concept. But I would certainly say the exploration must precede any effort to incorporate it into this index.

I would like to add one more point. Mr. Jaffe here has published a paper which appeared in the American Statistical Association's 1959 proceedings. It is exactly on this point. "The Consumer Price Index—Technical Questions and Practical Answers."

In that, he takes up this question of quality improvement and how we handle it. I would like to submit this paper for the record as part of the appendix.

Our problem, Mr. Chairman, is that not always do people read what we say. It is hard to get this across to many diverse audiences. And our voices are limited.

Senator DOUGLAS. Well, I think this strengthens the case for a couple of statisticians and economists who, without being attorneys for the defense, can go into these matters and present a somewhat different, perhaps a better point of view than mere outsiders sometimes do.

Mr. CLAGUE. Mr. Chairman, just yesterday, to get down to practical things, the chief of publications in the Bureau was discussing with me how we could get somebody to write some articles for the Monthly Labor Review on some of these questions.

He was asking if we could comb the Bureau for somebody or how we could find somebody who would be willing to come in and do this kind of writing for us.

It is tough in an operating bureau with the deadlines we have, and we must bring our indexes out on time. That has such a priority in our work that unless we have a special unit set aside to do this analytical work, it just does not get done in the degree about which we are talking.

Senator DOUGLAS. Well, the State Department some years ago decided that it had to have a brain trust, and if you can get the gentlemen of the State Department to admit that they need a brain trust, it ought not to be too difficult to get a brain trust for the Bureau of Labor Statistics.

Mr. CLAGUE. We are going to try.

I might say, Mr. Chairman, we are acting on this for the 1963 budget. I do have some budget proposals ready to go in. I do not know the exact amounts yet, but we are going to ask for some funds

to implement these recommendations which we like and which we think would be beneficial.

Senator DOUGLAS. Very good. Thank you very much, Mr. Clague.

(The appendix accompanying the testimony of Mr. Clague follows:)

APPENDIX TO ACCOMPANY TESTIMONY OF EWAN CLAGUE, COMMISSIONER OF LABOR STATISTICS

The Consumer Price Index and Wholesale Price Index compiled by the Bureau of Labor Statistics are, as the Price Statistics Review Committee (PSRC) of the National Bureau of Economic Research points out, two of the most important sets of statistics produced by any Federal or private statistical agency. These statistics are used at all levels of Government, both executive and legislative, for the determination of economic policy and for economic analysis. Likewise, they have many uses by business and labor, not the least of which are in collective bargaining and in the review and escalation of all types of contracts. In addition, the price indexes are of great value in research aimed at a better understanding of the interrelationships between different segments of the economy, and of underlying forces which shift the pattern of growth in the economy or accelerate or retard economic activity.

In view of the important uses to which the CPI and WPI data are put, it is no surprise that so much of the attention of the PSRC was focused on the work of the BLS. In fact, even before the Bureau of the Budget completed arrangements with the NBER for this review, the BLS staff was aware that the report and recommendations of the proposed Committee would, and should, have a great impact on the course of the Bureau's price statistics program, particularly the revision of the CPI which was then getting underway. A major concern has been whether planning and work on the CPI revision would be too far advanced by the time the committee report was issued for the BLS to make full use of those of the committee's recommendations which are applicable to the revised index.

In carrying out its responsibility for compiling and publishing the best possible measures of changes in consumer and wholesale prices, the BLS has often sought the advice and help of technical experts outside the Government, and of representatives of user groups. Thus, the Bureau now has advising it a committee of technicians recruited from the business world which operates as a unit of its Business Research Advisory Council, and a corresponding committee of labor technicians drawn from union organizations which operates as a subcommittee of its Labor Research Advisory Council. At various times in the past the Bureau has had advising it committees of experts appointed by the American Statistical Association, consultants and committees of experts which the Bureau directly engaged. Discussion of index number problems with these committees and consultants has always been stimulating to the BLS staff and helpful to the Commissioner of Labor Statistics in formulating policy with respect to the conduct of these indexes. The Bureau anticipates that the report and thinking of the current Price Statistics Review Committee on the National Bureau of Economic Research will be similarly helpful over the long run in developing and improving the price statistics program of the BLS, and more generally of the Government.

The report of the PSRC is so comprehensive that it cannot be reviewed without a broad discussion of the basic concepts of index number making, as well as interpretation and elaboration of the recommendations, insofar as the BLS understands them. Such discussion is required to establish the basis for evaluation of a particular recommendation—whether in terms of (*a*) theoretical relevance to a specific problem, (*b*) the needs of price data users, or (*c*) practical operational limitations of data collection and index number making. In connection with some issues, the question is whether the recommendations are appropriate to guide decisions under current program operation conditions. The Bureau may look upon some recommendations favorably when presented in the context of long-range goals under conditions of enlarged budgets, but may be regarded for the present as having a low priority under prevailing budget restrictions.

It should be made clear early in this discussion that the BLS does not regard index number making as an exact science. Pragmatically speaking, a price index is an expedient to approximate something that is in fact not exactly measurable. This does not imply that logical thinking and scientific and objective methodology are out of order, but rather that some degree of disagreement

as to the best means to achieve a desired end can always be expected. Various suggested techniques and procedures for measuring price changes and constructing index numbers have been subjects for controversy over many years and will probably generate arguments over many more years.

The BLS agrees with the committee that the major consideration in determining the structure of an index number is the set of uses to which it is to be put. Literally speaking, every use should be served by an index number tailored to serve that use. Under actual circumstances, this is impossible; an index number must be designed to serve a whole class of uses, with recognition that some uses will be better served by the particular formulation adopted than will other uses. Once the index number is established on a regular basis some users may find that neither the composite index nor any natural subcomponent serves their particular purposes in an acceptable manner. They may, instead, prefer to work with the basic price data compiled as part of the index number system and compute some special index number with weights pertinent to their particular problems. This is a legitimate use of the index number data. However, when users employ the item and product price statistics in this way they must recognize that the index number system for which the data had been collected has shaped the characteristics of the basic materials.

Having determined the uses to which a particular index number is to be oriented, the agency responsible for that index number must establish a statistical system for collecting, compiling, and statistically adjusting the basic price and auxiliary weight data, and for computing and publishing the index number results. Implicit in this remark is the fact that a major price index such as the CPI or the WPI is a massive and complex operation which has many aspects, presents many problems, and involves diverse interests and groups. Since these index number systems serve many uses it is to be expected that the needs and requirements of user groups will not always coincide. When faced with a conflict of interest between user groups, not all of whom can be satisfied within current program limitations, decisions as to methodology must be made in the light of the uses of the index number most vested with the public interest.

Diverse and difficult statistical problems face the agency operating a major price index program. The sampling problem is an especially difficult and multidimensional one, complicated by the fact that there are no clear-cut universes or sampling frames available for reference. To implement the sampling plan, the agency must organize the field collection of the basic data required; this involves the training and supervision of a decentralized staff of agents and analysts. Techniques for maintaining continuity of price series in the face of market disturbances and changes and for handling quality changes, and changes in consumer patterns of buying must be established and kept under continual review. And, finally, provision must be made for the efficient and accurate compilation of the data under pressure of deadlines imposed by the needs of user groups.

Thus far mention has been made only of users and producers of index numbers. Also involved in the index number making operation is the group of respondents who voluntarily cooperate with the BLS in providing data for the CPI and WPI. Without this cooperation the index numbers would, of course, be impossible to compile. The BLS is gratified at the help so willingly given it by respondents who seldom complain of the reporting burdens imposed on them. Occasionally reporters concerned about activities of Government regulatory agencies will wonder whether they should cooperate in providing a Government statistical agency such revealing information about their operations as price data; but in the main this has not been a major problem. The BLS is concerned, however, that no modifications of the price statistics programs by way of extension of data collection, or requests for information not easily made available by respondents should jeopardize the cooperation thus far voluntarily extended.

Among the important users of price statistics are members of the statistics and economics professions. While the PSRC represents primarily this group, it has covered the whole range of index number problems and has presented a comprehensive set of recommendations to improve the price statistics program. On the whole, however, its reactions have been guided by the orientation of its members to theory and research. Therefore, in commenting on the report of this committee, the BLS will attempt to relate its recommendations to the needs of other user groups, and to the problems of both respondents to price surveys and of the agencies responsible for the compilation of index numbers.

BROADENING OF THE PRICE STATISTICS PROGRAMS

The Bureau is in agreement with the committee when it asks for a broadening of the price statistics programs. It is true, as the committee states, that resources devoted to price statistics outside the scope of the official BLS Consumer Price Index and Wholesale Price Index and the Agricultural Marketing Service indexes of farm prices received and paid are skimpy. The present system of price indexes was introduced many years ago when the national economy was much simpler and information about the uses of statistics was limited, so that demand for statistical tools was modest. It has been difficult to keep up with the rapidly expanding demands that have come with growing statistical and economic knowledge, especially during the past two decades. An expanded set of price statistics is now essential to serve public agencies for the formulation of policy, as well as private users of economic statistics.

It would be a considerable step forward to broaden the major price indexes and present them in a consistent framework which would show the similarities or differences of price movements for various population groups or for different industry or commodity categories. Likewise, the Bureau supports the committee proposals for expansion of the price statistics programs to make available price indexes in such additional economic areas as exports and imports and construction.

BETTER DOCUMENTATION

We have no disagreement with the committee's recommendations for complete documentation and publication of reports on concepts and procedures underlying index computations. When the question is asked in bald terms "Is documentation for the CPI incomplete?" the answer certainly is, "Yes." A similar statement would probably hold for nearly any integrated and complex data system which has been in existence for a long period of time, but which must be adjusted frequently to meet changing conditions and to take advantage of the availability of new statistical techniques and information.

The Bureau has, however, published a considerable number of reports and articles on its index procedures which have been oriented to users of the data or economic statisticians. The committee's criticism of the scope of documentation is primarily in terms of the needs of the mathematical statistical profession. Admittedly, the BLS publications program must be disappointing to this group. The broadest wants, however, are among the great majority of users of the CPI or WPI who do not have technical mathematical statistical backgrounds. For such persons, very technical descriptions of price indexes procedures are inappropriate. They need explanations which describe how prices are collected, how they are compiled into an index, what the index means, and how it may be used. Since resources have generally not been sufficient to satisfy all groups of users, the Bureau has attempted to satisfy the largest group and those who use the index in the most significant ways.

If sufficient resources become available to provide both the general publications for index users and the detailed publications and descriptions for the mathematical statistical profession, the Bureau is willing to expand its technical publication program to satisfy both groups. But, faced with the alternatives of devoting resources to maintaining and improving the quality of the index, or devoting resources to expanding technical publications which will be of interest to only a very small group, the Bureau's choice is clear.

Most technical questions that are not covered in BLS publications can be answered by special inquiry to the Bureau. Any information requested will be supplied, if it does not impose an undue burden on the staff and does not conflict with the confidentiality requirements imposed in the collection of basic price data. When the work involved in answering a request is burdensome and costly the Bureau will agree to compile the requested data on a reimbursable-cost basis. In many cases it makes available to inquirers copies of office memorandums and operating instructions and manuals that bear upon a given request. Sometimes the Bureau is forced to disappoint an inquirer, because index operations are not structured in a manner that will provide the information requested, e.g., estimates of sampling error in the present indexes cannot be provided.

One further comment should be made on the subject of documentation. When the CPI was last revised in the years 1950–52, the Bureau originally proposed a 5-year period of work and the revision project plans embraced an extensive documentation program. These plans were modified and curtailed as the result

of pressures growing out of the Korean crisis. Thus, national needs for a revised index made it necessary to complete this project within 3 years and the documentation program was never carried through.

It is interesting to note that 2 years later the Ford Foundation provided the University of Pennsylvania with funds to print the statistical results of the 1950 expenditure survey which had been conducted to provide the weights for the revised CPI. No resources, however, became available for a similar documentation of work relating to other phases of the index revision.

The Bureau's plans for the current revision of the CPI include an extensive documentation program. However, these plans are contingent upon the index revision project running its normal course and funds being made available for this purpose; otherwise, only a few basic descriptive documents can be prepared. Under these circumstances, the Bureau's appraisal of its major responsibility would lead it to give priority to maintaining the quality of the index revision ahead of the work of providing the extensive technical documentation that the Price Statistics Review Committee has in mind.

INSTITUTIONALIZATION OF THE INDEXES

The committee report starts with some general observations about the extent to which the price indexes have become "institutionalized." According to the committee, institutionalization (which is principally related to uses of the indexes for contract escalation) has led to adoption of a shortsighted policy of strict comparability, limitation in scope, and inflexibility in techniques and toward making corrections in published data. In the opinion of the committee, this has led, for example, to retaining a consumer-price index instead of working toward a cost-of-living index [1] and to preference for an unadjusted rather than a seasonally adjusted index. The Bureau feels that the committee exaggerates the importance of some of these problems and misstates the effect that use of the indexes for escalation has upon BLS policies.

Before taking up the committee's main argument, it is important to state the BLS attitude toward use of its indexes for contract adjustments, wage or otherwise. The BLS has never advised parties to a contract to use its indexes for collective bargaining or for wage-contract adjustment. But the Bureau cannot ignore the fact that its indexes are extensively used for escalation purposes. When the parties to a contract decide to use BLS price indexes, the staff of the Bureau tries to be as helpful as it can. It will supply all the information needed by the bargaining parties to understand the indexes and reach decisions and the current data needed for the agreed-upon contract adjustments. At times a special index is requested for a particular purpose, and the BLS staff, upon request, will consult and advise on the form of the index. In some cases the Bureau does prepare, generally on a reimbursable-cost basis, special indexes (at either retail or wholesale level) used by business for contract adjustment or for inventory revaluation for tax purposes.

The Bureau agrees with the committee that the scope of currently available price indexes is restricted to an undesirable extent. The Bureau would like to see the Consumer Price Index broadened to cover all nonfarm consumers in line with committee recommendations. As the committee states, however, it would be necessary to continue an index restricted to wage earners and clerical workers for some time—how long cannot be predicted—because of the uses of such an index in collective bargaining and wage contract adjustments. The decision on the kind of index to be used in collective bargaining and wage escalation should be that of the bargaining labor and management groups. The only safe prediction that can be made is that there will not be unanimity on this point.

Comment or the feasibility and desirability of preparing cost-of-living indexes and of publishing the price indexes on a seasonally adjusted basis will be restricted here to the committee's conclusion that cost-of-living indexes and seasonally adjusted indexes are the appropriate ones for contract escalation. Summarizing points made later in this discussion, the BLS does not consider that the theory and operational framework of a cost-of-living index has been sufficiently well defined to make application of this approach feasible in the foresee-

[1] Briefly summarized, a price index is a measure of change in actual transaction prices of a fixed set of goods and services. A cost-of-living index is a measure of change in the cost of maintaining a constant level of living or satisfaction, allowing the pattern of purchases to change with prices or consumer preferences. See section below on "Cost-of-Living Versus Consumer Price Index."

able future. In the present state of the art of indexmaking, the Bureau does not believe that adoption of the cost-of-living approach would involve any less ambiguity in index concepts and procedure than may be present in a purely price index approach. In fact it is likely that the cost-of-living approach would entail more subjective procedures and judgments.

The only way that the committee's recommendation for application of cost-of-living or welfare concepts to index making could be implemented in the near future would be by a hybrid index which employs such concepts to some partial extent. It is unlikely that the structure of such an index would be sufficiently well defined and unambiguous to be suitable for collective bargaining and wage escalation, and for other important uses in economic analysis and policy planning. Seasonally adjusting the price series would introduce additional problems of application.

The Bureau takes a very serious view of the use of its indexes for Government policymaking, for collective bargaining, for adjustment of industrial contracts, and inventory revaluation, and for general economic analysis and planning. In the judgment of the Bureau, the committee has not properly distinguished between policies which properly relate to Government statistics produced for users in public and private economic decisionmaking and policies which might appropriately be adopted for university research projects. While research and experimentation with new techniques should go on in a regular manner as part of the price statistics program, the BLS is obliged to operate the index in a way which gives users the assurance that there are definite criteria and standards underlying the index measures. This is implicit in any measurement process.

The Bureau feels that a scientific approach to price-change measurement rests upon methods of strict comparability in concepts and procedures in compiling indexes. The Bureau's procedure for linking in new items and for interim weight adjustments within categories provide a desirable degree of flexibility to assure that the index will be representative of current conditions and, at the same time, maintain the short-term comparability essential to measurement of changes in prices only. The BLS feels that it is entitled to, and does in fact, exercise, the freedom of changing its procedures when it believes that the changes will produce more accurate results consistent with announced criteria, standards, and objectives.

The BLS wishes to correct some misinformation which the committee apparently had with regard to our current revision and correction policies and to take issue with some of its recommendations. The Bureau's policies with regard to correction of the Wholesale and Consumer Price Indexes are published in bulletins issued periodically. The BLS published correction policy states specific magnitudes at, or above, which previously published indexes will be corrected in subsequent publications. Errors of lesser magnitudes are corrected in the current index. This policy requires that errors of a given magnitude in the all items level of the U.S. Consumer Price Index or a city index, or in a major group index level for the United States must be brought specifically to the attention of the Commissioner, and no such errors have ever been suppressed.

The fact cannot be dispelled that for escalation purposes and to a lesser degree for policy uses—both legislative and other—the current indexes must be final, although in the case of the WPI, the indexes do not become final until the second month of publication. The point of disagreement between the committee and the BLS is apparently with regard to the retroactive correction of minor errors of one sort or another which do not affect the index level or any major component to the degree stated in the correction policy. The committee's position, literally interpreted, would lead to unnecessary confusion. The BLS policy takes a more realistic middle ground in taking account of the fact that frequent minor revisions of the indexes would vitiate their use for some very important purposes and accomplish little of significance in the way of statistical purity.

MORE RESOURCES FOR RESEARCH

The committee considers one of its most important recommendations to be that specific and separate resources be allocated for research on price index number problems. The Bureau concurs. The resources devoted to the field of price statistics have never been on a scale sufficient to permit research divorced from the solution of immediate problems. In recent years, continuous heavy demands have been placed on the Bureau's statistical programs for additional accuracy and detail, for speeding up the publication of statistics, and for analy-

tical studies of the economic implications of these statistics; most of this additional work has been absorbed without corresponding increases in budget. Under these circumstances it is practically impossible to earmark any part of regular operating budgets for longer range research, since the immediate program requirements must receive first attention.

Implementation of this recommendation should have priority over other recommendations by the committee. This is because consideration of many of the more substantive committee recommendations on index methodology depend upon prior research before they can be fully evaluated or made operational.

COST-OF-LIVING VERSUS CONSUMER PRICE INDEX

The committee expresses the opinion that a "constant-utility" or "welfare" index would be superior to a consumer price index for most purposes and should be developed to supersede the present index. In the Bureau's opinion, this is the most far reaching of the committee's recommendations. While the PSRC recognizes that full development of such an indx may be a long-range problem, it favors any steps that will change the present CPI in this direction. The committee uses the terms "constant-utility" or "welfare" index, in the sense of what theorists generally call a true cost-of-living index.

The CPI measures that part of the change in the cost of living which is the result of change in market prices. In this sense, it is a component of a true cost-of-living index as developed in theory. A cost-of-living index would embrace, in addition to price change, changes in living costs for equivalent family types resulting from all causes, except those which change the level of living,[2] in the sense of utility or want satisfaction, or equal well-being. The greater part of cost-of-living theory is devoted to the definition and measurement of equivalence in satisfaction or utility when holding constant the level of living at two points in time, while the effects of other factors are measured. The problem of practical application of the theory to index measurment is the identification of two combinations of goods and services, each available at a diffrent point in time, which reflect the tastes and preferences of the average consumer and which give him equal satisfaction or utility. The difference in expenditures required to obtain these two market baskets would be the measurement of change in the cost of living.

Thus, changes in the total amount of money people spend for living result not only from price change, but also from variation in the kinds and quantities of goods and services consumers buy. Such variations occur with all manner of changes in the family and the economy—e.g., changes in the income and the level of living people can afford; family size, type, and location; the nature of goods and services offered in the marketplace and choices that the consumer makes; the structure of markets and methods of merchandising and distribution; the structure of the economy as related to expanding or contracting benefits received through services of government; the interrelation between seasons and markets; and perhaps many others.

In the past, some of the advocates of a cost-of-living index have really had in mind an expenditures index; namely, an index based on a comparison of average expenditures at different times. An expenditures index reflects changes in income levels and conditions and levels of living whereas both the cost-of-living and price index techniques would eliminate the effect of such changes. However, since the committee has no interest in this alternative approach it need not be discussed further.

It is important to note that the committee's strong preference for a welfare index is the motivating force behind various recommendations it makes. Thus while some recommendations are pertinent to, and can be evaluated in terms of applicability to conventional fixed-weight indexes, other recommendations are acceptable only if one first accepts the committee's overriding preference for the welfare index approach.

---

[2] The level of living is distinguished from the standard of living. According to the "Report on International Definition and Measurement of Standards and Levels of Living of the United Nations" (New York, March 1954), the level of living is considered to be the actual living conditions of people. (For indexmaking this is the composite of goods and services actually consumed, that is, the achieved level of satisfaction.) The standard-of-living concept includes the aspirations or expectations of a people; that is, the living conditions which they seek to attain or regain, or which they regard as fitting and proper for themselves to enjoy.

The Consumer Price Index, since its inception, has been a measure of the change in prices of goods and services purchased by families of urban wage earners and clerical workers. Although statistical methods and procedures used in the construction and calculation of the index have been reviewed exhaustively, and we believe improved considerably in the course of continuous index maintenance and several revision programs, the basic definition of what it purports to measure has remained essentially unchanged. Originally the index was called a cost-of-living index, but this name was changed a number of years ago to remove any misunderstanding as to what the index measures.

The BLS attempts, in the CPI, to measure the average change in prices paid by consumers by keeping track of the prices of a list of goods and services representative of all purchases made by consumers at a particular point in time. Thus, the index market basket—the kinds and quantities of goods and services for which price change is measured—includes those things purchased by urban wage earners and clerical workers in the period selected as the weight base of the index, and, in combination, they describe the level of living of this particular sector of the population at that time. Since the market basket of the base period is held constant until the next weight revision, the CPI in effect maintains the pattern of expenditures of the base period in its subsequent pricing. In contrast, a cost-of-living index would hold the level of living constant but allow the pattern of expenditures (or the market basket) to change as prices or consumer preferences and the market change.

The Bureau recognizes that the CPI is often used in lieu of a cost-of-living index, e.g., in collective bargaining and in analysis of the effect of inflation on consumers. In the absence of a cost-of-living index, the Bureau considers such uses as legitimate, inasmuch as it is usually conceded that the change in price level is the major component of change in the cost of living.[3]

In the planning stages of the previous revision of 1952, the conceptual frame of the CPI, as well as all procedural detail, were subjected to searching review and evaluation. It was the stated policy of the Bureau at that time to reexamine and wherever necessary, to overhaul any detail of the index concept, structure, content or mechanism, to make it a reliable statistical measure of price change, appropriate for the major uses to which it is applied—in wage and salary adjustments, and in the analysis of general economic conditions of the U.S. urban population. This intensive study produced no conclusive argument for changing the basic concepts of the index. Nevertheless, since almost 10 years have elapsed, it is pertinent to ask whether any new considerations justify a reversal of the policy.

The question immediately comes to mind as to what are the legitimate uses for a consumer price index as distinguished from a cost-of-living index. The BLS feels that there are uses for both kinds of indexes and that the Consumer Price Index is significant in its own right apart from providing an approximation to changes in cost of living. It is important to be able to measure the purchasing power of the dollar in terms of a fixed basket of goods. Likewise it would be useful to measure purchasing power in terms of total utility or satisfaction, if that becomes possible.

Deflation of a series of consumer expenditures estimates to constant dollars of some base period, as in the case of the gross national product, makes the data comparable in the sense of being expressed in equivalent physical units. This procedure is useful and probably would continue to be employed, even if a cost-of-living index were available. On the other hand, deflation of consumer ex-

[3] An attempt to demonstrate this was made by Dr. Melville J. Ulmer on the basis of data available from Departments of Labor and Commerce indexes. See Melville J. Ulmer, "On the Economic Theory of Cost of Living Index Numbers" in Journal of the American Statistical Association, December 1946, pp. 530–542.

Dr. Ulmer, who made an intensive examination of the economic theory of the cost of living concluded that both the Laspeyres and Paasche price indexes are "close approximations to (though not identical with) the true cost-of-living indexes." His conclusions, obtained by means of indirect proofs; i.e., comparisons of Laspeyres and Paasche Consumer Price Indexes for an overlap period, as well as of indexes of retail sales, demonstrated that changes in money prices are much more important in the measurement of the level of living than changes in relative prices and the effect of such changes on consumption patterns. The principle assumptions were that "tastes do not change appreciably" and the "bulk of goods and services remain about the same in variety and quality," over the period of the analysis. The article cited indicated that a Paasche price index would not differ by more than 1.5 index points over a 10-year period from the true cost-of-living index based on current levels of living. Similarly a Laspeyres price index would not differ by more than 1.5 percent from the true cost-of-living index based on earlier period levels of living.

penditures by a cost-of-living index would also be useful, in that the relationships of the deflated data over time would give an indication of changes in overall welfare in the "utility" or "satisfaction" sense.

The BLS is not convinced by the Committee's assertion that a cost-of-living index is more appropriate for collective bargaining and escalation of wages than is a consumer price index. This might be a tenable point of view, if escalation were imposed by Government dictate, as might be done in time of war. There is some question as to whether the kinds of adjustments in their living pattern that workers make of their own volition, under free-economy conditions, should be a factor in escalation of wage contracts, and whether labor would accept contract provisions based on this principle. It is dangerous to make dogmatic pronouncements on this point. Collective bargaining is a pragmatic business in which each party to the bargaining uses any statistical devices that he thinks will help his economic cause. At various times in its history, the CPI has come under attack alternately by labor or business groups, depending upon how the movement of the index affected their special interests.

The difficulties in the way of establishing a cost-of-living index should be clearly understood. While there are many theoretical writings on this subject, none of the specialists working in the price or consumption fields, either on a theoretical or on a practical plane, have developed an operationally feasible plan that would satisfy the Committee's objectives. It is interesting, for example, to quote the opinion of Professors Friedman and Wallis, colleagues of the chairman of the Price Statistics Review Committee, on a subject relevant to this problem. These gentlemen, after reviewing theoretical and practical problems encountered in the study of indifference functions—the theoretical basis for most cost-of-living index formulations—reached this conclusion:

"By way of summary, let us repeat that we fully recognize the power of the indifference function in price theory (though the considerations raised in section IV suggest that this power is definitely limited). We doubt, however, that it has any material value for the organization of empirical data * * *."[4]

While this statement is quoted from an article published in 1942, there have been no recent developments that offer a solution to the problem. In providing this quotation, the BLS does not intend to deprecate the theoretical foundations of the Committee's approach but rather to reemphasize the need for a program of research to establish the statistical structure of such an index and to develop and test the analytical and operational aspects of preparing it on a regular basis. There have been advances in the theory of consumers behavior, but the empirical aspects of this work have lagged.

The Bureau does not agree with the Committee that a "welfare" index could or should completely replace a consumer price index. Rather, the two indexes, if the former can be developed, should be considered complementary, each being useful in its own right. For this and other reasons, then, the Bureau is not in sympathy with various suggestions by the Committee that would tend to hybridize the present CPI by including some measurements based on welfare concepts and not compatible with the change in price concept. The BLS concept of a clearly defined internally consistent index does not permit such deviations from the price measurement structure. Deviations of this type would destroy the usefulness of the index as an acceptable, unambiguous measure of change in consumer prices.

The Bureau has long recognized the importance of research to define and measure the effect of nonprice factors on changes in living cost in both temporal and spatial comparisons. It has conducted a substantial program of consumption research to develop standard budgets which describe an adequate level of living. This program has included also the development of procedures for estimating budget costs at different times, in different places, and for families of different size and composition. Such research offers the most promising approach to the development of a "true cost-of-living index" and was recommended by the subcommittee of the Committee on Education and Labor, House of Representatives of the 82d Congress in its report on the "Consumers' Price Index."[5]

The Bureau hopes to be able to expand its research in connection with the 1960–61 consumer expenditure studies to analyze the changes in levels and standards of living associated with various demographic, social and economic

[4] W. Allen Wallis and Milton Friedman, "The Empirical Derivation of Indifference Functions," in "Studies in Mathematical Economics and Econometrics," edited by Lange, McIntyre, and Yntema, 1942, p. 189.

[5] 82d Cong., 2d sess., H. Doc. 404, appendix, pp. 32 and 33.

factors, and to make a comprehensive revision of the standard budgets. This research would contribute substantially to the solution of problems raised in connection with a true cost-of-living index. However, because of the magnitude and diversity of the unsolved problems, both conceptual and procedural, it would be desirable for the universities to continue to take a major role in this research program. The Bureau would support such research by supplying necessary data to the extent they can be made available.

While the previous remarks have attempted to differentiate between the CPI concepts and the cost-of-living concepts which the PSRC favors, it is important to present the differences between the two approaches in perspective. One way to do this, for example, is to consider that all possible consumer price indexes and cost-of-living indexes are arrayed in some logical order. At one end of such an index spectrum would be a true Laspeyres index for which the weighting structure is derived from some specified base period and remains unchanged for the life of the index. The items priced for such an index are also selected with reference to the base period and are also unchanged. At the other end of the spectrum would be the true cost-of-living index, for which price change would be measured in terms of satisfaction or utility units, the level of living being held constant.

It is obvious, of course, that each of these extremes represents unreal situations. No one seriously proposes that the weights of a Laspeyres index remain unchanged forever. Neither can one continue pricing exactly the same items for any long period of time. Likewise, no one has seriously suggested a practical way of defining a utility unit, let alone attaching a dollar value to it. The spectrum could be extended still further to the right by including in this picture (to the right of cost-of-living indexes) indexes based on expenditures, so that levels and standards of living are allowed to change as well.

Once one admits that a true Laspeyres index provides an impossible framework for measuring consumer prices, then one can move to the right along the spectrum by taking steps to make the index system more flexible and reflective of current-day conditions. For example, weights may be changed more often, either completely or partially as the Committee suggests. The list of items priced may be changed periodically, either completely or partially. Special procedures may be adopted for handling the new product problem and the quality problem, etc.

The changes in the characteristics enumerated thus far would not change the status of the index number as a measure of price change. It would be a somewhat different kind of measure of price change but still a price index even if the weights, and also the list of items priced, were changed as frequently as annually. The basic determinant as to whether the index measure is a price index or not is whether the unit for which prices are compared is a real transaction unit that can be priced in the marketplace and whether fixed weights are used to determine the average price change between adjacent periods of time. Many of the Committee's suggestions on weight revisions and changes in the sample of priced items, procedures for handling new products, and procedures for handling quality improvements, can and should be evaluated in terms of whether they will improve the usefulness and meaningfulness of the price index series for the most important uses for which the indexes are presented.

As we move further along the spectrum of consumer price and cost-of-living indexes the possibility of measuring some prices or costs in terms of use or satisfaction enters into the picture. The PSRC has pointed out in various parts of its report, for example, some possible procedures for measuring the cost of consumer durables on a use-cost basis, for measuring the cost of owner-occupied housing on a rental equivalent basis, etc. Changes in index procedure such as these cannot be justified in terms of a price index but only in terms of acceptance of the cost-of-living index approach.

What confuses the situation is that the PSRC justifies many of its important recommendations in terms of its conclusion that the suggested changes in procedures will move the Consumer Price Index in the direction of a cost-of-living index, which it considers the ultimate goal. In an abstract sense this may appear to be the case, but from a practical point of view it is not clear that the suggested changes in statistical techniques will produce statistical results closer to a true cost-of-living index. There is little profit in arguing this point—the theory is elusive and the statistical data available to demonstrate one position versus the other are not available. The BLS urges, therefore,

that the specific recommendations on index methodology be evaluated in terms of their relevance to the Consumer Price Index and not to a hypothetical cost-of-living index. Likewise, the merits of the price index approach versus the cost-of-living approach can be argued independently of these specific recommendations.

In closing the discussion of this particular issue, it should be emphasized that the Bureau believes that clarity of concept and objectivity of price comparisons—criteria which the Committee accepts as desirable—can best be achieved by adhering for the present and the currently foreseeable future to the price index approach. Any partial movement toward a cost-of-living index, before the theoretical frame and operational structure is fully developed, could lead only to ambiguity and subjectivity. Based partly on price index principles and partly on cost-of-living comparison principles, such an index could not evoke the confidence of users in its objectivity. It would be clearly unsuitable for use in collective bargaining and wage escalation, and for many of the other economic and policy uses to which the CPI is put.

The BLS, thus, accepts part of the Committee's philosophy and approach but must reject the other part. There is agreement with the Committee's conclusion that a "welfare" or cost-of-living index, would be a useful statistical instrument if it were feasible to produce one. The Bureau wishes, however, to emphasize that this is a long-range goal that is now unattainable, may always be unattainable, and at best could be fully attained only after considerable further theoretical and statistical exploration. Furthermore, the Bureau feels that the need for such an index has been overstressed by the Committee; the Consumer Price Index provides a sufficiently accurate approximation to a cost-of-living index for most practical purposes. It is clear, certainly, that for the current revision of the CPI, the index must continue to be based on the price index approach.

WEIGHT REVISIONS

The Bureau agrees with the Committee's recommendation "that there should be an established program of periodic, comprehensive revision of the weights of the Consumer Price Index * * * at least once every decade." Under present practice, revisions are undertaken only when the BLS is successful in convincing the Bureau of the Budget and the Congress that there is an urgent need to bring the index up to date. The danger of this procedure is that the very recommendation for a revision project may be taken by users of price statistics as meaning that something is drastically wrong with the index. The uses of the index are too important to incur the risk of a loss of public confidence. It is even more dangerous to risk that a revision project will not be approved until the index has deteriorated seriously, because up to 5 years may elapse before a completely revised index can be published.

The recommendation for weight revision at regular, predetermined intervals departs from the theoretical ideal in several respects. In concept, the weights of a fixed-weighted index should be based upon some "normal" period. This may be more or less than 10 years. This implies that the weights should not be changed until they cease to be normal, or representative of the new conditions brought about with the passage of time. BLS concurrence in the recommendation of the PSRC is based upon pragmatic considerations inherent in the difficulty and length of time required, first to get approval of a weight revision project, and then actually to carry through all the complex steps of revising such a massive index as the CPI or WPI.

As the BLS views this matter, the question as to the exact interval between major weight revisions must also be settled on a pragmatic basis. There are no precise statistical criteria that can be used as guide, and if there were criteria based on past history, the rapid changes in our economy would cast doubt upon their validity as applied to the current situation. Revision at 10-year intervals is probably the outside limit as the Committee suggests. The BLS is not convinced that full-scale revisions of the Consumer Price Index are needed more often, except under unusual or emergency conditions, especially if some current procedure is provided for checking the weights and making occasional minor revisions.

There are several dangers in such a proposal that must be guarded against. It may happen that the recurring cycle of index revision projects falls in a year that is abnormal in some serious respect; e.g., it is within a severe recession period. One protection against this possibility is to plan to base the Consumer Price Index weights upon cross-section expenditures surveys conducted in 2

adjacent years. This is the plan in the current revision of the CPI. If both years are normal, the index weights will be the average of the 2 years. If one year turns out to be abnormal, the other year will provide the means of adjusting the results. Under extreme circumstances, it might be necessary to either postpone the weight revision project or to derive a set of weights from the data for the scheduled weight revision years in combination with whatever data are available for previous years.

The Bureau accepts the suggestion that in the years between major weight revisions it should keep a close check on the changing importances of the various elements of the index, and should be prepared to make interim adjustments of the more volatile categories of weights as needed. This requires a continuing program of expenditure surveys and an appropriate research program. In endorsing this proposal, the Bureau emphasizes that such a continuous maintenance program does not obviate the need for a thoroughgoing revision of weights at least every 10 years. However, if unusual circumstances indicate a widespread shift in the pattern of consumer expenditures, it might be necessary to initiate a special comprehensive survey of consumer expenditures without waiting for the scheduled benchmark survey and revision project.

The serious difficulties inherent in partial revisions of weights must be recognized. Very often an increased expenditure for one item is associated with increases or decreases in other items. Truncated expenditure surveys which concentrate on collecting data for a few of the more important volatile items will miss some of the associated effects on the expenditure pattern. However, when there are significant changes in the importance of particular items, the improvement in the index by taking account of these shifts may outweigh the minor discrepancies in the system due to failure to adjust for associated changes of smaller degree. The Bureau recognizes that index users will not unanimously accept this principle, but nevertheless, believes steps should be taken toward its adoption.

In the case of the WPI, the BLS follows a policy of revising the weights as data from the censuses of industries become available. These censuses are now scheduled on a quinquennial basis and this provides a satisfactory interval for revision of weights. In the operation of this index, the BLS tries to review the samples of items and reporters for selected industry and commodity segments on a rotating basis. When a sample of items is extensively revised in a particular commodity area, it often is found convenient and desirable to revise the internal weights of this group in line with current data from either annual surveys of manufactures, or trade sources, holding the weight for the group as a whole constant in relation to the composite index or to any higher summary group level. This procedure is consistent with the spirit of the Committee's recommendation for partial weight revisions between the benchmark revisions.

The PSRC suggests the desirability of recomputing the index backward, preferably back to the point of the previous weight revision, each time the index weights change. The BLS agrees that, at least for the information of the statistical profession, recomputation of the index with more current weights would be helpful. There appears to be less need for the index to be recomputed backward with Marshall-Edgeworth or Fisher weights since Paasche (current period weights) and Laspeyres (base period weights) indexes will set limits between which indexes weighted by combinations of old and new weights will fall.

Implicit in the Committee's recommendation for a recomputation of the Consumer Price Index with current weights for comparison with the index as previously published may be the feeling that these two index computations will also set limits between which the "true cost of living" index lies. In some theoretical formulations, under rather rigid restrictions, this is the case. Under conditions which would apply to these computations, it is not unequivocally certain that the true cost-of-living index is bounded in this manner.

Recomputation of a price index using the most recent weights for comparison with respect to the CPI. When the CPI is revised periodically, the revision affects not only the weighting structure, but for some components of the index, the conceptual structure as well. Likewise, a revision project provides an opportunity to revise the sample of cities and to modernize the sample of items and reporters. Thus, even if it were possible to compute the index on the new basis backward to the year of introduction of the previous weighting structure, comparison of the old index series and the new series would not provide the kind of old weight-current weight (Paasche-Laspeyres) comparison the Committee is recommending.

In the 1952 revision of the CPI and the BLS could not recompute the index backward because of important changes in the index structure and concepts and in the samples of cities, items, and outlets. Neither did the Bureau plan to continue publication of the index on the old basis once the revised index became available. However, in response to a presidential request, growing out of a continuing need for the old series in wage escalation, the Bureau revived the old index and published it from January through June 1953 contemporaneously with the revised official index.

In the current revision of the CPI the Bureau has recognized in advance the need for an overlap period for which both old and new indexes would be available. Collection of price data for the new list of items will begin in the new city sample 1 year before publication of the new index is officially scheduled. The BLS expects to be able to make available monthly indexes for 1963 on the new basis at the time the revised official indexes for January 1964 are first published. Likewise the Bureau will seek to continue collection of data for the former sample of items in the old sample of cities for a period of 6 months after January 1964 so that indexes can be published simultaneously on both old and new bases for this period (but with the revised series designated clearly as the "official" series).

In connection with the 1939 revision of the CPI, the last complete weight revision prior to 1952, the Bureau computed and published indexes on the new basis for the period March 1935 to December 1939. Both the old and the new indexes showed the same pattern of change with the maximum discrepancy at any time being approximately an index point. The total increase over this 5-year period was 1.8 percent for the new index series as compared to 1.9 percent for the old.[6]

It should be noted that the weights used in the new index reflected 1934–36 expenditures, the weights in the old index reflected 1917–19 expenditures. This comparison therefore involves not a comparison of an index with current (Paasche) weights against an index with base period (Laspeyres) weights but rather a comparison of two indexes with fixed weights, one set of weights being of considerably more recent origin than the other. In fact, this generally would be the nature of index comparisons, if the Committee's recommendations were to be implemented. Time lags in the availability of data make true Laspeyres-Paasche index comparisons difficult to achieve. Also, literally speaking, a comparison of Laspeyres and Paasche indexes implies a binary comparison of two points in time. Once a set of weights is used for the production of an index series where the data at different points of time will be compared with each other as well as with the base period, the weights are more correctly referred to as "fixed" or "constant" weights.

The fact that the Bureau was able to compute indexes on the new basis for the years preceding the introduction of the revised index stems from the nature of the 1939 revision project. The sample of cities did not change (except for the addition of one city); neither did the structure of the index change to any significant extent. There was, however, a revision of the list of items priced which should be taken into account in evaluating the differences between the old and revised indexes. Thus the close relation between the trend of the two indexes over the period compared, despite change in the sample of items priced, does not lend support to the argument for frequent weight revisions.

Returning now to the current CPI revision, the BLS recognizes that it is desirable to demonstrate the effect of weight changes upon Consumer Price Index trends but cannot accomplish this in the full manner suggested by the PSRC. Since it is impossible to hold constant all factors except weights, the kinds of CPI recomputations that would serve the PSRC purposes completely are impossible. However, there is an alternative that can be carried through,

---

[6] See BLS Bulletin 699, "Changes in Cost of Living in Large Cities in the United States, 1931–41," pp. 27–30. See also, "Changes in Cost of Living in United States, December 15, 1939, and Year 1939," in Monthly Labor Review, April 1940, table 3, p. 918. At the time of the 1939 CPI revision, the BLS not only recomputed the index back to March 1935 using 1934–36 expenditure survey data (revalued on an average 1935–39 basis) as the weights, but also reweighted the price indexes for major groups with the same set of revised weights to produce a new CPI series for the period June 1930 through March 1935. (The revised index fell 18.7 percent over the latter period; the old index 17.5 percent. For the period 1925 through 1929, the CPI was recomputed in the same manner using an average of the old 1917–19 weights and the revised 1934–36 weights. Over this period, the old index series fell 3.6 percent and the new, 3.7 percent.

at least for several of the large cities, as part of a continuing index number methodology research project after the current CPI revision is completed.

On the basis of the consumer expenditure surveys which provide the weights for the revised index, it should be possible to compute revised weights corresponding to the old index structure for cities which are common to old and new city samples. Price data collected for the old index might then be used in conjunction with these weights for a backward recomputation of the city indexes to the period of the former weights. Such a recomputation would serve the purposes of research workers even if it would not satisfy all of the objectives of the Committee.

When the last major revision of the WPI was carried through in 1952, the BLS did compile the indexes for all summary groups and product classes, as well as for the composite index number, back to January 1947. This revision was two fold in nature: (a) It incorporated weights based upon the 1947 industrial consuses; (b) it involved an expansion in the scale of pricing from approximately 900 item series to 1,900 and extension to some commodity areas not formerly priced. Thus, although the backward recomputation of the indexes on the new basis was useful in providing perspective for analysis of current trends of the new WPI, comparison with the trend of the old (and still) official series for the period 1947 through 1951 did not greatly increase our knowledge as to the effect of weight changes on price index behavior.

The Bureau is currently introducing 1958 value-of-shipments weights into the WPI, with publication of indexes on the new basis scheduled for several months hence. This work has not yet reached the stage where conclusions can be reached concerning the effect of the introduction of new weights. However the Bureau staff is planning such calculations and, if it finds that there is interest in the results, will publish them. After 1954 weights were introduced in December 1957; the indexes were recalculated back to 1947 and comparisons were made between the 1954 weighted and the originally published official indexes. In both the current weight revision and the introduction of 1954 weights, there were only routine changes in samples of items and reporters, unlike the situation in the 1952 revision.

Between 1947 and 1954, the all commodities WPI based on 1947 weights rose 14.4 percent while the reweighted index based on 1954 weights increased 11.1 percent. The 15 major commodity groups showed a generally similar pattern with the 1947 weighted series increasing more (or decreasing less) than the 1954-weighted series in 13 of the 15 cases. Only the group indexes for hides, skins, and leather and leather products, and for lumber and wood products showed the reweighted index increasing more than the official series. Considering that the period over which these indexes were compared included the Korean crisis and many adjustments in the economy as a result of postwar industrial expansion, the differences between the two sets of indexes are not unduly large. The same item price series were incorporated in the recomputed index as in the original index; consequently, these index results are very close to a real Laspeyres-Paasche comparison.

The general results of this comparison are in accord with independent findings elsewhere, and with conventional thinking on this subject. The explanation seems to be that series which have experienced least price rise (or most decrease) relative to the other commodities tend to be weighted relatively higher at the end of the period than at the beginning. This generalization may not apply in individual cases, however.

Another comparison is possible as a result of introduction of 1954 weights into the WPI. From 1954 to December 1957 the WPI, recomputed with 1954 weights, increased 7.3 percent, whereas the official WPI increased 7.4 percent. The difference is surprisingly small, perhaps because there had been a realinement of major group weights in January 1955 to take account of 1952–53 data on shipments.[7]

SPECIFICATION PRICING

The Price Statistics Review Committee, in endorsing the use of specification pricing, apparently concurs with the BLS that the principles of specification pricing are essential to an index measuring price change and, in particular, to

[7] This partial revision of weights was initiated because funds were not appropriated for the scheduled 1953 Census of Manufactures. The Census was subsequently carried through for 1954 and it was later possible to revise the weights in full detail.

handling the concomitant problems of quality change. The Bureau's experience with specification pricing has led it, at times, in the direction of broadening the quality descriptions, and at other times to tightening them. Neither of these alternatives has proved satisfactory under all conditions and for all goods and services. In considering what our approach should be in the current CPI revision, we have concluded that specification procedures not be abandoned, but should be tailored to the production and distribution characteristics of different classes of items. In some cases, this would introduce more flexibility; in other cases less flexibility, in specification price procedures.

The Committee's report, in arguing for more flexibility in specification pricing techniques, recommends that "field agents should be free to select those precise qualities for which they can obtain continuous and comparable price quotations on the basis that the commodities are continuously sold in the outlet." This seems to argue for a return to a pricing procedure analogous to that followed from 1918 through 1934, when BLS field representatives priced the volume selling quality and variety for an item of very general description in each of the selected stores. The determination of the volume selling item was that item which was the popular seller.[8] The full description of the article selected for pricing was furnished by the field representative.[9] Comparability from one period to the next was determined primarily by the field agent.[10] But pricing difficulties increased, and agents had to rely increasingly on respondent's evaluations which tended to be made from the seller's angle and were unreliable evaluations of quality difference.[11]

The inadequacies of the procedures and increasing pressure for improved price data led to the price collection procedures introduced in the field collection for November 1934,[12] for which the agent priced to predetermined specifications and gave additional descriptive detail. If the item was not available, the agent priced the most nearly similar item in the same general quality range and described it. While a part of the burden of description was still in the field, there was the added task in the Washington office of making decisions on comparability.

The Bureau feels that the Committee's generalizations magnify the extent of rigidities in the Bureau's current methods. The BLS now employs some general specifications of the kind recommended by the Committee and, by controlled means, allows variations from centrally developed specifications for regional differences, city differences and, in many cases, outlet differences. There are steps that can and should be taken to introduce additional flexibility for some items, including the relaxation of conditions under which citywide or outlet deviations can be priced. But the current procedure is not as strict as the report implies in the statement that "because it requires additional efforts for a busy field agent to obtain waivers or changes of specification, items are some-

---

[8] In the instructions to field representatives for December 1931, it was stated that (p. 7) "a substitution should be made whenever an item has ceased to be the popular seller, provided the popular seller is quoted at a price within reason. The term 'popular seller' does not mean a novelty that is only a passing fad, but it does mean the grade or quality of a standard article such as is commonly sold to wage earning or moderately salaried people."

[9] The following paragraphs appear in the pricing instructions for December 1927 (p. 3):

"In the description of the article state make or brand, number, material, grade, style, and size, so that in visiting the store later for a continuation of price quotations the article may be readily and positively identified. * * *."

The instructions go on to emphasize this point in order to insure better reporting than had been obtained in earlier periods. (The next quotation is given in full capitals as it appeared in the original instruction, illustrating the importance attached to this problem.)

"'THE DESCRIPTIONS OF ARTICLES MUST BE GIVEN MORE ATTENTION AS IN NEARLY EVERY CITY THERE ARE SOME DESCRIPTIONS WHICH ARE VERY POOR. PRESENT DESCRIPTIONS SHOULD BE AMPLIFIED AND PERFECTED AS DIRECTED IN PRECEDING PARAGRAPH."

[10] The December 1927 pricing instructions state that (p. 2) "the purpose is to secure the prices in December 1927, for the same article, if at all possible, or for an article of the same grade and quality as that reported in the previous periods so as to determine the price changes between these dates."

[11] Supplementary instructions for December 1928 contain the following suggestion for clothing prices:

"It is suggested that very great care be exercised in reporting decreases in prices on garments on account of better quality now being given than in the preceding price period. It is very easy to get a buyer to say that the quality of a garment today is much better than it was 6 months ago. Conversely, it is a most difficult matter to get a buyer to admit that the quality of the garment today is poorer than it was 6 months ago."

[12] These changes were based on tests of specification pricing and other aspects of the retail pricing problem conducted during 1933 and 1934, under the auspices of the BLS and the Federal Interdepartmental Committee on Retail rices.

times priced until prices are no longer available (which may be long after the commodity has dwindled to unimportance)."

The BLS procedures, in fact, do provide for a flow of information from its field agents on new items and qualities in the outlets they visit. In addition, BLS also receives reports from contacts with manufactures, and from trade publications which give many early indications of new items and qualities coming on the markets and provide guides to the rewriting of specifications as conditions change. There is no doubt, of course, that with more resources, better information on varieties and qualities on the market could be secured even within present specification procedures. But, in any event, lack of quotations occurs gradually, city by city and outlet by outlet. Even in a single outlet, some action is required to build up to the required number of quotations. Thus, lack of quotes cannot continue for very long or be very widespread before remedial action is taken.

The Bureau agrees that a broader range of qualities should be priced for a number of commodities, but subdivision of the broad range should be recognized explicitly by separate specifications. There frequently are differential price changes by quality level. A broad specification band would allow an admixture of price changes for varying proportions of low and high qualities from one comparison period to another which might bear little or no relationship to purchases by the index population. Likewise, the range of qualities purchased by the population group to which the index relates—in the case of the CPI urban wage and clerical workers and their families—necessitates more description than is evidently envisaged by the Committee. A more acceptable principle to give the specification procedure the desired flexibility would be to permit deviations from the specification for specific cities or outlets, rather than broadening the range of quality in the specification itself.

The report comments on the effect that precise specification pricing techniques have upon the selection of outlets. The real problem, however, in the sampling of outlets, is to develop an objective method, preferably via a probability design, for making the selection and keeping the sample up to date as the universe of outlets and the distribution of the sales volume changes. With a probability selection of outlets, the subsample of outlets that carries the specified item would still be a representative probability sample. Similarly, there is no obvious reason for concluding that a judgment selection of outlets, in which the BLS prices its specified items, is any worse than a judgment selection of the same number of outlets to represent a broad merchandise line, or general specifications.

Despite some reservations as to the advantages of the Committee's proposals, the BLS agrees that they warrant further study and experimental application. However, one of the disturbing aspects of the Committee's suggestions is that they are based on the conclusion that broad quality range specifications would substantially reduce costs of collection. The BLS believes that, on the contrary, the costs would be substantially increased. Salary levels to obtain and keep field personnel of the level of competence required (both full- and part-time) would have to be higher than at present. The caliber of the current BLS field staff is high for pricing according to predetermined specifications and clear guides; but it is not the caliber required for a competent job of developing precise specifications, evaluating comparability with earlier reports, and reviewing the availability of new products, keeping track of their growth, and automatically pricing them when they become volume leaders in a given outlet. Per diem costs, also, would be likely to increase, as agents assumed these additional functions, and much work now done on a centralized basis might be duplicated by agents in different pricing areas. BLS experience also shows that additional field costs probably would accrue through larger turnover of respondents in the sample, because of the requests for more information, necessitating more frequent and costly initial pricing. For example, the BLS has recently initiated some additional price collection in selected cities to provide information needed for selecting the item and outlet samples for the revised CPI due to be published in 1964. The additional burden placed on some price reporters has already caused some complaints and resulted in several refusals to cooperate further with the BLS.

Office costs would be increased because developments of the recommended broader specifications, plus the necessary guides and instructions for the field staff, would require even more work by the Washington staff than the present

64846—61—pt. 2——5

specification system requires. In addition, the central office staff would have to cope with a greater variety of reported items, and with a greater volume of problems of evaluating quality comparability, than under current procedures.

THE QUALITY PROBLEM

Treatment of quality changes in index number measurement of both price and production changes is probably the most complex and troublesome problem with which index makers have to cope. The Bureau feels that substantial advances in developing appropriate techniques for handling quality changes in index number work can be made, if adequate resources for research in this area are provided, as the PSRC suggests.

The BLS is vitally interested in even partial solutions to this problem, because of its responsibility not only for the Consumer Price and Wholesale Price Indexes, but also, for measurement of productivity change. The National Income Division of the Office of Business Economics, the Federal Reserve Board, and the Agricultural Marketing Service, likewise, have statistical program responsibilities which would benefit from any increase in the knowledge of how to treat quality changes in intertemporal price and production comparisons. The suggested research program is, therefore, of widespread interest and importance to several agencies of the Federal Government and to university research in economics.

As background for the discussion that follows, it is important to note that the definition of quality change and the corresponding statistical criteria for factoring such changes out of price comparisons are related to a particular index structure and set of objectives. The same criteria may not be applicable to a fixed-weight consumer price index as are applicable to a cost-of-living index. Still different criteria may be relevant to a general wholesale price index, a price index for producers' durable equipment, or a production index for the measurement of industry output (via the deflation route) as a step in productivity analysis. For some purposes, the criteria appropriate for quality adjustment may be related to relative market price differentials, to relative utility or usefulness to consumers, or to efficiency and cost of operation. In other cases the criteria might be related to cost of production, or cost of inputs and resources embodied in production per unit of output. Thus, the quality problem cannot be taken out of context as a problem to be solved separated from other index number problems. It must be approached within the framework of particular index number systems and objectives.

The problem of quality change has some relation to, and is often compared with, certain other difficult index number problems, particularly those involving introduction of new products and the sampling of items. These two problems deserve attention in their own right. It is doubtful that even partial solutions to the quality problem, in price index work, will be found through better sampling techniques or better techniques for introducing new products into the index. Perhaps, in a cost-of-living index, these problems could be merged to a greater extent; but more definitive information on the structure of the index would be needed before further comments on this point could be made.

The Committee states that most economists and statisticians hold the view that the BLS price indexes are biased upward because of failure to take quality improvement into account. In an earlier period, there was a similarly widespread opinion that the index had a downward bias. The BLS is in no position to deny or affirm that there is currently an upward bias and, least of all, to assign a numerical magnitude to it. If such a bias exists, and if it could be measured, then the index procedures could be corrected to eliminate the bias.[13]

The question of bias in the index numbers should be approached most carefully. The monthly CPI, for example, is produced as the end result of a complex series of operations each of which has an impact on the index result, and each of which would have to be evaluated for possible contribution to bias. Even if one accepts the conclusion that quality of merchandise and services available to consumers has been steadily improving over time, one cannot then leap to the conclusion that the index is biased upwards. The interaction of quality change with the index mechanics for making price comparisons must be taken into con-

[13] For a further discussion of the problem of taking account of quality change in the CPI, see Sidney A. Jaffe, "The Consumer Price Index—Technical Questions and Practical Answers," in 1959 Proceedings of Business and Economic Statistics Section, American Statistical Association, pp. 195–197.

sideration, whatever one's conclusions are with regard to the quality of goods and services available to consumers.

A detailed examination and evaluation of the many decisions made when new varities are substituted for older varieties in the index list, and a quantitative determination of the difference in qualities for the two varieties involved in each decision would be required before the existence of bias could be established. For various reasons this is impractical. However, indications are that the procedures which have been followed in the CPI do not involve biases systematically in either direction. Under some circumstances, use of linking procedures—sometimes called splicing—tends to a downward bias in a period of rising prices. An alternative procedure, computation of price trends by direct price comparison of old and new items in some categories, e.g. automobiles, gives the impression of a systematic upward bias. This is on the assumption that the difference in price between 2 items may be attributed partly to quality and partly to actual price change, so that linking misses the price change, whereas direct comparison fails to exclude the quality difference.

In practice, manufacturers of many durable goods, e.g., appliances and automobiles, do not make price changes except when the models change. Models change annually in many cases and the technique used in introducing them into the index is necessarily that of direct comparison, after first determining which new model resembles most closely the former model priced for the index. An effort is made whenever possible, to eliminate the part of the price change which may be assigned to difference in quality. In the case of new automobiles, for example, adjustments since 1937, for such changes as those from 6 to 8 cylinders and from standard shift to automatic transmission, has resulted in reducing average new car prices, for purposes of the index, by roughly $650 (in current dollars). This is not to say, however, that it has been possible to evaluate and adjust for all aspects of quality difference in new model cars, refrigerators, or other commodities.

The Bureau will not argue that quality has not been improving, taken on an overall basis. With advances in technology, this probably has been the case. However, there may be negative aspects to some changes which are generally regarded as quality improvements, so far as consumers are concerned. Thus, some products may be technically superior, but their maintenance and operation costs may be higher. Some consumers complain that particular products have to be replaced more often than was formerly the case, even going so far as to call the situation built-in product obsolescence. Of course, the Bureau is in no position to evaluate such factors for index comparisons without consderably more resources for technical appraisal and testing of items it prices.

Considerable progress has been made by the BLS over the years at estimating quality differences for price change measurement with the help of buyers and manufacturers. The Bureau intends to continue and, if resources permit, to extend present efforts to get manufacturers' estimates of the cost differences which can be attributed to quality change. This will require more direct work with reporters for the WPI in place of the extensive reliance on mail reports to which BLS has been committed in the past because of limitation of funds. In this respect, the Committee's suggestion to use the "dominant characteristic as a measure of quality" is relevant, since it seems to offer the best building block for future improvements. Although the use of dominant features is imperfect, the Bureau has been fairly successful on a number of occasions in securing reasonably good approximations to the values of the more outstanding quality characteristics in the past through specification pricing procedures. The other desirable aspect of this procedure is that it offers the opportunity of introducing quality change adjustments in the current indexes much more promptly than the more complex regression approach.

The Bureau feels that the PSRC is overly optimistic as to the potentialities of the regression technique for measuring the effects on price of so-called quality changes in an item. Nevertheless, further exploration of this technique, in cooperation with university research workers, may provide some insights into the problem of evaluating quality change. For some time, however, it is likely that application of this approach will of necessity, be limited to ex post facto studies that will not contribute to current index measurements.

The Bureau's staff has several additional reservations about the regression approach. One reservation relates to the nature of the multiple-regression process itself. While multiple regression is valuable for many types of analyses, it is deficient when one is attempting to assign causality to each of the variables.

The interrelationships among the variables obscure causality. A second reservation about the proposed regression technique is that the independent variables which are measurable and are generally available for consideration are physical and mechanical features, e.g., weight and horsepower of an automobile. These are essentially related to cost, and not to utility or quality, in the sense that the final consumer views such matters. Often the factors which influence consumers' decisions are subjective in nature and cannot be quantified for incorporation in a regression analysis.

THE TREATMENT OF NEW PRODUCTS

The PSRC report states "that new products can and should be introduced into the indexes more promptly than they are at present." In the opinion of the Committee, the practice is "decisively that of introducing new products too late and retaining old products too long." No definitive economic or statistical criteria were provided in support of these statements, to enable the BLS to evaluate whether its current practices for introducing new items are deficient. If such criteria are developed, they may guide the introduction of new items at the theoretically appropriate time.

The Committee's concern with the new-item problem centers primarily around the possibilities of biases in the indexes. It argues that new products are usually introduced into the market at relatively high prices and that their prices fall as they gain acceptance, owing to economies and improved techniques of production that come with volume sales and production experience. The report also alleges that a possible upward bias results when old products are retained in the index too long while their prices tend to rise as the volume of sales declines and mass-production economies are reduced. Empirical evidence supports the validity of the first observation with respect to some new items, but indicates that the second is more theoretical than actual.

Truly new products are quite rare, e.g., automobiles, radios, television; and they present different considerations in indexmaking from such "new products" as manmade fibers, frozen foods, etc. The latter, being really new variants of existing products which they supplement and may eventually supplant, enter into the marketplace in competition with the existing varieties or products. Their initial price trends are by no means predictable. It is this type of new product which makes its appearance frequently, and presents essentially the same index problem as changes in the quality of existing goods and services.

If the theoretical and empirical justification can be developed for introducing such substitute products and newer varieties at an earlier date than current BLS practice allows, it would present no complications for the index structure. This can be done without seriously disturbing the system of weights. The question of when and to what extent to do this, of course, is related to the breadth of sampling—the number of specifications that the BLS can afford to price to represent each index item—and the feasibility, budgetary and otherwise, of establishing the sample of items on a rotating basis. These problems are under study by the BLS staff in connection with the current revision of the CPI.

The main aspect of the "new product" problem, therefore, is related to innovations which occur infrequently, but which usually have a serious impact upon consumer expenditures for other goods and services. It might be thought that only related categories of items within which the innovation is contained are affected, but this is not so. Television for example, affected expenditures for food and beverages, electricity, housefurnishings, reading materials, etc., as well as for all recreation items and services. Although most innovations would not be expected to have so profound an impact on expenditure patterns as television, their introduction into the index usually requires a fairly comprehensive reexamination and revision of the index weight structure. Early introduction of such innovations, therefore, is not a simple matter of adding or deleting items or reassigning weights.

Any change in the procedures for introducing really new items into the index is thus seen to depend not only upon sampling considerations, as in the earlier situation, but also on the policy with respect to conducting surveys of consumers expenditures and revising the weighting structure in a comprehensive manner. A policy of rotating the item sample by either a partial or complete resampling of the universe of goods and services would not be sufficient; the weighting structure must also be revised to provide an appropriate place in the index

structure for any new commodities that are uncovered in the sampling process.

Ignoring practical considerations, the procedure implicit in the above remarks could be carried to an extreme, resulting in a chain index with both weights and priced items changing in each link of the chained index. This would accomplish the major objective of the PSRC with regard to new products: new products would come into the index as the result of an objective sampling procedure and would be assigned their correct importance in the weighting structure corresponding to their relative popularity with consumers at the time of the specific chain-price comparison. This is without regard to the theoretical advantages or disadvantages of chain indexes. In practice, the weights cannot be revised so often, nor can the sample of priced items be redrawn anew for each monthly price comparison. As a practical necessity, the index maker is forced to establish procedures which restrict the sample of priced items to those which have demonstrated that they have gained some degree of acceptance by consumers, and for which availability of a continuous price history for some reasonable time into the future seems likely. The important question is, therefore, what criteria can be established for sampling items, including new products, in a conceptually sound and operationally practical manner.

Implicit in the PSRC remarks is one further point in connection with the introduction of really new products. None of the procedures described thus far would accomplish anything more than bringing such new products into the index at an earlier date. The price movements of the new items would affect the index only subsequent to introduction since they would be linked into the index without affecting the index level. The committee would, if it could, introduce these new items in a different manner from the linking procedure usually followed for such innovations. It apparently feels that consumer acceptance of a new product as demonstrated by a readjustment of purchasing patterns to permit expenditures for the new item indicates a higher level of consumer satisfaction. This is taken by the committee to mean that, in fact, consumers have enjoyed a drop in prices which should be reflected in the index. This is a concept which rests on subjective considerations, and while theoretically appropriate for a cost-of-living index, is inappropriate for and difficult to apply in price index making.

There is some flexibility in adjusting the sample of items priced between major revisions, even within the framework of the present CPI procedures. Thus, during the past year, compact cars, eight new food items, liquid detergents, and a number of drugs were added or substituted for older products. The BLS is now thinking of considerating the index weights fixed and immutable—except at times of major index revisions or under serious emergency conditions—at some classification higher than the product-class level. Within the "fixed categories" the BLS would retain freedom and flexibility to resample items and redistribute internal weights as conditions require. This would overcome some of the difficulties of dealing with new products and is in accord with the PSRC recommendations. The implications of such a weighting diagram, however, will have to be evaluated carefully.

If the sampling plan for selection of items for pricing in the CPI is on a probability basis (as suggested by the report and currently being developed for the revised CPI), then new products must be introduced into the pricing list within a probability approach. The extent to which new products are reflected in the index, thus, would depend upon the frequency of the comprehensive resampling of items and the relative importance of the new items in relation to the whole list of products on the market.

As a part of continuing research on index number methodology, the BLS should have the resources to compile price series on new items both at wholesale and at retail early in the history of these items, and to analyze these price movements in relation to their growing importance and to price trends of competitive and substitutable items. Such series would then be available for index use when needed, and would provide the kind of information required by technicians who are interested in the new products problem.

In commenting on the introduction of new items into the WPI the committee report states that "the increased coverage of the Wholesale Price Index, therefore, had the effect of making the index, and hence the economy, appear to be more stable than it would have under the previous coverage." These observations were based primarily on an examination of two major WPI revisions, in 1931 when the number of commodities was increased from 550 to 784 items, and in 1952 when the number rose from 900 to about 1,900. These situations reflected

the fact that the economy had been producing a greater proportion of fabricated finished goods through the decades, a situation that was coming about rather gradually, but that was not originally taken into account in the weighting diagram for the WPI. When resources become available for an increase in the scale and scope of price data collection for the WPI at the time of the two major index revisions, the sample was substantially increased by introduction of items in the finished goods category whose prices tend to be relatively less inflexible than those of semiprocessed and raw materials. Also, at the time of the 1952 weight revision, the basic system of weighting was changed to include by imputation the weights of all items considered to be within the scope of the WPI universe.

The BLS now adds some WPI items annually (and deletes others), but such additions constitute merely a change in the imputation pattern, and the effect on the index depends upon the difference in price movement between the new items and the priced items to which their weights had been allocated previously. The BLS recognizes that extensive work to expand item coverage to fill many of the large gaps still remaining in the WPI, especially in the capital goods area, might affect the movement of the index to some extent. This is on the assumption that highly complex capital goods may have different price behavior from the machinery items currently priced for the index to which they have been imputed. The desirability of adding new items in this area can be demonstrated so clearly, however, that it should be encouraged, even at the expense of some loss of comparability before and after such expansion.

SAMPLING

The Committee's report and staff paper No. 5 have provided many constructive suggestions on sampling, particularly in the application of replication sampling. Although replicated samples have been discussed in the theoretical literature, the use of replicated samples in index number work has not been formulated before. We are learning, however, that in application, sample replication imposes many difficult practical problems and involves some serious implications in terms of costs.

The BLS agrees with the Committee's emphasis on probability sampling. From the beginning of the current revision program, the BLS has expressed the intention of using probability sampling methods to the greatest possible extent throughout the various stages of the index. The city sample for the revised CPI has already been chosen by a probability method, namely the controlled selection design.[14] The BLS is now exploring the possibility of extending the probability method to the selection of items for pricing and the sample of outlets. Difficulties are being encountered in this work, owing to the absence of suitable sampling frames for items specified in detail, i.e., below the "general" item designation, and for outlets selling particular merchandise lines in the localities where collection of price data will be centered.

Probability sampling procedures have been applied in significant areas of the CPI in the past. The last major revision of the food outlet sample was made in 1947 on the basis of OPA lists of stores. Probability principles provided the basis for the design, except that some compromises were necessary to reduce data collection costs. Lists from the Bureau of Old-Age and Survivors Insurance (BOASI) probably will be used as the basis for a new probability design for outlet samples in the current revision. It should be noted that a probability design can be applied to food outlet sampling more easily than to other types of outlets because of the relatively large number of quotations secured for each food item priced, and the fact that almost the complete list of items is priced in each sample food outlet (except for the small number of specialty food stores in the sample).

For a number of years, the rent data have been collected from a sample of households selected via a multistage probability design. Within the past year, the collection of data for home property taxes in 20 large CPI cities has, likewise, been based on data for a sample of owner-occupied homes selected in a probability framework. Other elements of housing cost that are now being priced through a probability sample of reporters are water rates and mortgage interest charges. The recent expansion and revision of the sample of doctors in the large cities likewise, has, been based on probability design using registers of doctors in each area as the frame.

---

[14] See the "Revised City Sample for the Consumer Price Index," Monthly Labor Review, October 1960.

The BLS would like to observe that, while statistical agencies and the economics and statistics professions in general accept probability sampling as the desideratum, the advantages of this approach are not as well understood by the public at large. For example, many local interests, official and otherwise, exerted pressure upon the BLS to include their cities in the new city sample for the CPI. The advantages of probability selection over purposive methods were not obvious to these persons even after considerable explanation. Each could see his own area as important and significant and could not see why another area, chosen by a method akin to gambling, would be a superior choice for inclusion in the city sample. The same problem exists in the case of probability selection of items for pricing. Particular industries and firms may not be able to understand a random selection of items, some of which are relatively unimportant.

A probability sample of retail outlets is difficult to achieve in practice. The basic sampling material needed—a complete listing of stores with information on the type of merchandise handled, sales volume, etc.—is difficult and costly to acquire. Once established, an outlet sample is difficult to maintain on a probability basis as firms go out of business, refuse to cooperate, or drop out of the sample for other reasons. The BLS is actively exploring various sources of information, however, and hopes to adhere as closely to probability principles as circumstances permit. Indications are that it will be impossible to use either the Census of Business or the Census Bureau's Monthly Retail Trade Report data as frameworks for the sampling. Even if the listings of establishments were in suitable form and detail, Census regulations on confidentiality of establishment information would be an obstacle. Another approach being explored is the use of BOASI establishment lists.

The primary objectives of modern statistical practice are twofold: (1) to produce accurate estimates (2) to be able to evaluate the precision of these estimates. The fact that index number makers have apparently lagged in this respect is no accident. Because of the enormous complexity of the index mechanism in a comprehensive index such as the CPI, with its many layers of sampling, the conventional methods of estimating error have never been attempted by any major index compiler. We agree with the Committee that the use of replicated samples seem to offer the most promise for the estimation of the index "error", provided the necessary limitations of definition of such an "error" are carefully stated and understood by users.

The BLS is considering incorporating some provision for replication in the revised index structure, although, after analysis, it may be necessary to conclude that the error estimates are inadequate for publication. The Committee implies that replication could be introduced without any substantial increase in present costs. This position can be supported for a limited program of replication which would provide only a measure of error in the U.S. index for all items, and perhaps major groups (even here there likely would be some increase in costs). The Bureau, however, is also interested in estimating the components of sampling error to help in guiding the allocation in resources. The Committee also emphasizes the importance of the latter use, but overlooks the fact that programs geared to produce the data needed on the components of error (e.g., items, outlets, cities) would require a major expansion in budget. Prices for additional commodities would be required, samples of outlets for many items would have to be enlarged, and there would be a substantial increase in processing costs.

If a measure of error derived from replicated samples is to be published relating to the U.S. index or any city index, it will have to be carefully explained and qualified. Such an estimate of error would not correspond to a conventional sampling error, since it may be some time before all of the data for the CPI can be compiled in a strict probability framework. It would include not only sampling errors, but also the effect of nonsampling errors, such as interviewer, clerical, and processing errors, etc., which are essentially random in nature. In this respect it would be closer to a total error figure, and this is a desirable feature. It would not reflect any biases inherent in the index mechanism, since these would be present in all the replications.

In other ways, too, the replication-derived error figures inevitably reflect the index mechanism itself. For example, although the U.S. CPI is published every month, not all items are priced every month in all cities. A measure of the error in the monthly change in the index via the replicated sample approach would depend, therefore, not only on prices actually collected, but on the tech-

niques used to carry forward the index market baskets of the unpriced cities.[15] If a relatively uniform method is used for all such cities, the resulting uniformity would be reflected in the error, which would tend to be understated as compared to the variation that would be observed if all cities were priced each month. Thus, the figures on error would have significant limitations, and could be misleading or misunderstood, even when accompanied by a careful statement of their limitations and proper use.

If index procedures are changed, this may result in a change in the error figures that gives no indication as to whether the end result has been an improvement. For example, if pricing is extended to the suburbs rather than being concentrated in central cities (with no increase in sample size), it is conceivable that an increase in the computed error could result. Nevertheless, the expansion in pricing would be desirable in that the results would be more representative of the entire universe the index purports to cover. Thus, present index procedures, which are dictated by budgetary limitations, may result in an unduly optimistic estimate of the precision of the index. The ideal solution, of course, would be to accompany the expansion to the suburbs with an increase in pricing, which would compensate for the increased variability in the universe being sampled.

The Bureau agrees with the PSRC on the importance or procedural error and the desirability of reducing or eliminating it. The BLS staff, however, thinks of procedural error as bias resulting from faulty procedures in one phase of the index operation or another. Thus, consistent use of the linking procedure in a period of rising prices would be a procedural error contributing a downward bias to the CPI. Restriction of the data on residential property taxes and water rates to the central cities of large metropolitan areas (until recent expansion of data collection to the suburbs) was likewise a procedural error contributing a downward bias.

The Committee's remarks on procedural error seem to be based on the notion that the actual set of procedures adopted for a particular index is one of many alternative sets of procedures that might have been adopted and which have given different index results. The Committee thus looks upon procedural error as something akin to the sampling error of possible index results which would be generated by the alternative procedures. However, once a preferred index procedure is decided upon, it is not logical to think of procedural error in the sense of sampling error. The errors that then concern the indexmaker are the biases that result from imperfect application of the defined procedures.

Since our approach to the problem of procedural error is somewhat different from that of the Committee we are not prepared to accept the Committee's conclusion that resources should be diverted from sampling cities, items, and outlets to the reduction of procedural error. In fact, some of the procedural errors that most concern the BLS result from an inadequate sampling base in some phases of CPI operations. Thus for economy reasons samples of outlets in the large metropolitan areas are in the central cities, and for some items are generally concentrated in the downtown section. Department stores are a disproportionate part of the outlet sample for particular items. Nationally branded items are represented more heavily than they should be in the sample of items priced for the CPI. Thus, additional resources which would permit more representative sampling would help reduce procedural error. Of course other types of procedural error of a nonsampling type should meanwhile not be neglected.

The proposal for rotating samples represents a somewhat radical departure from traditional Laspeyres procedures. There is some question as to the meaning that could be attached to an index constructed with a rotating sample of commodities, and the BLS would like to study the conceptual implications and operational problems at some length before expressing an opinion on its value. If the resampling is to be done within a probability framework, it would be necessary to have current information on consumption patterns. Otherwise, this rotation would not achieve one of the Committee's primary objectives, i.e., prompter introduction of new items. Such consumption data are usually available only by means of the comprehensive type of consumer expenditure surveys, since production figures usually are not available in the detail needed.

---

[15] The index market baskets for all cities in the sample have to be repriced each month, either by direct pricing or by estimation, to produce a properly weighted month-to-month price change. The present technique is to carry forward the market basket for unpriced cities by either of two methods: (*a*) on the basis of price trends in the five largest cities, or (*b*) by holding prices constant between the quarterly pricings. The two methods are about equally important.

Another suggestion of the Committee is that the CPI be made less city-oriented. The chief objective of the BLS in the preparation of the CPI is to develop the most accurate and best possible national index. However, the city or metropolitan area is the logical primary sampling unit for use in obtaining consumer expenditures data and in pricing commodities, so that, to a large degree, city indexes are byproducts. In addition, the uses of the individual city indexes are so important as to warrant the relatively small additional costs involved in obtaining them. Among these important uses are the development of family budgets and intercity cost comparisons, which are fundamental in research into levels and cost of living. In addition, the city indexes are used in important metropolitan collective-bargaining situations.

To some extent the BLS has provided for the objective of the Committee, i.e., more flexibility in the number of cities priced for different items, by its plans for supplemental pricing for certain items beyond the basic CPI revised sample of 50 cities. However, the major implication of the Committee's recommendation for less emphasis on cities in the CPI is that some items need be priced in only a part of the new 50-city sample; others in the full sample.

If this recommendation were carried to its logical end, a different city sample for each item would be required dependent on the intercity variance of the individual item. Such a system would be extremely difficult to control operationally. Likewise, the savings would in all probability not be significant. In most outlets BLS agents now get price quotations for a whole list of items. Reducing the list by even one-third, would affect costs to only a minor extent, since the major cost element is the visit to the establishment itself.

The Committee's conclusion that deemphasis of city indexes would permit less intensive sampling in each city overlooks some very important limitations to reduction of the size of the outlet sample. Some reduction might be feasible for foods and rents, but for other items, the BLS generally collects only four prices per city, and most of these (except in the five largest cities) are on a quarterly basis. Therefore, the national index level for these items may be based on prices from less than 200 outlets in any quarter, or about 75 percent quotations in any month.

An aspect of cost that must be considered in this context is that operations in each locality should be on a sufficiently large scale to permit cost efficiency while maintaining a trained staff. Costs per price quotation would go up considerably if BLS personnel had to travel to each place from a central regional location for only half the number of price quotations now secured.

SEASONALITY AND SEASONAL ADJUSTMENT

The PSRC treats three aspects of the seasonality problem in constructing price indexes: (*a*) computation of seasonally adjusted indexes; (*b*) maintenance of price series for seasonally disappearing items; and (*c*) variation in seasonal consumption weights. It strongly urges publication of seasonally adjusted indexes and, in effect, would give them "top billing" over the unadjusted indexes. Retroactive correction of the off-season prices implicit in the index imputation procedures is recommended by interpolation between the previous end-of-season price and the first price available for index computations for the next season. The Committee has no solution for the problem of variation in seasonal consumption weights, but favors further research on the possibility of developing some acceptable system of seasonal weights (in lieu of average annual weights).

The PSRC holds that "the major purposes for which price indexes are used—examination of cyclical and longer term price movements, wage and price escalation, and deflation of the national product and other important value series—are best met by seasonally adjusted indexes." The BLS recognizes the usefulness of seasonally adjusted series. It has spent considerable effort this past year, for example, reviewing and revising techniques for seasonally adjusting the employment and unemployment series; but has hesitated to publish the price indexes on a seasonally adjusted basis.

Aside from the fact that there has been very little demand from users of the price indexes for seasonally adjusted data, the Bureau's hesitation stems partly from a very practical consideration. There is so little seasonal variation in the composite CPI that the advantages to be gained by having the data available on both an unadjusted and adjusted basis would seem to be outweighed by the disadvantages of the confusion this would engender. The purposes for which those engaged in analyzing economic trends may prefer seasonally adjusted indexes may best be served by providing a set of seasonal adjustment factors computed

on the basis of past trends. Analysts can then make their own computation of seasonally adjusted price indexes.

It seems unlikely that, as the Committee suggests, the seasonally adjusted indexes would be more appropriate for contract adjustments and for collective bargaining than the unadjusted indexes. A superior technique for parties to wage contracts would be to tie escalation clauses to quarterly or semiannual index averages rather than to the data for a particular month. Use of such averages would smooth out some of the minor erratic and seasonal fluctuations of the index and thus, to some degree, serve the purpose of the Committee recommendation for use of seasonally adjusted indexes. Seasonally adjusted indexes are not favored for this purpose because their computation would introduce some additional statistical uncertainty and thus would provide another element for dispute and argument between the contracting parties.

The procedure for adjusting current data for seasonal variation involves first the computation of a set of monthly seasonal adjustment factors going back perhaps 10 years or more. The seasonal adjustment factors chosen for current use may be projections of the seasonal factors for the most recent years, or may be the seasonal factors for the last previous year, or the average of the factors for a number of selected years.

One of the difficulties with any currently used procedure for seasonal adjustment is that every additional year of actual data introduced into the seasonal index computation changes to some degree the seasonal factors for the immediately preceding year or years.

The implications of the above remarks for contract adjustment are obvious. Parties to contracts that had been adjusted on the basis of the originally published seasonally adjusted price indexes would not feel they had been given an equitable adjustment if a year later the revised seasonally adjusted indexes turned out more in their interest. Of course with the employment and unemployment statistics important policy decisions might have been made on the basis of the originally published estimates that would not have been made on the basis of the estimates as revised a year later. The difference between the two situations is that policy decisions relating to employment and unemployment are usually based on a trend of data over a number of months and, by the nature of the computations, the errors of estimate due to seasonal adjustment procedures would tend to balance out over time. Many contracts, however, are escalated on the basis of data for individual months, and would often be affected by retroactive changes. The contracts would probably not provide for reconsideration of adjustments already made. Nevertheless such revisions would weaken the confidence of the contracting parties in the objectivity of the escalation process and lead to friction.

The fact that the amount of seasonal variation in the composite CPI is small poses special problems in the proper utilization of seasonally adjusted indexes. Whether or not the seasonally adjusted index changed in a particular month, or even the direction of the indicated change, could well depend on the choice of computation method, as well as on the period covered by the seasonal analysis. For example the BLS has two sets of seasonal index computations for the composite CPI, one based on the census Univac method, and the other based on a revised technique developed in the BLS and currently used for seasonally adjusting the employment and unemployment monthly statistics. For 1958, one technique produced seasonal indexes of 100.1 and 99.9 for September and October respectively; the other technique produced indexes of 100.1 for both these months. Thus, one technique showed a seasonal decline between September and October, the other technique stability. When two accepted techniques produce results that differ by 0.2 seasonal index points, the question arises as to whether the existence of seasonal trend has been sufficiently well proven to justify seasonal adjustment of the data.[16]

The problem stated previously can be reformulated in terms of the range of error associated with a particular estimate of a seasonal adjustment factor. From the computations of monthly seasonal factors by the BLS method, the standard error of any seasonal factor for the all-items CPI is found to be 0.1.

---

[16] It should be noted that the data used for the two analyses differed by a 9-month period at the current end of the series so that a difference in time span contributes to this discrepancy as well as a difference in method. However, going back enough years to discount the effect of differences in length of series analyzed in each case, there are several discrepancies of 0.2 points and more discrepancies of 0.1 seasonal index points.

This implies that each estimated seasonal factor has a range of error of plus or minus 0.2 seasonal index points (with 95 percent probability). In 1960, of the 11 months for which the CPI changed, six month-to-month changes were 0.1 index points and three changes were 0.2 index points. Thus the range of uncertainty about the computed value of a seasonal adjustment factor is as great or greater than the actual monthly change in the CPI for 10 of the 12 months of 1960.[17]

There are technical problems that require considerable study before a satisfactory method of seasonally adjusting the price indexes could be developed. For example, in seasonally adjusting a statistical series for a composite of several subgroups, one has a choice between seasonally adjusting the series as a whole, or adjusting the component series and combining the seasonally adjusted component series to derive the seasonally adjusted composite series. When the component series show markedly different seasonal behavior and may differ at times in their importance relative to each other, the second approach is desirable. When the component series shows an irregular and poorly defined seasonal trend, the best procedure may be to seasonally adjust the composite series directly. In the case of unemployment statistics, for example, the procedure was changed this year so that seasonally adjusted unemployment totals are now prepared separately for four classes of unemployed.

There are additional complications in the case of the CPI beyond those faced in other economic statistical series. The series making up the CPI are not all based upon the same statistical procedures; special characteristics of components of the index call for individual treatment. Thus in a footnote to its report the PSRC commented on the special nature of the price series for new automobiles which would require specific handling in any seasonal adjustment process. Before a satisfactory technique could be developed for seasonally adjusting the CPI, considerable study would have to be devoted to this problem and others in the index. Thus, it cannot be taken for granted that the techniques already developed are suitable for seasonally adjusting this index. The unpublished seasonal factors the BLS is now using and has supplied to the National Income Division of the Department of Commerce for deflating the GNP are in the nature of rough measures, based upon already available techniques, for purposes of assisting in analysis and gross statistical adjustments.

For reasons such as those discussed above it may not be possible to follow very soon the Committee's recommendation that seasonally adjusted price indexes be published on a current basis. However the Bureau has been studying the problem for some time, and intends to compute seasonal factors for selected price index series. These will be available to the general public for economic analysis and to the National Income Division for deflation of the gross national product.

The problem of seasonally disappearing items is closely related to the problem of variation in seasonal consumption weights. If there were a satisfactory technique for producing an index with variable seasonal weights there would be no problem with seasonally disappearing items: prices would be needed for these items only for the seasons when they are available on the market and no extrapolation would be necessary in off-season.

Various techniques for producing price indexes with variable seasonal weights were considered when the CPI was revised in 1952–52.[18] No technique was found that did not have more disadvantages than advantages. Neither the Committee report nor the staff paper on seasonality suggests any approaches that have not already been tried.

The problem of seasonally disappearaing items must then be considered in the context of an index with fixed annual weights, and in the framework of the unadjusted price indexes, which will continue to be published even if seasonally adjusted indexes also become available.

With respect to the Committee's recommendation that "* * * final estimates for disappearing items should be based on interpolation between the dates of disappearance and reappearance," the Bureau's reasoning is that no price exists for items not available in the market, and, therefore, it is more appropriate that prices for such items be linked out of the index or held constant until the next pricing, as at present. If the Committee's recommendations were followed and

[17] This comparison could be made more rigorously by computing the standard error of the month-to-month change in monthly seasonal adjustment factors. This would, however, only strengthen the argument made above.

[18] See Doris P. Rothwell, "Use of Varying Seasonal Weights in Price Index Construction," Journal of American Statistical Association, March 1958, pp. 66–77.

interpolation estimates were made, these fictitious price changes would affect the monthly movements of the groups in which the seasonal items were contained and possibly of the overall index.

CONSUMER DURABLE GOODS

The committee's assertion that the weight assigned to such durable goods should reflect the net purchases of new and used items by the index group from other groups in the society seems to stem from the welfare approach. The Bureau feels that this recommendation has no relevance with respect to the CPI, but might be a suitable area for investigation if a welfare index is considered. The function of weights in the CPI is to assign appropriate importances in averaging changes in prices of goods and services purchased by the index population. It is not relevant, in the context of the CPI structure, that the used commodity purchased belonged formerly to a member of the index population. On the other hand, netting of such purchases might be appropriate in the development of a deflator index for the personal consumption expenditure series of the national accounts.

The committee's recommendation on treatment of mortgage interest illustrates the importance of defining the concept of the index clearly and maintaining this concept consistently throughout the index structure. The PSRC report ties the question of home purchase costs to the general subject of consumer durable goods and describes two different approaches for dealing with them in a consumer price index. The first of these, termed "the purchase method of dealing with durable goods," is the CPI method. The Bureau believes the present procedures applied to home purchase costs and mortgage interest are consistent with the concept that treats housing and housing costs as the purchase of durable goods.

Monthly payments on mortgages both for principal and interest correspond to installment payments and interest on transactions completed in some earlier period. The transaction is considered to be completed at the time of original sale when prices were determined, and not when installment payments are made. Thus, the price for mortgage interest is the price for the total amount of interest contracted for at the date of home purchase, and the change in interest for the index is the product of the change in market value and in the interest rate for new loans on new and existing homes.

The report recommends, instead, the use of "average interest rates on all outstanding mortgages." The Bureau recognizes that mortgage interest is a fixed cost to the existing homeowner and a factor in that individual's cost of living. However, holding mortgage interest for existing homeowners constant is not valid for an index defined as a measure of price changes of goods and services purchased currently. In other words, the CPI measures how much more it would cost today than in the base year to buy the index market basket and not how much more it costs the average family to live.

The committee would substitute the use-cost approach for the purchase approach for owned homes only. As the report points out, the imputed rental value technique cannot be used for items of durable goods other than housing. The specific recommendation to substitute rental value of owned homes for the price of new houses would present an especially serious problem, particularly in the application of the technique suggested—to derive rental value from rentals of houses similar to those that are owned.

Not only in this limited area does this recommendation call for a welfare oriented index, but more importantly in this case, it fails to take full account of the characteristics of the housing market. Housing of homeowners is distinctly different from rental housing, particularly in large metropolitan areas. It is almost universally in single-family structures, relatively few of which are available for rent in most cities. The relatively few single-family homes that happen to be on the rental market at any time in cities or metropolitan areas would tend to differ markedly from the universe of homes owned by the index population—they would be older, on the average, with fewer amenities, of lower average value, and in unrepresentative neighborhoods. Owned homes are concentrated in the suburbs, in middle-income neighborhoods of metropolitan areas, or within small cities, whereas most rental housing is in multifamily structures in large central cities or in garden apartments in the suburbs. Owned homes are more spacious, with more amenities, and of greater value, by and large, than rental housing.

REVISION AND CORRECTION POLICY

The Bureau has already commented in its earlier discussion of institutionalization of the indexes on the committee's criticism of BLS publication and correction policies. The BLS approach takes a practical middleground both from the point of view of users and from the point of view of operational problems. It would be costly to follow the committee's suggestion for retroactive correction and publications of all errors, no matter how insignificant, that are discovered or reported in the months (and years) subsequent to original publication of the data.

Aside from publishing corrections to take account of discovered errors in data reporting, the committee cites two situations particularly which require retroactive correction of indexes. The suggestion for retroactive interpolation to secure off-season price estimates for disappearing items is one. Prices of seasonally disappearing items move sharply from the beginning to end of season, and with reintroduction of the item the actual price is significantly different from that at the end of the previous season. The committee describes this as a "break". The Bureau staff prefers to use the term "break in series" to indicate a discontinuity in the sense of a different item being priced, different techniques of measurement, or different sampling procedures which invalidate comparability. This is not the case with seasonally disappearing items.

The second situation for which the committee recommends retroactive correction of indexes arises out of the BLS system of collecting some prices for the CPI on a quarterly cycle in all cities smaller than the top five. In the months between the quarterly pricings, the weights for these cities are imputed from the price movements in the five largest cities where all except a few items are priced monthly. (See footnote 15). Retroactive correction for the unpriced months by straight line interpolation would not contribute as much to the validity of the index as several other methods which are in operation or due to be tested soon by BLS. Monthly pricing of an expanded list of selected items with frequent price change is now underway. An improved method of extrapolation from the last quarterly price report is in the planning stage. In addition, a system of backpricing is being developed for testing. This plan involves obtaining the date of reported price changes, so that more data would be available on which to base the month-to-month trend.

The PSRC report recommends that an index be produced annually (with monthly data for the past year) independent of the currently published CPI, in order to take account of data and corrections received too late for the current monthly indexes. At other points in the report the committee envisages the annual index as the vehicle for introduction of various estimating techniques that stem from a cost-of-living conceptual base, or from improved techniques for factoring out quality change.

A hybrid index incorporating in some segments, techniques and adjustments oriented both to a price index and a cost-of-living index would be ambiguous; the index would be neither a price index nor a cost-of-living index. A price index incorporating corrections and data not included in the current monthly series would be almost identical with the latter, since all significant corrections are made as revisions to the monthly indexes as soon as the corrected or additional data are available.

Retroactive correction to include off-season price estimates of seasonally disappearing items and to correct the trends for quarterly-priced cities has already been discussed above. The committee indicates, in addition, however, that some data from other Government sources might be available retroactively and could be introduced in an annual index. Careful study of sources over the years, however, have failed as yet to reveal any, but this study will continue. In the examples cited by the committee (rents, medical care, and sales data from the monthly report on retail trade), the data are not usable for a price index in the form in which they are collected by other Government agencies.

INSURANCE AND TAXES IN THE CPI

The Committee recommends that life insurance should be included in the CPI weighting structure with a weight corresponding to the expenses and profits of life insurance companies in a manner analogous to the way in which it is handled in the national income accounts. The BLS recognizes that some part of life insurance premiums represents expenditure for current insurance service, as distinct from savings) and as such should be included in the index

coverage. An attempt was made during the 1952 index revision, to define the service cost element in insurance premiums so that it could be factored out of the total outlay for life insurance. If an appropriate weight for insurance could be established, it was proposed to price some form of term insurance for a man of average age in the amount that could be purchased with the average annual premium payment.

However, no satisfactory way was found at that time to define the cost-of-insurance service in a manner that would be consistent with index concepts and procedures. For example, the question of whether company costs of maintaining reserves should be included in the weight, as well as operating costs and profits, was not answered satisfactorily. Nor was it clear whether or not the face value of the priced policy should remain fixed or be escalated to maintain a constant level of purchasing power. In the face of such unresolved problems the Bureau decided in this earlier revision to exclude personal insurance from the revised index.

It should be noted that total life insurance premium payments were included in the index weight structure from 1918 to 1939, but not priced. The problems attached to the treatment of insurance in the CPI were contemplated in the 1940 revision and it was decided then to consider life insurance as savings.

In the current revision program, the Bureau is again reviewing every aspect of this problem in detail to discover whether a satisfactory solution can be reached. The recommendations of the Committee will be given serious consideration.

The Committee raises some questions about the treatment of nonlife insurance in the CPI. It appears to the Bureau staff, however, that current BLS practices are correct. The premium payments are included in the weighting structure for both automobile insurance and medical care, for example, but any services for which the insured gets reimbursement through his policy are excluded. Considerable information on insurance, and on services paid for with insurance reimbursements, is requested in the current surveys of consumer expenditures. If the data are reported adequately all the information needed for correct weighting of insurance and associated elements of the index will be available.

The Committee comments cautiously, and without presenting any recommendations for changes in present procedures, on the problems and techniques for reflecting taxes in the CPI. The BLS agrees with the Committee that there are defects in present procedures and that changes in Government tax policies can affect the CPI without changing the services available to consumers from Government. The Bureau is very careful to indicate that the CPI when used as a deflator for consumers' income should be applied against disposable income. In fact the Bureau publishes a monthly release on net spendable earnings of a worker with no dependents and one with three dependents computed after deductions of social security and income taxes. The data are presented on both a current-dollar and constant-dollar basis; i.e. deflated by the Consumer Price Index.

SPECIFIC RECOMMENDATIONS CONCERNING THE WPI

The Bureau agrees with the Committee that steps should be taken to develop a comprehensive system of price indexes covering the whole range of nonretail prices. Data collected for the present Wholesale Price Index would, of course, be the foundation of the enlarged system.

It should be noted that the combination of the Consumer Price Index and the proposed system of nonretail price indexes would still leave a gap. The Consumer Price Index is restricted to retail prices paid by consumers and does not cover prices of items sold by retail establishments to commercial, industrial, or institutional purchasers. It may be that the Committee equated the word "retail" with "consumer" and implicitly included such nonconsumer retail prices in the nonretail index area.

The above point should be explicitly provided for by an index of prices representative of all items sold in retail establishments, and to all classes of customers. The Office of Business Economics of the U.S. Department of Commerce formerly compiled an approximation to such an index using data assembled from the Consumer Price Index and Agricultural Marketing Service data collections, and several other sources. No original collection of data was made specifically for this index. To achieve the Committee's objective for a comprehensive measurement of price change throughout the economy it would be necessary to

collect price data for nonconsumer types of goods sold in retail establishments and for consumer type goods sold to institutions, governments, and commercial and industrial establishments.

The BLS believes that it would be desirable to classify and weight the price data according to an industry-sector structure. The data currently compiled for the WPI could be classified this way. In fact, the BLS starts with the industry and product classifications of the Census of industries when it periodically reexamines the WPI weighting structure. On file in the Bureau is a detailed cross reference of Census—Standard Industrial Classification and WPI commodity codes accounting for the entire dollar volume of industry shipments of the base period.

The input-output schemat suggested by the PSRC would be ideal as the framework for a price-index system. The BLS has in fact reclassified the WPI data and computed quarterly sector output price indexes on several occasions. The first time this was done was in connection with its 1947 interindustry relations study. The sector price indexes originally covered the period 1953 and 1954. These indexes were later brought up to date and corresponding sector indexes on an input basis prepared for use in developing sector net output estimates in constant dollars for productivity analysis. The sector price indexes have not been published because the coverage of some sectors is spotty and there is excessive imputation not only as between commodities and industries but also as between commodities at different stages of fabrication and different distributive and use channels.

To implement the recommendation on development of input-output based sector price indexes would require not only a broadening of the input-output work now going on—the Office of Business Economics is currently constructing an interindustry table in a 70-sector classification—but also a tremendous expansion of the collection of industrial price statistics. Even within the WPI scope there would have to be a considerable expansion both to fill the gaps and to provide industrial detail. The collection would have to be sufficiently comprehensive to provide detail on differential prices paid by the various consuming industries. Likewise, data would be needed for prices at different levels of transactions and stages of distribution. Price data collection would have to be improved or initiated outside the scope of the present WPI. This expansion should be made in the area of transportation costs, construction activity, foreign trade, and Government purchases—all mentioned in the PSRC report—and also for a diverse group of business service industries which are becoming increasingly important.

If an input-output oriented system of price indexes were developed, the additional expense of continuing to publish a Wholesale Price Index on somewhat the same basis as the present would be relatively small. The decision as to whether to construct this index could be made at the appropriate time with reference to requirements of users and need for historical continuity. The argument for preserving a historically continuous series is, of course, weakened by the changes in the index as the collection of price data becomes more comprehensive even for the same universe average.

While the BLS endorses the sector approach in principle, it is well to point out some problems in connection with it. One difficulty is that, depending on the use to be made of the index, net output or input weights may not be appropriate. Thus, as the Committee has noted, the BLS cooperated this past year with the Census Bureau in developing a set of price indexes on a 5- and 4-digit SIC basis covering the years 1954 to 1958. The Census Bureau specifically requested that the weights include the value of interplant transfers (which are now excluded from the WPI weights), because their purpose is to use the indexes to deflate the values of total sector production whether or not transferred from one plant to another within the same corporate structure. On the other hand, the PSRC recommendation for net sector indexes would require removal not only of interplant transfers but other kinds of intraindustry transfers of commodities.

A second difficulty in using net sector price indexes is implicit in the previous remark. Each time it is desired to aggregate the price data to some summary sector basis it is necessary to refer to a table of input-output transactions to derive the new weights. Shipments between subsectors of the new combined sector must be netted out. In contrast, under the WPI system, or under the Census industry system, the weights for higher order sectors are derived by simple addition of the component weights. Thus, an economic statistician who wishes to construct a combination index according to his own criteria as to what commodities or industries should be placed together, can easily do so from published

price indexes for WPI items and their corresponding relative importances as of given dates.

The present WPI is predominantly an index of sellers prices. In some commodity areas, as the Committee points out, the prices reported to the BLS tend to be list prices and do not adequately reflect the short run price movements. It should be noted, however, that series which the Committee cites for comparison with the WPI (such as bids on Government purchase orders) are for purchases by special classes of purchasers, for quantities which are not typical of the usual transaction, or for variations of the commodity built specifically to the purchasers' designs and differing from the standard generally sold.

In recent years the Bureau has been making more intensive efforts to secure reports of realistic market prices and can claim partial success. In some cases, however, reporters persist in reporting list prices despite reliable indications in the trade press that price changes are occurring. Companies report to the BLS on a voluntary basis and some reporters apparently fear that the data they supply might be used for regulatory or other nonstatistical purposes. Of course these reporters have nothing to fear in this respect since the BLS never reveals individual establishment or company data reported in confidence. The BLS is developing plans for special research to determine how extensively reported prices deviate from actual transaction prices and the significance of these deviations for short-term and long-term price measurements.

The PSRC recommends substitution of buyers' prices for sellers' prices in the WPI, for general application. The Bureau considers that statistics on buyers' prices would be useful and should be collected periodically on a special project basis for those commodity areas in which the difficulties of getting reliable sellers prices are most acute. The Bureau did, in fact on several occasions, consider such projects but because of cost considerations and other higher priority projects these proposals were allowed to lapse.

While data on buyers' prices would be useful, the limitations of this approach, particularly as a substitute for a sellers' price series, should be understood. Collection of price data from buyers would not automatically insure solution of all the problems now faced in getting realistic prices from sellers. For example, in some industries price adjustments to buyers are made retroactively on the basis of the cumulative volume of sales during a stipulated period. The invoices would not reveal the true facts and it would be difficult, even retroactively, to secure information on these discounts and to allocate them properly against the original prices paid. Likewise financial assistance is sometimes given by sellers to buyers for advertising and other purposes. This should be considered an offset to prices paid but it would be difficult to get the necessary information from buyers and to allocate these as offsets against the whole list of purchases made by a buyer from the same seller. Accurate prices from either sellers or buyers depend also on obtaining and adjusting for special extras that are often given in lieu of a price change, but information about these is exceedingly difficult to obtain.

The BLS has had some experience in the collection of buyers' prices. In 1942 series of buyers' prices for 8 selected items of steel mill products were prepared. Data were obtained from a sample of purchasers representative of consumers of this class of steel. The series covered six time periods. Significantly, there was a suggestion in this study that for relatively short periods, because of stresses and strains in the economy, invoice prices varied from the published lists (the prices at which steel mill products are quoted), but the situation soon became adjusted and invoice prices and published lists were comparable.

Experience with this study indicates that purchase price series would be expensive to compile. Since purchases of a single item by any large consumer may cover many conditions of delivery, quantity, and payment, and variations of specifications, it was necessary to visit personally manufacturers and examine numerous invoices. (A minimum of 1 man-day per company visit was required.) To measure the price change of the 8 items included in the study and to cover all of the major uses of these items, it was necessary to obtain data from 629 manufacturers, representing 11 main categories of consumers. Thus, a program for collection of buyers' prices would be very costly and probably could not be conducted on the kind of monthly or quarterly timetable which would be necessary to provide current statistics on short-term price changes.

In addition to the task of selecting from among the numerous invoices the purchases which meet the index specification, there is the problem of securing cooperation of buyers. For this one-time study the BLS operated under cover

of the mandatory reporting requirement of a control agency. While the BLS is in favor of such studies, it is not sure of the degree of cooperation that companies will extend on a voluntary basis.

The BLS views with concern the suggestion that unit value prices can serve as suitable substitutes for specification pricing. The PSRC recommendation appears to stem from the belief that Census material will yield a body of data for a large group of homogeneous products from which valid unit-value-price trends can be computed. The Bureau staff does not think this is the case and bases its conclusions on rather extensive research comparing unit values and WPI prices for the years 1947 and 1954. Even without such research, examination of the seven-digit SIC product categories for which unit values can be derived indicates they are too broad to eliminate changes in product mix.

Unit values are affected by changes in product mix which can prove misleading even if a narrow definition of "product mix" is employed. For example, one might be led to use unit values in lieu of prices for a homogeneous commodity like cane sugar. If changes in packaging occur, so that a greater proportion of sugar is sold in smaller packages selling at higher prices per pound than sugar in large packages, the unit value index would rise but the specification prices would be unchanged. Similarly, if the price of common brick (another fairly homogeneous commodity) varies geographically and the relative production in each region changes over time, the unit value index would change even though no change occurred in brick prices in any section of the country. There is more to economic homogeneity than the physical or chemical composition of a product. Unit values are influenced by physical specification mix, geographic mix, various kinds of transactions, discount terms, markets, etc.

Unit values, used as deflators of shipments data, result in a production index which is affected by quality change. The fact has led the Census Bureau to consider the use of Wholesale Price Index data as value deflators in certain instances in which the quality of physical output is known to have improved. Deflation of values by fixed specification price series yields production indexes which rise faster than indexes based on a simple count of units during periods when quality is improving. Use of unit value indexes would not provide the necessary adjustment.

There are a number of other reasons why unit values can differ from price indexes. For example, a comparison was made of the WPI price movement for certain canned fruits against changes in unit values in 1954 as compared with 1947. The study revealed that the fairly large differences first evident were greatly diminished when can size was taken into consideration. The indication is that specification pricing should cover a greater variety of can sizes—not that unit values are a good substitute. This example and many others show that unit values can often be used to reveal areas in which more needs to be done in the pricing program, but are seldom desirable for introduction directly into a price index number.

THE CONSUMER PRICE INDEX—TECHNICAL QUESTIONS AND PRACTICAL ANSWERS[1]

(By Sidney A. Jaffe, Bureau of Labor Statistics, U.S. Department of Labor)

INTRODUCTION

The daily flow of correspondence received by the Bureau asking for information on our procedures, criticizing the Consumer Price Index, demanding explanations of its movements and questioning its accuracy is a continual reminder of the public interest in our work and of the importance of the statistics we produce. When the index starts to rise, the retailers challenge us to prove it because, they insist, their prices have not gone up. When we report lower food prices and the index falls, the housewives scoff at us for not knowing the facts of family living.

At the same time, we are subjected to a continuous crossfire from the experts, the statisticians, economists, market researchers, and others who use the index in various ways for analytical purposes. One of the surprising aspects of our critical audience is that so many of them have no conception of what the CPI really is. And this misunderstanding is not confined to the statistically unini-

---

[1] Paper presented at the annual meeting of the American Statistical Association, Washington, D.C., December 1959.

tiated—housewives, retired military officers, and retail store proprietors. Some members of our own statistical profession have revealed a remarkable lack of knowledge about the figures they criticize. Or when they do have that knowledge they sometimes criticize the index because they differ with us about what the index should measure.

In this paper I shall attempt to answer some of the questions, technical and otherwise, most frequently raised about the Consumer Price Index. My answers will of course be limited by the fact that we haven't found solutions to all the questions raised both within and outside the Bureau. Needless to say we welcome all the help we can get in finding practical answers to our problems.

It is a well-known principle in the index field that every index number is related to a specific question or problem. There is no index number that serves all purposes and answers all questions. The CPI is designed to measure only one thing—the change in prices of goods and services paid by families of urban wage earners and clerical workers to maintain their level of living. Many of the questions about the index arise from a misunderstanding of the index and an attempt to interpret it as something that it is not supposed to be. At the start, therefore, it might be well to explain what the CPI is and also explain what it is not.

DEFINITION OF THE CONSUMER PRICE INDEX

The title, "Consumer Price Index" was adopted in 1945 as a substitute for the more popular term "The Cost of Living Index."[2] This was done at the suggestion of a special committee of the American Statistical Association appointed at the request of the Bureau of Labor Statistics to review and evaluate the index. In testimony before a committee of Congress, Ewan Clague, Commissioner of Labor Statistics, explained the rationale of the name change and described the index in the following words:[3]

"A cost-of-living index, as defined in contemporary economic thinking, is an index of the change in the cost of maintaining the same or an equivalent standard of living from one time to another, or from one place to another. The key to this concept is in the word 'equivalent.' Properly speaking, what distinguishes a cost-of-living index from the more narrowly defined price index is that in a cost-of-living index we would try to measure the changes in the cost of an equivalent market basket of goods and services whereas in a price index we try to measure the same market basket."

But the term "cost-of-living" is very commonly interpreted even more broadly to comprise what one newsman has called the cost of better living. At another point in his testimony Mr. Clague noted that the error in this reasoning "is the notion that either a price index or a cost-of-living index is intended to measure changes in costs of living that arise from changes in standards of living. Usually when people live better, when they buy more or better goods and services, it costs more. This kind of change would be reflected in an index of family expenditures, but not in a price index or a cost-of-living index." Furthermore," Mr. Clague continued, "while it would be possible to make an index of family expenditures, the use of such an index to adjust wages would lead to the circular absurdity of saying, 'The more I spend the more the index will go up, and the more the index goes up, the more I'll have to spend.' "

It requires only a few additional sentences to describe the fundamental character of the Consumer Price Index. The population group to which the index refers is the aggregate of families of city wage earners and clerical workers. In structure the index is of the Laspeyres type with weights representing typical expenditures of the defined population group in a base period. The prices entering into the index calculation are transaction prices corresponding to types of transactions which actually take place in the markets patronized by the index population.

At another point in Mr. Clague's appearance before the same congressional committee he said that while the Consumer Price Index is not a cost-of-living

---

[2] The current title "Consumers' Price Index for Moderate Income Families in Large Cities" is short for "Index of Change in Prices of Goods and Services Purchased by City Wage Earners and Clerical Worker Families To Maintain Their Level of Living." Before the change in name the full title of the index was "Changes in the Cost of Goods and Services Purchased by Wage Earners and Lower Salaried Clerical Workers in 1934–36" and the shortcut substitute the "Cost of Living Index." Although the former short name did mislabel the index, the earlier full name was perfectly clear in describing the index as a price index.

[3] House Doc. No. 404, hearings before a subcommittee of the Committee on Education and Labor, House of Representatives, 82d Cong., 2d sess., p. 391.

index a "well maintained price index has been found to be a good approximation to a cost-of-living index." This is because changes in prices are the most important factors affecting the cost of living. Because of this fact the index is generally accepted as an approximation in lieu of a real cost-of-living index as for example its use in the escalation of wages in collective bargaining contracts.

You may prefer to depart from Mr. Clague's definition of a cost-of-living index and consider it more generally as the price component of a value change, the values compared being the expenditures of consumers at different points of time. The question to which this leads is whether it is possible to measure directly the price component of the expenditures change instead of its approximation, the change in a fixed basket.

If a way can be found to develop a price index for the comparison of all the prices embodied in two different expenditures aggregates regardless of the fact that the expenditures aggregates at the several points of time have different compositions and represent different levels of living and technology, the price index can be considered a form of a cost of living index. To develop such an index operationally requires either finding a unit through which several expenditures aggregates can be compared pricewise, e.g., some kind of utility equivalence numeraire, or computing the price index indirectly via a prior computation of the complementary quantity index. The latter suggestion too would necessarily involve some utility equivalence numeraire and leads to nothing of practical consequence; the same index problems must be solved in constructing the quantity index as would be faced in constructing a price index directly.

Several theorists have attempted to overcome this impasse by formulating index numbers which include fictitious prices for noncomparable items in the expenditure aggregates being compared.[4] If this could be done it would represent a great breakthrough in index number methodology. Index number computations could be based on all the items in the relevant universe or sample and not on just those that stay unchanged from one period to the next. Thus it has been suggested that an item present in one period but unavailable in the period being compared should be represented for the second period at "the lowest price which will keep every individual from purchasing the commodity." This is a concept easier to visualize with respect to a Laspeyres index than with respect to a Paasche index. In the first case we would need to devise fictitious prices for items which have disappeared from the market, in the second instance for prices of items which had not appeared on the market in the earlier period.

The suggestion is made that these fictitious values can be perhaps derived by evaluation of quality or performance differences. However, it seems to me that at least the same information is required as is needed for the usual conventional approaches to price comparisons, so it is hard to see how we would be better off.

While the idea just outlined is an interesting one and I would like to see it explored through special studies to determine whether it offers anything of practical value, I doubt that it is a solution to problems we face in producing the CPI. Fundamental to us is the fact that the CPI is used primarily by nonstatisticians and so it must be relatively straightforward and simple in concept if it is to have general acceptance. Even if the concepts just outlined could be implemented by measurement processes acceptable to statisticians, I doubt that these concepts would be acceptable for use in the official price index. Thus we believe that the index must continue to reflect prices of real transactions and must be defined in the practical terms presented by Commissioner Clague.

The familiar chain index technique has also been suggested as a means of bridging the price measurement gap between two different expenditures aggregates a number of years apart. By making a series of binary comparisons between adjacent years, a chain index will be able to encompass within its price comparisons all but a small percentage of the items included in the expenditures aggregates. The direct comparison of first and last year expenditures via either Laspeyres or Paasche weights, or some average set of weights, leaves out of the index computation prices of a much larger number of items in the expenditures being compared over the long run.

The above advantage of a chain index sometimes leads to the thought that a chain index solves the problem of price comparisons when old items drop out of an index and new items come in. This is not so; a chain price index is still

---

[4] Irving Siegel, "What Concepts Are Appropriate to Consumer Price Indexes?" Journal of Farm Economics, May 1956. Also Kenneth J. Arrow, "The Measurement of Price Changes," compendium of papers submitted by panelists appearing before the Joint Economic Committee, Joint Economic Print, 85th Cong., 2d sess.

a price index which compares for each link in the chain prices of a set of comparable items. Dropouts and replacements by new items still engender the same price comparison problems as in a fixed weighted index except for one important advantage the chain index offers. A chain index facilitates the introduction of new items in the following sense. New items can be introduced into the index with the small weights which (generally) correspond to their importance at time of introduction. This minimizes the dislocation in the index that results from other expedients that would be employed to introduce the item into index computations. In subsequent links of the chain, legitimate prices are available for this item so that increased weight results in no further distortions of the index.

If a chain index offers such an important advantage, why doesn't the BLS adopt this approach for its CPI? The first explanation is that the data necessary for the recomputation of weights as frequently as the chain index approach demands are not available. There are no censuses or surveys that make available data on expenditure of consumers each year, every other year, or even every fifth year. In fact, there is no regular time schedule for this kind of data collection. Consumer expenditure surveys are undertaken at infrequent intervals when the BLS can convince the Congress of the need for such data to refurbish the CPI. While we would like to see these surveys established on a regular basis, a timetable of annual or biennial surveys on a sufficiently comprehensive basis for use as CPI chain weights is too utopian a vision to consider seriously.

The suggestion may then be made that weights for a chain index be developed by updating the index weights on the basis of secondary date. Gross National Product statistics are the obvious data for this purpose. However, anyone who has studied the important changes made in the detailed composition of GNP statistics at the time of benchmark revisions cannot seriously consider such a suggestion. The CPI is too important an index for us to consider weight revision on the basis of variable benchmarks. This is no reflection on the GNP statistics. What both need, however, are more and better basic data.

Perhaps the more serious obstacle to use of the chain index approach in the CPI stems from major uses of the index. Labor and management groups who use the index in collective bargaining and for escalation of wages, for example, find the present system of revision of weights at intervals of a decade or so more convenient than frequent revision. Also the concept of an index based on a fixed basket of purchases is an easy one for labor leaders particularly to explain to their constituents when they agree to use of the index for wage escalation. A chain index on the other hand is a strictly mathematical concept that cannot be rationalized in terms of a concept as easy to understand as the fixed basket. I must admit that the latter consideration would weigh very heavily with the BLS even if satisfactory data could be made available for chain index weights.

SAMPLING

Statisticians who ask how well the CPI measures the price movements of the wage-earner's basket of purchases often have in mind the precision of the index in terms of its sampling error. I must regretfully answer them that while we believe the CPI provides a measurement of price change sufficiently accurate for practical uses, we are unable to supply a statistical measure of its precision. Before going on with the reasons for this, I would like to state further that I don't consider this lack terribly important. The idiosyncrasies of the price data are far more significant in determining the character and accuracy of a price index. I am afraid that a measure of sampling error that ignored the problems of price measurement and comparison would, by giving a wrong impression of accuracy, defeat its own purpose.

The CPI is built upon a series of samples. The primary sampling units are the cities in which we sample households for determination of weights and measurement of rents, or outlets for collection of prices. The selection of items, and of varieties and qualities of items, is still another mode of sampling. Completing the index structure is a sampling in time, since we collect prices in different cities and for different items at different intervals. Aside from the selection of the cities there are few features of the index where the Bureau has been able to apply systematic sampling. The principal exception where probability sampling is applied are in the selection of households for the consumer expenditure surveys which supply the index weights and in the sample of rents for which we use a probability cross section of households for our data.

The selection of outlets in which we price, in particular, presents difficulties to a probability approach. Except for foods we are able to obtain only a relatively few quotations per item. Yet we would like these to be representative of different kinds of stores in the various locations (central city, neighborhood, suburban) in which index families shop. We have had to achieve these objectives largely by a judgment selection.

Since the probability sampling is so generally accepted as desirable, its honoring in the breach calls for some explanation. Given unlimited resources it would probably be possible to establish probability sampling procedures for all components of the Consumer Price Index. However because of the wide scope of the index, the diversity of elements that must be sampled, and the complexity of the marketing situations in which prices must be gathered, there is no practical probability sampling approach that can be applied with present resources. This does not mean that we at the Bureau ignore the statistical principles of sampling. They are applied to the extent that is practical and are always held forth as guides to our day-to-day sampling decisions.

COVERAGE

Another question often raised is how much of what people buy is covered in the index and how the items for pricing are selected. The typcial family may buy 3,000 or more items in the course of a year; we obtain prices on a sample of about 300 specific commodities and services. The selection of the item for pricing was made in two stages. First, all items which accounted for 1 percent or more of consumer expenditures as determined in the BLS benchmark surveys were considered for pricing. Then, on the basis of the Consumer Expenditures Survey results and special price studies all expenditure items were grouped into families of related commodities or services which had similar price trend characteristics. The most important item in each price family was then included in the index sample. The value weights of the unpriced items were imputed to the items selected as representative. The weights and imputations have remained relatively unchanged since the latest revision of the CPI completed in 1952. Obviously changes in spending patterns, market practices, and products during the past 8 years have altered these relationships somewhat. A complete review of the sample and the imputation system will be made as part of the major revision program which we will undertake during the next four years.

In the meantime, how have changes in products and expenditures affected the validity of the index? Critics of the index often exaggerate the importance of items and weights because they forget that the index is a measure of change, not levels. Insertion of new products or shifts in weights does not necessarily affect the index to any marked extent. Currently, for example, we are being questioned about the new compact automobiles. If they are not included in the sample, it is argued, the index will fail to reflect the true price situation. They are lower in price, it is true, but they are a different item and we have no reason to believe that the price trends for the small cars will not conform to the trends shown by the standard models.

There is, of course, another aspect of this problem. If buyers generally shift from high-priced big cars to lower-priced small cars a change occurs in the basic structure of expenditures. But such changes in spending patterns are constantly occurring in some degree. Here we face a dilemma. If we revise the items and their weights frequently it is difficult to define what the index means. As a practical matter, therefore, we use what is essentially a fixed market basket over the period of years between the general index revisions. This provides a meaningful measure of price trends over relatively short periods of time, perhaps ten years or so. Over very long periods, however, the whole complex of products and services changes to such an extent that a fixed base price comparison is obviously impossible. There is nothing today comparable in all respects to the wheat, oil and wine which formed the basis for the first price index, and there's nothing we can do about it.

PROBLEM OF SEASONALITY

Another troublesome aspect of the question regarding the representativeness of the market basket is the seasonal variation in consumption. Weather and custom are the important factors influencing seasonal consumption patterns. Form the standpoint of demand, people use different things in warm weather than

in cold, and their buying is influenced by habits and holidays—preschool, Christmas and Easter purchasing, for example. As to supply, we are all aware of seasonal change in the availability of fresh fruits and vegetables and the effect this has on prices. Because of such variations the question may be raised whether seasonal items are correctly handled in a fixed basket index number.

Most of the foods subject to seasonal variation in supply are in demand throughout the year. The existence to year-round demand for seasonal items has induced many technological developments to overcome off-season shortages. The canning industry, frozen foods, air-freight, and the development of cold-resistant plant varieties are examples. These efforts have resulted, over a long period, in a considerable diminution in seasonal variation in consumption.

Nevertheless, many foods are regularly in very short supply during certain months of the year and their price movements reflect this. In fact, some of the items in our CPI sample are, for all practical purposes, not on the market at some periods. Peaches, strawberries, and watermelons are examples. In the BLS index when these fruits are off the regular market, their weight is imputed to the movement of other priced items in the same group for which prices can be obtained.

Undoubtedly, seasonal factors cause changes in a family's cost of living. But the price comparisons in a price index should be based on comparable items. However, various alternative methods are possible based on a breakdown of annual weights according to the normal seasonal pattern of consumption. These alternative formulas provide a year-to-year index with seasonal quantities as weights. Interpretation of the monthly index movements is complicated, however, and involves more than a true price comparison. Thus, the Canadians use a formula of this type which builds into the month-to-month index a comparison of expenditures at current prices for the varying quantities of seasonal items in the index market basket. A method suggested by a BLS staff member, in effect deflates the Canadian-type expenditure comparison by a quantity index weighted by average annual base period prices.[5]

I must confess, however, that this emphasis upon the seasonal consumption problem is not so much because of its basic importance as because of embarassment in explaining erratic movements of the CPI which are the result of seasonal items moving in and out of our sample. Anomalies such as occurred this past summer when watermelon prices helped the CPI to break new ground cannot be completely eliminated. They could be minimized, however, by a larger item sample in which there would be less opportunity for nonpriced items to be imputed to items which may be affected by short supply. However, our sample of some 300 items is large for a price index such as ours and is satisfactory also if users of the index take a reasonable attitude toward minor movements.

In the criticisms of the index for its failure to take account of seasonal variations in consumption there is an implied judgment regarding quality equivalents. Thus, we are reminded that the average housewife buys less steak and more hamburger when meat prices rise, but we continue using the fixed weight distributions for these items. Her food costs may actually decline, although the food index shows an increase. This we do not deny, because, as we repeatedly point out, ours is a price and not a cost of living index. Presumably the family obtains less satisfaction from the hamburger than from steak or it would always consume the cheapest type. This brings us to the last, and most difficult question, that I will consider, the question of how quality changes affect index computations.

PROBLEMS OF QUALITY CHANGE

Quality can be defined in several ways. It may be described in physical terms: type of material, size, color, flavor, weight, calorie content, etc. Variations in quality may be indicated by performance: miles per gallon, speed, or length of life, ease and/or expense of repairs. In addition, buyers apply many purely subjective tests in judging quality, such as style, prestige value, etc. In a sense, of course, the ultimate measure of quality lies in the consumer's subjective evaluation. He assesses the value of the good in terms of the satisfaction it provides. And this is the crux of our problem.

Collection of data for the CPI is based upon the principles of specification pricing. In order to insure that we are pricing the comparable items from

[5] For a comprehensive review of the various methods see Doris Rothwell's article "Use of Varying Seasonal Weights in Price Index Construction," Journal of the American Statistical Association, March 1958.

month to month and from city to city, a list of the significant characteristics of each item is set forth for the guidance of our pricing agents. The quality determining elements of the specification are established in discussions with manufacturers, merchandisers, and buyers. Generally the specifications include more information pertaining to the quality or intrinsic value of an item that our field agents can in practice apply in selecting items in the stores for pricing. Our experience has often been that the store owners and buyers are not sufficiently acquainted with their merchandise to answer our detailed questions on specifications. Nor can our agents, well trained though they are, uncover all the facts regarding quality and conformance to specification by a personal inspection of the merchandise; e.g., the "innards" of a TV set.

Our greatest difficulties with specification pricing arise primarily from product changes and the failure of our specification mechanism to provide a measurement of the dollar worth of new items as compared with the items they replace. This has led to criticisms somewhat along the lines of the following syllogism: (*a*) with technology on an upward trend, this year's products are better than last year's; (*b*) the BLS compares prices of this year's products against last year's; (*c*) therefore the BLS price index is biased upward. The missing link in this logic is the BLS price index mechanism.

There are varying practices employed in the Consumer Price Index for the comparison of prices when products change. For example in the case of automobiles our practice has been to substitute the new model car for the previous model, assuming no quality change except for those features which affect some easily observed difference in operational characteristics and for which a value can be determined. Usually such changes involve the incorporation in the standard model of some feature which had formerly been offered as an extra. Thus, for example, if backup lights had been offered as an extra-cost feature at $25 on last year's model but are included in the quoted price for the new model, we would assume a quality improvement worth $25 in the new model. If last year's model was introduced at $2,500 retail, without the backup lights, and the new model with backup lights comes in at $2,600, we would show a price increase of $75, unless there were other added features similar to the backup lights. In such a comparison we would make no allowances for such changes as greater length or more wrap in the windshield, because we have no objective standard by which to determine the relationship between quality and price for such features.

The practice of making direct price comparison between new items and their counterpart old items would seem to lead to some bias, as in the automobile component of the index. Among the many changes in automobiles, however, not all, certainly, can be considered unqualified improvements. Some "improvements" have been abandoned because they were found to be unworkable, too costly to maintain or not of sufficient appeal to the car buyer.

Where information on the effect of quality changes on prices or costs is available the Bureau attempts to adjust the prices being compared to an equivalent quality basis. The use of cost information in this context is considered an expedient of not much more than minimum acceptability for approximating the market value of a quality change. In the absence of information on price and cost differences due to quality, the BLS uses either direct comparison procedures, as in the automobile example, or linking procedures. The first procedure, on the assumption of higher quality, introduces an upward bias in the index. The linking procedure on the other hand by introducing a new item at the index level of the old item which it replaces can be presumed to cause a downward bias when the price trend is upward.

The quality problem has many aspects and even the simple case of the substitution of new items for old has a number of variants. Very often the new items may vary only slightly from the items which they replace in the index, both old and new items in fact satisfying the original pricing specification. In this case there is more likelihood that the prices of new items will be compared directly with prices of old items than that they will be linked in. When the new item falls outside the specification range generally the new price would be linked in at the former index level. There are exceptions to this. When enough information is available on quality changes the prices would be directly compared, often after adjustment to an equivalent quality basis, whether the new price was within or outside the specification range. In some cases, too, new prices within the specification band are linked in rather than compared directly if it seems clear that the change in product, though minor, was primarily due to quality change rather than price change. What complicates these decisions,

of course, and prevents index making from falling into a nice clear-cut routine is the fact that generally changes in items involve both a change in price as well as in quality. Sellers may mask a price change by redesigning the product.

My remarks may have implied that quality is conceptually measurable, even if in practice measurement is difficult or impossible. This is not the case. Quality is often something subjective or personal, as in the case of women's hats, or taste in foods and drinks. No objective standards are available, for example, to determine just what constitutes a premium beer, unless one wished perhaps to use advertising outlays as a criterion. Are the differences between the various cola drinks a matter of quality or a matter of taste? Since the formulas and kept secret, the objective criterion of manufacturing cost is not available, and would it be appropriate even it it were? What the BLS generally does in these cases is to price by brand name and not make price comparisons across brands. This is all right until there is a switch of brands; then, in the absence of a basis for price comparison, the new brand price is linked in at the former index level. When prices are on the upgrade such a procedure has a downward bias, but no other available method seems preferable.

The price of nationally advertised men's shirts recently advanced almost universally from $4 to $4.25. The former price of $3.95 (the $4 price was in effect for only a short time) had been a feature in the industry for 8 years. This is an example of the sale of standardized items on a "price line" basis. This practice is especially prevalent in apparel but can be observed also in foods, household equipment, and other groups of commodities. Pricing such items for the CPI seems superficially to be simplified by this practice. The price of a $4 shirt is $4 especially if fair trade practices are enforcible. However, this means ignoring the quality problem. As costs rise, manufacturers, if they are to maintain their price lines, must make up their cost increases somehow, and sometimes do this at the expense of quality. This rarely is measurable, so that in a period of rising costs, price-lined items introduce a downward bias in the index. The reverse is true when prices are in a downtrend; then there is an upward bias due to price lining. Fortunately, these bias do not operate continually. Sooner or later there must be a realinement of prices and the real price situation is reflected in the index. Of course the price lines often become so scrambled when this readjustment takes place that it becomes next to impossible to make the appropriate price comparisons for the index.

To illustrate some further elements of quality change that are difficult to measure, consider the case in which guarantees may be eliminated, or the privilege of individual selection curtailed, or free installation no longer offered. In some instances the basic price may be unchanged, but conditions may be attached which raise the price for selected customers. In all of these situations attention only to the basic price or rate is not enough for a fair price comparison. Whenever feasible, the BLS attempts to estimate the proportion of customers affected, the value of the service added or deleted, and thus to measure the overall value of the items on the new basis.

Sometimes the quality change is not in the item itself, but in the packaging, or in the manner in which it is sold. Such developments have been especially common among foods. Where the change is minor as in the case of packaged tomatoes, prices are compared directly. If the form of a food changes drastically, as when frozen foods were introduced, the new forms are brought into the index by linking. Should the only change be in the size of the package, price comparisons are made on the basis of price per equivalent physical unit. There are counterbalancing biases in all of these procedures; no one type of bias seems to stand out.

One of the suggestions made on how to handle the quality problem would turn the CPI from an index of changes in price of transaction units to an index of changes in cost per performance unit. Applying this suggestion to the measurement of the price of tires illustrates the difficulties, both operational and conceptual. Thus to get the cost per tire mile of existing tire makes might be feasible, if costly, but presents insurmountable problems with respect to new tire makes. Since we can't wait to price tires until there is sufficient data accumulated on their performance we would be forced to accept engineering and test records as the basis for measuring potential road performance of new tires. We all know that there is some question as to how realistic a measure of performance we could get from such an approach.

The suggestion for a cost measurement taking performance into account has been made recently in connection with medical care. Here the criticism is that while the index measures the increased costs of a day in the hospital, or of a

visit to the doctor, it fails to reflect the more efficient treatment that modern medical practice has to offer. An illness may be treated by superior drugs which cost more, but also cure more; a stay in the hospital may be shortened by more efficient diagnosis and treatment. In other words, the price of a particular item or service may be up but the total cost of an illness down.

The preceding remarks lead to an often made proposal that we measure the cost of an illness rather than prices of individual items and services. The suggestion has considerable merit and I would like to see it developed as an alternative measure of medical costs. I do not see, however, that it can be fitted into a transaction price index such as the CPI. Consider where this approach leads. The next step might be a food index based on the cost of feeding an individual or a family for 1 week, or a clothing index geared to the total cost of clothing the same individuals for a stated period, etc. This approach fits in better with the methodology of a cost-of-living index than with a price index.

Since there is so much speculation on the effect of quality change on the index I should like to close with my own appraisal. In computing the CPI many price comparisons are made each month since the index covers 300 items priced in 46 cities. There is no easy way to provide a quantitative measurement of the effect on the index of BLS procedures for making price comparisons. My previous remarks have illustrated the fact that there are doubtless many offsetting biases. The biases that get most of the public attention are the upward biases that arise from price comparisons of new and old models of cars and appliances. The weights of such items, however, represent only a small part of the index. Downward biases as the result of linking procedures affect items with at least an equally important segment of the index weights. There are downward biases also for prices of price-lined items, although after some time these biases tend to correct themselves. In other areas of the index, as in the medical care component, implications that there are upward biases of price measure seem to stem from a conception of the CPI as other than a price index. In summary looking at the problem of quality bias strictly from the point of view of methodology I cannot conclude that the handling of quality changes in the CPI biases the index upward.

Senator DOUGLAS. Now, Mr. Stauber, you are going to talk about the agricultural price indexes.

STATEMENT OF B. R. STAUBER, CHIEF, AGRICULTURAL PRICE STATISTICS BRANCH, STATISTICAL REPORTING SERVICE, U.S. DEPARTMENT OF AGRICULTURE, ACCOMPANIED BY BYRON S. PETERSON AND ROGER F. HALE

Mr. STAUBER. Mr. Chairman, I should like to thank you for the invitation to appear before you and present our views on the report on Government price statistics prepared by the Price Review Committee of the National Bureau of Economic Research.

The Department welcomes this report as a substantial contribution to the general subject of Government price statistics. The type of analysis and study which the Price Review Committee of the National Bureau of Economic Research has devoted to the subject is a constructive undertaking, bringing to the subject, in addition to the views of those who are professionally engaged in maintaining the indexes, the viewpoints of other professional and academic specialists.

Critical observations gained from serious examination by qualified analysts represent a constructive influence which those preparing the indexes do not take lightly.

We want to express appreciation to the national bureau committee and its staff for the time and effort taken in becoming familiar with the indexes.

We are in general accord with most main conclusions as presented in the summary, page 21 of the report. In section I of the summary under the heading "All Indexes," the recommendation that "schedules of periodical revisions of weight should be adopted" expresses an objective we firmly endorse. We sincerely hope that it may be possible for a definite revision schedule to be adopted and adhered to in the future. Regular revisions every 5 years are greatly to be desired. Even periodic revision at intervals of 10 years or less would be an improvement that we would endorse with enthusiasm.

With the second recommendation; namely, that "probability sampling should be used, so that the precision of the index can be measured," we are in accord in principle. We recognize the advantages of probability sampling, even though we are cognizant of difficulties which remain to be surmounted before such a system can be adopted in its entirety.

To clarify this point, it is appropriate to consider separately the two aspects of the use of probability sampling which the committee distinguishes later in the report, namely:

(1) in the sample design for the collection of price data from original sources;

(2) in the selection of the particular list of commodities to be priced from the total list of commodities sold or bought by farmers.

With respect to the first aspect, exploratory work has been underway for about 2½ years in a special project in Ohio looking to the more extensive use both of probability sampling and of enumerative data collection. The critical problem is one of relative cost, since application of a strict probability sampling design would necessarily be more expensive than the procedures upon which we have been relying for most of the data.

Closely related is the method of actual price collection—the mail questionnaire as against personal enumeration. The mail questionnaire is much the cheaper, but involves problems of nonresponse (which may introduce bias) and problems of accuracy of reporting. Enumerative methods generally reduce nonresponse to a low level and facilititate securing more reliable information.

Senator DOUGLAS. Which method do you use?

Mr. STAUBER. Most of the data in the prices received and prices paid indexes are derived from mail questionnaire. We have been experimenting hopefully with the enumerative approach.

Senator DOUGLAS. But your index is based primarily on the questionnaires?

Mr. STAUBER. Basically, yes, but it is supplemented——

Senator DOUGLAS. How many farm families do you cover on these indexes?

Mr. STAUBER. Our price data, Mr. Chairman, are derived basically from dealers who sell to farm families, and we do not secure the data on prices from the farm families.

Senator DOUGLAS. And then prices received by farm families. Where do you get those?

Mr. STAUBER. Those are collected basically from dealers who buy farm products from farmers.

Senator DOUGLAS. Would those be elevators?

Mr. STAUBER. It would include elevators. It would include other types of dealers as well.

Senator DOUGLAS. Could you not take the wholesale figures of the Bureau of Labor Statistics for meat, wheat, oats?

Mr. STAUBER. No, sir; we do not take them.

Senator DOUGLAS. Why not?

Mr. STAUBER. Because the wholesale price figures which arise from the Bureau of Labor Statistics are basically——

Senator DOUGLAS. Are taken in the cities?

Mr. STAUBER. Yes, sir—are basically prices in central markets, whereas farmers sell basically in their local markets.

Senator DOUGLAS. You take local elevators then?

Mr. STAUBER. Yes, sir.

Senator DOUGLAS. You take a local elevator, not a Chicago or a Minneapolis elevator?

Mr. STAUBER. That is right; yes, sir.

Senator DOUGLAS. What is this? I see someone shaking his head.

Mr. PETERSON. I believe that the chairman suggested that we sample at Minneapolis or at Chicago.

Mr. STAUBER. I think I interpreted your question to say in confirmation of my statement that we used prices from local elevators rather than prices at Chicago and Minneapolis. And that is correct.

Senator DOUGLAS. That is correct?

Mr. STAUBER. Yes, sir.

Mr. PETERSON. Yes, sir.

Senator DOUGLAS. What about meat prices?

Mr. STAUBER. Those are based again on prices from local dealers and some considerable extent in some of the central markets within States and auction markets scattered around the State.

Senator DOUGLAS. When you say "auction markets," auction markets for sale to retailers or ——

Mr. STAUBER. No.

Senator DOUGLAS. Purchase markets from farmers?

Mr. STAUBER. Markets where the farmers sell their livestock which go out into trade toward the retail market.

Senator DOUGLAS. What about vegetables and fruits?

Mr. STAUBER. Those again are secured basically from the initial buyers of the product.

Senator DOUGLAS. So your fruit index would not be the prices of these fruits in New York——

Mr. STAUBER. No, sir.

Senator DOUGLAS. But of apples in Wenatchee and Hood River and oranges in California and Texas, Rio Grande, and Florida?

Mr. STAUBER. That is right. That is correct.

Senator DOUGLAS. And lettuce?

Mr. STAUBER. Yes, sir.

Senator DOUGLAS. All right. Would you continue?

Mr. STAUBER. The second aspect of this problem—that is, of the use of probability sampling, as discussed by the committee—relates to the selecting of the particular list of commodities to be priced. Now, this presents a more imposing list of obstacles, as the committee itself brings out on pages 39 to 44 of its report, where it states, and I quote:

> Although the committee recommends that every effort should be made to use some appropriate form of probability sampling in the selection of each

sample that enters an index design * * * it recognizes that the sampling of goods and services poses an especially difficult problem.

We agree that there is some theoretical basis for this procedure. It is, however, relatively new in concept, the technical literature is not extensive, and the problems connected therewith have not been explored sufficiently, either theoretically or practically, to permit a firm judgment at the present time.

We concur in the view that the matter should be explored carefully.

We are in general agreement also with the third recommendation; namely, "New commodities should be introduced more promptly." The means adopted for accomplishing this will require consideration of whether substitutions are involved or whether additional items can be afforded.

Senator DOUGLAS. Before you turn from that, what is your idea of the meaning of "probability sampling"?

Mr. STAUBER. Well, "probability sampling" basically means selecting a sample in such a manner that each element in the population being sampled and each combination of "n," where "n" is the size of the sample, has an equal or an assignable probability of being selected.

Senator DOUGLAS. Now, this has nothing to do with errors of measurement?

Mr. STAUBER. Well, it is related in a general way, but it is involved in the assignment, if you please, of the precision of the resultant average which you get from the selection of the sample.

In statistical parlance——

Senator DOUGLAS. There are two issues here. One is whether the sample of measurements is representative of the universe of measurements, and then whether the measurements themselves correspond to reality.

Now, in the statistical work in the past you get standard errors which to my mind have confused the two concepts.

Mr. STAUBER. Both problems are involved in our work in collecting information. We believe that by using the enumerative approach it is possible to reduce at least the errors of reporting, which is the problem of the agreement with reality.

Senator DOUGLAS. In your experiments for comparison of enumerative reporting and questionnaires, do you find random errors in comparison of the two methods or systematic errors?

Mr. STAUBER. I would say, Mr. Chairman, that we find both.

Senator DOUGLAS. But which predominates?

Mr. STAUBER. Well, we find some situations in which one predominates and other situations in which the other predominates.

Senator DOUGLAS. Just offhand, if you get your reports on prices received by prices paid by dealers, from the dealers themselves, rather than from the farmers, my offhand opinion would be that the dealers would tend to exaggerate the prices which they pay and that the farmers would tend to minimize the prices which they receive. This may be a somewhat caustic view of human nature.

Mr. STAUBER. I think our experience would lead us to take a slightly more generous view of the reporters. We feel that by and large they do a reasonably accurate job. There are some areas where we get into more difficulty than others, but generally speaking our experience has led us to have a quite high regard for the veracity of our reporters.

Senator DOUGLAS. You say the prices paid by farmers are derived from those who sell to farmers?

Mr. STAUBER. Yes, sir.

Senator DOUGLAS. And prices received by farmers are derived from those who buy from farmers?

Mr. STAUBER. Yes, sir.

Senator DOUGLAS. And now you say in effect that in experiments which you have made with enumerators in the same area that you find no bias——

Mr. STAUBER. I would not go quite so strong.

Senator DOUGLAS. Among the farmers themselves. You find no differences between their statements of prices and the statements of prices by those who buy and sell from and to them?

Mr. STAUBER. I did not mean to say that we have collected prices from farmers. Getting prices from farmers is a rather difficult operation.

Senator DOUGLAS. You enumerate from the dealers themselves?

Mr. STAUBER. Yes, sir.

Now let me amend one thing I said. Some of our prices received list probably do include some farmers, but basically these prices are collected from dealers.

Now, there is one tendency which dealers may reflect, and that is to tend to report the better grades of the commodity, and that I think is not done with malice aforethought but because they tend to represent the quoted or board prices of a commodity.

Senator DOUGLAS. The point you mention is a very interesting one. Some years back I used to read the quotations on hogs, for example, "hogs so much." Now, if you look at the hog market you find a range of hogs, less than 160 pounds, hogs 160 to 220, hogs 220 to 260, hogs 260 to 300. Sows—and so forth and so on, an infinite variety of hogs.

Mr. STAUBER. Yes, sir.

Senator DOUGLAS. How do you meet that problem, by linking as the Bureau does?

Mr. STAUBER. No, we meet that problem by making comparisons of our data which we get from our regular questionnaire with the data which we refer to as "cost to packer" data, which are based on sales to packing buyers for the purposes of packing, and we are able to make certain adjustments which help us, we believe, to stay closer to the truth.

Senator DOUGLAS. Well, I ran into this in some of the campaigns which I have had in farm districts. Someone would always get up and quote a price on hogs of the supergrade hog or supergrade cattle and say these prices are very good. But upon close examination you would find that there were very few farmers who had supergrade hogs or supergrade cattle, and that these top grade prices therefore did not represent the actual prices which the farmers received.

Mr. STAUBER. That is the reason that we direct our attention to estimating the average price that farmers receive.

Senator DOUGLAS. By the average quantity or numbers in these various categories?

Mr. STAUBER. It is an estimate, Senator, of the average price. We do not have the full data to say that we do it 100 percent, but that is our target.

Senator DOUGLAS. That is very good, and I congratulate you on that.

Do you do the same thing with eggs?

Mr. STAUBER. Yes, sir.

Senator DOUGLAS. What do you do with apples?

Mr. STAUBER. Our prices received generally are estimates of the average price that farmers receive for the particular categories involved. Now, in some cases they are broken down into subcategories. In milk, for example, we have a price series on the price for milk sold for fluid consumption and another series for the price of milk sold for manufacturing.

Senator DOUGLAS. The second price is very much less than the first price?

Mr. STAUBER. Considerably less.

Senator DOUGLAS. Even though the milk itself might be identical; isn't that true?

Mr. STAUBER. In most cases the milk is not identical because the milk——

Senator DOUGLAS. If they were identical, is it not true that the price frequently varies?

Mr. STAUBER. Well, I would have to go back and say that generally the milk is not identical, because the milk for fluid consumption must meet certain sanitary regulations, whereas those regulations are somewhat less stringent for the other milk.

Senator DOUGLAS. Is it not true that you have a combination of forces which keep off the fluid market of the cities, milk market of the cities, milk which could qualify but which compels this milk to go to butter and cheese at a lower price? Isn't that true?

Mr. STAUBER. I think that that is true, Senator, but our price series relates to the milk that is produced and meets only the qualifications for the manufacturing category. At least that is our objective, and we think we achieve it with a high degree of satisfaction.

Senator DOUGLAS. It is not your job to cure all the evils of the milksheds of the country, but I think if you could get a comparison or publish a comparison between the prices which dairy farmers get for milk sold as fluid milk and milk sold to creameries and cheese factories it would be a very startling thing, because a great many of the so-called cooperative marketing agencies have closed memberships, or comparatively closed memberships, or closed memberships in cooperation with city bureaus of health.

Mr. STAUBER. Well, it is true that in many of the large markets milk which does meet the sanitary requirements for the fluid market goes into the pool from which some milk goes into the fluid market and some goes into the manufacturing market, and farmers for that receive what is generally mentioned as a blend price.

Senator DOUGLAS. Even if the farm marketing agency were open, is it not true that they will divert sufficient milk into creameries and cheese factories to keep up the price or get a high price from the people in the cities?

Mr. STAUBER. It is my understanding that that is done, yes.

Senator DOUGLAS. I would like to see the Department of Agriculture make some studies on this very point. If it were done it would be seen that monopolies are not entirely city monopolies.

Mr. STAUBER. Shall I proceed with my statement?

Senator DOUGLAS. No. I want to make some comments of my own. As one who is opposed to monopolies, and one who has tried to defend the farm population of the country from monopolies, I would also like to defend the urban population from rural monopolies. There is a principle in equity, I believe, that those who come into courts of equity, and courts of justice, should come in with clean hands.

Mr. STAUBER. I believe that.

Senator DOUGLAS. All right, let us go ahead.

Mr. STAUBER. After passing over sections II and III of the summary because they do not relate to the Department of Agriculture, we find ourselves in agreement as statisticians with the first recommendation in section IV. Whether the statutory base 1910–14 should be reconsidered is a matter that rests with Congress. We all realize that a reference point 50 years in the past is a formidable handicap for a respectable index under any circumstances, and especially in view of the tremendous technological changes that have taken place in nearly every phase of American life. Those who object on statistical grounds must also take cognizance of the policy objectives encompassed in the legislation and be prepared to present a better alternative to attain them.

Again we are in complete agreement with recommendation 2—

The coverage of the indexes, particularly that of prices paid for living, should be increased.

We would add that the coverage in the production area needs also to be expanded.

Recommendation 3 states—

The indexes for farms as production units should be segregated from the index for farms as consumer units.

We believe the present form of publication meets this recommendation reasonably well, inasmuch as one component of the Parity Index as historically published relates to changes in prices of family living items; another component measures changes in prices of commodities bought for production purposes, and the composite index combines these, together with interest on farm mortgage indebtedness, taxes on farm real estate, and farm wage rates.

With respect to recommendation 4—

The method of pricing should be shifted over to specification pricing, and enumerative methods of collecting data should be adopted, at least for commodities difficult to specify.

we are in partial agreement. We use "specification pricing," since it is obviously necessary to indicate on questionnaires the commodity or commodities for which prices are collected. Whether commodities should be described in general terms, or by "tight specifications" is subject to judgment exercised, not routinely or categorically, but rather in the light of considerations imposed by forced quality changes in times of shortage, rationing, price control, and other exigencies that preclude rigid specifications. It will be our purpose to continue to do so in the future. We feel a responsibility to guard against specifications so tight that they will result in underestimation of price changes that are very real as far as the farmer is concerned. If strict specifications were adopted, price increases which are effective

in changing the farmer's cost of production or his cost of living might be ignored so that the index would fail to register the effect of these price changes. This problem is particularly difficult in the case of "administratively priced commodities." Much of a price increase can often be hidden by a price adjustment nominally ascribed to some change in specifications of dubious quality significance.

Senator DOUGLAS. Mr. Stauber, the same problem comes up in connection with tractors that you have in automobiles.

Mr. STAUBER. That is correct.

Senator DOUGLAS. Mr. Clague has testified that they try to eliminate qualitative changes in automobiles by not comparing an automobile in 1950 with an automobile in 1961, but an automobile in 1950 with one in 1951. Then they compare the change which comes in in 1951 with the change, that is, the different type of automobile, in 1951 with the change in price of that same automobile in 1952, and so on. By making these successive comparisons you eliminate the changes in stages, so to speak, of prices. Do you do that in tractors?

Mr. STAUBER. To some extent, but I think not to the same extent that the Bureau of Labor Statistics does.

Senator DOUGLAS. Might it not be well to do that, or what do you think? Certainly a tractor today is a very different one from a tractor 15 years ago, and a corn picker is different now, a combine is different, and a hay baler is different now.

Mr. STAUBER. We have attempted to meet that problem by classifying our tractors into major horsepower groups, and we have also in years past classified them as to whether they had steel tires or rubber tires. The steel tire has now very largely gone out, so that we classify them on the basis of horsepower.

Now, when we add a new horsepower group, as we did recently in our latest revision, that is linked in so that we do not get a price change as a result of the shift from one horsepower to another; but within the horsepower categories we have simply considered that the tractor is a means of applying power, and we have tried to estimate a price which represents the average price that farmers pay for a certain horsepower tractor, ranging from 20 to 30, 30 to 40, and so on.

Senator DOUGLAS. Even though this might have lowered the cost of plowing and harvesting per acre?

Mr. STAUBER. Well, we believe that this matter of quality change is an extremely difficult one, and we have felt that we did not have the facilities or perhaps the wisdom to arrive at a firm decision which we were prepared to defend and say that this tractor is so much better than another one. We have relied on the horsepower classification, namely, the application of power to the plowing job, as the important and really significant characteristic involved.

Senator DOUGLAS. Very good.

Mr. STAUBER. We are in full agreement that enumerative methods of collecting price data are superior to the use of the mailed questionnaire in many situations. Nevertheless, the mailed questionnaire does a reasonably adequate job for some commodities and situations. Prudent stewardship of public funds requires us not to replace the mailed questionnaire with the enumerative approach, which is much more

expensive for a given amount of information, in situations where the mailed survey serves nearly as well. Rsearch over the past several years has been directed to this question. We hope to be able to determine more precisely those commodities for which the mailed questionnaire is reasonably accurate and those for which the enumerative methods yield clearly superior results.

At various places in the report, the National Bureau Committee has made other recommendations having to do with the price collection and index work of the Department. While we entertain reservations pertaining to some of them, each one will be given careful consideration.

It is gratifying to us to note that the long-range plans prepared by our staff and submitted in 1957 to the chairman of the Agricultural Subcommittee of the House Appropriations Committee at his request anticipated some of the more important improvements recommended by the National Bureau Committee.

Implementation of the plan to achieve the quality improvements outlined in that 1957 report will be costly. We received an increase in funds in the 1961 Appropriation Act to initiate such improvements, and an additional increase to continue the progress in this matter is included in the 1962 budget. This report encourages us to persist in our efforts.

I thank you, Mr. Chairman.

Senator DOUGLAS. Mr. Jaszi.

STATEMENT OF GEORGE JASZI, ASSISTANT DIRECTOR, OFFICE OF BUSINESS ECONOMICS, U.S. DEPARTMENT OF COMMERCE

Mr. JASZI. Mr. Chairman, I have a statement, which incidentally contains a section on the question of export-import price indexes, which you specifically asked about, so I shall proceed to read it.

The Office of Business Economics is grateful for this opportunity to comment on the report of the Review Committee on the Price Statistics of the Federal Government. As intensive users of the price measures compiled by the Federal agencies, we have looked forward with keen interest to the report of the Review Committee. This morning I should like to comment on the report from the standpoint of our needs which, I am happy to say, have received full consideration by the Review Committee. Inasmuch as the following remarks will necessarily focus on gaps in the price data, I should like to preface them, for the sake of balance, by saying that we fully appreciate the very large amount of solid price information that is furnished by Federal agencies now.

Our interest in price data will be better understood if I provide a brief explanation of how we use these data in our work. The Office of Business Economics compiles annual and quarterly totals and breakdowns of the gross national product—the dollar value of all final goods and services produced. Since this comprehensive measure of national economic activity is stated in current dollars, it changes over time due to changes both in the prices and in the quantities of goods and services produced. For many purposes it is essential to

64846—61—pt. 2——7

isolate the movements in gross national product which result from changes in the quantities alone. This can be done by restating the value of gross national product for each period under study in terms of the prices of a specified base period, usually a calendar year. It is in the preparation of these constant-dollar measures of national output, or real GNP, that the price indexes compiled by other Federal agencies occupy a major role.

Constant-dollar measures of national product are generally derived by deflation—that is to say, the division of the components of the current-dollar series by appropriate price indexes. These indexes are based on the year the prices of which are to be used for the constant-dollar figures—in the present estimates, the year 1954.

The estimates we now publish are derived by deflating the purchases of national product by consumers, government, business investors, and foreign nations—the four major categories that account for the total GNP. This deflation is carried out, commodity by commodity and service by service, in the greatest possible detail. Such detailed procedures increase the precision with which the real GNP measures solely quantity changes unaffected by differences in price.

The estimates of GNP by final purchase categories, which I have just described, have been presented in our publications for several years. We are now at work on an alternative approach to real GNP totals—the industry-of-origin approach. Under this method, the output of each industry will be deflated so that we shall have a measure of the real product contributed by every industry to the aggregate GNP. This second system for compiling real GNP requires price indexes that can be used to deflate an industry's sales and its purchases. This is a very different kind of price statistics from that which is required for the deflation of the final purchase components of the GNP.

Progress in the field of price statistics is hampered by certain rather intractable theoretical problems—such as the treatment of quality change and new products—which would make for shortcomings in the price series (and in the derived constant-dollar estimates) even if unlimited resources for their collection were available. However, in many areas of the price work significant improvements are possible even though our insight is limited. The following remarks will deal largely with such areas. I shall discuss our needs, and the Committee's report as it touches upon them, first in connection with the deflation of the GNP by type of final purchase, and subsequently in connection with the industry-of-origin approach.

Personal consumption expenditures are the largest category of GNP. To improve our constant-dollar estimates of consumer expenditures we require increased coverage in the Consumer Price Index of commodities and services and also of population groups. The Committee recommends explicitly the latter type of extension of the Index. This extension would, incidentally, permit us also to improve the deflation of our size distributions of income, which at present is based on the artificial assumption that all income classes are confronted with identical changes in consumer goods prices. The report does not make an explicit recommendation for extending item coverage; we believe that this requirement needs emphasis.

Another limitation of our present estimates stems from the fact that the Department of Agriculture series of prices paid by farmers, used to deflate the rural portions of consumer expenditures, are not based upon uniform product specifications. A general shift of buying to higher quality products, for instance, is registered as a price rise, and an opposite shift as a price fall. For purposes of deflating the GNP, an alternative series would be more desirable, based upon the usual procedure of pricing units as nearly identical as possible. The Committee's proposals would lead to a significant improvement in this area.

Senator DOUGLAS. Now, just a minute. Mr. Stauber, do you admit that?

Mr. STAUBER. I am inclined to the view that if it does exist it is not as serious as indicated here, with the possible exception—or with the primary exception, let me say, of periods where there is forced upgrading.

Now, in the period before the end of the war, when rationing and price control were in effect, there seemed to be some tendency for manufacturers to take off the market certain items—clothing, for example—on which price ceilings had been placed.

Senator DOUGLAS. May I say—and this will probably hurt Mr. Clague's feelings—I read the Thomas-Meany Report and also the reply of the Bureau of Labor Statistics, and I thought on the whole the Thomas-Meany Report was a better report.

Mr. CLAGUE. Mr. Chairman, since I was not connected with the Bureau at that time, my feelings are not particularly hurt, but I wish you would read it again.

Mr. STAUBER. I have made a number of comparisons between the two series, the Bureau of Labor Statistics and our own, and in periods when we are not going through some of these forced upgradings, which the farmer is not doing by choice but because he still needs to wear a shirt and needs to have shoes to wear, we find a considerable degree of agreement. I would not say precise agreement, but it leads me to the conclusion that this matter is often exaggerated.

Senator DOUGLAS. Could you not use the linkage system to a much greater degree than you do, following the BLS?

Mr. STAUBER. We could, and we do use it to a considerable extent when there is what we regard as a significant change in the commodity purchased. We do use a linkage procedure. I think the difference is that we probably are somewhat broader in our concept of a commodity than our friends across the Mall, but I do not believe that the problem is as serious as it is often made out, except in these periods of forced upgrading.

Mr. JASZI. We tend to share the views of the review committee that it would be advantageous if the Department of Agriculture went somewhat further toward specification pricing. It is a question of degree.

Gross private domestic investment is our second major GNP category. Here the foremost requirement is for improvement in the price data available for the deflation of construction. The present data measure largely the prices of construction materials and labor.

Although these series include partial adjustments for changes in productivity and profit margins in a few instances, the indexes are insufficient for the deflation of the selling values of construction units which, in general, underlie the current value of construction activity.

Senator DOUGLAS. This was one of the questions which I raised yesterday morning. Do you think it possible to get the actual construction costs of a standardized unit by the industrial building or home construction?

Mr. JASZI. This would be I think one of the possibilities, and the committee in an appendix to their report outlines a rather broad program in this field, which I think enumerates this as one of the possible approaches.

Senator DOUGLAS. You have read that appendix?

Mr. JASZI. Yes, I have read the appendix.

Senator DOUGLAS. Do you agree with it?

Mr. JASZI. I think it is a promising approach to the subject. It is a very difficult subject. I think we have to try several approaches. I think that even if they do not work out perfectly we are starting from such a low level in this area that a tremendous improvement in these prices is possible, and I think this is an extremely important area on which we should concentrate.

Senator DOUGLAS. Which end would you work from, the reports by contractors or modifications of an index of pricing of labor and materials by productivity index?

Mr. JASZI. I think I would try the direct approach first.

Senator DOUGLAS. Approaching the contractors?

Mr. JASZI. I think so, but I really am not an expert on this thing and this is my personal feeling. I would like to try that out first, before I tried the other thing.

Senator DOUGLAS. Go ahead.

Mr. JASZI. Moreover, even viewed as cost indexes, some of the measures, prepared largely outside the Government, seem outmoded as to geographic coverage, item selection, and weighting, as far as one can judge from the rather incomplete descriptions that are available of their underlying methodologies.

Senator DOUGLAS. What are these private indexes, "Engineering News Record" and——

Mr. JASZI. These are mostly prepared by private construction companies.

Senator DOUGLAS. Would you enumerate for the record what these private indexes are?

Mr. JASZI. I think they are all listed in the review committee's report.

Senator DOUGLAS. Engineering News Record is one?

Mr. JASZI. Yes, that is one of them. They are listed on pages 92 and 93 of the report.

Senator DOUGLAS. A wide variety.

Mr. JASZI. A wide variety; yes, sir.

Mr. CLAGUE. Mr. Chairman, might I just add this point. In the last couple of years the Bureau of Labor Statistics has received funds for determining labor requirements in various types of construction, so that it might be possible to have some better figures for the component approach to the subject.

Senator DOUGLAS. You mean on productivity?

Mr. CLAGUE. Yes, on productivity, and the quantities and qualities of labor used in the construction process.

Senator DOUGLAS. So that you could then from the raw materials index and the labor index get a composite cost, with appropriate weightings, and then modify that according to relative productivities from year to year?

Mr. CLAGUE. Yes, eventually.

Mr. JASZI. The measurement of construction prices involves some theoretical difficulties of the type mentioned earlier, which cannot be satisfactorily resolved at present. We feel, however, that in this segment of price work considerable improvement over present procedures is possible even within this constraint. The broad program of action in this area which the committee has recommended should yield considerable gains over the present unsatisfactory situation.

Senator DOUGLAS. Let me ask you this. Do you regard the improvement of the construction price index as the most important single refinement that could be carried out in material with which you deal?

Mr. JASZI. Yes, sir. I have another area which is mentioned later. I have two areas which I consider of prime importance. One is the construction price indexes.

The deflation of producers' durable equipment, another component of gross private domestic investment, could be furthered most effectively by the collection of price information on a considerable number of equipment items not now priced in connection with the wholesale price index. The achievement of adequate whole price index coverage of each of the Census Bureau's five-digit product classes, as recommended by the committee, would eliminate most of the gaps mentioned. There are some detailed items within these classes, however, that may require particular attention.

Senator DOUGLAS. For the sake of the record, would you state what you regard as the most important omissions?

Mr. JASZI. We have such a list which I shall be glad to provide.

Senator DOUGLAS. Can you give them offhand?

Mr. JASZI. I could not give them offhand. It is a very detailed list.

Senator DOUGLAS. Would you supply them for the record?

Mr. JASZI. Yes; I can provide them for the record.

(The following was later received for the record:)

SUGGESTED ADDITIONS TO BUREAU OF LABOR STATISTICS' CONSUMER PRICE INDEX AND WHOLESALE PRICE INDEX

1. Consumer Price Index

Commodities:
- Wine
- Smoking tobacco
- Watches
- Jewelry
- Luggage
- Room air conditioners
- Small electrical appliances (only toasters and vacuum cleaners included at present)
- Flatware
- Cutlery
- Glassware
- Utensils (only aluminum pan included at present)
- Desk, table, and floor lamps
- Lampshades
- Household clocks
- Mirrors
- Fountain pens, ball pens, and mechanical pencils
- Typewriters
- Hand tools
- Portable power tools
- Garden tools
- Matches
- Laundry bleaches
- Automobile and floor polishes
- Insecticides and repellants
- Disinfectants
- Waxed paper
- Paper towels
- Greeting cards

Commodities—Continued
- Antifreeze
- Automobile radios
- Automobile seat covers
- Automobile accessories
- Storage batteries
- Automobile repair parts
- Books
- Magazines
- Bicycles
- Musical instruments
- Radio-phonographs
- Phonograph records
- Radio batteries
- Cut flowers and potted plants

Services:
- Hotel and motel rooms
- Moving and storage of household goods
- Photographic portraits
- Photographic developing and printing
- Billiard parlor and bowling alley charges
- Upholstery and furniture repair
- Repair of household appliances and equipment
- Types of repair operations additional to those presently priced in some repair services of the index, for example, in auto repairs and television repairs.

2. Wholesale price index

Class of product	Manufacturing census, 1954 Code
FURNITURE	
Professional furniture (hospital, clinical, laboratory, etc.) except beauty and barber shop	2532.
Partitions, shelving, and lockers	25411.
Cases, cabinets, counters, and other fixtures, including bank fixtures	25412.
Metal slat venetian blinds	25631.
Restaurant furniture	25910.
SPECIAL INDUSTRY MACHINERY	
Dairy and milk products plant machinery and equipment	35511.
Bakery machinery and equipment	35512.
Bottling machinery and equipment	35513.
Other industrial food-products machinery	35514.
Textile machinery	35520.
Woodworking machinery	35530.
Paper-industries machinery	35540.
Printing-trades machinery and equipment	35550.
Chemical manufacturing industries machinery and equipment	35591.
Foundry machinery and equipment	35592.
Plastics-working machinery and equipment	35593.
Rubber-working machinery and equipment	35594.
Petroleum refinery machinery and equipment	35595.
Other special-industry machinery and equipment	35597.

2. *Wholesale price index*—Continued

Class of product	Manufacturing census, 1954 Code
GENERAL INDUSTRIAL MACHINERY	
Automobile lifts (service station and garage types)	3562031.
Heat exchangers, closed types, industrial	35691.
Dust collection and other air-purification equipment	3564051.
General industrial machinery, n.e.c.	35693.
OFFICE AND STORE MACHINES	
Amusement and other coin-operated machines (except coin-operated phonographs and automatic merchandising machines).	35752.
Punch card and electronic accounting and computing equipment	3571015 and 3571041.
SERVICE AND HOUSEHOLD MACHINES	
Commercial laundry equipment and laundry presses	3582011-19.
Dry-cleaning equipment and clothing presses	3582031-81.
Industrial sewing machines (except shoe sole-stitching machines)	35832.
Measuring and dispensing pumps	35860.
Dishwashing machines (commercial type)	3589215.
Unitary commercial refrigeration equipment, except cabinets for mechanical units shipped to other manufacturers of commercial refrigeration equipment.	35853.
Compressors and compressor units of over 15 hp. (for refrigeration and air conditioning)	3585435-44, 3585455-67, and 3585471-79.
Packaged air-conditioning equipment, other than window-type room air conditioners	3585707-29.
Heat exchanger equipment:	
Evaporative condensers of over 5 tons	3585732-39.
Air-conditioning units, not self-contained	3585574-48.
Unit coolers	3585751-78.
Other heat exchanger equipment (not including heat exchangers, closed type, industrial).	3585781-95.
ELECTRICAL MACHINERY AND EQUIPMENT	
Specialty transformers: General purpose and miscellaneous applications involving voltages of 600 and below.	3615198.
Electrical test equipment	36132.
Capacitors for industrial use: Power	3619211.
Rectifying apparatus (excluding communication applications)	3619351-59.
Commercial cooking and food warming equipment, electric	36215.
Commercial radio and TV communications, radio and electronic navigation aids, etc.	36614.
Radio and TV equipment and electronic detection apparatus, n.e.c.	36617.
Electric alarm and signal devices, other than railway	36692.
Complete X-ray units and assemblies of X-ray equipment	3693111-37 and 3693198.
INSTRUMENTS AND RELATED PRODUCTS	
Scientific instruments	38110.
Integrating meters, nonelectrical types (gas; water; other liquid meters)	38212.
Industrial process instruments, including indicating, recording, and controlling instruments.	38213.
Other mechanical measuring instruments	38215.
Optical instruments	38310.
Surgical and medical instruments	38410.
Dental instruments and equipment	38430.
MISCELLANEOUS DURABLE EQUIPMENT	
Beauty and barbershop furniture and equipment	39910.
Soda-fountain and beer-dispensing equipment	39970.
Signs and advertising display (especially luminous tubing signs)	39930.
Tight cooperage	24453.
AIRCRAFT	
Aircraft and nautical instruments, except flight instruments	38211.
SHIPS AND BOATS	
Nonpropelled ships—nonmilitary	37314.
Nonmilitary shipbuilding costs (ships over 2,000 tons)	37315a.
Nonmilitary shipbuilding costs (or prices) (ships 2,000 tons and under)	37315b.
Nonmilitary boats	37323.

Mr. JASZI. The last component of gross private investment is the change in business inventories. Because of its validity, it has a large influence on the short-term changes in the GNP and it is accordingly important that it be measured as accurately as possible.

In order to arrive at a proper evaluation of inventory change, we have to convert inventory book values into constant prices. This is a difficult procedure which involves a knowledge of the commodity composition of inventories, of the accounting methods underlying the valuation of the various items, of inventory turnover rates, and finally of the prices of the various inventory commodities. Information on each of these subjects is deficient, and a substantial coordinated research program would be needed to put the inventory change estimates on a solid footing.

The agencies responsible for the collection of price data could contribute to this program in two major ways: first, by the construction of price series appropriate to inventory items, reflecting the actual purchase price of materials as well as the markups that are used to value goods in process and finished products; second, by developing weighting systems, based on the commodity composition of inventories, which could be used to construct composite price indexes appropriate for the deflation of book values. A number of the Committee's proposals for the improvement of the Wholesale Price Index would also serve to answer some of our needs for better inventory deflators. Furthermore, the Committee has specifically noted, on page 64 of its report, that the price data for the deflation of inventories are "notably deficient." The Committee did not go on to present in detail the necessary modifications and additions to the Wholesale Price Index program to overcome this deficiency, but our recommendations, as presented above, outline the basic steps essential to achieving this goal.

Senator DOUGLAS. Mr. Jaszi, you publish inventory figures in dollars.

Mr. JASZI. Correct.

Senator DOUGLAS. You publish current sales in dollars?

Mr. JASZI. Yes.

Senator DOUGLAS. Do you publish each month the ratios between these two, ratio of inventory to monthly sales?

Mr. JASZI. I do not think that they are published in a routine manner. We often publish such ratio figures in the survey of current business.

Senator DOUGLAS. My thought is this would be a very good monthly service to publish, because it has always seemed to me that the ratio of inventories to sales—granted that it is somewhat imperfect because you may be dealing with different price levels; nevertheless, it is a fairly close approximation or closer approximation to the actual accumulation of inventories than the dollar figures of inventories, which themselves of course are subject to a price error. There would be no problem in computing this, and I think a historical series in comparison of these ratios would be very important. Anyone who deals with these figures has to do it for himself. Why could we not add another column?

Mr. JASZI. That is quite correct. We shall take this suggestion certainly into consideration. I do not think it would be a big project. As you say it is quite easy.

Senator DOUGLAS. Do you see any reason why this should not be done?

Mr. JASZI. We have not had wide requests for this. People seem to be satisfied to do it for themselves, and we have already a very long list of statistical tables.

Senator DOUGLAS. It makes more work for the private statisticians the way you do it now, and therefore perhaps this is the way the private statisticians want it, but certainly it would make it easier for the general public, would it not, if you had a ratio and you would get some very interesting comparisons between products and industries, very interesting ratios between wholesale and retail and manufacturing, for example. We give you millions of dollars to run those Univacs down there.

Mr. JASZI. That is the Census Bureau. The Office of Business Economics is not so happily provided.

Senator DOUGLAS. It is under the same head. I would like to see those Univacs more fully employed. I know that any suggestion from Congress to the statisticians is looked on with suspicion, because it is commonly believed we do not know anything and that our suggestions are purely political in nature, but would it be asking too much if you would think this over and in a month or two let us know what you decide?

Mr. JASZI. Certainly.

Senator DOUGLAS. Because generally in these hearings a Senator or Congressman will make a suggestion and it will be blandly tossed off with "We will give consideration to it," but no change is ever made. So we would like to know what your considered judgment is on this matter.

Mr. JASZI. Certainly.

Senator DOUGLAS. We do not presume to tell you how to run your Department, but once in a while we welcome your advise and would like a little reciprocity.

Mr. JASZI. Net exports of goods and services constitute a small but sharply fluctuating portion of our national product. For several reasons, the unit value indexes used to deflate merchandise exports and imports are not fully adequate. Firstly, a very broad range of manufactured goods is not directly covered. Secondly, the unit value indexes, which are obtained by dividing value series by corresponding physical volume series, may cover somewhat heterogeneous items. Changes in product mix thus may lead to change in unit values that do not represent genuine price changes, particularly in the case of manufactured goods where detailed volume measures for items of uniform specification are often lacking. Thirdly, the formulas used to compile the series of unit-value indexes—chain indexes based on Fisher's "ideal formula"—do not necessarily yield the item desired for GNP measurement: exports and imports valued in terms of constant, base period prices. A comprehensive program in this field should also consider the possibility of collecting price information for nonmerchandise items in the current balance of payments.

Senator DOUGLAS. What are these nonmerchandise items?

Mr. JASZI. Services, shipping, transportation. Things like that.

Senator DOUGLAS. Hotel rooms?

Mr. JASZI. Possibly for tourist expenditures abroad.

Senator DOUGLAS. Cost of entertainment at Parisian nightclubs? Would you include those items? I think it is well that statistics should stop somewhere.

Mr. JASZI. I hope it would not go too far, but I would like to cover some of the basic categories at least.

Adoption of the Committee's recommendations for expanding the coverage of the export and import price data would definitely result in major improvements. The Committee gives its qualified approval to the index number formula now used to combine the individual price series into continuous composite price indexes. We should like to have this aspect of the matter studied further.

Senator DOUGLAS. You already have an index of export prices.

Mr. JASZI. We have export prices and import prices for merchandise, but the item coverage is not sufficient, and there I believe as the Committee that the item coverage ought to be expanded substantially, especially in the range of manufactured goods. And we have some quarrel, although this is less definite, with the particular formula used. The particular formula used now is Fisher's "ideal" index, and it is rather difficult to interpret what one exactly measures if one uses Fisher's "ideal" index.

Senator DOUGLAS. This morning I have run across for the first time the use of the Fisher index. Is it peculiar to the index of export and import prices? This is the only case in the development of Government statistics that you get the geometric average?

Mr. JASZI. This is the only major series that uses this particular index formula.

Senator DOUGLAS. Well, I would suggest either that the other Government departments adopt the Fisher formula or that perhaps you should consider discontinuing it.

You can pass on now to another subject.

Mr. JASZI. Well, I have some doubts about the Fisher formula, but there are good reasons, explained in the report of the Committee, why in this particular case the Fisher formula might be better than in other cases, and the major reason is that the weights change very radically in this statistical series and there is more reason for using the Fisher formula in this case rather than some other more widely used formula. I still have some misgivings about this, but I do not want to disagree flatly with the Committee, and I would like this subject to be given some further study.

Senator DOUGLAS. In other words, there may have been a reason for the adoption of the Fisher formula?

Mr. JASZI. In this particular case, yes.

Government purchases are the remaining component of the GNP. Price series specifically applicable to government purchases are now almost wholly lacking. In deflating government expenditures we must use, to an extent that is decidedly unsafe, the price movements of goods differing significantly from government-purchased goods in their technical characteristics, and traded mainly in private markets. We recognize, of course, that it would be very difficult to make progress in developing valid price indexes applicable to many types of military

purchases, essentially because of the extreme degree of product change that characterizes this market. However, it is likely that work on price indexes applicable to government purchases will yield significant improvements even allowing for this basic impasse. We appreciate that much that is implicit in the committee's proposals for improving the Wholesale Price Index will lead to major benefits in the general area of government purchases. However, the problems inherent in deflating government purchases are so knotty and their impact is so great that we believe it is necessary to call attention to them and to urge that this theoretical and statistical jungle be the subject of special research and analysis.

This is my second crucial area. Construction is one, and this is the other one where I feel that a lot of additional work ought to be put.

In addition to the annual constant-dollar estimates, we publish quarterly data on real GNP on a seasonally adjusted basis. Our work has brought out the importance of making careful allowance for price seasonality in this connection. We believe that work on price seasonals is properly a function of the agencies responsible for the collection of price data and would welcome seasonally adjusted price indexes covering at least those series we use in the quarterly deflation. Following through on the committee's recommendations on seasonal adjustment would meet our needs.

Senator DOUGLAS. I have been reading Dr. Clague's testimony, and his opinion—you correct me if I am wrong—is that seasonal fluctuations in consumer prices were not as great as sometimes has been alleged. Is that true?

Mr. CLAGUE. Mr. Chairman, that is the all-items index itself.

Senator DOUGLAS. I understand.

Mr. CLAGUE. We do recognize, and as a matter of fact we prepare seasonal factors for groups and subgroups and commodities within the series.

Senator DOUGLAS. But vegetables go down in the summertime, do they not, and up in the wintertime?

Mr. CLAGUE. Yes.

Senator DOUGLAS. And other items go up in the summertime and down in the wintertime. In other words, are there offsetting seasonal factors?

Mr. CLAGUE. Yes, there are. There are certain items that go down in the summertime. As I recall, one of them is milk, is it not, and eggs, and so on.

Senator DOUGLAS. This coincides with my knowledge of farm life.

Mr. CLAGUE. Our overall index really has very little seasonality in it because we have certain other seasonals like clothing, which come in September and March, for example. They have their high points at the introduction of the spring line and the fall line. So that gives another lift at another point and then fades away as the season goes on.

Senator DOUGLAS. Now, Dr. Jaszi, you seem to think that the indexes do have a seasonal error. This is not true of the Consumers Index. Are you saying it is true of the Wholesale Index?

Mr. JASZI. I am talking mainly about the Consumers Price Index. The overall total does not have a big seasonal, but we work with the detailed components, and they do. The food index, the clothing index has a seasonality in it, and we work with these breakdowns.

Therefore we are troubled. But I do not think there is actually any basic difficulty between us, because if the BLS does not want to publish these seasonally adjusted indexes they could furnish them to us on an unpublished basis and we could use them as ingredients in our calculation of the gross national product. I think this really can be adjusted without too much trouble.

Senator DOUGLAS. In other words, bootleg the stuff to you and you would publish it even though they would not sponsor it themselves. Is that correct?

Mr. JAFFE. Mr. Chairman, we are considering recomputing these seasonals sometime around midyear and publishing the computations for the use of people compiling the GNP.

Senator DOUGLAS. But not for the general public?

Mr. JAFFE. For the general public. I think it would be a publication, but we draw the lines on publishing a seasonally adjusted price index.

Senator DOUGLAS. Because your index is used for wage adjustments. That is one of the reasons.

Mr. JASZI. As mentioned earlier in this statement, we are now at work on an alternative approach to the measurement of the real GNP, via the estimation of the volume of production originating in the various industries of the Nation. For this calculation we require separate price indexes applicable to industry sales and purchases. In planning the collection of the industry price data, it will be important to insure not only that commodity and service representation is adequate but also that commodities are priced in the appropriate markets. For instance, for manufacturing shipments the price deflators should represent the movement of factory prices—exclusive of sales and excise taxes and of transportation and other distributive margins—essentially because current dollar shipments are stated in these terms. It is questionable whether wholesale price indexes, as presently constituted, are sufficiently good approximations for this purpose. The committee's basic proposal to organize the Wholesale Price Index in such a manner as to make its components applicable to industry sales and purchases, with detailed commodity breakdowns for each industry, is the basic step toward meeting our needs. However, the committee does not deal explicitly with the valuation problem just mentioned; nor does it make comprehensive recommendations for the measurement of the prices of intermediate services.

At the outset, I referred to theoretical problems in the field of price statistics that thus far have resisted solution. For example, the basic problem of allowing adequately for quality change remains unsolved. Closely related to quality change is the appearance of new commodities and the disappearance of old ones, for the treatment of which a satisfactory conceptual framework and statistical methodology have not yet been worked out. There are a number of other such hard-core questions without answer. All these should be the focus of further research both by Government agencies and by private groups. We endorse heartily the Committee's proposal that additional resources should be devoted to price research.

Senator DOUGLAS. Thank you very much.

There is one question that I would ask. The Bureau of Labor Statistics collects, as I remember it, a daily index of the prices of 22 raw products in the basic commodity markets of the country.

Mr. CLAGUE. That is right.

Senator DOUGLAS. You also collect and publish a wholesale index monthly.

Mr. CLAGUE. And weekly.

Senator DOUGLAS. And weekly.

Mr. CLAGUE. With a more limited set of commodities.

Senator DOUGLAS. And a cost-of-living index monthly.

Mr. CLAGUE. Monthly.

Senator DOUGLAS. Would it be possible to make your wholesale index parallel in composition with the daily index, and then take out of the cost-of-living index those items or at least make them parallel, so that you would have three series dealing with substantially the same things, indicating price movements as they come from the basic boards, such as the Board of Trade in Chicago, the Cotton Exchange in New York, the Sugar in New Orleans, and then the wholesale prices which you get, and the price when it gets down to the grocery stores? Would that be possible?

Mr. CLAGUE. Yes. As a matter of fact, we have done that now.

Senator DOUGLAS. You do it now?

Mr. CLAGUE. We have for certain types of commodities—for instance, take food. We have taken the raw material foods, a grouping of the raw materials, and then the semifinished foods, and finally the foods at retail. We have shown the different movement of those in the last 10 years.

Senator DOUGLAS. The basic 22 commodities include leather?

Mr. CLAGUE. Yes.

Senator DOUGLAS. And include tin?

Mr. CLAGUE. Yes.

Senator DOUGLAS. What nonfood items?

Mr. JAFFE. There are various metals, basic metals.

Senator DOUGLAS. Copper.

Mr. JAFFE. There is scrap iron in various markets; copper, I believe.

Senator DOUGLAS. You cannot trace the retail price of those, but you can trace the wholesale prices.

Mr. JAFFE. This is a makeshift index, if I may say so, which——

Senator DOUGLAS. Which one, the 22?

Mr. JAFFE. The 22-item index. It is designed to serve what I can describe charitably as a rather unclear purpose, and I think that the recommendations of the Committee in this area are very much to the point. The Bureau should have the resources to develop a more sensibly organized and structured sensitive price index. We do not consider that this really performs the function for which it is nominally prepared. So we will not want to defend the structure of this index of the selection of the items.

Senator DOUGLAS. Until you broaden the scope?

Mr. JAFFE. Until we broaden the scope and organize it in a sensible framework.

Senator DOUGLAS. How many commodities do you think you should cover in order to make this basic price index of raw materials a satisfactory one?

Mr. JAFFE. Mr. Chairman, that depends on what your concept is of this index, and different people have a different approach to this problem. Take, for example, our wholesale index, which we produce on a weekly basis. In that case we try to get an advance forecast of the way in which the overall Wholesale Price Index is moving, so that the structure of our weekly index in effect corresponds to the structure of our monthly index. But our sampling is less intensive on a weekly index. We just price the items which move in a more volatile manner. You may have a different objective in constructing what you might want to label a sensitive index, and I am not quite prepared to state just what the structure of this kind of an index is or how many commodities it should include.

Senator DOUGLAS. Let me ask you this question. First, as regards comparison of seasonal fluctuations, it is certainly true the daily index, even for the same commodities, fluctuates and is much more volatile than the wholesale index for the same commodities. Is that not true?

Mr. JAFFE. I would not want to be too specific on this, but I think if you would take the exact items and use the monthly averages of the daily prices you would get a corresponding trend over the long run.

Senator DOUGLAS. Is it not true that your fluctuations in coffee prices, for instance, are much greater in raw coffee prices on the coffee exchange in New York than the prices of a pound of Chase & Sanborn on the retail shelves?

Mr. JAFFE. We also have raw coffee in our Wholesale Price Index; raw coffee in the bags as delivered.

Senator DOUGLAS. But the number of people who purchase a bag of coffee beans and grind their own coffee is relatively small compared with the number of people who buy coffee in cans.

Mr. JAFFE. But that is a different stage of processing, and in our Wholesale Price Index we try to reflect the prices at each stage of processing, since the coffee is processed here in the plants. Then we have another price for the coffee at the second stage.

Senator DOUGLAS. I am not trying to find fault with you. I am merely trying to see whether your judgment agrees with mine. You know much more about it than I do. I have thought that the movement of these daily basic prices was much more volatile than the movement of the fabricated wholesale prices, that coffee beans fluctuated more than tinned coffee wholesale, that raw sugar fluctuated—well, I do not know about sugar. We pegged the price of sugar. But tin, for instance, fluctuates more in price than the cans fluctuated, and these in turn fluctuated more than the prices of the consumer goods, and the nearer you go to the consumer the less it fluctuates.

Mr. JAFFE. This is generally true, Mr. Chairman, and when the items were selected for this 22-commodity sensitive price index the emphasis was on choosing items which were volatile. Somehow there was a premium on this volatility.

Senator DOUGLAS. You mean an emphasis upon volatility.

Mr. JAFFE. And there is no economic construct to which this index corresponds.

Senator DOUGLAS. But even if your index were not biased in favor of volatility, is it not reasonable to suppose that there would be greater fluctuations the farther back from the consumer you go?

Mr. JAFFE. Yes. You can get this in a more constructive manner I think by examining the information embodied in our Wholesale Price Index, where we cross classify the items by degree of fabrication, so that in addition to the ordinary product nomenclature classification we have a classification by degree of fabrication.

Senator DOUGLAS. Do you know whether the same tendency shows up there?

Mr. JAFFE. Yes, sir; it does.

Senator DOUGLAS. That is, raw, semifinished, and finished. Is that true?

Mr. JAFFE. Approximately, sir.

Mr. CHASE. Mr. Chairman, in connection with this basic commodities index, I think it is fair to say that this probably is not a suitable instrument for studying price margins, at least over a short period of time. We are going to reexamine this index to find out whether there are other commodities that ought to be included which would give us a sensitive economic indicator. In recent months there have been some upturns in prices here which in some ways led the economy. That is the purpose of this index.

Senator DOUGLAS. Now, you anticipated the second point I was going to make; namely, the question of cyclical trends of these indexes. You can also say that this hypothesis of mine is unjustified because we are comparing an index of dissimilar quality. I have the hunch that prices of raw materials, over a long time decline more than the prices of the same commodities at wholesale, and those will decline more than the prices of those same commodities at retail.

Mr. CHASE. Yes, I would—you would—find this is true. It is true even in agricultural commodities.

Senator DOUGLAS. Yes; it raises some very nice questions as to what are the reasons for this emerging differential, which is I think very marked.

As I remember it, if you take the Department of Agriculture's figures on prices received by farmers, the index of prices received by farmers has fallen to an index of 288 in 1952 to an index of 240 in 1959, a fall of 50 points or very close to 20 percent, probably 18 to 19 percent. As I remember, the index of food and the retail cost of living has increased by about one-half of 1 percent. Is that true?

Mr. CLAGUE. Yes, I think that is right. Of course, in the Consumer Price Index we have a lot of services, and that tends to make it——

Senator DOUGLAS. I understand. I mean this is a real problem. The farmers get 20 percent less for a unit of food, and when their food is taken to the cities and processed and delivered the consumer pays one-half of 1 percent more. Now, how much of this is due to added services, how much of it is due to increased transportation costs, how much of it is due to increased wages? We tried to get an investigation started into this some years ago. We never had much luck. This seems to be one of the investigations that is very difficult to get carried through. The difficulties are in part congressional, I will say very frankly, but I suspected at times they were administrative.

Now, you have a central statistical group, do you not? Are you under the rule of the Bureau of the Budget?

Mr. CLAGUE. Yes; the Office of Statistical Standards.

Senator DOUGLAS. Is that Bureau of the Budget?

Mr. CLAGUE. Bureau of the Budget.

Senator DOUGLAS. Do you have representation on that?

Mr. CLAGUE. No; they have a staff.

Senator DOUGLAS. That is from above?

Mr. CLAGUE. Yes; that is a staff in the Bureau of the Budget, one branch.

Senator DOUGLAS. I think that ought to be supplemented with a committee composed of the working statisticians themselves.

Mr. CLAGUE. There are some such committees. We have one on employment and unemployment statistics, on which the Director of the Census and myself and the Agricultural Marketing Service in Agriculture sit with the head of the Office of Statistical Standards.

Senator DOUGLAS. Do you have one on prices?

Mr. CLAGUE. No.

Senator DOUGLAS. Would that not be a good thing to do, have an interdepartmental committee on prices? I am not proposing you reconstitute the Committee of the Assistant Secretaries, because the President is trying to eliminate those, but you fellows get together and eat meals together from time to time. Would not that be a good idea?

Mr. CLAGUE. Yes, Mr. Chairman. I might say that Mr. Jaffe tells me there was such a committee active in the early 1950's, but it has not been active recently.

Senator DOUGLAS. Well, I would like to see it reconstituted. Having something of an occupational prejudice against those who ride herd over workers, I will ask some of these questions of Mr. Bowman when he comes up later, but in the meantime I would say, "Statisticians of Washington, unite with your Univacs."

Mr. STAUBER. Mr. Chairman, I think it would be fair to say that although there may not be a really formal committee that there are frequent conferences back and forth.

Senator DOUGLAS. But those are ad hoc conferences.

Mr. STAUBER. Yes; so we are not working in isolated compartments.

Senator DOUGLAS. But would this not be a good idea? These different behaviors of basic prices—wholesale prices, retail prices—interested me very much. Each one of you is busy getting out your own series, but the interrelationship of the series seems to me the crucial point. And that is one of our difficulties in Government. I think it is one of the difficulties in American life to spend lots of money for detailed figures and spend very little money trying to pull these figures together to see what the general meaning is. Now, if you run a gross national product factory I suppose you do have to put them together.

Mr. CLAGUE. And you should add the Council of Economic Advisers, of course, which in a broad way for the total economy, is trying to put this together.

Senator DOUGLAS. I suppose I should apologize for intruding on the work of the Council of Economic Advisers.

Let me say I have enjoyed the morning very much. I appreciate your coming.

Dr. Knowles has a question for the record.

Mr. KNOWLES. Yesterday the question was raised by Mr. Curtis as to the use of electronic equipment in the construction and production of these price statistics every month. I thought for the record this

might be an appropriate time to ask the people who prepare the statistics to what extent they use this equipment and any comments they have to make on its use, development, and its future promise.

Mr. CLAGUE. Mr. Chairman, I would like to answer that, because we are both cautious and careful users of electronic equipment. We have over the years gradually changed our operation as we felt it fitted our needs. We have not gone as far as the Univac because we are not large enough to use that effectively.

I did prepare a short statement here on the use of computers, which I would like to offer for the record.

Senator DOUGLAS. I suspect some collusion between Dr. Knowles and Dr. Clague in this matter. His questions are beautifully timed.

Mr. KNOWLES. I have a habit of noting questions for members who cannot get answers in 1 day.

Mr. CLAGUE. Yes, Mr. Chairman. We had somebody listening to the hearings.

(The statement referred to above follows:)

STATEMENT ON USE OF COMPUTERS

Interest was expressed during the hearings last January 24, by Representative Curtis, in the use of computers in the field of economic statistics.

The BLS has had favorable experience in computer operations thus far, and plans to continue the development of its electronic data processing. Its first full-scale computer was installed in September 1958, and in January of this year a newer model, with additional features and capacity, was put into operation. In previous years the Bureau had to rely on, and made effective use of, the simple electronic calculators then available. In addition, of course, the Bureau employs a full range of conventional sorting, collating, and tabulating equipment.

The Bureau is considering the desirability of acquiring one of the more advanced computer systems now available. A Staff Committee on Data Processing has been set up to study the Bureau's current and anticipated data processing operations, in order to determine the type of equipment and organization which will best meet requirements during the years ahead.

Publicity concerning the lightning speed and the reliability of computers should not lead one to expect an automatic solution to statistical problems. The computer can be of assistance at various stages of statistical investigation, but it provides no easy solution to many problems. For example, the computer provides little if any assistance in such important phases of a statistical project as the recognition and definition of the statistical problem and the selection of the approach for its solution, in sampling, in field collection and editing of data, and in review and evaluation of results. The results that come out of a computer can be no better than the raw data that are fed into it, so the noncomputer phases of the work should not be underrated in relation to the computer operations.

Likewise, it is important to understand that the job of organizing a set of statistical data for processing on a computer and preparing the sequence of instructions to the computer—referred to as a "program"—is a difficult and time-consuming job. There are standard programs for some of the conventional operations and for some of the more widely used business operations but in the case of processing of statistical data the program must be tailormade for each project.

While the availability of a computer saves on some phases of a statistical operation it causes additional work in other phases. Thus, more advance planning, rather than less, is required because of the necessity to program the computer in advance to handle all of the many unusual conditions and possible types of errors and inconsistencies that may exist in the data. In some cases it may actually appear that the availability of a computer has added to the workload taken on the overall basis. This is because more rigorous statistical tests are employed when a computer is available than would be demanded if the work were to be done clerically. Likewise, more summary

tabulations involving more complex classifications and analysis are scheduled too. Thus, the computer makes possible a statistical output of higher quality and validity and produces more varied and meaningful data for analysis.

The BLS has found the computer quite useful in the routine parts of such "screening and testing" of data. Tabulating equipment has been used in the past for this purpose, but the computer makes possible a much more thorough and efficient screening. Clerical employees are relieved of much routine checking, and more of their time is available for investigation of unusual conditions in the data, which the computer program singles out as subject to review. Data are now checked at an earlier stage in the processing; this reduces the likelihood of errors being covered up in the mass of data, and of not showing up until detailed tabulations have been completed.

Few of the BLS tabulations consist of simple compilations. They generally include comparisons with previous data, weighting of sample results according to the size and relative importance of different sample components, calculation of indexes and averages, and so forth. The final results of the computations are printed by the equipment in a form suitable for direct reproduction and publication wherever possible. Thus, the monthly summaries of Wholesale Price Index results are produced by the photo-offset process from machine listings.

The remarks just made indicate that the Bureau's use of the computer has been one of gradual development, and is likely to continue in this manner. Some of the Consumer Price Index operations are mechanized, but other parts are still being performed clerically. The Wholesale Price Index operations are the most completely mechanized with all operations performed by machine after the initial clerical and professional review of the monthly price reports. In all of this work the objective is to process data continuously through as many steps as possible in each computer program, but in dealing with price data several intermediate review points are necessary. The Bureau intends to continue its efforts to extend the use of computers in the monthly compilation of the CPI in connection with the revision of the CPI now in progress.

Employees responsible for the development of computer programs must have specialized training and aptitude and must also be familiar with the data and methods of computation. It has been necessary for the Bureau to train employees for this work and it is expected that such training activity will continue to be needed in the future. The machines themselves are automatic, but to set up the machine for handling a statistical problem is a difficult human task. The computer manufacturers are seeking ways to simplify the writing of computer programs, which has been a slow and detailed process, but there is no way they can simplify the planning work that is involved in a complex project. The development of computers has proceeded faster and further than the development of the programing languages.

It should be clear also that the gradual development of the Bureau's processing methods has not resulted in any major dislocation of personnel. Changes have been gradual, and there has been no more than a normal amount of shifting of personnel from one work assignment to another.

The computer operations have made possible in some cases an earlier release of current statistics and more comprehensive summary results. There has been a reduction in some routine clerical functions, and a better utilization of the abilities of Bureau employees. The Bureau also is in a position to handle moderate expansion of its statistical samples, and in fact has been doing so, by more intensive use of its existing processing systems.

Mr. KNOWLES. I have another question. I am not quite sure whether all of you can answer it, but if it can be clarified it would help. This refers to the question of the Consumer Price Index.

There is apparently a difference in view as to whether this index is or should be an index of prices, market prices per se, without concern particularly for whether this is a measure of welfare or utility in some sense, or whether or not the index should be moved in the direction of what has been, in these reports and hearings, refererd to as a constant utility or a welfare index. I will preface it without going any further by saying this has gotten confused with the question of the constant quality control, so I am not referring to the matter of control over quality changes. I am referring to the question as to whether

there is any real difference between an index that measures the prices adjusted for quality change—let us for a moment lay that problem aside—and a constant utility index.

Are you and the committee really at odds or are you both talking about the same kind of thing in a different set of words?

Mr. CLAGUE. Mr. Knowles, I am glad you brought out the point about the fact that quality improvement is a problem of ours in a price index, entirely apart from this constant utility index or welfare index. I am glad it has been emphasized.

To some extent it is a little hard for us to get quite clear in mind what this welfare index would be and how you would measure this concept. I can understand very well there is a level of living which represents a standard for each of us, and we each enjoy a certain level of living. We spend our money and we get our ultilities accordingly. How one keeps track of that in practical ways from one period to another is the difficult question.

Now, I would like to mention that in our longer report we did refer to a study made by Dr. Ullmer way back in 1946, which appeared in the Journal of the American Statistical Association, on "The Economic Theory of Cost of Living Index Numbers." He makes this statement which I might cite here. He indicated that a Paasche price index would not differ by 1.5 index points over a 10-year period from the true cost-of-living index based on current levels of living. Similarly, a Laspeyres price index would not differ by more than 1.5 percent from the true cost-of-living index based on an earlier period levels of living.

However, I am not sure how he defines his current levels of living. He undoubtedly had a technical method of using similar commodities and similar circumstances and similar utilities in order to get at it. His statement would indicate that the difference was not very great. But the problem of trying to move over to this measurement of utilities and of constant utility is something that I think must be answered by further study, not by attempting to move here or there or in some other place, where it seems as though an approach could be made for a particular commodity or service.

Mr. JASZI. I have a comment on this, Mr. Knowles.

I find this concept of a constant utility or welfare index elusive if you look at it in the abstract. Accordingly, I think it contributes to the discussion more if we do not discuss it in the abstract but if we look at the specific recommendations of the Price Review Committee for implementing the concept in practice and discuss the pros and cons of the specific recommendations which are on pages 52 to 54. So, if I might take up your time for a moment I would like to comment on the specific recommendations, not on the general concept, because I find it unmanageable, but on the specific recommendations.

Now, the first one deals with weight revisions. The Committee recommends greater frequency of revisions. I think this is a reasonable recommendation, but two things should be kept in mind. First, weight revision is a very expensive proposition and, secondly, its quantitative effects are often surprisingly small.

The second recommendation under this heading refers to new commodities, and it is for the earlier introduction of these commodities. I find this recommendation quite attractive, but also I find myself

holding back a little bit because whatever references I have been able to find in the standard texts on this subject recommend for a delayed introduction of new commodities. Specifically, this book of Ullmer's which was just mentioned by Mr. Clague says quite definitely one should introduce new commodities only after they have established themselves, so to speak. So while I kind of sympathize with the recommendations of the Committee to introduce new commodities as soon as possible, I think there might be a little further study on this subject.

The third recommendation relates to quality change, and in this connection the Committee says:

> Although we have suggested lines of research on the measurement of quality change, we are cognizant that our present knowledge does not allow for the routine—let alone current—treatment of this problem in price indexes.

Surely this is a statement with which nobody could disagree.

The fourth recommendation deals with durable goods. Here the recommendation is that in the case of residences the item that should be measured is an imputed rental rather than the price of the house purchased. Here I must confess that I sympathize with this recommendation because it fits in very nicely with the treatment of this item in the national income and product accounts, but I can see that from the standpoint of the BLS there are major difficulties in the way of its implementation in the Consumers Price Index. The Committee also notes that "A full treatment of the problems posed by durable goods calls for much additional research," to which I heartily subscribe.

Now, the fifth recommendation deals with insurance. Here I find the report definitely obscure. For instance, the Committee recommends the inclusion of life insurance—"include life insurance with a weight representing only the expenses and profits of life insurance companies"—but unless I missed the relevant passage it does not say how the price of life insurance ought to be measured. The fact of the matter is that in the case of insurance and many other financial services it is very difficult to visualize the physical unit of output, and as long as one cannot define the unit of output one cannot really measure its price. I do not think that the Committee has made any contribution to this very tricky but, fortunately, quantitatively unimportant area.

The sixth recommendation is with respect to Government services and taxes. The Committee observes that

> Much research will be necessary before a more comprehensive welfare index which includes Government service can be constructed, and we are not prepared to recommend any changes in the present practices at this time.

I agree that there should be no change.

The Committee recommends that a program of research in prices, price indexes, and the measurement of welfare changes be established. The discussion of the Committee implies that this has been a neglected area of research and that a large net return can be expected. Quite to the contrary, under the heading of "New Welfare Economics," eminent economists have struggled intensively with these problems for longer than a decade. Recently there has been some letup, not because the problems have been solved but because some of the principals have quit. This is a note of caution against excessive optimism and is not designed to discourage research, which I favor. In particular, I think that the specific contribution of BLS to this type of research outlined by the Committee is eminently worthwhile. It consists of

empirical studies designed to examine the quantitative influence (1) of alternative weighting schemes; (2) alternative dates for introducing new commodities; and (3) alternative methods of treating quality change. I think each of these research areas is eminently worthwhile, and I would very much like to have more work on this type of problem done.

In summary, you can see that the specific recommendations made by the Committee under the heading of "Constant-Utility or Welfare Index" are much less sweeping than these general terms imply. It seems to me, accordingly, that we have a much better chance of arriving at agreement if we discuss the specific recommendations than if we argue about the broad and necessarily vague concepts.

Mr. KNOWLES. Anybody else want to get into this?

Senator DOUGLAS. Yes, I do.

It is bad enough to try to do this with external objects, common units of utility, but when you have to take into account the fact that people themselves change it oftentimes becomes more difficult. It has been said that one never steps into the same stream twice. It is also true it is not the same person who steps into the same stream twice. The stream is not only different but the person is different. In 1900 the average education of an American was I think the sixth grade. Today the average education of an American is high school. Now, does this make for greater enjoyment? Do you get more enjoyment? Does a college graduate get more enjoyment out of a hotdog than a sixth grader? On the other hand, may he not get more enjoyment from a painting—and probably does—than a sixth grader? How can you compare the decrease in satisfaction with the hotdog with the increase in satisfaction on the painting? How can you measure either one to begin with, or how can you equate them after you have measured them, which is, I think, practically impossible to begin with.

So I think a decent sense of limitations of figures is a desirable attribute on the part of statisticians.

Mr. KNOWLES. I might point out Mr. Chairman, the reason for my raising this question was precisely the point, which is as far as I can read this report, when you get through reading the eminent gentlemen who have used some language which comes from their academic backgrounds and their concern with theoretical economic issues as well as statistics, that when we get down to making recommendations for Government agencies to follow, they, in effect, tell you to do more effectively what you have been doing, which is to measure the change in prices of a package, which is, as far as you can tell, what consumers themselves indicate by their performance in the marketplace is a package that gave them equivalent satisfaction, as far as they could tell it. This is what you actually do, however you slice it, because you did not pick up, the first time you started the Consumer Price Index, a set of commodities out of thin space that met your own criteria. You went out into the market and said, "what do consumers buy, and what do they consider to be the combination of goods that meets their wants and proclivities, given the budget constraint," and periodically you go out and ask them again and try to see if the package is still the same or make alterations,

and if an old commodity disappears and is replaced by a new one you make substitutions to try to keep the market basket constant.

So in point of fact what this Review Committee has been saying is that they do not believe you have followed your own philosophy rigorously enough or as consistently as you should, and please go do it. I may be mistaken, but when I get through reading the language it sounds like there has been a lot of words, but they are saying to you in effect, for example, on specification—

> We don't think you have been doing a good job of specification pricing, the one agency being too rigid in many cases and the other not rigid enough. Please find a happy medium where you meet the realities of the marketplace, where housewives do not have rigid specifications but on the other hand where you want to be careful that you do not get so sloppy as to ignore real changes in prices that occur and confuse changes in qualities and prices.

So they are in effect pleading for a more strict and a more consistent statistical methodology of doing what you have started to do, as far as I can make out, and I can only think from this standpoint that maybe we would all be happier if we could do what they asked us to do and wait for you to follow out the recommendations for improved methodology of doing the job. But I fail to see in this report a radical innovation of some sort of welfare index, which is some esoteric college mathematician's dream of a perfect index number. It seems to me they were simply telling you that—maybe I am misinterpreting Dr. Stigler and his compatriots—but I think they are saying you cannot collect such a package of prices that does not have an implied welfare package associated with it, because if you price what the consumers buy they have made some judgment about welfare in allocating their funds, and if you measure correctly what they do you are going to measure welfare in some sense, but do not ever ask anybody to tell you what welfare you measure at the time for a given person.

Senator DOUGLAS. Well, gentlemen, thank you very much.

(Whereupon, at 12:45 a.m., the subcommittee was recessed.)

GOVERNMENT PRICE STATISTICS

WEDNESDAY, MAY 3, 1961

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

The subcommittee met at 10 a.m., pursuant to recess, in room G–308, New Senate Office Building, Senator William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire.

Also present: John W. Lehman, deputy executive director and clerk.

Senator PROXMIRE. The subcommittee will come to order.

Our first witnesses are Mr. Robert J. Eggert, chairman of the Federal Statistics Users' Conference and marketing research manager for the Ford Motor Co., and Mr. Roye L. Lowry, executive secretary of the conference.

We are very happy to have you gentlemen here.

You may proceed as you wish.

STATEMENT OF ROBERT J. EGGERT, CHAIRMAN, FEDERAL STATISTICS USERS' CONFERENCE AND MARKETING RESEARCH MANAGER, FORD DIVISION, FORD MOTOR CO.; ACCOMPANIED BY ROYE L. LOWRY, EXECUTIVE SECRETARY FOR THE CONFERENCE

Mr. EGGERT. Thank you. We have a prepared statement, Senator, that we would like to review with you.

Senator PROXMIRE. Very good.

Mr. EGGERT. We would be, of course, anxious to have you interrupt for any questions at any time if you have them. I should emphasize that I represent the Federal Statistics Users' Conference today rather than my own employer.

I appear here today to summarize user views of the Price Statistics Review Committee's report as they were expressed at a conference on Federal price statistics held by the Federal Statistics Users' Conference.

The Federal Statistics Users' Conference is an organization of over 150 business firms, farm organizations, labor unions, and nonprofit research groups which use Federal statistics and are interested in their improvement.

We have had an organized meeting to go over this report and what I am presenting here pretty well comes out of the information and the opinions that were expressed.

Senator PROXMIRE. When was the meeting held?

Mr. EGGERT. This was held March 17.

Senator PROXMIRE. It was a meeting of what specific group? Was it a meeting of the directors or the executive committee?

Mr. EGGERT. It was a meeting of interested users. There is a report there that will give you the individuals that participated in the conference.

Senator PROXMIRE. I am going to place into the record after you have finished your testimony a report of the Conference on Federal Price Statistics held at the Hotel Statler-Hilton, March 17, 1961. I think that will be very useful to us and should be made part of the formal record.

Mr. EGGERT. As you can see, we had Professor Stigler make the presentation of his findings and then we had A. Arthur Charous of the Sears, Roebuck & Co.; Mr. Hamilton of the American Farm Bureau Federation; Lazare Teper, who I believe will testify tomorrow, of the International Ladies' Garments Workers' Union; and John W. Kendrick, from George Washington University, who presented their specific views.

Senator PROXMIRE. May I ask if your organization has had any success in securing the participation of people representing the consumers' viewpoint?

Mr. EGGERT. Yes. Among our membership we have the nonprofit organizations and I think a number of them definitely have the consumer viewpoint as part of their objectives.

Senator PROXMIRE. I am thinking of an organization that has this as a specific end. There are some consumer organizations?

Mr. EGGERT. I do not believe there are any.

Mr. LOWRY. None of these consumer organizations are members of the Federal Statistics Users' Conference. We would be glad to welcome them as members.

Senator PROXMIRE. I see. Proceed.

Mr. EGGERT. We have about 150 business firms, farm organizations, labor unions, and nonprofit groups in our membership.

As Roye has said, we would certainly welcome those who specifically espouse the consumer viewpoint although I think it is fair to say that these other groups, too, certainly we in the automobile business, for example, have to and do pay attention to the consumer viewpoint. But we would welcome the other groups that are particularly organized for that.

We are an unusual group in the sense that we do represent these four different areas. In fact, I think it is about the only group that does have the four groups, business, labor unions, private groups, and farm organizations in one organization. Of course, there are professional associations like the American Statistical Association and the American Marketing Association which include individuals from these different groups, but of this type of organization we are somewhat unusual in that regard.

The price statistics compiled and published by the Federal Government are widely used outside of Government. The use of the Consumer Price Index in collective bargaining agreements is, of course, well known. The use of wholesale price data in long-term business contracts of various kinds is likewise widespread. For economic analysis, adequate price data are a prerequisite for any analysis of inflation; they are a necessity for any study of the growth of the

economy's real output of goods and services, and current price movements are numbered among the most important economic indicators.

I have an exhibit that we use with our top management at Ford Motor Co. This is a management data report, used on Monday morning and it included a chart which showed the used car index as published by the BLS. I thought you might like to see an illustration of the kind of use that we as Ford Motor Co. make of a part of the Consumer Price Index. We use it specifically in our day-to-day and week-to-week activities, and I am sure that this is true of many companies and many of our other member companies.

Price statistics are not only widely used; they are also widely publicized. The monthly releases on the Consumer Price Index receive more public attention than any other current statistics put out by the Federal Government with the possible exception of the monthly data on employment and unemployment.

It is fitting that statistical programs of such importance should be subject to critical review from time to time.

We want to commend the Bureau of the Budget for causing this review to be made.

Users should be grateful, also, to the members of the Price Statistics Review Committee and to the authors of the staff papers which are attached to it. The 78 printed pages of the Review Committee's report are full of suggestions and recommendations, and I doubt that there is a single page without at least one. When the 12 staff papers are added to this, we have a volume which is almost encyclopedic in character. This is an extremely useful document we think, Senator.

In order to get a better appreciation of user views on this report, the Federal Statistics Users' Conference held a conference on Federal price statistics on March 17, which is the date that we referred to earlier.

The conference was attended by 50 users of price statistics from various sectors of the economy and invited Government guests.

Professor Stigler summarized the Review Committee's report and highlighted its recommendations. In fact we started our conference with his summary. Then the panel of users that I mentioned earlier including A. Arthur Charous, Sears, Roebuck & Co.; W. E. Hamilton, American Farm Bureau Federation; Lazare Teper, International Ladies' Garment Workers' Union; and John W. Kendrick, the George Washington University, made some extended comments on the report. At the luncheon session, Robert J. Myers, Deputy Commissioner for Labor Statistics, described some of the efforts being made by the Bureau of Labor Statistics to improve price information. The afternoon session was devoted to a general discussion of the Review Committee's report in which all participants in the conference took part, and there was a fairly lively exchange of views on a number of items and that is what we are going to report on.

The conference on Federal price statistics did not attempt to formulate specific positions for or against the recommendations contained in the report; rather it sought to obtain some general indications of areas of major user interest to help guide the Federal Statistics Users' Conference in making specific recommendations for the improvement of price data to include in its long range program for the improvement of Federal statistics which we are constantly revising and bringing

up to date. I believe the joint committee has received copies of this long-range program. This was our major objective in holding this conference and in the future the later recommendations that I make here will appear in our long-range program.

Through the courtesy of the Joint Economic Committee, each participant in the conference had been furnished a copy of the report prior to the conference. Most of the participants were not experts in the field of price statistics.

I want to say that I am not an expert in the field of price statistics. We use them a great deal, but I would not want to appear to be trying to qualify as an expert.

There appeared to be general agreement that it would be necessary to give extensive further study to the report to make an intelligent appraisal of all the suggestions and recommendations contained in the report, its appendexes, and the staff papers.

One point that we want to make strongly is that users must think of priorities—that some sort of ranking of relative importance must be given to the suggestions made by the Price Statistics Review Committee.

Participants in the conference on Federal price statistics felt very strongly that users have a serious responsibility to consider which of the numerous recommendations in the report are most important and to think in terms of giving them rank or priority. It was recognized that the Review Committee was charged with examining existing data and needs for improvements and was not called upon to consider the cost of effecting these improvements.

We are not being critical of the Review Committee because we think that they approached it in the right way but they were not necessarily instructed to consider the cost of getting all the improvements that they recommend.

It was felt that users had to think seriously about the cost of improvements and had to consider for each improvement whether the benefits would justify the increased cost or whether resources might better be used elsewhere.

I might say that one of the important functions of the conference is to get users to face up to the need for considering the relative importance of needed improvements in Federal statistics, not just in the area of price statistics, but in other areas as well.

Professor Stigler's summary of the work and recommendations of the Review Committee lifted certain major recommendations out of the body of the report and created a more manageable framework for discussion. Generally speaking, Professor Stigler's summary of major recommendations followed that set forth on page 21 of the Review Committee's report. For convenience, the balance of my remarks will follow this outline. I will summarize the comments made by participants on March 17 on each point. Where it seems appropriate to do so, I will supplement such comments by other user views which have been expressed at annual meetings of FSUC or in connection with the preparation of the conference's long-range program for the improvement of Federal statistics. Thus, I will be integrating into my remarks the material presented at our conference in March and any earlier comments which have been made.

Senator PROXMIRE. This is a price statistics committee, is it not, and you were concerned with price statistics?

Mr. EGGERT. At this conference in March, yes.

Senator PROXMIRE. I presume that you did not devote time or make recommendations then on employment statistics?

Mr. EGGERT. Not at the March conference, although our long-range program that we published in January does include some recommendations in other areas of Federal statistics.

Senator PROXMIRE. Why did you happen to concentrate on price?

Mr. EGGERT. It was because the Stigler report had been made available to us, and, in fact, when we worked up our own long-range program, we purposely left out reference to price statistics until this report would be made available because we felt that this was such a major undertaking that we needed to recognize it in terms of our own program, and this is what we are in a sense doing and is the reason we concentrated in March on the price statistics part.

1. The Stigler committee recommended that schedules of periodical revisions of weight should be adopted. We concur with the committee's findings on this.

Participants in the Conference on Federal Price Statistics did not address themselves to this question, but a number of oblique references to this recommendation appeared to support it.

The Federal Statistics Users' Conference has recognized the need for the periodic revisions of indexes and has been on record as supporting the current program for revising the Consumer Price Index now under way in the Bureau of Labor Statistics, so that our group endorses the need for a periodic revision of weights.

Senator PROXMIRE. What do you mean by "periodic"?

Mr. EGGERT. At least every 10 years, and we bring that out in our final recommendation.

Senator PROXMIRE. In the final recommendations, do you discuss the cost of these various proposals?

Mr. LOWRY. This is about a $4 to $5 million job under the current estimate.

Senator PROXMIRE. I see.

Mr. EGGERT. We do not have that in our prepared paper but I believe the current revisions are in the neighborhood of $5 million.

Senator PROXMIRE. The general sentiment was that 10 years would be adequate? Was there any strong feeling that it should be more frequent?

Mr. EGGERT. There was no strong feeling that it should be more frequent. Let us say that the attitude was that it should be at least every 10 years.

Senator PROXMIRE. There was considerable unanimity in favor of that?

Mr. EGGERT. Yes.

Mr. LOWRY. Senator, I think the important thing to report is that the feeling was that there should be a regular program for the revision; that this should occur at least every decade. In the past there has not been this regular program of revision of weights. The significant point is that it should be a regular part of the Federal statistical system.

Senator PROXMIRE. Was any consideration given as to when in relation to the census?

Mr. LOWRY. No, not at this conference.

Mr. EGGERT. I think this requires further study and certainly some relationship to the time of the census and the revision probably is wise here. The current procedure of BLS's present position of reviewing currently for 1961–62 is perhaps a fairly appropriate timing.

There are some of our members who I think would favor a more frequent revision than 10 years, but the point that we want to make as a group is that it should be at least every 10 years and on a periodic basis.

2. The Stigler committee recommended that probability sampling should be used so that the precision of the index can be measured.

Professor Stigler indicated that this would be a long-term goal and that a good deal more research would be needed before probability sampling could be fully used for outlets and for specific commodities.

Participants in the conference felt that the use of probability sampling for developing price information has not yet been explored adequately from either a theoretical or a practical point of view and agreed with Professor Stigler that much remains to be done before the use of probability sampling would become operationally feasible. There is more support for this in theoretical concept than there is in the practical day to day ability to use probability sampling and we wanted to make that point. That came out in a number of comments that were made at our conference.

It was pointed out that the development of an adequate sampling frame for the CPI would require a wealth of detail which would be very costly to collect and might have to be ruled out for this reason. Here again you see that users were seeking to find a balance between what we need and what it will cost.

It was suggested, however, that the detail gathered in developing an adequate sampling frame would be useful for economic analysis and market research by users of distribution statistics.

Senator PROXMIRE. I think it will be helpful to the Congress, because this is a report to be made available to all of us in Congress, if at this point you give us a little more simplified explanation of what you mean by probability sampling. That is probability sampling of what?

Mr. EGGERT. This can be in terms of individual commodities, in terms of type of market outlet, or in terms of geographic area. The main feature of a probability sample is that each price statistic has a known chance of appearing in the final compilation. It is a sample that would be based upon an objective and scientific approach to the selection of all the prices of any commodity.

Senator PROXMIRE. Let me see if I can give a specific example. Say you get the market-basket concept. Do you mean an attempt to determine how often apples or oranges or walnuts, and so forth, enter into the food purchases of the housewife so that you can get some notion of the relative importance of these various items of food?

Mr. EGGERT. No; let me illustrate using used car prices.

Every day there are used cars sold in the United States. Now, a probability sample would be a kind of sample that would weigh each year's model, would give appropriate weights to each year model and

would represent each of the sales that were made. It would be a true sample. Out in Lincoln, Ill., in my home town, the used cars sold today would have a chance of being included, and those in New York.

Senator PROXMIRE. So that you would have the model year, would you have the mileage on the car?

Mr. EGGERT. No, the complete universe, let us say, of all the sales that were made. The probability sample would be designed so that it would include the complete universe. That would be very costly to be sure that you had each used car price.

Sentaor PROXMIRE. Every car. I see.

Mr. EGGERT. In the universe from which the sample was selected. The probability sample gives each sale a known chance of being included in the final sample.

Let us say it is a one-tenth of 1 percent sample. The question is, Does the universe from which this sample that you use, from which it was selected, include all of the sales that are represented for what you are trying to measure? This gets to be quite costly. Be sure that each sale has a known chance of being included. The advantage of using a probability sample is that then you can study the degree of variance between what you find, this has been mathematically developed, and you can say it is accurate within X percent.

If you use a probability sample, the statistical tools are such that you can state the degree of accuracy of the data. However, it is an expensive sample.

Even in our own research work at Ford Motor Co. we rarely use a complete and true probability sample. We do for some types of studies, but they are expensive because it is difficult in many cases to be sure that all the whole universe is represented and has an equal chance of being selected when you draw your sample for making the study.

The BLS, for example, by the very fact that it prices only in 46 cities, leaves out many rural areas, and so on. This could be added, could be improved.

Senator PROXMIRE. Is there not a compromise? Could you not take a position that is far less expensive and could give you a rough approximation?

Mr. EGGERT. Yes; and this is what we are saying. This is exactly our point, that, while the probability sample might be a long-range desirable theoretical objective, it does not meet fully the test of being practical and it is costly and there are compromises that can be made that are close enough to be satisfactory.

Senator PROXMIRE. Thank you.

Mr. EGGERT. Now, we would grant that there would be other uses as there often are for Government statistics, other uses of a good probability sample in some of these areas, but we agree with the view that you have expressed that, while we should move in the direction of a probability sample, in many cases this would not be worth the cost.

3. The Price Statistics Review Committee recommended that new commodities should be introduced more promptly.

Professor Stigler listed this recommendation as a short-range goal for improvement.

User comment did not indicate either support for or opposition to the recommendation. There was some feeling that review committee's recommendation was weakened because it did not provide any yardstick for determining when new products should be added to the index.

There was no specific reference as to how fast a new product should be added to the index. The general recommendation was made but no specific standard was set up; whether within 2 months, within 6 months, with 12 months was not answered.

There was also some feeling that there was some inconsistency between the recommendation that new items be introduced more rapidly and the earlier recommendation that probability sampling be used in the preparation of the CPI.

If you want to introduce a new product when it first comes out, this makes a probability sample almost impossible to operate. You cannot discover this universe that fast because there simply isn't enough information on the new product to include it in a probability sample when it first comes out.

Senator PROXMIRE. What is the present practice? What is done presently with a new product? For example, when television came on the market, what was done?

Mr. EGGERT. One of the problems is that there is no rigorous rule as to when it is introduced. For example, the economy car was put in the index in October of last year. The economy car had been out on a volume basis for at least a year so that within 12 months the economy cars were put in the index.

What Professor Stigler's committee recommends is that they imply that this should have come in sooner. They do not say when, but perhaps within 6 months or 3 months. The general idea that new commodities should be introduced at a fairly reasonable time is certainly consistent with our views but we have no recommendation to make as to exactly what the timing should be and I think the BLS practice of perhaps using appropriate judgment, as they apparently have in the past, is a reasonably good standard of putting these new items in. Certainly they should be eventually put in, and they are. This is a part of the current BLS practice today. It is a little bit hard to say that there should be a firm rule here, that it should be within 1 month or 3 months or 6 months. I suppose that is why Professor Stigler's committee did not make a specific recommendation.

Senator PROXMIRE. It seems to me that, on all of these recommendations, the Congress would be helped if we could know the extent of distortions from not having followed the recommendations. If any study or case has been made by any one to show that, it seems to me that that kind of thing could be very convincing.

Mr. LOWRY. This was exactly the problem that troubled the participants in the conference that we held. Users felt that, while a number of recommendations were made for improving the price index, there was no evaluation as to just how serious the failings of the present index were and no indication of what the benefits would be if this or that or all improvements were made. This was the major reason why the participants in the conference felt, "We need to have some idea of what the cost of these improvements is," because the improvement actually might be so marginal in terms of a refined

index that it would not really support the additional cost entailed to produce the refinement.

Mr. EGGERT. Later in our report we do make a recommendation for specific research funds for study, and this might be one of the items that needs further attention to find out just what, as you say, Senator, the distortion is in delaying the introduction of a new product. That has not been covered adequately in our judgment.

Senator PROXMIRE. I think that is a contribution that these hearings can make.

Mr. EGGERT. Yes; and perhaps some of the later testimony will be on that subject.

4. The Stigler committee recommended that the price collection agencies should be given funds for research divisions and that the development of methods for coping with quality changes should be a major task of such divisions.

The participants in the conference appeared to agree with the need for further research on many problems raised by the review committee's recommendations but did not express themselves on the desirability of setting up research divisions.

We cannot interpret that as being one of the recommendations that grew out of our meeting.

There was a considerable amount of discussion about the problem of accounting for quality changes and by implication agreement with the proposition that more research in this area is needed. However, users appeared to have reservations about some of the review committee's specific recommendations as to how quality factors might be accounted for.

One of the staff papers in the committee's report takes up, for example, the quality changes, Senator, that we have had in new cars. There is a mathematical formula, a correlation formula that includes the length of the car and the weight of the car and the horsepower of the car and using those as a basis for accounting for quality.

Well, I think it is fair to say that the comments at our meeting suggested that there might be some real limitations to using just those.

Senator PROXMIRE. I would say that would put it mildly. It would seem to me that you could hardly evaluate the benefits that you get from a car by its length.

Mr. EGGERT. That is right, and it is just in contrast to the marketplace acceptance of the economy car which is a shorter car and which is a car of less weight and which is accounting for somewhere around 35 percent of the total industry sales today, so that this is a part of the problem, the problem of defining quality in a customer sense, which is a very difficult problem.

Senator PROXMIRE. It seems to me that you have to recognize that you cannot possibly objectively measure these differing value judgments that people have. Some like tail fins and are willing to pay for them, but there is no possible way of evaluating that.

Mr. EGGERT. You can move in that direction, and the BLS people have recognized these. When automatic transmission was brought in and power steering, this was recognized.

Senator PROXMIRE. This is just a personal view but I would prefer to have the error on the side of not trying to recognize some of these

things that are fashion and are of questionable objectivity. For instance, if you get additional mileage from a car, you can measure that. I think power steering is something that would be of some value, but, as to some of these other things, I think if you just forget them you will probably have a more accurate index.

Mr. LOWRY. I believe, Mr. Chairman, when you have an opportunity to look at the testimony of yesterday you will find in it a somewhat fuller discussion of this particular problem and how BLS has accounted for some of the quality changes in automobiles and how they have not included in quality change tail fins or chrome. They took legitimate and recognizable changes like automatic transmissions or power steering and factors of this kind but styling and fashion and a number of other things are not accounted for as quality.

Mr. EGGERT. We have a good illustration in our own field. Ford Motor Co. this year has introduced on some of its lines a 30,000 mile lubrication, for example. Other companies as yet do not have that.

I think it would be a mistake for BLS to take it into account just because one company brings it out. If other companies follow within a year or so, I would personally have a view that that is a substantial enough change in quality to be recognized because there is a big difference going in every 1,000 or 2,000 miles and getting your car lubricated and going in at 30,000 miles. It is a cost difference.

Senator PROXMIRE. Did not Ford extend the guarantee?

Mr. EGGERT. To 12 months.

Senator PROXMIRE. But at the same time it is awfully hard to assess.

Mr. EGGERT. It is hard to value exactly.

Senator PROXMIRE. There is a tendency and temptation in these things to evaluate them in terms of cost to the producer. I suppose you can defend that to some extent.

Mr. EGGERT. I think what this amounts to is that we have certainly had improvements in our whole range of goods and quality that we are never able to fully account for, and, of course, the committee takes the position here that this tends to understate the real growth of the economy, and it does to some extent. To the extent that the deflaters that are used do not fully recognize growth in quality and improvement, it does to some extent. If some other country tended to do more of recognizing quality changes it might actually show a more rapid growth trend just because of this one factor alone, so that it seems that the right position would be to work toward recognizing as many of the measurable changes as we could. I think certainly this is a judgment area.

Mr. LOWRY. This was the view I think of the participants in the conference, that it was a judgment area and they agreed with you that there are many places where you can never really equate technical changes with the changes and satisfactions that people get out of using the products. There was a real skepticism about the ability to define objective factors to the extent that it would be possible to reduce quality changes to a mathematical formula and apply it and come out with a fully satisfying answer.

Mr. EGGERT. Now we get specifically to the Consumer Price Index. Specifically on the Consumer Price Index, the Stigler Committee said that the present index should be extended to include single persons

as well as families and that the index should cover rural nonfarm as well as urban workers. The Committee also recommended the development of a more comprehensive index for the entire population.

Participants at the conference did not comment directly on the merits of these recommendations. However, in the course of a preliminary survey of user needs for price information conducted last year by the Federal Statistics Users' Conference's Committee on Long Range Improvements in Federal Statistics, members of FSUC indicated a considerable interest in developing a "family of indexes" to cover different groups in the population. And I think we can say that one of the long-range recommendations would be that some gradual work be extended in this area. With this we would agree.

As to the Wholesale Price Index, the Stigler Committee recommended first of all, that the structure of the overall index should be revised to reflect the prices of a condensed input-output table for the commodity producing agencies.

Here again there was no comment on this recommendation from participants in the Conference on Federal Price Statistics. It was noted, however, that the prices paid by farmers for production goods and the prices received by farmers constitutes an input-output type of index for agriculture as a whole. In other words, there has been one step on the part of Agriculture in this direction which might be useful to examine in connection with this proposal.

Secondly, the Stigler Committee recommended that individual product prices, where feasible, be collected from buyers (not from sellers as at present) to get more accurate information on actual transactions. And here I would think we would all agree that theoretically this has merit. Participants in our conference, however, had two reservations about its practical application. One questioned whether the cost of collecting information from buyers in relation to the increased accuracy and sensitivity which this method would give the Wholesale Price Index would make the change worthwhile. This is another example of the point we discussed earlier. Is it worth the extra money this would cost to try to collect this from the buyers rather than collect it from the sellers?

In addition, it was suggested that the use of buyers' prices as transaction prices would raise new problems, and I think this is a significant point, since what might look to be different prices for the same thing might turn out to be different prices for different things due to the inclusion or exclusion of such items as installation costs, et cetera.

IV. INDEXES OF PRICES RECEIVED AND PAID BY FARMERS

1. The Stigler Committee recommended that the statutory prescriptions of the obsolete base (1910–14) and the inappropriate use of interest and taxes per acre, which are not prices, according to the Stigler Committee, should be reconsidered.

Participants in the conference did not comment on this recommendation and appeared to doubt that the suggested statutory changes could be achieved. It was pointed out that the Department of Agriculture actually uses much more recent periods in constructing the index and links back to the 1910–14 base period required by statute.

64846—61—pt. 2——9

As for taxes and interest, it was pointed out that data are available for constructing an index without these items. In other words, this is a separate item that can be taken out of the index so that actually there is an index available from Agriculture that does not include taxes and interest.

2. The Committee recommended that the coverage of the indexes (particularly that of prices paid for living) should be increased.

Participants in the conference did not comment on the need to increase the coverage of the prices paid for living but did voice agreement of the need to increase the coverage of prices for production services such as a custom hire for combining, veterinary services, and the like.

3. The Committee recommended that the indexes for farms as production units should be segregated from the index for farms as consumer units.

Participants at the conference felt that this recommendation had already been achieved since there are already separate indexes for family living items and for production items, and those are available from the official report.

4. The Committee recommended that the method of pricing should be shifted over to "specification pricing"—and this means a very rigorous specification for the commodities that you price, used cars of a particular grade and year model and so on—and that enumerative methods of collecting data should be adopted at least for commodities difficult to specify.

It was felt that the Review Committee's recommendation was right in principle and that the Agricultural Marketing Service should move further and more rapidly in this direction in preparing the Prices Paid by Farmers Index.

Present price specifications are not rigorous enough, and the comments made by our group are that we want to endorse some further improvement in this area.

Participants in the conference commented on a number of other features of the Review Committee's report. I will not speak to all of the items mentioned in the conference, but they are included in the summary of the conference which you have included in the record.

I would like to note two of the topics of general interest which I am sure you will hear more about during the course of the hearings.

The first is the welfare index. This is a controversial concept. Some of the most lively discussion of the day involved the Review Committee's concept of a welfare index or index of constant utility.

In general, user participants appeared to be skeptical of the practical usefulness of this concept.

It was argued that the Consumer Price Index as a measure of change in average prices of a fixed basket of goods and services is relatively easy to understand and provides objective standards for measuring price changes. In contrast to this, a welfare index was viewed as increasing and complicating the problems of preparing the CPI by introducing a greater degree of subjectivity. In other words, you get too far over in the direction of these uncertainties of utility and how much benefit one individual gets from a change versus another, and you begin to get to a place where I guess we are saying that there is a happy ground in the middle.

Senator PROXMIRE. Rather than a happy ground in the middle, you seem to settle on taking the market basket objectively in accepting that, do you not?

Mr. EGGERT. Yes, in accepting that, although recognizing that when we recommend changes in weights and the introduction of new commodities and recognizing those quality changes that can be really recognized, you do move.

Senator PROXMIRE. But that is all in terms of making your objective measurement more precise rather than trying to get some assessment of the subjective satisfaction that the individual person may get.

Mr. EGGERT. That is right. You move a little in the direction of what they are recommending but you do not go the whole way.

Senator PROXMIRE. I think that there are two different things here. One is trying to get an accurate objective measurement to the extent that you can have some of the items that constitute the cost of living, making it as accurate and up to date and precise as possible. The other is in trying to get an assessment of the satisfactions that people receive and I have great admiration for people who have the courage to attack this kind of a project but I must say that I would certainly share fully the skepticism as to whether or not you can ever work anything like that out that is very useful.

Mr. EGGERT. We agree.

As we point out here, a considerable amount of research would be a prerequisite to an introduction of a welfare index. Present knowledge and available techniques are not adequate for the purpose. The introduction of a welfare index based on inadequate knowledge and techniques might lead to an ex post revision of the index as improved methods are developed. This, it was felt, would tend to break down confidence in the index. We just do not have the tools.

A third comment asserted that the most likely outcome was a hybrid index which would be part price index and part welfare index which would be less useful than either a price index or a welfare index.

We are in full agreement as to taking into account the improvements that you can but do not move over into the direction of this uncertain area of what is utility and what is not utility. You just do not have the tools to fully measure it.

Another area which brought a lot of discussion on March 17 was the proposal for a seasonally adjusted consumer price index.

Past instances of the effects of seasonal factors on the CPI were cited, and there was a strongly voiced argument for giving special attention to pricing food items because of the greater substitutibility possible in this particular part of the CPI.

One of the reservations about the value of a seasonal adjustment of the CPI argued that a comprehensive seasonal adjustment program would raise new problems at collective bargaining tables where not only the indexes but also the seasonal adjustments employed would be questioned.

There were two representatives of the Canadian Government at our meeting and our Canadian guests reported that their experience indicates that seasonal adjustment is a factor of declining importance in the preparation of a price index in Canada, and Canada tends to have a wider seasonal fluctuation in many items than we do.

While some things are going up seasonally other things are going down seasonally and there is some reservation on the part of the users as to whether this adjustment would be worth while and I think it hinges on your earlier question of how much would this improve the index?

Senator PROXMIRE. At the same time it seems to me that the seasonal factor is something that can be more objectively measured. You do not have to worry about differing subjective valuations and it has been very, very useful in giving us a far more enlightened understanding of unemployment statistics, for example, and various other statistics, so that it seems to me that this deserves very careful consideration if it can be shown that there is any difference seasonally in the real cost.

Mr. EGGERT. On any individual item, for example this used car index that we are using, we adjust this seasonally ourselves because we do not think this would be useful without a seasonal adjustment. So that, as you get to measuring a specific price on a specific item, a seasonal adjustment becomes extremely important, and absolutely essential, I would say, if you are trying to measure different levels; but, when you combine all of these into the general index, this is where the question was raised by our group as to whether or not, after you add them all up, do you really gain a great deal?

Senator PROXMIRE. Let me see if I understand what we are talking about. It is perfectly obvious that, if you live in the northern part of this country, you have to pay a lot for heating in the winter months. You do not have to pay it in the summer months and the Deep South escapes from much of that cost. Is this reflected? I suppose this is reflected, is it not, in the cost of living index?

Mr. EGGERT. Yes; it is.

Senator PROXMIRE. That would be in the basic index?

Mr. EGGERT. Yes.

Senator PROXMIRE. So that one would anticipate, because such a large proportion of our population lives in the northern part of the country, that you would have a seasonal increase in the cost of living every winter. This would not require any particular seasonal adjustment.

Mr. EGGERT. Because it would be normal and there would be other offsetting forces.

I am trying to think of one that would offset that, but there would be others.

Generally speaking, these seasonal differences seem to pretty well cancel out and I believe, that a 1-percent change was what it was.

Mr. LOWRY. I believe some studies have been made on this. I do not know how detailed this has been but the suggestion is that the greatest change in the CPI which would be attributable to seasonal factors would be 1 percent.

Senator PROXMIRE. This is an overall national thing. It might vary some in Wisconsin as compared with Florida, I presume.

Mr. LOWRY. I am just talking about the national index. The Canadians have used a seasonally adjusted price index and it was their comment that the seasonal factors are becoming ever less important. We thought that was a rather interesting view since they have seasonal factors which fluctuate more sharply than our own.

Mr. EGGERT. I think we would agree that this requires, as you say, further study and there may be the need for some. Certainly if you are going to use the index in its pieces, if you are going to use parts of the index, then a seasonal adjustment it seems to me just logically becomes more important because, when you get down to an individual item, a seasonal adjustment is almost essential to understand changes because the seasonal on many items is still very pronounced, but the question is, overall, how much would you gain?

I would also like to say something about the cost of construction index. The Stigler committee recommends that present price statistics be expanded to include the development of such an index.

Participants in the Conference on Federal Price Statistics mentioned, but did not discuss, this recommendation.

Two years ago, the Federal Statistics Users' Conference made a study of major needs for improvement in construction statistics. The need for a more adequate cost of construction index was one of the first priority needs identified by users. It is gratifying to note that the Budget for the Bureau of the Census for 1962 includes a request for funds to begin exploratory work in this area.

We agree fully and the conference supports the recommendation of the Stigler committee on the need for a cost of construction index. This is a clear need and one in which some moneys have already been recommended in the President's budget.

To sum up the Federal Statistics Users' Conference supports the recommendation that there should be a periodic comprehensive weight revision of each major index at least every 10 years. The FSUC hopes that the current revision of the CPI will continue to get the full financial support it has so far received.

Second, we support the recommendation that the development of a cost of construction index should go forward at an early date. FSUC is supporting the budget estimate for this purpose.

Finally, the participants in the conference felt that additional research would be useful in many of the areas covered by the Review Committee's report.

We would like to see the BLS receive some additional resources for research purposes but we believe that any research undertaken by BLS should have a clear and specific objective in view. It is very important in our judgment, that research funds should be granted but they should have a clear and specific objective stated in advance so that these moneys would be to study the need for seasonal adjustment, these moneys would be to study the need for how far we can go to recognize quality, and so on.

In other words, there are areas in Professor Stigler's report beyond the two that we are prepared to endorse strongly today. There are areas that need further research study, further time and attention.

We endorse the need for funds to be provided for research but believe that those funds then should be spelled out specifically in terms of a clear and specific objective.

Senator PROXMIRE. I would like to ask you just two or three questions.

John Lehman, the clerk of the committee, points out to me that the maximum change for seasonal adjustment varies from a low 99.8 to a high of 100.3 which would be one-half of 1 percent. This is in 1959, the seasonal adjustment factors.

While this seems like a very small amount, the fact is that newspaper headlines have been made up on a lot less than that and this much of an increase in the cost of living or a decrease in the cost of living is regarded as significant and it has some effect on public view as to what is happening. So that, it would seem to me that we may be unprepared, and I am speaking about myself as a layman. I may be unprepared and most of my fellow Americans may be unprepared when they read in the paper that the cost of living is going up in November, for example, and one of the reasons may be because of seasonal factors.

In this sense, it seems to me that, if we can get more information disseminated to the public, there might be a better understanding.

This one-half of 1 percent is small but at the same time, because the changes are often one-tenth of a percent and they are noted and action is taken on the basis of that, this one-half of 1 percent can be significant.

Mr. LOWRY. Yes; but, Mr. Chairman, it has been pointed out that actually people do not live seasonally adjusted and, if the prices of things go up in November, the people are going to notice those things going up.

Senator PROXMIRE. I am talking about something else. I am not talking about the price going up in November. I am talking about the cost of living going up. Maybe the price of fuel oil may be less but they have to buy it in November.

Mr. LOWRY. They will notice this anyway and presumably the index would be published both seasonally adjusted and unadjusted and the story would be of important interest to the newspaper on an unadjusted basis. We have unemployment figures and we have other figures on an unadjusted basis and a seasonally adjusted basis.

Senator PROXMIRE. I am sure it might well be more interesting to the newspaper. It might make a better story. That is not the purpose. The purpose is to get greater public understanding if you have both figures. I think the public has become far more sophisticated in the last few years on this. When we have an increase in February in unemployment we brace for it and expect it. When we have a drop in April, this is expectable and, if it is not as much as seasonally expected, we know that we are in more trouble than we should be. I think that both figures are of some importance.

Mr. EGGERT. Seasonal adjustment could be one of the items that could be covered in our third recommendation here, that some research money should be devoted for this specific item. Rather than, let us say, moving next month or next July into immediately publishing a seasonal adjustment, I think some caution and some additional research study by BLS would be desirable before any seasonally adjusted index is published.

Senator PROXMIRE. You say:

> The statutory prescriptions of the obsolete base (1910–14) and the inappropriate use of interest and taxes per acre, which are not prices, should be reconsidered.

Mr. LOWRY. Those are the words of the Stigler Committee's report.

Senator PROXMIRE. One farm organization that took part with you is the Farm Bureau Federation, not the Farmers Union or the Grange?

Mr. LOWRY. A representative of the North Dakota State Farmers' Union took part.

Senator PROXMIRE. In your meeting?

Mr. LOWRY. That is right. The words you quote are from the Committee's report. This is not the statement of participants in the conference.

Senator PROXMIRE. I am asking for information on this now because it seems to me that farmers' taxes per acre are a mighty important cost. As a matter of fact, most farmers in my State pay far more in property taxes to the local government than they pay in Federal income taxes. To most of them it is a very heavy cost. This is not a depression era but even today farmers are losing their farms because they cannot pay their taxes. It is a big item.

Another item that is bigger by far to farmers than to other producers is interest. It is a big cost for farmers. I know that you are not saying that these should be disregarded but I think that any notion that interest and taxes should not be recognized as a very important cost of production for the farmer is not correct.

Mr. LOWRY. What the participants did point out is that, if people wanted to use an index which did not have these factors in it, they had these resources already available to them.

I think the real burden of this whole discussion of this part of the Committee's report was that it was pretty superficial, that you could find the answers to some of the Committee's recommendations within the existing published data.

Mr. EGGERT. I think we should make it clear again that the statement you read is the Stigler recommendation.

Senator PROXMIRE. I know that and again I am not asking with any notion of hostility or disagreement. I just want to get information.

Mr. EGGERT. The participants in the conference appeared to doubt that the suggested statutory changes could be achieved. Secondly, as Roye points out, the data are available. You can get the index with the interest and taxes in it and the index is published without them in, so that we feel that perhaps this was an area where the report itself was a bit on the superficial side.

Senator PROXMIRE. There was just one other question.

You talked about how other countries might give more weight to quality changes and therefore show greater growth than we show in this country. One of the great concerns, I am sure, of the Members of Congress and of all American citizens is the fact that this country has grown less rapidly than any other industrial country in the world in the last few years.

Have you made a sufficient study, or any kind of a study of statistics that are compiled in other countries?

I had the assumption, which may be just a chauvinistic assumption, unworthy and improper, that we had gone further and were more accurate than most other countries.

Mr. EGGERT. We have not made such a study but perhaps it might be worth while to compare the way in which BLS considers quality changes with the way other countries deal with this problem in their price statistics.

I would agree with your view that our price statistics are the best in the world and it is very likely that our own BLS people have moved faster in recognizing quality changes. I would agree with that.

Senator PROXMIRE. Your organization is enormously helpful to this committee and to the Congress.

Mr. EGGERT. Thank you.

Senator PROXMIRE. I am not sure whether you have the facilities to do it but a study would seem to be indicated.

There is no reference to England or Japan or even the Communist countries whose statistics, I am sure, have all kinds of holes in them. We might have gained some lessons from their failure as well as from successes. Have you given any consideration to that kind of mission?

Mr. EGGERT. I think we should. I believe one of the best reports on this is your own report, prepared by John Lehman and his staff, on this comparison. I think this needs further study. I am not sure that we are prepared financially to undertake it ourselves but certainly let us review that as a suggestion for us.

Mr. LOWRY. I think you have raised a point of real public interest. To what extent can BLS in the preparation of our price indices benefit by a comparative examination of the way in which other countries do their own? I do not know to what extent BLS does this already. There may be something of a comparative study already made

Senator PROXMIRE. You gain so much in so many areas by this compaarison, in economics, in almost any field you can mention, by interchange of ideas and by observing why they have changed their methods, what they do. I am sure that all these countries must have statistics.

Mr. LOWRY. Certainly, if this is not done, this would be a most desirable thing for BLS to do as a regular part of its work.

Senator PROXMIRE. Do you know if any other country has any organization such as yours, a statistical users group in any other country?

Mr. EGGERT. No.

Senator PROXMIRE. You are unique.

Mr. EGGERT. I guess we are unique in the world in this sense. There are other countries that have organizations like the American Marketing Association or the American Statistical Association which are professional organizations. But as a specific organization which in a sense tries to bring together all kinds of users of Federal statistics and puts its attention solely on Government statistics, I believe we are unique in this field.

I am very appreciative of your earlier remarks about the help that we can be. We certainly try to be of help.

Senator PROXMIRE. It certainly is helpful. I want to thank you for a unique presentation from a unique organization.

Thank you very much. It has been very helpful.

Mr. EGGERT. Thank you, sir.

(The document referred to follows:)

CONFERENCE ON FEDERAL PRICE STATISTICS, HOTEL STATLER-HILTON, MARCH 17, 1961

The purpose of the Conference on Federal Price Statistics was to discuss the recent report of the Price Statistics Review Committee and to evaluate its findings and recommendations as seen by a cross section of users. Particular attention was directed to (1) the Consumer Price Index, (2) the Wholesale Price Index, and (3) prices received and paid by farmers.

The conference program included a summary statement of the Review Committee's work by Prof. George J. Stigler, of the University of Chicago, chairman of the Review Committee, followed by comments by a panel of users and by comment and discussion by all participants in the conference.

Members of the panel of users were: A. Arthur Charous, Sears, Roebuck & Co.; W. E. Hamilton, American Farm Bureau Federation; Lazare Teper, International Ladies' Garment Workers' Union; John W. Kendrick, the George Washington University.

Robert J. Myers, Deputy Commissioner of Labor Statistics, spoke informally at the luncheon session of the conference and described some of the efforts being made by the Bureau of Labor Statistics to improve price information.

The conference did not attempt to formulate specific positions for or against the recommendations made by the Review Committee. Rather it sought to obtain some general indications of areas of major user interest as guidance for further work by the Federal Statistics Users' Conference before it makes specific recommendations for improvements in price data as part of its long-range program for the improvement of Federal statistics.

The conference was attended by 50 users of Federal price statistics and their invited Government guests. A list of participants is attached.

REPORT OF THE PRICE STATISTICS REVIEW COMMITTEE

(A recapitulation by Prof. George J. Stigler)

Suggestions for improvements in price statistics are to be found throughout the report of the Price Statistics Review Committee and the accompanying staff papers. For this reason it would repay all users of price data to study carefully both the report and its accompanying papers.

Criteria for a good price index

The Committee started by considering the basic criteria for a good price index to guide it in its evaluation of Federal price statistics.

1. Simplicity in concept: It has been argued that an index should be simple to explain. Unfortunately, no complex field of measurement can be easily understood as witness the national economic accounts or unemployment.

2. Ease of collection or calculation: It has been urged that data should be relatively easy to collect and the index relatively easy to compute.

3. Relative stability: Many people seem implicitly to wish an index that rises or falls rapidly.

While the first two suggested criteria are important, there is only one basic criterion for a price index: It should measure as accurately as possible what it should be measuring—not necessarily what is being measured.

Developing better indexes

The price agencies cannot do the whole job of developing better indexes even when complemented by research staffs. They should stimulate othes to work as well. For this reason the Committee favored fuller publication of methods employed by price agencies in developing indexes.

Consumer price index

The appropriate consumer price index would be one which would measure constant welfare bundles through time. There is no other available well-defined concept of a consumer price index. This is a complicated concept and can be considered only as a very long-term goal.

Some steps toward this goal:

1. There should be a regular program which would periodically revise the weights used in the index: A basic revision should be made every 10 years. Maybe this period could be shorter, but an outer limit of once a decade should be established.

2. New goods and outlets should be introduced more quickly: The lag in introducing new goods and outlets is variable. It should be reduced and a method for correcting minor model changes is suggested in the report.

3. Sharper definitions are needed to meet some quality problems: For example, Blue Cross premiums are included in the index. It is not clear that account has been taken of the expansion of services received.

Long-term improvements:

1. The development of different indexes which would not be under the pressure of the monthly time schedule.

(*a*) The development of a single worker index involves no question of principle.

(*b*) The extension of the index to workers outside of cities likewise involves no question of principle.

(c) The development of an all-inclusive U.S. index is a more complicated matter requiring the collection of a wider range of prices and involving other problems.

2. More research on how to deal with quality changes is required. The report suggests the use of regression analysis. The Committee's purpose is to try to find out what can be done to make these changes objectively; to point up the need to specify rules; and to have these rules specified explicitly.

3. Research dealing with construction of an index that takes account of public services is also needed.

4. The use of probability sampling is recommended in the report. A good deal more research needs to be done before probability sampling could be fully used for outlets and commodities.

Wholesale price index

There is no conceptual notion as to what the right index should be. Interest seems to be more on the individual prices than on the index as such. This is indicated by the fact that BLS collects six times as many prices for the Wholesale Price Index as it does for the Consumer Price Index.

An input-output format for wholesale price data is suggested in the report. This would provide a comprehensive framework which would yield indexes at different levels in the economy. It would show input prices to industry and output prices of products shipped.

A need for more price quotations is indicated by a staff study which shows that price flexibility is directly related to the number of price reports. An increase in the number of reporters increases the number of price quotations and the flexibility of the item being priced.

Buyers prices should be reported. U.S. contract prices and the purchase prices by large companies would be useful. Studies show that buyers' prices do not behave like the quoted prices now in the Wholesale Price Index.

Prices received by and paid by farmers

Any changes in these indexes are likely to be more difficult to achieve because of the legal prescriptions involved.

1. A greater use of specification pricing is needed: The use of typical prices of generally used commodities leads to considerable divergences in the movements of the CPI and the Prices Paid by Farmers Index.

2. There is a growing need for collaboration between AMS and BLS in collecting price information as urban and rural family purchases become less distinguishable.

DISCUSSION AND COMMENT

Participants in the conference expressed a number of different points of view on the recommendations contained in the review committee's report. It is the purpose of this part of the summary of the conference to mention each of these viewpoints in order to bring them to the attention of FSUC members. FSUC recommendations will be made only after all members have had an opportunity to consider the review committee's report and to make their own views known.

Costs of improving price indexes

Participants in the conference clearly recognized that users of Federal price statistics have a serious responsibility to consider which of the numerous recommendations made by the review committee are the most important in terms of their needs and to think in terms of priorities. The review committee was charged with examining existing price statistics and with making recommendations for their improvement. It was not asked to consider the costs of realizing the recommended improvements. The report is a bold and ingenious document which is full of suggestions worthy of attention. Users, however, must think seriously about the cost of improvement and must consider for each improvement whether the benefits of better price data justify the increased costs or whether resources might be used better elsewhere.

SHORT-TERM IMPROVEMENTS RECOMMENDED BY REVIEW COMMITTEE

1. Periodic revision of weights in the Consumer Price Index: Participants in the conference did not address themselves directly to this question. Oblique references to this recommendation assumed the desirability of this recommendation.

2. Faster introduction of new goods and outlets: Two comments were made by participants.

The first was that the review committee's report does not present any yardstick for determining when new items should be introduced into the CPI.

The second was that there seemed to be an inconsistency between the review committee's desire to have new items introduced more promptly and its proposal for the use of probability sampling techniques in developing price information.

3. Sharper definitions to resolve some quality problems: Participants did not speak directly on this recommendation. They did, however, refer to the review committee's recommendations on specification pricing (pp. 11–12) and on accounting for quality changes (pp. 8–9).

LONGER TERM IMPROVEMENTS RECOMMENDED BY REVIEW COMMITTEE

1. The development of different indexes which would not be under the pressure of the monthly time schedule.

(*a*) The development of a single worker index.

Guests from the Bureau of Labor Statistics indicated that BLS hopes that it will be able to extend the CPI to single workers on the basis of the present revision of the CPI.

(*b*) The extension of the CPI to cover all nonfarm workers.

Guests from the Bureau of Labor Statistics stated that BLS favors the extension of the CPI to cover all nonfarm areas, including single workers and higher income groups but that it does not presently have the resources to accomplish this.

(*c*) The development of an all-inclusive U.S. index.

The only user comment on this recommendation reflected a favorable reaction to this proposal. However, it was felt that this is likely to be an academic question until the next consumer expenditure survey is undertaken since the survey now underway would not support such an index. (A subsequent observation by a Government guest indicated that it is by no means certain that an all-inclusive U.S. index couldn't be supported by the present expenditure survey).

2. More research on quality changes is required.

By implication, user comment agreed with the proposition that more research is needed in this area while indicating reservations about some of the Review Committee's specific recommendations as to how quality factors might be accounted for.

One comment argued that there are not now available objective criteria which would make possible annual adjustments for quality changes.

Another comment expressed doubt as to the possibility of developing an objective definition of quality changes for consumer durable goods having complicated technical features. It was argued that there is not objective basis for equating technical changes in goods of this character with changes in consumer satisfaction. The example of automobiles contained in the Review Committee's report was cited as a case in point. To use upward changes in horsepower, increasing weight, and growing length as objective factors which describe quality would be to use factors which have been rejected by the consumer—as witness foreign cars and compact American cars.

Another comment argued that an index containing some quality adjusted prices and some prices unadjusted for quality changes would be less useful than the present index.

3. Research dealing with the construction of an index that takes account of public services: The only comment related to this suggestion was the observation that a critical examination of the indexes maintained by the Interstate Commerce Commission is long overdue and that a published description of the methodology employed by ICC is needed.

4. The use of probability sampling: Participants made three comments on this recommendation.

One comment argued that the use of probability sampling for developing price information has not yet been explored adequately from a theoretical and practical point of view. A great deal of work remains to be done before the use of probability sampling would become operationally feasible.

A second comment pointed out that the development of an adequate sampling frame for the CPI would require a wealth of detail—so much as to make the recommendation beyond hope of achievement in the near future. At the same time, it was noted that this detail would be useful for other purposes.

The question of the cost of an adequate sampling program was also raised. It was urged that this deserved careful consideration, since the development of an adequate sampling frame and the universal application of probability sampling might have to be ruled out for this reason.

A Government guest pointed out that BLS has moved toward probability sampling to some extent as in the selection of cities for the consumer expenditure survey. To extend probability sampling to outlets and priced items, however, poses new and difficult problems.

Wholesale price index

1. The use of an input-output format to present wholesale price data: The only participant comment on this recommendation was the observation that the prices paid for production goods is an input price index and the prices received by farmers is an output price index for agriculture.

2. The need for more price quotations: There was no comment by participants on this recommendation.

3. The use of buyer prices: The only participant comment on this recommendation was the observation that the use of buyers' prices as transaction prices introduces some new problems. What look to be different prices may actually be different things because of the inclusion or exclusion of installation costs, etc.

Prices received by and paid by farmers

1. The need for a greater use of specification pricing in the prices paid by farmers index. The only participant comment on this recommendation was to agree that specifications pricing is desirable in principle and that AMS should move farther in this direction in preparing its index of prices paid by farmers.

One of the Government guests suggested that AMS should move with care into specification pricing because of the danger of missing important price changes. He described prices paid by farmers as specification plus the most common use. He maintained that a detailed examination of the prices paid by farmers index would be necessary to a real understanding of the degree to which AMS uses specification pricing.

2. The growing need for collaboration between AMS and BLS in collecting information on rural and urban nonfarm family purchases and farm family purchases. There was no direct participant comment on this point.

Welfare index

Some of the most lively discussion involved aspects of the Review Committee's report which were not singled out for particular attention in the summary of the report. There were a number of comment relating to the concept of a welfare index. Many of these comments were critical.

It was argued that the Consumer Price Index as a measure of change in average prices of a fixed basket of goods and services is relatively easy to understand and provides objective standards for measuring price changes. In contrast to this, a welfare index was viewed as increasing and complicating the problems of preparing the CPI by introducing a greater degree of subjectivity.

Another comment pointed out that a considerable amount of research would be a prerequisite to the introduction of a welfare index. Present knowledge and available techniques are not adequate for the purpose. The introduction of a welfare index based on inadequate knowledge and techniques might lead to an ex-post-facto revision of the index as improved methods are developed. This would tend to break down confidence in the index.

A third comment asserted that the most likely outcome was a hybrid index which would be part price index and part welfare index which would be less useful than either a price index or a welfare index.

In response to these criticisms, it was explained that the Review Committee was seeking answers to two questions:

1. Is BLS getting a measurement of prices of identical goods or is it measuring different goods at different times?

2. Is BLS pricing the goods with which people satisfy their needs?

It is important that the thing to be priced should be the same thing over the period and that there should be criteria which describe what the "same thing"

is. This is fundamentally why the Review Committee emphasized the measurement of quality changes.

The need to price the things which people buy (for example, orlon sweaters instead of wool sweaters) is fundamentally the reason for introducing new goods promptly.

Empirical price indexes have an importance for the measurement of the output of the economy since the measurement of changes of real output involves the deflation of current values.

One comment suggested that one form of research on this particular problem might be to run through some of the suggested welfare changes to see what effect they would have had on the indexes.

Seasonal adjustment

There were a number of differing views expressed on the desirability of producing a seasonally adjusted consumer price index.

User expressions favorable to the recommendation for a seasonally adjusted index cited certain past instances where seasonal rises in the CPI stemming from the introduction of new automobile models as a phenomenon which could be eliminated by a proper seasonal adjustment.

Food prices came in for special attention. It was argued that seasonal rises in food prices might lead to wage adjustments which could in turn lead to other increases which would be reflected in the CPI. After a subsequent decline in the seasonal rise in food prices, the CPI would remain at a somewhat higher level because of the permanent effects of the wage escalation. Another view held that seasonal declines in food prices could offset price increases in other areas and thus result in the denial of wage increases which might otherwise result.

One line of comment urged that food items are a special problem because of the greater substitutability possible than in other categories of the CPI. Events such as a freeze in Florida which seriously damage the citrus crop can make for a considerable rise in the CPI which does not necessarily reflect the true impact on consumers' food expenditures. The index measurement may be further distorted since one item represents not only itself but numerous other food items. Thus, it was argued, it would seem desirable either to introduce some kind of flexible weight index for foods or to increase the number of items priced in order to dampen the effect which the violent change in the price of one item can have on the CPI.

One of the reservations about the value of a seasonal adjustment of the CPI argued that a comprehensive seasonal adjustment program would raise new problems at collective bargaining tables where not only the indexes but also the seasonal adjustments employed would be questioned.

During the discussion it was pointed out that there are some seasonal adjustments now in the CPI in the sense that weights used are annual weights.

A Canadian Government guest indicated that their experience indicates that seasonal adjustment is a factor of declining importance.

Scope of consumer price index

In addition to the views reported on page 8, it was observed that the Review Committee had overlooked growing demands for State and regional price indexes.

Pricing of services

One of the participants raised some questions about the pricing of certain services which, it is argued, are not now adequately considered in developing price information. The questions were conceptual in character—what are the real services rendered by banks, insurance companies, and certain other types of business? How should they be priced?

It was also suggested that business services are not adequately priced in the Wholesale Price Index.

Pricing of consumer durable goods

The question of how to price consumer durable goods which is raised in the Review Committee's report and Staff Paper No. 6 received some attention. Participants considered that an alternative method of pricing, which would attempt to price the annual services supplied by the good rather than the purchase price of the good itself, would be less satisfactory than the present procedure. One view held that this would require the partial substitution of cost estimates for actual prices. Another view held that this procedure would seem to conflict with the expressed Review Committee recommendation for the more rapid introduction of new products into the index.

Specification pricing in the field

One of the Government guests pointed out that field reporters are not trained in the writing of specifications and suggested that the implementation of the Review Committee's recommendation would be more expensive than the system now employed since many of the field-written specifications would turn out to be unusable. To effectuate the Committee's recommendation, more field agents would be required. It would be necessary to obtain higher quality reporters and give them more training than is now the case.

Prices received by and paid by farmers

Participant comment on this portion of the Review Committee's report indicated agreement with the recommendation for a broader price coverage of prices paid for such production services as custom hire for combining, veterinary services, and the like.

It was felt that some of the Review Committee's criticisms did not fully recognize the possibility of overcoming some of the noted deficiencies by careful use of existing data. For example:

1. Parity base period 1910–14: Although this base period is way out of date, the Department of Agriculture constructs an index based upon relatively recent weight periods and links it back to the 1910–14 period to meet this legal requirement.

2. Mixing of consumer and producer prices: The mixing of consumer and producer prices in the index of prices paid by farmers is not really a basic problem since each is computed separately and they are available separately.

3. Taxes and interest: Taxes and interest on a per acre basis are in the index until an act of Congress changes them. The figures without these two items are available.

Two other points mentioned by the Review Committee drew comment. As to the treatment of interfarm sales, it was felt that there is no particular reason for including them in the index since they are important only to some groups of farmers.

The Review Committee also criticized the production component of prices paid by farmers as being based upon a seriously incomplete concept of production costs. It was noted that the validity of this criticism depends upon the purpose of the index. Is it to measure the cost of farm production or the levels of prices at which farmers buy and sell?

One user comment on prices received by farmers pointed out that the reported State prices received by farmers do not always reflect equivalents. Prices received for some vegetables in one State may reflect the actual price received by a farmer who has performed the entire production process as an independent entrepreneur. The reported prices received for the same product in another State may reflect the fact that some production services have been performed by the purchaser.

CONFERENCE ON FEDERAL PRICE STATISTICS

USERS

R. M. Allerton, National Association of Broadcasters.
Robert Bingham, Grocery Manufacturers of America.
Howard L. Binkley, Pharmaceutical Manufacturers Association.
Wray Candilis, National Association of Real Estate Boards.
Arnold Cantor, AFL–CIO.
A. Arthur Charous, Sears, Roebuck & Co.
Harry Chester, United Auto Workers.
Edward F. Denison, Committee for Economic Development.
Robert J. Eggert, Ford Motor Co.
Albert S. Epstein, International Association of Machinists.
David G. Fluharty, H. J. Heinz Co.
Nat Goldfinger, AFL–CIO.
W. E. Hamilton, American Farm Bureau Federation.
William Harper, American Petroleum Institute.
V. Stevens Hastings, the Chase Manhattan Bank.
Peter Henle, AFL–CIO.
Robert Keeton, the Procter & Gamble Co.
John W. Kendrick, the George Washington University.
William Parkerson, Edison Electric Institute.

Stanley J. PoKempner, Market Research Corp. of America.
D. A. Rose, Gulf Oil Corp.
Robert E. Sanders, North Dakota Farmers Union.
Frederick N. Sass, the Pennsylvania Railroad Co.
Bert Seidman, AFL–CIO.
Howard L. Stier, American Marketing Association.
George Stigler, University of Chicago.
James N. Stoltz, Brotherhood of Railroad Trainmen.
Lazare Teper, International Ladies' Garment Workers' Union.
M. A. Themer, Ford Motor Co.
John R. Virts, Eli Lilly & Co.
Peter Wagner, National Planning Association.

INVITED GOVERNMENT GUESTS

K. L. Bachman, Agricultural Marketing Service.
Raymond T. Bowman, Office of Statistical Standards.
Arnold E. Chase, Bureau of Labor Statistics.
Samuel J. Dennis, Bureau of the Census.
Anthia Foster, Dominion Bureau of Statistics.
Ethel D. Hoover, Bureau of Labor Statistics.
Sidney Jaffe, Bureau of Labor Statistics.
John Lehman, Joint Economic Committee.
Isabel McWhinney, Dominion Bureau of Statistics.
Thomas F. Mosiman, Office of Statistical Standards.
Robert J. Myers, Bureau of Labor Statistics.
Harlow D. Osborne, Office of Business Economics.
B. Ralph Stauber, Agricultural Marketing Service.
Ralph A. Young, Board of Governors of the Federal Reserve System.

Senator PROXMIRE. Tomorrow the subcommittee will meet at 10 a.m. in this same room for a discussion by a panel group from industry and agriculture and labor.

The committee stands adjourned until 10 a.m. tomorrow.

(Whereupon, at 11:20 a.m., the subcommittee adjourned, to reconvene at 10 a.m., Thursday, May 4, 1961.)

GOVERNMENT PRICE STATISTICS

THURSDAY, MAY 4, 1961

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

The subcommittee met at 10 a.m., pursuant to recess, in room G–308, New Senate Office Building, Senator William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire.

Also present: John W. Lehman, deputy executive director and clerk.

Senator PROXMIRE. The Statistics Subcommittee of the Joint Economic Committee will come to order.

We have asked the members of the panel to confine their opening remarks to 8 to 10 minutes. Their full statements will be put in the record. I think it would probably be the best procedure to hear from each member of the panel first before I ask questions.

We will start with Mr. Teper.

STATEMENT OF LAZARE TEPER, DIRECTOR OF RESEARCH, INTERNATIONAL LADIES' GARMENT WORKERS UNION, NEW YORK, N.Y.

Mr. TEPER. Thank you, sir.

Our price statistics are among the most developed in the world. Yet, a periodic review is well justified, in the past as in the future, in order to obtain new ideas for further improvements. The appointment of the Price Statistics Review Committee, on the motion of the Bureau of the Budget, was thus a welcomed step. Its report, despite the many controversial recommendations, does contain a number of worthwhile proposals. Because of the complexity of many issues, I have taken the liberty of submitting a companion document which sets forth a fuller statement of my views. At this time, I will confine myself to a few highlights dealing primarily with the Consumer Price Index, and request that the fuller statement be made part of the record.

The critique offered by the Review Committee with regard to CPI falls into two groupings, the first dealing with procedural questions, the second relating to philosophical differences.

Under the heading of procedural questions are issues such as those caused by changes in the quality of items priced, or appearance and disapparance of goods.

Under the philosophical heading comes the issue as to what kind of an index should BLS really compile—an index measuring price

changes, or an index measuring the cost incurred by consumers in maintaining a constant level of utility or satisfaction (whatever this term means.)

When it comes to the issue of quality change there is surprisingly little difference in principle between the Committee, the Bureau of Labor Statistics, and virtually all users of the data, including myself. Ideally, it is desired to measure price changes for identical goods and services while comparing two points in time. Over longer periods, it is desired to eliminate all possible effects that quality change may exert on the movements of prices and the index. The Bureau of Labor Statistics is conscious of the problem and seeks to cope with it by a variety of techniques. Unquestionably, some upward as well as downward biases resulting from overcorrection and undercorrection for specific changes in the qualitative nature of goods and services do find their way into the index. To what extent this occurs, no one knows. This is an area where research work is well called for. If there is any bias in the CPI, it should be eliminated. In the meantime, any estimate of the degree of bias is nothing but a figure pulled out of thin air, without rhyme or reason.

The Review Committee was unnecessarily harsh with regard to current BLS practices in this regard, particularly since the Committee itself failed to come up with any alternative objective solution for the handling of the quality problem. The so-called hedonistic approach for the elimination of quality effects does not yield unique solutions and relies on subjective quantifications of quality determinants. The fact that more or less complicated mathematical formulations are used in computing the necessary equations does not make the end product any more meaningful (and quite likely less meaningful) for the determination of causal relations between price changes and quality changes.

The problem posed by qualitative changes in the goods and services purchased by consumers is indeed complicated by the fact that there is no clear-cut conception of what is meant by quality or quality change. Are this year's women's hats different in quality from those purchased last year because they differ in materials and design or does their makeup merely reflect changes in taste, as Professor Stigler suggested, before this committee. How does this situation differ from last year's demand for wool sweaters and this year's demand for orlons? What about situations when consumers are forced to purchase an item of differing specifications at a higher price because production of the previously purchased item was discontinued? Obviously, these simple questions do not have simple answers. In the final analysis, the determination of the quality effects is a judgment problem. To the extent that any objective data, either on the specifications of products or the state of the markets, is useful in sharpening such evaluations, they ought to be utilized.

It is, of course, easy to fall prey to oversimplification when discussing qualitative change. Hospital care offers one example. For many illnesses, the length of hospital stay was reduced in recent years. However, it was accompanied with the use of more expensive drugs, the need for postoperative hospital visits with the concomitant increase in transportation expense, additional preoperative and postoperative home care, and so on. Once it is recognized that length of hospital stay

is not the sole determinant of the cost of illness, a different approach to the handling of the qualitative problems has to be used.

The Consumer Price Index, as presently conceived and implemented, is a measure of changes in the current cost of a given level of living, defined as a specific combination of goods and services purchased by a particular segment of the population during a specific reference period. Through reliance on specification pricing of goods and services, BLS seeks to isolate changes due to prices from those brought about by variants in quality or other influences, including those caused by uptrading or downtrading which come with the changes in the economic fortunes of consumers.

The Review Committee would prefer, however, a different approach, partly as a result of its apparent belief that BLS does not account for quality variations and in part as an outgrowth of its preoccupation with abstract theory. However, the Committee remains forever vague as to what it actually wants measured.

The Committee suggests that it prefers to have an index that measures the "cost of maintaining a constant level of utility" (at times they refer to that as a welfare index, or as measure of the "changing cost of a given level of living," et cetera). The term is not defined. Nowhere does the Committee say how such an index could be compiled. This is understandable.

In my paper, I examined some of the reasons for the failure of a utility-cost measurement to date—both practical and theoretical. Suffice to say, that its underlying theoretical underpinnings presume a rational consumer behavior found in a rigidified society—nothing that has a counterpart in the real world. Despite the fact that economic theorists have long sought ways of measuring the cost of unchanging utility or satisfaction derived by consumers, no method has been evolved for the derivation of a unique solution. This indeterminancy was characterized by Prof. Paul A. Samuelson of Harvard as "intrinsic and inherent," one that "no amount of ingenuity can remove."

The apparent hope of the Review Committee that the greater expenditures of Federal funds may lead to a solution is hardly justified. The Committee itself notes that it "does not believe that a pure welfare index is presently feasible." In the light of available literature, it does not seem that it ever will be feasible, short of revolutionary new developments not yet foreseen.

Parenthetically, it should be noted that while the Committee is properly concerned with quality as a problem, some of its recommendations would have the effect of aggravating the issue rather than the opposite. BLS relies, at least to a considerable part, on specifications to assure comparability of items priced over a period of time. The Committee would relax the existing standards and eliminate central controls over specifications in a mistaken belief that this would help to obtain more comparable price quotations. While there may be greater ease in getting quotations, this would be done at the cost of comparability and aggravation of the quality problem. Apparently the lack of practical experience with data collection led the majority of Committee members to this unfortunate aberration as well as to its other unfortunate suggestion that specifications should be written in the field.

I do not want to leave the impression that all recommendations made by the Review Committee are not sound. Many are valuable and should be listened to. For that matter, they are valid irrespective of what philosophical approach is taken to the index number construction. A decennial revision of weights makes sense, even though more frequent revisions are highly questionable. Extension of CPI to single workers is also desirable, as is the coverage of workers residing outside the urban areas. In the latter case, however, a number of special problems arise before the matter can be implemented.

The ultimate development of CPI applicable to the entire U.S. population is also worthwhile. This reform, however, should not be done at the expense of continued publication of CPI for wage and salaried workers. Pending implementation of the national data, an effort should be made to bring the AMS index of prices paid by farmers for living into closer concordance with the methodoligical approach used by CPI for urban workers.

One of the more creative aspects of the Committee report deals with the increased resort to sampling techniques even though the proposals are not suitable for immediate adoption. Yet, the path blazed in this regard is likely to lead to improvements in the CPI as well as other indexes. Research work in this field, as well as with regard to other aspects of index numbers, is certainly long overdue. At different times in the past, efforts to initiate research work were frustrated by a lack of appropriations. I hope this will not be the case in the future and that research work and publication of research results and other documentation with regard to price indexes will be enhanced.

Let me conclude by a brief reference to wage escalation. The use of a fixed-weight index to adjust the level of wage rates, as is presently done, is sound because fluctuations in workers' incomes are not correlated with index weights. The use of transaction prices for index number purposes assures not only greater objectivity as to the type of quotations used, but also assures that the going conditions of the market have a direct bearing on wage escalation. No seasonal adjustments of CPI are called for—they would only add subjectivity to the measurement and help to confuse issues.

No attempt is made, of course, in the process of wage escalation to guarantee the maintenance of the purchasing power of weekly, monthly, or annual earnings. The index used for the adjustment of changes in the disposable income derived from 1 hour of labor thus cannot be deemed a device which is designed to maintain the standard of living of the employees—it is, at best, a correction for price change.

Thank you, sir.

Senator PROXMIRE. Thank you, Mr. Teper.

(The prepared statement referred to follows:)

COMMENTARY ON THE REPORT OF THE PRICE STATISTICS REVIEW COMMITTEE BY LAZARE TEPER, DIRECTOR OF RESEARCH, INTERNATIONAL LADIES' GARMENT WORKERS' UNION [1]

General concern about price indexes compiled by the Federal Government is evident from the amount of attention they periodically receive from the legisla-

[1] The author wishes to acknowledge the assistance rendered by Harry Chester in the preparation of the paper. The views expressed, however, are those of the author in his individual capacity.

tive and executive branches as well as from private users, in and out of universities. With increased utilization of these data in public and private policy formulation and implementation, came increased public awareness of what the various price indexes sought to measure. The periodic controversies which raged about the indexes not only directed the spotlight of public attention on them but led to many improvements in their quality, reliability, objectivity, and comparability over a period of time.

Compilation of price indexes is a complex, large-scale undertaking. Before compilation of indexes is undertaken, and in the normal process of collection, tabulation, and publication, numerous decisions have to be made. There is no such thing as a universally suitable price index for each and every purpose. Since all indexes are artificial creations, decisions must be made regarding the purposes which the particular series must serve. A computational framework must then be developed with a view to providing needed weights and which would assure that data, once assembled and tabulated, will be comparable and continuous over a substantial period of time. Methodology must be developed and implemented for the selection of geographical areas, outlets, and products to be sampled and for the handling of such problems as appearance and disappearance of goods and services and their quality changes.

Both the complexity of the undertaking and the public interest in price indexes make it desirable to undertake a periodic review of the operations and techniques used by the agencies responsible for price collection. The appointment of the Price Statistics Review Committee, at the initiative of the Bureau of the Budget, was therefore a welcomed step. While this Committee could only devote limited time to its task, and despite the controversial character of many of its recommendations, it has performed a valuable service and has come forth with a number of proposals which command attention and support.

DECENNIAL REVISION OF WEIGHTS

An examination of recommendations included by the Committee in its summary, which precedes the report, reveals several proposals which ought to be welcomed. Periodic revision in index weights on a regular schedule, advanced by the Committee, has long been advocated by a number of individuals and groups. As the text of the report shows, the Committee suggestion is not limited to the proposal that weights be revised at least on a 10-year schedule, but goes much further, in a somewhat undesirable direction. Thus, while decennial revisions in the weights of the Consumer Price Index make sense, revisions of some of the weights in the middle of the decade or at other times in the course of it, recommended by the Committee, would weaken rather than strengthen the index (the Committee apparently visualizes more fundamental changes in weight structure than are entailed in the normal maintenance work of the Bureau of Labor Statistics). If such revisions were to be undertaken, it would become impossible to evaluate what such an index really measures since its weight structures would not only change frequently but also the weights themselves would bear no relation to consumer expenditure patterns, past or present.

PROBABILITY SAMPLING

Committee recommendations and the supporting staff paper on the use of probability sampling represents one of the most creative portions of its report, even though the proposals are not immediately suitable for adoption because implementation requires the resolution of many unanswered questions. Yet, the path blazed in this regard is likely to lead to improvements in the index quality. But even in this instance, caution must be exercised before the proposals with regard to probability sampling, as advanced by the Committee, can be accepted without question. Thus, it is necessary to assure that, in the process of carrying through any reform along these lines, price information now gathered for individual cities and compilation of national and local group and subgroup indexes as well as those for individual commodities and services not be sacrificed. (Some portions of the report seem to suggest that the Committee favors such moves in a mistaken belief that such data are of no interest to governmental and nongovernmental users.[2]

[2] For example, the adoption of rotation sampling, if carried on in the case of specified-in-detail items, would prevent the compilation of price series for specific commodities.

RESEARCH

The recommendation that price-collection agencies be provided with funds for the establishment of research units is to be applauded. At different times in the past, it was the lack of funds that prevented the carrying out even of modest projects contemplated by these agencies. Yet, there are many areas where fruitful inquiry can and should be conducted—the problem posed by quality shifts which take place in the marketplace is one of these. There are, however, projects on which the expenditure of public funds seems hardly justified at this juncture. The development of indexes which seek to measure the cost of unchanging utility, or satisfaction which consumers derive in the process of consumption is one of these. Because of uncertainties related to this concept, the many unrealistic assumptions on which its theoretical foundations are grounded, and the recognized indeterminancy of the locus of the points of such index numbers,[3] research activities in this area should be left to universities and private research organizations.

EXTENSION OF COVERAGE

The recommendation for the inclusion of single persons in the coverage of the existing Consumer Price Index echoes similar recommendations previously made to the Bureau of Labor Statistics by its advisory committees on prices. The inclusion of rural nonfarm workers among the workers to whom the Consumer Price Index relates is also an excellent objective, although the Committee fails to examine the special problems which such a recommendation brings in its wake. Thus, while in the case of workers residing in urban areas the Bureau utilizes total urban area populations as weights, this procedure would not be representative in the case of workers living in nonurban areas.

The compilation of a more comprehensive Consumer Price Index applicable to the entire population is a useful project recommended by the Committee. It must be emphasized, however, that even if such a series were to be compiled for the population as a whole, the need will continue for an index applicable specifically to wage and salaried workers. If priorities have to be invoked, Consumer Price Index for wage and salaried workers should get priority over the overall index in view of the many existing needs for such data.

The proposed restructuring of the overall Wholesale Price Index, to reflect prices of a condensed input-output table for the commodity producing industries, is worth pursuing. The task cannot be undertaken until the needed input-output tables are compiled, a task abandoned some time ago due to a lack of appropriations and only recently revived by the Office of Business Economics. Additional expansion in the effort devoted to input-output tables is justified not only for price index usage, but for its own sake as well. Wholesale price data presently collected would provide the raw material for indexes utilizing input-output weights; additional price quotations will have to be gathered to permit proper sector analysis. This would call for the collection of prices for goods sold at retail to other than final consumers, in addition to nonretail prices. Such retail prices may differ from those gathered for the Consumer Price Index in at least two ways—commodities bought at retail by industry are prone to differ from the items purchased by ultimate consumers and, in the case of identical goods, prices charged to industrial customers are likely to differ from those charged to other customers.

The Committee recommendation, made elsewhere in the report, that wholesale price data should represent actual transactions is also meritorious.[4]

---

[3] In his discussion of indexes seeking to measure cost of utilities Paul A. Samuelson states: "I should like to state as strongly as possible that this final indeterminancy is intrinsic and inherent. No amount of ingenuity can remove it, grounded as it is in the fundamental convexity properties of the indifference field, or more accurately in the consistency behavior of the individual. It is important to prove this rigorously, for peculiarly in the literature of index numbers is an attempt made to search for limits within which the truth must lie without at the same time investigating whether or not these are the best possible limits. Moreover, the limits themselves are sometimes derived under special approximations, such as the neglect of 'squares of small quantities,' etc." (his "Foundations of Economic Analysis," p. 149).

[4] Committee's effort to check the accuracy of the Wholesale Price Index by a comparison of its data with bids on Government contracts fails to take into account that items purchased by the Government may vary in specifications, quantities bought, and terms of payments, to cite but a few factors. Not infrequently, high bids are made solely for the purpose of remaining on the bidders' lists and not with a view of getting or trying to get an award. As such they do not provide realistic quotations of prices but merely serve to

However, the suggestion that price quotations be collected from buyers does not seem realistic. It certainly would represent a very costly procedure which may not necessarily yield what is expected of it. Numerous concessions made to buyers are not always made part of the invoice price. The lack of specifications of items listed on invoices may also lead to noncomparabilities. The Committee realizes, of course, that buyers' prices may not always be available and suggests that "unit values" be used in such cases. The Committee is clearly on a wrong path. "Unit values," such as are derived from the Census Bureau compilations, are affected not only by changes in the product qualities but also by changes in the mix of the output of goods of different specifications either in individual establishments or due to the fact that different firms do not always operate at the same capacity levels. The use of "unit value" prices for the purpose of measuring price changes would constitute a significant retrogression from specification pricing otherwise preferred by the Committee as well as by many others.

One additional observation needs to be made with regard to the Wholesale Price Index. The Committee is much too sweeping in its condemnation of the present structure of this measure. Unquestionably, users of this index find numerous applications for the data compiled at present.

AMS INDEX OF PRICES PAID BY FARMERS

There exists a need to bring the index of prices paid by farmers for living into a closer relationship to the index which seeks to measure changes in the prices paid by urban workers. The recommendation of the Committee that AMS indexes should shift to specification pricing and enumerative method of data collection and that index coverage be improved deserve full support. It is unfortunate, however, that the Committee does not lay sufficient stress on the need to introduce specification pricing into the AMS figures.

BACKGROUND DATA

Several other points are made in the Committee report which deserve endorsement. This applies to the suggestion that the agencies entrusted with the compilation of price indexes should provide more information on their methods, techniques and procedures. In the past, such publication was planned on several occasions but the lack of funds frustrated these attempts. It is to be hoped that this will not be the case in the future. The Committee also deserves commendation for drawing attention to the fact that the Consumer Price Index, when used for wage escalation, should properly be applied to disposable income rather than to gross wage rates before tax deductions.

In addition to several features already discussed, the Committee report raises a number of issues of doubtful validity. Because they loom large in the report, the points raised by the Committee will be discussed in the following pages. In the first instance, comments will center on the Committee approach to measurement of prices paid by consumers. Thereafter, specific Committee proposals will be taken up.

COST-OF-UTILITY INDEX

The Committee suggests that the orientation of the Consumer Price Index be shifted from a measure of prices to a measure of "the cost of maintaining a constant level of utility." Nowhere in the body of the report is this latter term defined. Nowhere in the body of the report does one find the theoretical framework which defines this type of index. Nowhere in the body of the report does one find any discussion about the ways in which such a measure could be constructed. Nor does the report examine whether the theoretical assumptions underlying constant utility indexes are in accord with the real world and whether differences in actual consumer behavior vitiate theoretical postulations. The Committee does note, on several different occasions, that the particular modifications in the existing techniques which it recommends would bring the Consumer Price Index closer to one that would measure a "constant level of utility."

---

represent the bidder's interest in future bids. Low bids offer another extreme, such as a desire of a company to utilize a part of its otherwise unused capacity without affecting price levels in the civilian markets. Bid prices are also frequently related to other conditions (a given price may be quoted only if the entire contract is awarded to the bidder; several prices may be quoted for the different fractional quantities of the proposed award, with price not infrequently rising the larger the awarded quantity).

Even then, the Committee fails to provide much more than a dictum to suggest how the particular reforms would accomplish the end desired. The absence of a clear and unequivocal statement of the postulations underlying Committee thinking with regard to the measurement of utility or satisfaction levels makes it impossible to evaluate what Committee members knowingly assumed as a basis for its theoretical construct or what they unconsciously assumed.

The measurement of the cost of constant utility levels has been discussed by a number of economic theorists for many years. Yet, there seems to exist no uniform agreement as to what is meant by utility or satisfaction or whether one can quantify the measurement of utilities or merely rank them in accordance with some order of preference.[5] There is but one definitive conclusion regarding the measurement of the cost of constant utility levels—it is indeterminate even when comparisons are made between any two dates. At best it is argued that the values of such an index lie between outer limits, but such as changes in tastes, disagreements are voiced as to whether such limits can always be determined. Furthermore, theoretical approach to the measurement of changes in the cost of a constant level of utility breaks down when the measurement, instead of dealing with two dates, seeks to cover three or more dates between which consumption patterns change. A compromise solution is sought in making comparisons between adjoining periods and then chaining the relative figures so derived. However, since changes in consumption patterns do occur over a period of time due to changes in the economic fortunes of consumers and for other reasons, each link in such a chain would in effect measure the cost of a different level of utility or satisfaction (presumably indexes measuring different levels of utility would change autonomously). The resultant chain index would not measure, therefore, the cost of an invariate level of utility or satisfaction over a span of time covering more than two reference dates.

It must be noted that the theoretical discussions underlying the construction of utility cost indexes are based on rigid hypotheses which are not always in accord with situations in the real world. It is held, for example, that over the period of time involved in the measurement, individual consumers or consuming units do not change their habits—that they do not acquire new tastes, do not change their environment, and do not age, and that they are totally resistant to advertising, salesmanship, and emulation of their neighbors. Consumers are presumed to have distinct unchanging preferences which enable them to scale different items they consume in relation to each other and thus permit them to determine what combinations of items will yield them the same, greater, or lower level of utility or satisfaction. When some prices change, the rational consumer is deemed to be in a position to determine what consumption pattern would permit him to derive the same level of utility or satisfaction as heretofore at the lowest possible cost.

The degree to which consumers exercise choice in accordance with such theoretical assumptions is questionable. Neither individual consumers nor consuming units such as a family remain in a state of suspended animation with the passage of time—individuals age, get married, get divorced, beget children. Consumption patterns of families with children are affected by the fact that kids get older as well as by price changes. Consumption patterns may change as a result of changes in tastes, whether as a result of changes in the family makeup, emulation of others, under the impact of salesmanship and advertising, exposure to new goods, or as a result of an actual, or prospective positive and negative changes in economic status. Some changes in taste may be spontaneous, either as a result of a desire to experiment or as a byproduct of sheer irrationality.[6]

To assume under such conditions that markets reflect real consumer preferences (in additional disregard of the fact that many consumers do not take part in the decisions which affect their consumption) may be justified for theoretical

[5] For a critique of some of these points see, for example, I. M. D. Little, "A Critique of Welfare Economics" (second edition).

[6] Commenting on the attempts to rationalize consumer behavior, Ruth P. Mack wrote: "Utility theory addressed itself partly to the question of how commodity distribution of consumer buying influenced the distribution of productive resources. Indeed, it wove a poetic unity among consumption, production, and welfare, though at the expense of enlarging upon a dream. Its pallid offspring, preference analysis, seems to contribute little to the understanding of the impact on the economy of consumer choice" (in Bernard F. Haley, ed., A Survey of Contemporary Economics, II, 72). In the same volume, Kenneth E. Boulding lists, as one of the defects of "welfare" economics its assumption that "the structure of individual preferences (as expressed, say in indifference curves) is independent of any variable of the system except the quantities of commodity, and in particular is independent of prices" and that "preference structures are invariant with respect to movement among the variables" (ibid., pp. 28 f.).

purposes. Theory and its underlying assumptions, however, are inadequate to provide a basis for the formulation of measures used for public policy purposes. Commenting on the analysis of indifference functions, which underly the formulation of utility-cost indexes, W. Allen Wallis and Milton Friedman wrote some time ago that while they "fully recognize the power of indifference functions in pure theory," they doubt whether they have "any material value for the organization of empirical data" and that "for empirical investigation of consumer expenditures an alternate theoretical framework is required." They concluded that "further work on indifference functions cannot remove obstacles to quantification. They are an inherent part of the theory and represent not an unchartered territory but seas in which no solid ground for empirical work exists." [7]

These observations were published in 1942. However, no further developments have occurred since that time to implement the construction of utility-cost indexes. Commenting on the possibility of constructing an index which would "measure the change in the cost of supporting a fixed level of satisfactions," Prof. Dudley Cowden, then member of the Technical Advisory Committee of the American Statistical Association to the Bureau of Labor Statistics, indicated that such an index "seems to be impossible to do, either practically or at present theoretically." [8] At a more recent time, Richard Stone wrote that "From a practical point of view it is virtually impossible to measure or even order commodity totals by reference to a common characteristic such as utility. Instead it is necessary to concentrate on the more modest tasks of measuring actual price and quantity movements and combining these to provide measures of central tendency for different parts of the economy or for the economy as a whole." [9]

As noted previously, the Committee does not come forward with a proposal for the construction of an index which would measure the cost of constant level of utility but does make several suggestions for the modification of current procedures which would bring the Consumer Price Index into a closer correspondence with a utility-cost index. But even in such cases, the Committee fails to provide a unified framework on the basis of which its suggestions could be evaluated. The patchwork quilt approach, which characterizes the report in this connection, may, however, do more harm than good to the maintenance of a measure which now possesses underlying operational consistency that permits both practical users as well as the academicians to evaluate its meaning.[10]

PRESENT CONCEPTION OF CPI

Consumer Price Index, as presently conceived, is a measure of changes in the current cost of a given level of living, defined as a specific combination of goods and services purchased by a particular segment of the population during a specific reference period.[11] As such, CPI satisfies, at least between major revisions, the operationally meaningful criterion applicable to measurement in scientific use, namely that the ratio between any two values of the index should have an absolute significance independent of the size of the units in which they are measured. So long as weights remain unchanged, the ratio between any two points of the index will be influenced solely by price movements. Total expenditures for different goods and services during the reference period, which serve as weights to the series measuring changes in individual price quotations, establish operationally meaningful relationships between the individual component series and their totality. In effect, this operation made each component

[7] W. Allen Wallis and Milton Friedman, "The Empirical Derivation of Indifference Functions" in Oscar Lange, Francis McIntyre and Theodore O. Yntema, editors, Studies in Mathematical Economics and Econometrics, pp. 189, 175, and 188.

[8] House of Representatives, Committee on Education and Labor, Subcommittee to Study Consumers' Price Index, S2d Cong., 1st sess., hearings, p. 181.

[9] Richard Stone, Quantity and Price Indexes in National Accounts, p. 14, Dr. Stone sought to define index numbers which he developed for use of the Organisation for European Economic Cooperation in operational terms, as "measures of the average change in prices or in quantities defined in a particular way." While such measures did not satisfy the conditions laid down in economic theory of index numbers, he noted that "it would be wrong to conclude that index-numbers are without use or interest because they cannot meet certain theoretical requirements" (ibid., p. 22).

[10] It should not be inferred from these observations that some of the Committee recommendations made in this context may not be sound; even though made in the name of an index designed to measure cost of utility, they may be appropriate to the Consumer Price Index as it is presently conceived.

[11] The fact that current CPI weights are based on family expenditures does not justify the Committee's conclusion that this demonstrates that this index "is designed to approximate a constant-utility index."

of the index comparable to all others, transforming individual price relatives into units of the same kind.[12]

Admittedly, between fundamental revisions in weight structures, the world does not stand still. Index number compilers are forced, therefore, to reckon with problems forced on them by changes in the specification and/or quality of goods produced and available for purchase, by disappearance of some commodities and introduction of new items not previously produced or not previously consumed by the population covered by the index. These and similar problems require, therefore, the development of techniques to take account of such developments in the index structure while safeguarding, to the maximum degree possible, the operational significance of the index as a measure of prices of the same basket of goods and services. A special problem arises in periods of major national emergencies, such as war, when free markets become constrained and a number of items become unavailable to consumers as a result of governmental fiat. In such instances, due to inability to price many key items that entered into the reference basket of goods and services, the makers of indexes must find ways, without abandonment of its operationally meaningful framework, to correct for the disappearance of commodities and any other aberrations of the market. Modifications introduced at such a time are designed solely to make the index during the emergency consistent with itself prior to the emergency and not for any other purpose.[13]

Maintenance work on a fixed-weight index must, therefore, be carried through in such a way as to safeguard, to the maximum degree possible, that the index will continue to measure, exclusively, the influence of prices on the covered population. The value of such an operationally meaningful measure lies in the fact that the weights are not correlated, either positively or negatively, with changes in incomes and because under normal circumstances the index will be independent of shifts in consumption. Thus, when consumers switch to the purchase of lower priced items in the face of income declines in the wake of unemployment, the index will be influenced only by price behavior and not by changes in consumption patterns. Similarly, when consumers increase their ability to buy because of an improvement in their income position, uptrading will not be reflected by the index. Under such conditions, a fixed-weight index does provide an objective yardstick for the determination of net price effects.[14]

Over longer periods of time, due to changes in income, technology, tastes, and other influences, consumption patterns change sufficiently to make weight revisions operationally desirable. When this is done, a discontinuity in the conceptual character of the index as a measure of price change does occur and the long-term consistency of the index is affected. As an abstract idea, this discontinuity could be overcome only if one could develop some sort of units of equivalence or transformation which would permit the translation of one series of weights into another in such a way as to approximate the basic operational standards laid down in the case of fixed-weight indexes. To the extent that current weights would be used as a source of data, adjustments would have to be worked out to eliminate the effect of correlation between weight changes and the price level and price movement. Distortions brought about by the introduction of new goods or by radical changes in consumption patterns would have to be handled in a way so that the shift in the scale of living, represented by the new weights, would not affect the behavior of the index.

---

[12] Cf. P. W. Bridgman, Dimensional Analysis. pp. 17–22.

[13] Special problems during periods of national emergencies are not confined to fixed-weight indexes. They would also be present in indexes which seek to measure the cost of a constant level of utility or satisfaction. Thus, at such times, the limits between which such index is presumed to lie may be reversed, with the upper limit, as a matter of sheer arithmetic, falling below the lower limit. (Such an absurd result is ascribed to the inability of consumers to exercise free choice (Cf. Ragnar Frisch, "Principles of Price of Living Measurement," in Econometrica, October 1954, pp. 418 f.).

[14] Were the weights actually changed to reflect shifts in incomes and expenditures, a negative correlation between weights and prices is prone to occur whenever prices go up and workers' incomes do not rise sufficiently to enable them to maintain the same level of spending, as may be the case during a recession, or else may be positive during periods of business advance or in wartime when certain inexpensive articles disappear from the market. Because ordinarily correlation will not be zero, a change in weights would alter the measure of price movements by introducing the influences of the change in the level of spending into the composite measure of price movements and as such vitiate the index as a deflator of incomes.

This is, of course, unattainable. In practice, one is forced to resort to chaining the index computed with new weights with that previously calculated with old weights. Chaining cannot, of course, be defended in terms of criteria of measurement in scientific use.[15]

The discontinuity caused when two fixed weight indexes are chained may possibly me minimized if the shift from one system of weights to another took place at a time when prices were generally stable—the course of the index under those conditions would not be affected as a result of the shift in weights and commodity coverage, at least during the period of transition. However, the time needed to program and carry through the changeover in all probability precludes such timing. It is desirable, therefore, to make the transition from one weight structure to another at periodic intervals, such as at 10-year intervals, predetermined by statute. At least under such conditions no consciously planned distortions would be introduced into the index.

Consideration must, of course, be given to the effects on consumptive patterns exerted by business cycle fluctuations. Averaging quantities consumed may provide the answer for weight determination. In part, this point was recognized by the Committee when it recommended that several years' purchases of durables be averaged to avoid or minimize cyclical effects.[16] While normalizing (averaging over a period of time) is carried on for one segment of the index, compilers cannot ignore the fact that some other items may move in a countercyclical fashion to that of durables. Thus, in the development of weights, averaging of several years' buying experience should not be limited exclusively to durables.

It seems highly desirable to maintain the present operational meaningful framework of the Consumer Price Index as a measure of prices paid by consumers, whatever other improvements are to be introduced.[17] Committee recommendations with regard to specific problems of pricing and compilation will be viewed, therefore, in this light.

SPECIFICATION PRICING

While specification pricing is endorsed by the Committee, some of the criticisms addressed at current BLS procedures do not seem to be based on sound considerations. Apparently in a desire to cope with problems posed by quality changes, the Committee suggests that some of the specifications used in connection with data collection for the CPI are too rigid and suggests that specifications be loosened. Such action, however, would complicate the handling of problems caused by changes in specifications and quality of goods—the maintenance of reasonably rigid specifications is one of the safeguards against distortion in the index caused by product variations. Actually, some of the existing specifications, contrary to what the Committee states, seem to be looser than they ought to be—this is the case for apparel, for example. If it is desired, as it should be, to minimize the effect of quality changes on the index, the Committee's recommen-

---

[15] Effect of chaining two indexes with different weights can be illustrated by an oversimplified example. Suppose it is intended to measure production of a group of mechanical gadgets. Poundage was first taken as an indicator of comparable goods and total production between the first two time periods was measured through the use of this standard. Suppose by this criterion, the output went up by 10 percent. Thereafter, it is decided that the horsepower rating of the gadgets produced would be taken to measure output. On the basis of this test, the output in the next period rises by 20 percent. If a chain index were constructed from these data, it would show that output over the entire period rose by 32 percent. Obviously it did nothing of the sort, unless pounds and horsepower ratings of the gadgets produced varied in exactly the same proportion, a highly exceptional situation: if poundage and horsepower, on the other hand, shifted in different proportions, the resultant figure would be as much affected by the correlation between such movements as by changes in the output. The only logically consistent measure over the entire period of time reviewed by this example would be one which would rely either on poundage or on horsepower over the entire period under review.

[16] It does seem, however, that this suggestion goes counter to another Committee proposal—that new items be introduced into the index as early as possible. Averaging of their purchases in the early years following their introduction would make the figures so miniscule as to hardly justify the expense.

[17] All index numbers are artifices. As noted by Irving H. Siegel, "all indexes are creatures of men; * * * all are only crude, conventional, and somewhat arbitrary tools, however made; they have no intrinsic truth or falsity, but can have greater or lesser relevance and instrumental worth" (his review in Journal of Economic History, winter 1952, p. 71). One must hope, nevertheless, that whatever constructions are retained would satisfy the postulates of measurement including the principles of similitude. This, the indexes which seek to measure cost of a constant level of utility do not do. This was noted by Siegel elsewhere: "The quantitative interpretation of aggregates and indexes is incompatible with the accepted theory of economic value, since the rules of measurement do not correspond to the rules of economic substitutions * * *." (His "Concepts and Measurement of Production and Productivity," p. 32).

dation should be ignored, for it would accomplish the opposite result from that which the Committee seeks.

The Committee is unrealistic when it suggests that the development of specifications be left to field personnel charged with the collection of price quotations.[18] The present field staff is not trained for the task. If they were charged with collection of specifications as well as of price quotations, more expensive personnel would have to be used—price collection costs, as now carried out, would be increased, as also would the cost of specification developement because the task would be delegated to all price collection agents (with duplication of effort) as a substitute for the work of a much smaller central staff. Collection of price quotations would take more time because field agents would have to do two jobs where they have but one job at the present time. A lesser degree of cooperation may be forthcoming from the respondents should the Committee reform be instituted, because of the likelihood of greater time expenditures on their part when meeting with field agents. Costs of collection under those circumstances are more likely to rise rather than to fall, contrary to the Committee opinion.

It seems unsound to leave to the field agents to determine what merchandise will continue in the future in ample supply (these may be the staples sold in minute quantities but always available) or to determine what items are more representative than others except in terms of their own personal preferences and bias. There is, of course, no question that continued reforms in the body of specifications should be made. But the Committee hardly seemed to be in a position, at least judging by the report, to pass judgment on what needs to be done.

THE QUALITY PROBLEM

One of the most difficult problems which face personnel charged with index construction results from changes in the specifications and/or quality of goods, introduction of new items and disappearance of the old ones. There are, of course, many misconceptions about the problems, particularly in view of a lack of clear-cut definitions of what quality really is. While much thought has been devoted by the indexmakers to the problems, no definitive techniques have been evolved to this date by any one. Thus, despite efforts by the agencies charged with responsibility for index construction, some upward and downward biases resulting from overcorrection and undercorrection for changes in the character of goods and services probably find their way into the index. This is not to suggest, however, that definite evidence exists that CPI, as presently constructed, is biased; no evidence to that effect has been produced by the Committee. However, because of the uncertainties surrounding the problem of changing commodities and services, research is definitely called for and the expenditure of public funds in this connection is clearly justified. One thing that could be done, for example, is to purchase from time to time, selected items and to analyze them is Washington in order to determine to what degree specifications and/or quality have changed, what if any biases were introduced in the index as a result of inadequacy of techniques, and the degree to which, it any, field agents might have occasionally strayed from the use of specifications which were supposed to guide them.

The Committee does recognize, of course, that problems generated by quality changes cannot be resolved in the immediate future. In the absence of general standards for judgment, however, Committee criticisms of the current methods used by BLS for the handling of quality problems seem hardly justified, for it does not appear from its report or the staff papers that a thorough examination of current practices was made with a view to determining whether in fact they do or do not add to distortions of the index.

The Committee does advance a suggestion that it may be possible to handle quality problems by means of regression analysis. This approach fails, however, when it is used for the purpose of assigning specific causality factors to the several variables chosen to represent quality changes. However valuable for many purposes, regression analysis creates as many issues as it resolves, since

[18] The presumption that BLS field staff can anticipate many changes in items and specifications well before they are made is unrealistic. An individual agent may be the first one to come across a new item or be faced with the disappearance of an old one. Once the Washington office is notified of the fact, it is in the position to modify specifications and to flag all other field agents before they are actually confronted with the changes. However, the Washington office does not rely solely on field staff in order to follow product developments.

the choice of factors used in developing regression equations are matters of individual judgment (their subsequent use in regression equations does not make such subjective judgment any more precise). When specific characteristics are expressed in arbitrarily assigned quantitative units, an additional subjective bias of an immeasurable magnitude is introduced in these calculations. Furthermore, the choice of the timespan over which data are examined and used for the development of regression equations typically affects the results that it produces; thus these equations do not provide a unique solution independent of the choice of time periods. The use of regression analysis as a device for measuring quality effects may thus help to obfuscate issues more than it would clarify them.

Nor does regression analysis take into account situations when consumers are forced to purchase an item of differing specifications at a higher price because production of the previously purchased item was discontinued. The determination as to whether such a situation does or does not call for adjustment for quality changes is a matter which can only be left to the professional judgments of indexmakers. Factoring out specification differences under such conditions is prone to lead to spurious results either in terms of market realities or consumer wants.

The Committee suggests, as its other choice, that technological characteristics of products may be evaluated for the estimation of quality changes on the basis of a single attribute of special importance to the buyer. This is to be deplored. The demand based on a particular attribute, for example, may be the result of a successful advertising promotion and may not be typical, in any way, of the qualitative changes which have been made in the product. Furthermore, a change in a particular attribute may release chain reactions in other items. This may be the case with the hospital stay—when it is shortened, increased expenditures of other types may have to be incurred (more expensive drugs may have to be used, postoperative visits to the hospital may be required and these may involve additional transportation expenses, pre- or post-operative care may have to be resorted to in the home, etc.).

INTRODUCTION OF NEW ITEMS

The problem caused by the introduction of new items is similar to that involving quality changes. It is not always possible to state unequivocally what constitutes a new item. True novelty is relatively scarce. While the Committee did not make a thorough investigation of the relevant techniques used by the agencies producing price indexes and offers no concrete suggestions, it nonetheless is unduly critical of what is being done. Thus, for example, while the Committee argues that new products ought to be introduced into indexes at a very early date, it offers no standards as to what constitutes a late introduction or how early one must be so as not to be late.[19]

Several other problems are glossed over by the Committee. It fails to take into account the situation which would be created by its suggestion to introduce new goods into the index between major revisions, and in the process change the structure of the then-existing weights. However, because the introduction of genuinely new items may have indirect repercussions on other types of consumption, no way exists, short of making a complete expenditure survey, for determining how the weight structure should really be modified.[20]

The lack of realism in the Committee's recommendation is self-evident when one considers the likelihood that for some period of time subsequent to the introduction of new commodities, these may constitute but a minute fraction of total expenditures of the index population. As a result, they would not be sufficiently great to influence the behavior of the price index even after their inclusion. Some items may never exert a visible effect on the behavior of the index due to the negligible role they play in average consumer expenditures even at the time they reach their peak demand; other items have a short life and never acquire prominence.

---

[19] Committee recommendation that durable goods purchases be averaged over several years for weight purposes, discussed elsewhere in this commentary, seems to go counter to its suggestion that new goods be introduced into the index as early as possible.

[20] Introduction of some items not previously priced may, of course, take place without affecting index weights. Thus, even at present, BLS periodically replaces old items with new without disturbing subgroup weights. Such maintenance work has gone on in the past and will go on in the future without doing violence to the underlying operational concepts.

Some of the Committee's criticisms are based on the generalizations it makes regarding price behavior of new, old, and mature commodities. Because of the absence of empirical data to prove or disprove such dicta, fruitful research could well be conducted in this field. Until then, however, there seems to be little basis for the unnecessarily harsh criticism against BLS for what is deemed to be a late introduction of new commodities into the CPI.

Even if the Committee's assumptions regarding price behavior of new and old products were correct, the question still remains whether linking in new items at later times may not be the sounder practice, one that would provide a more realistic long-term picture of price movements. This can be illustrated by a simple example. Suppose an old commodity was sold at $1. When a competitive new item is introduced at $1.25 the price of the old item begins to drop, falling to 75 cents just before its production ceases. In the meantime, the price of the new item gradually comes down to $1 and stabilizes just before the old item disappears. When should the two series be linked, and how? If the change is from 75 cents (the price of the old item before its disappearance) to $1 (the then-price of the new item), the long-term price behavior, except at the point of transition, would be preserved. Other treatments, on the other hand, would result in a portrayal of a spurious price rise or decline over a long period of time.

TRANSACTION PRICES

On the question of pricing, the Committee raised an issue as to whether price quotations secured by BLS for CPI should be transaction prices or something else. Thus, the Committee seems to veer away from the notion that transaction prices should be collected in the case of some durables, even though they advocate the collection of transaction price data in other contexts.

As currently conceived, CPI measures prices prevailing in the marketplace. As a consequence of this approach, subjective judgments as to the price for a specific item are either eliminated or else minimized. By treating transactions as completed at the time sales are executed, BLS provides a 1-to-1 correspondence between going market quotations and what CPI measures. The Committee suggests that instead of relying on the purchase price, BLS should consider the possibility of a use-cost approach for durable goods. Whatever virtues there may be in such an approach for some purposes, they are not sufficiently great to justify a departure from the pricing of actual transactions. In the first instance, the use-cost approach would introduce a high degree of subjectivity into the index—the useful life of such goods, the rates at which their consumption should proceed (i.e., the nature of the applicable depreciation formula), costs of maintenance and repair, to list but a few items, would have to be based on current estimates of future performance and consumer behavior. Furthermore, indexes which rely on the use-cost approach would provide a series of figures in no way related to current market behavior. BLS should not change its present approach to the handling of transaction prices.

In furtherance of its ideas with regard to use-cost, the Committee recommends that, in lieu of pricing new homes and home operation expenses, BLS could use an index of rents. Rentals would be imputed from data gathered for dwellings comparable to those that are owner occupied. Here again the Committee seems to prefer the use of subjective estimates to actual collection of transaction prices. Also, it fails to take into account that owner-occupied dwellings typically have different characteristics from those available for rent; the distribution of owner-occupied residences throughout the country differs widely from the location of rental housing. These points alone justify nonreliance on imputed rentals. Furthermore, costs of houses and their maintenance do not necessarily vary in proportion to the changes in rents—differences in behavior are certainly magnified when rentals are controlled.

In keeping with the concept of measuring transaction prices, the current BLS practice of treating interest rates on mortgages as of the time of home purchase as evidence of current prices should be retained even though the Committee counsels otherwise.[21]

[21] Generally speaking, imputations should be eliminated whenever possible. In part, this can be done by pricing a larger variety of items than are presently priced. This is particularly desirable when specified-in-detail items that are priced differ materially from those to which their movements are imputed. This, too, is a fruitful area for research, which could well begin by studying BLS and AMS imputation practices with a view to determining to what degree they are justified.

RENT

A subject not touched by the Committee may well be brought up at this point. In pricing rents, BLS follows up rents charged for identical dwellings and not the changes in rentals charged for dwellings of identical specifications. In this respect BLS does depart from specification pricing since rents charged for the same dwelling over a period of time will be affected by the gradual deterioration of such housing in this manner, a built-in downward bias finds its way into the pricing of rents. This bias could be overcome if a subsample of rented dwelling units constructed during the preceding 12 months, similar in specifications to dwelling units which were less than 1 year old during the preceding year, were to be introduced into the housing sample. The introduction of new units and the retirement of the obsolete or destroyed units, in such a way as to keep the weights of each age group of dwellings constant, would permit the measurement of rent changes for housing of identical characteristics in accord with the BLS approach to pricing of other goods and services.

MAINTENANCE COSTS

Another recommendation of the Committee is that fuel or power, replacement parts, and repairs involved in the use of most durables be treated as a quality change in the durable goods, even though it recognizes that no technique has been developed to this end. The suggestion is unsound. In the first place it is impossible to anticipate future power or maintenance requirements on new consumer items. On the other hand, past experience with power and maintenance costs reflects not only the qualitative aspects of the applicable usage but also differences in the rate of utilization of different products under changing patterns of life. Since it is impossible in those circumstances to isolate qualitative and other factors, items such as fuel, power, replacement parts, and repairs should be treated independently for index number purposes.

TRADE-INS

A collateral problem relating to prices and index weights arises in connection with trade-ins. The Committee suggests that whenever trade-ins are involved or whenever consumers sell a used item before or after acquiring a replacement, net transaction prices (i.e., prices charged for new items less trade-in allowances or amounts realized on the sale of used items) be relied upon as weights in the construction of price indexes. In the case of CPI, the present BLS practice is to take net transaction prices when buyers receive allowances from the sellers, such as discounts for cash or for trade-ins, as an integral part of the business deal. This is sound and proper. On the other hand, prices should not be "netted" when the transaction does not involve concomitant trade-ins or allowances. This position is consistent with an objective of an index measuring prices paid by consumers in the course of acquisition of goods and services and not with the derivation of the wherewithal with which to make the acquisition.

USED GOODS

Similarly, when consumers covered by the index purchase used goods, these should be treated as transactions in fact, since the consumers have to meet the full price charged them and the relative importance of such expenditures should be fully recognized by the index weights. The Committee, on the other hand, would only make a partial allowance for such expenditures (and in the case of a CPI, applicable to the entire U.S. population only insofar as such purchases reflect dealers' overhead and profit). It is obvious that the Committee is influenced in its thinking by an approach typical of national income analysis, where an attempt is made to value current output to the exclusion of transfers of goods produced in earlier periods. The Committee errs, however, when it applies this reasoning to the determination of prices actually paid for goods purchased in a given period of time, irrespective as to when or where they were produced.

INSURANCE

A related problem is created by the proposals of the Committee with regard to treatment of insurance premiums for CPI. Except for overhead costs and profit of insurance companies, the Committee suggests that other portions of the premium costs be disregarded on the theory that this represents a transfer of funds

from family A to family B and as such it is an expenditure for one and a receipt for the other, and hence cancels out of the calculation. To the extent that our concern is with the costs incurred by the consumers when they purchase goods and services, the elements alone should be taken into account in the construction of an index measuring current price changes (except for that fraction of expenditures which represents savings).[22]

SEASONAL ADJUSTMENTS

The Committee puts unnecessary emphasis on the alleged need for seasonal adjustment of prices and index weights. As the Committee itself recognizes, the use of annual weights for the construction of CPI does provide at least a rough equivalent of seasonally adjusted weights. A closer concordance with seasonally adjusted weights could be attained if the weighting diagrams of CPI were based on expenditure patterns of 2 or 3 adjoining years.

The Committee does not seek to provide any data to show how the overall indexes, and more particularly CPI, are affected by seasonality. The available evidence, however, indicates that, in view of the number of compensating price movements, CPI is not materially affected by seasonal change. Published information on seasonal adjustments in CPI reveals that there is little seasonality in the index as a whole.[23] The need for seasonal adjustment of the CPI thus remains unproved.

The Committee recommendation that disappearing seasonal commodities be handled in the final CPI estimates on the basis of interpolation between the dates of disappearance and reappearance seems to be without merit. The effect of such procedure would be to smooth out the index. However, inasmuch as price changes are discrete, the introduction of spurious smoothness would not necessarily yield indexes of greater precision than heretofore. While conventions are unavoidable, the logical foundations of the current practice, which does not permit the unavailable item to influence the course of the index during the period of its unavailability, does least violence to reality. The practice now used by BLS of imputing the movement of unavailable items from the index as a whole should be continued.[24]

WAGE ESCALATION

The Committee's conclusion that the needs of wage and salary escalation "are best met by seasonally adjusted indexes" is unsound. All seasonal adjustments are based on the experience of the past rather than on the data directly applicable to the period for which the adjustment is made. Different methods of seasonal adjustments such as those developed by the Bureau of the Census and by BLS, are likely to give different results even though computed from the same data. Furthermore, seasonal adjustments are subject to revisions arising out of the method of their compilation. All of these factors help to introduce additional subjectivity into the index. This is one of the reasons why the need for seasonally adjusted CPI was never felt in wage escalation, either by management, labor, or the Government.

The Committee seems to be unjustified in its other conclusions on the use of price indexes in collective bargaining. Wage escalation merely adjusts the basic rate of compensation, typically exemplified by hourly earnings, by refer-

---

[22] Here again, a different approach may be justified when one deals with the deflation of the national output of goods and services produced at particular times. However, the rationale of national income analysis does not seem to be applicable in the case of indexes measuring changes in the prices that have to be met by consumers, particularly if such an index was to be used for correcting incomes for price changes (even if the index were to be computed for the entire population, its applications would be to substrata of the population). Parenthetically, it should be noted that the Committee errs when it ascribes the omission of life insurance from the CPI to the agreement on the part of BLS with the netting-out principle. To the knowledge of this writer, BLS excluded life insurance premiums from the index due to difficulties it found in allocating premiums into elements representing current expenditures for the services provided by life insurance and those representing savings.

[23] H. E. Riley, "Some Aspects of Seasonality in the Consumer Price Index," in Journal of the American Statistical Association, March 1961, pp. 27 ff.

[24] This problem is similar to another one referred to by the Committee, the one dealing with pricing on a quarterly cycle in smaller cities. Interpolation seems hardly the answer, for it presupposes a continuous, unidirectional behavior in the intervening period and does not necessarily accord with facts. Nor does the present BLS practice in this regard seem satisfactory. Rather, it would seem to make more sense if a common benchmark were to be developed for all cities covered by the index and if subsequent imputations for missing items were made on the basis of price movements for cities with similar characteristics.

ence to changes in the currently charged prices for goods and services purchased by workers in the reference base period. No attempt is made to guarantee the the maintenance of the purchasing power of weekly, monthly, or annual incomes. The index used for the adjustment of changes in the disposable income derived from 1 hour of labor thus cannot be deemed a device which is designated to maintain the standard of living of the employees (as the Committee holds). At best, it is a correction for price change. The index which should be used to this end is one that would have operational significance for wage escalation, i.e., its weight should reflect expenditures of the wage and salaried workers in the reference period.[25]

INDEX BIAS AND RECOMPUTATION

A few additional matters must be reviewed before concluding. The statements made by the Committee regarding the alleged bias in the CPI resultant from the use of a fixed-weight base are grounded on the rigid assumptions of the utility-cost approach. In practice, there are correlation effects between changes in prices and in weights. As a result, occasional comparisons between two dates show a slightly smaller ratio when the index uses the weights for the latest date than the index utilizing weights for the earlier date. Of itself, this fact does not spell out which formulation is right and which is wrong. The available empirical data shows, however, that two indexes, one with recent and the other with old weights, do not behave with consistency in the intermediate period. This is evident from the BLS computations made at the time CPI weights were revised in the late thirties. Indexes computed by using old and new weights ran a fairly parallel course, with the new index sometimes exceeding and sometimes falling behind the corresponding points of the old indexes.[26]

When the Committee urges that indexes be recomputed backwards, it ignores the problem created by the fact that items priced, as well as the cities and outlets where they are priced, may not be the same before and after revisions. To this extent, back data may simply not be available. This suggests that while occasional tests, based on partial data, should possibly be made for analytical purposes, regular diversion of governmental funds for such recomputations hardly seems called for.[27]

The Committee comes forth with another suggestion relating to CPI revisions. Instead of a monthly CPI, they would resolve their own inability to define the operationally meaningful concepts of an index which would measure the "cost of maintaining a constant level of utility" by having BLS produce two indexes, a monthly Consumer Price Index and an annual cost of constant living index.[28] The unsoundness of this recommendation is evident from the Committee's own report. In recommending a research program, the Committee notes the need to study the measurement of welfare changes, the major objective being to establish the knowledge and to develop the techniques necessary to calculate an index that approximates a true cost of living index (i.e., a welfare index) as closely as possible. Until such knowledge and techniques are developed any recommendation along the line made by the Committee is at best, much too premature. Furthermore, the publication of an annual index which would not accord with the monthly data would only add to public confusion without necessarily adding to our fund of knowledge.

CRITICISM NOT ALWAYS JUSTIFIED

The Committee is unduly harsh in its comments on BLS policies with regard to correction of errors which presumably creep into the indexes. In its discussions, errors, and revisions of the series are treated as though they were one and

---

[25] The Committee argues that CPI appropriate to the entire urban population will probably serve equally well for wage escalation because urban worker families constitute over one-half of the urban population. This is hardly a tenable argument. The utility-cost approach, favored by the Committee, concludes that constant utility-cost indexes would not move alike in the different population strata. A similar conclusion can be reached without reference to utility theory. The Committee's argument is, therefore, questionable.

[26] Bureau of Labor Statistics, Bulletin No. 699: "Changes in Cost of Living in Large Cities in the United States, 1931–41," pp. 27–30.

[27] At one point, the Committee suggests that backward revisions would be improved if the weights used in such recomputations were based on the averages of initial and terminal year data. However, it offers no rationale for this recommendation. The resultant series would be as arbitrary as any other series using fixed weights; it will not be truer than any other.

[28] The Committee does not use uniform terminology in their references to the utility-cost index.

the same. The Committee proposal for the inclusion of interpolations during period of seasonal unavailability of goods can properly be considered under the heading of revisions but not of errors. The resultant indexes, however, would be no more devoid of error than the earlier, unrevised data in which seasonal items are imputed from the index as a whole. For this reason, the recommendation of annual revisions of indexes is unjustified unless it can be defended on its own merit (the subject was discussed earlier in this commentary). The present observations by this writer should not be taken to suggest that genuine errors (such as those that are due to erroneous quotations, tabulations, sampling, or typography) should not be corrected in the months in which they occur. However, before BLS is criticized on the grounds advanced by the Committee, it must ascertain whether or not this was done.

The major weakness of the report is its emphasis on the information and approaches sought by university personnel interested in research and economic theory. As such, it neglects much too frequently the needs for consistent, operationally meaningful price data for public policy formulation, as well as the interests of other classes of users. The Committee also fails to appreciate all of the problems involved in the actual handling of price data, from the time quotations are secured to the time indexes are published. As a result, it underestimates the costs entailed by its index compilation program rather than reduce costs it would increases them without necessarily leading to a better product.

Senator PROXMIRE. I think Mr. Seidman is next.

Mr. Seidman, I see you have a statement and a summary. You may proceed in whatever way you think best to do the job in 10 minutes.

STATEMENT OF BERT SEIDMAN, ECONOMIST, RESEARCH DEPARTMENT, AFL–CIO, WASHINGTON, D.C.

Mr. SEIDMAN. Thank you, Mr. Chairman. I will read the summary and will appreciate it if the longer statement may be included in the hearing record.

Senator PROXMIRE. That will be done.

Mr. SEIDMAN. I am glad to have this opportunity of participating in this panel discussion on the Report of the Committee on the Price Statistics of the Federal Government, headed by Prof. George Stigler.

The Committee has made a significant contribution in statistical areas with important implications for both public and private parties. Indeed, because of the wide general interest in price indexes, it might have been desirable for user groups to be represented on the Committee.

Trade unions have a vital interest in price indexes, especially in the Consumer Price Index of the Bureau of Labor Statistics. The wages of some 2.5 to 3 million workers covered by escalator clauses of collective bargaining contracts are directly tied to the movement of this index. Even in the absence of an escalator clause, price change as measured by the CPI is invariably a factor in collective bargaining negotiations. While we should by no means ignore the noncollective bargaining uses of the CPI, it is important to stress that the fundamental character of the index as a tool for collective bargaining must be maintained.

The most significant contribution the Committee has made has been to focus the attention of both statistical agencies and users of the price indexes on possibilities for improving price statistics. Present techniques and concepts should be subjected to searching investigation and criticism in order to determine whether the indexes are relevant to their uses, measure what they are supposed to measure and utilize the best available techniques of measurement.

Second, the Committee rightly emphasizes the need for more staff devoted to research, independent of but necessarily working in close cooperation with the operating phases of the agency's activities. Such basic research should be done by competent people who do not have the burden of routine operating responsibilities.

Third, the Committee's suggestion for extending the scope of the index to cover those not in the wage and salary group is worthwhile. However, extension of the scope to other groups should not mean eliminating the index applying to wage and salary workers. We should develop in time a "family of indexes" including a broad index applying to the whole population, as well as indexes applying to specific groups.

The Committee's most far-reaching and most controversial recommendation is for transition to what is variously referred to as a "cost of living" or "welfare" or "constant utility" index rather than the present price index. Unfortunately, these terms are not adequately defined nor are practical suggestions made as to how a "welfare" index should be constructed.

The present CPI measures the change in prices of a fixed market basket of goods and services based on actual consumer expenditures. To a nontechnical user of the CPI it appears to be a concrete measurement of concrete phenomena which are relatively understandable in everyday experience.

The "constant utility" or "welfare" index concept seems much more theoretical. The Committee refers to an index measuring the cost of maintaining "a constant level of utility." But it does not tell us what items should be included nor how they should be measured. Without such guidance, it would seem almost impossible even to determine whether the welfare index approach is sound or even feasible.

I wish to comment briefly on a few of the Committee's other recommendations:

(1) The Committee recommends publication of preliminary indexes and a more liberal revision policy. The Bureau appears to have already an adequate correction policy to take account of significant errors. No further change seems necessary.

(2) The Committee recommends publication of the CPI on a seasonally adjusted basis. Since there is evidently minimal seasonality in the CPI, this doesn't seem to be a practical suggestion.

(3) I approve of the Committee's recommendation for regularly scheduled decennial revision of the CPI. However, its proposal for mid-decade wholesale weight revisions is unwarranted in view of the relatively slow changes of consumer expenditure patterns.

(4) The Committee urges earlier introduction of new items into the index. The BLS now introduces new items into the index when their sales volume is sufficient to have a significant effect on the index and when it can be determined what effect introduction of the new item has on purchases of other items. I can see no valid reason for changing the present policy.

(5) The Committee says the price indexes fail to take full account of quality changes, thus producing an upward bias in the index. However, the Committee sets forth no empirical evidence to prove this point and indeed admits that it is very difficult to measure quality changes. Further exploration of this question is certainly desirable. There is no reason, however, to accept the Committee's offhand judg-

ment that quality changes necessarily introduce an upward bias into the index. There are both quality deteriorations and quality improvements which may balance each other out.

(6) The Committee wants more detailed information on the methods and techniques of the statistical agencies. This is desirable provided it does not detract from the primary responsibility of the agencies which is to carry out the major operating and research functions involved in making the indexes themselves available to the general public in the best possible form for the practical uses of the indexes.

Thank you, sir.

(The prepared statement referred to follows:)

STATEMENT BY BERT SEIDMAN, ECONOMIST, DEPARTMENT OF RESEARCH, AFL–CIO, AT PANEL DISCUSSION ON THE REPORT OF THE PRICE STATISTICS REVIEW COMMITTEE

I am glad to have this opportunity of participating in this panel discussion on the Report of the Committee on the Price Statistics of the Federal Government, headed by Prof. George Stigler.

At the outset, I wish to make it clear that while I have some fundamental criticisms of the Committee's report, I think it has made a significant contribution in a statistical area which has important implications for many economic decisions by both public and private parties and in which there has been considerable public interest. Because the public interest in the price indexes has been substantial, I regret there were not on the Price Statistics Review Committee representatives of user groups who might have been able to bring to bear upon the work of the Committee some of the more practical considerations involved in the important uses to which the indexes are put. I recall to the Committee's attention that individuals with such a practical bent have been included in similar Committees established in recent years.

TRADE UNION INTEREST IN PRICE INDEXES

Trade unions have a vital interest in the price indexes, especially in the Consumer Price Index of the Bureau of Labor Statistics to which most of my remarks shall be directed. The CPI is now being used as the measure of price changes in escalator clauses of collective bargaining contracts covering some 2.5 to 3 million workers. Since the wages of these workers are directly tied to the movement of the index, they want to be sure that the index is as accurate as possible for preserving the purchasing power of their hourly wage rates. Nor is the use of the CPI confined to its direct application in escalator clauses. Price change, as measured by the CPI, is a factor in nearly all collective bargaining negotiations whether or not the collective agreement contains an escalator clause.

Because of the importance of the CPI in collective bargaining, I feel very strongly that whatever changes and improvements may be made in the index from time to time, modifications should not so fundamentally alter the index as to make it no longer usable in collective bargaining. This does not mean that I would ignore the many other important uses of the index in a wide variety of areas.

I am fully cognizant of these applications of the index. Indeed, trade union economists use the index in various types of economic analyses not directly related to collective bargaining. Nevertheless, it is true, as the Committee has pointed out, that the index has from its inception had special relevance to collective bargaining. This fundamental character of the index as a tool for collective bargaining should be maintained.

THE COMMITTEE'S CONTRIBUTIONS

Before indicating some points of difference with the Committee's report, I would first like to comment on some significant contributions the Commitee has made. To my mind, the greatest contribution the Committee has made has made has been to focus the attention of statistical agencies and the users of price indexes on the possible ways in which these statistical series might be improved. I have in mind such issues as specification procedures for pricing, the effect of quality changes on the index, treatment of new products, and extending the scope of the index, as well as the most fundamental issue the Com-

mittee raises, namely, a price index versus a so-called cost-of-living or welfare index. I do not agree with the Committee's conclusions on many of these questions but I am glad that the issues have been raised and are being fully discussed.

Neither the present statistical techniques nor even the fundamental concepts underlying the indexes should be regarded as immutable. They ought to be subjected to searching investigation and criticism. It is important to try to find out whether the indexes are really relevant to the uses to which they are put, whether they actually measure what they are supposed to measure and whether the techniques of measurement can be improved. These are the basic questions on which the Committee has focused its attention. Whether they agree with all its conclusions and recommendations or not, it has forced people concerned with the index, both producers and consumers of the statistics, to rethink some of the basic concepts and methods which all too often we tend to take for granted. In this respect, therefore, the Committee has performed a very useful function.

Second, the Committee rightly emphasizes the need for more staff devoted to research, independent of but necessarily working in close cooperation with the operating phases of the agency's activities. The amount of funds needed to carry out this recommendation would be relatively small but would be likely to greatly improve the work of the statistical agencies. It is impossible for people charged with the day-to-day work of getting out figures against sharp deadlines to take time out to review and assess objectively the work they are doing and to experiment with ways in which it might be improved. Such basic research should be done by competent people who do not have the burden of routine operating rsponsibilities.

Third, the Committee has done well to point out that however useful it may be, the scope of the present CPI is limited to a particular group of the population. The group covered happens to be the urban wage and salary worker group which the trade unions represent. We would urge most strongly continuance of an index applying to this group, although we concur in the Bureau's intention to extend the scope to single workers. Nevertheless, we can see the value of having in addition to the index covering wage and salary workers both a broad index applying to the whole population, as well as specific indexes for groups other than wage and salary workers. We would hope that, in time, such a "family of indexes" could be developed.

SOME POINTS OF DIFFERENCE WITH THE COMMITTEE

There seems to be universal agreement that both the most fundamental and the most controversial recommendation of the Committee is its advocacy of transition toward a "cost of living" or "welfare" index rather than the present price index.

Unfortunately, despite the importance of this recommendation, the Committee devotes relatively little space to developing its ideas on this subject. The Committee speaks of a "constant-utility" index (also referred to as a "welfare" index), as being the desirable type of "cost of living" index and urges modification of the existing CPI in the direction of such an index. But the "constant-utility" index is not adequately defined nor does the Committee lay down any guidelines as to how it might be constructed. In considering the Committee's recommendation, therefore, one is forced to resort to conjecture.

The CPI, as it is now computed, measures the change in prices of a fixed market basket of goods and services the composition of which has been determined by the actual pattern of expenditures of the group covered by the index at the time of its most recent revision. These are actual prices in the marketplace of actual goods and services. The market basket is revised comprehensively at periodic intervals of about 10 years. In addition, periodic changes are made to respond to exigencies arising between revisions, such as the appearance or disappearance of particular items, but these changes are not of such magnitude as to alter fundamentally the fixed market basket concept. Moreover, statistical techniques are available for linking in such changes without significantly affecting the level of the index. What strikes a nontechnical user of the CPI is that it appears to be a concrete measurement of concrete phenomena which are relatively understandable in everyday experience.

The concept of a "constant-utility" or "welfare" index, however, seems much more theoretical. The Committee refers to an index which would measure the cost of maintaining a "constant level of utility." Presumably this is some hypo-

thetical bundle of satisfactions or utilities whose price changes would be measured. But what items would appropriately belong in this bundle of utilities and how would they be measured? Answers to these all-important questions seem to be lacking in the Committee's report. Without such guidance, however, it would seem almost impossible even to try to find out whether the welfare index approach is sound or feasible.

I wish to comment briefly on a few of the other recommendations the Committee has made:

(1) The Committee recommends publication of preliminary indexes and a more liberal revision policy. Whatever theoretical merit such a change may or may not have, it is fraught with practical difficulties. Because of the important practical applications of the CPI, it must not be subject to constant picayune tampering which would destroy the practical usefulness of the index. Of course, real errors of significant magnitude should be corrected. But the Bureau already has such a correction policy which is intended to take account of changes discovered ex post facto which are large enough to affect significantly the level of the U.S. index. It must be borne in mind that only a tremendous error in one of the many components could really change the U.S. index and such errors rarely, if ever, occur. Moreover, the Bureau's policy allows for changing city or product group indexes when discovered to require such changes even though such errors are not large enough to affect the overall index. All in all, the Bureau seems to have a practical correction policy which does not seem to require radical change.

(2) The Committe recommends publication of the CPI on a seasonally adjusted basis. In theory, there could be no objection to this recommendation, but it does seem to be impractical.

In the first place, the weights used in the CPI incorporate a measure of seasonality because they are based on a patern of expenditures in all months over a period of 2 or more years. Therefore, the seasonal adjustment could only be applied to the actual prices used for computing the index. However, this would necesarily inject a subjective factor in the pricing since the technical experts by no means agree on a single method for effecting a seasonal adjustment.

In addition to these technical considerations, there is an at least equally important practical consideration. Seasonal adjustment of statistical series makes real sense only where there is substantial seasonality. I understand that in any one month, the maximum effect of seasonal adjustment would be plus or minus five-tenths of 1 percent. It would appear to be an injudicious expenditure of time and money in the case of the CPI, in which there appears to be only minimal seasonality.

(3) The Committee recommends that the weights assigned to the various items in the CPI be revised every 10 years. We support this recommendation and indeed would urge that there be official recognition by the Bureau of the Budget and the Congress of decennial revision of the CPI. The regularity of such revisions should be assured in order that users will know that the index is reasonably attuned to important long-term changes in the economy and in patterns of consumption.

The Committee, however, goes beyond recommending decennial revision of CPI weights to suggest that some index weights (presumably a considerable number) be revised in the middle of each decade between the major revisions and no less often than every 5 years. I would oppose this recommendation because I do not think that consumer expenditure patterns change significantly enough in 5 years to warrant wholesale weight revision. In view of the time-consuming and relatively expensive work involved in weight revision and the absence of evidence that frequent weight revision is necesary, I do not think that such revision should be undertaken more often than every 10 years.

(4) The Committee urges earlier introduction of new items into the index. Unfortunately, this is not as easy as it may appear to be.

There are really two types of new items. Some new items are really almost direct substitutes for other items. A good example is the replacement of soaps by detergents. In such a case, the BLS can introduce the new item, as soon as it has a significant effect on the index, in advance of a comprehensive revision because it can estimate what effect introduction of the new item will have on the item it is replacing.

This is not possible with an absolutely new item such as television. It is impossible to determine in advance of a full-scale consumer expenditures survey, what effect consumer purchases of television sets have on their other expenditures not only for radios but for such items as travel, amusements, and even food (TV dinners). Thus, introduction of such completely new items must take place only after the periodic expenditures surveys.

(5) The Committee states that "the failure of the price indexes to take full account of quality changes [is] the most important defect in these indexes" and that this failure results in an upward bias in the index; that is, the index is higher than its true level. The Committee admits, however, that there is little empirical evidence to support this view and that it is very difficult to measure quality changes.

I would certainly agree with the Committee's recognition of the lack of conclusive data in this area and the knotty problems involved in tackling this question. Certainly efforts should be directed toward thorough investigation of the quality problem. It is conceivable that this might lead to at least some qualitative conclusions as to the effect of quality changes on the index even though quantitative measurement of the impact of such changes may not be possible.

Of course, the BLS does try to take account of quality changes in its present procedures. For example, in measuring changes in the cost of hospital care under group insurance plans, the Bureau tries to measure how much an increase in premium may reflect a real price increase and how much it may reflect increased services and/or increased utilization.

It must be admitted that the Bureau has not been able to take account of all quality changes. For example, in the field of apparel, firms may attempt to maintain a price line by cutting quality. This type of quality deterioration may not be reflected in the index and to that extent contributes to a downward bias in the index.

Thus it would appear that the difficulty of measuring quality changes may lead to both upward and downward biases in the index. This is a problem in which there is no easy, quick solution nor can we be certain that there will ever be a definite answer. After all, in one sense, by its very nature quality, or at least many aspects of quality, is not susceptible to measurement. Perhaps one is left with the not altogether satisfactory subjective judgment that there are both quality improvements and quality deteriorations and that these factors may very well balance out.

(6) The committee asks for detailed and more frequent publication by the statistical agencies of their methods and techniques for the scrutiny of technical specialists in the field. In general, I agree that it is beneficial for the agencies to inform the technicians of how they go about computing the indexes. However, this phase of their work should not be given overriding priority. After all, the number of people competent to make use of such detailed technical data and desiring to obtain it is extremely limited. The statistical agencies must budget their resources among their various responsibilities. Their primary obligation must be to carry out the major operating and research functions involved in making the indexes themselves available to the general public in the best possible form for the practical uses of the indexes.

Senator PROXMIRE. Mr. Boger.

STATEMENT OF L. L. BOGER, PROFESSOR AND HEAD, DEPARTMENT OF AGRICULTURAL ECONOMICS, MICHIGAN STATE UNIVERSITY, LANSING, MICH.

Mr. BOGER. Mr. Chairman and members of the panel, I want to thank you for the invitation to appear at these hearings. Professionally, my main interest has been in the area of agricultural price analysis. Because of this I have made wide use of the indexes considered in this report, and have on occasion been forced to modify them as well as construct many new ones as the needs arose. For many years at Michigan State University we have computed and published a Michigan farm price index modeled after the USDA Index of Prices Received by Farmers. As a professional worker, I can sincerely say that it was a joy to read the Committee's report on several counts, but especially these two: (1) It demonstrated a genuine interest on your part in having these important economic measures considered, and (2) its thoroughness, precision, and recommendations

made it a worthwhile document for many, and it rightfully deserves your serious consideration.

The tone of the comments that follow can be summarized thusly: I concur with the Price Review Committee's general evaluation of the indexes and differ only slightly with its recommendations.

Because of the composition of today's panel, I will confine my remarks primarily to the two indexes for farmers; namely, prices received and parity. I present them with little elaboration in the following six points:

1. All first primers on index numbers point out that there are at least four important decisions to make in the process of constructing any index: (*a*) What is its purpose? (*b*) What commodities should be included? (*c*) What formula is appropriate? and (*d*) What base periods should be chosen?

I mention these because quite often the first of these is either forgotten or ignored as an index number ages, and, with use, pressures build up for wider application. The development of the parity index illustrates this.

The forerunner of this index was the index of prices paid by farmers. Originally, it was constructed for the purpose of comparing levels of and changes in unit prices of items purchased by farmers with unit prices of commodities sold by farmers. When the new word "parity" entered the vocabulary of farmers, it was only natural that an index designed to measure purchasing power be given extended empirical application. There is no need to detail the history on this point. It is implied in the current document under review as well as in documents elsewhere. Suffice it to say that this index has been modified and criticized through time because its major use today is quite different from the use for which it was originally constructed.

A staff paper in the report comments on parity indexes for commodities and efficiency modifiers to overcome the difficulties encountered throught inappropriate, extended applications. Given the current problems, might it not be better to reconstruct the parity index, or rearray its subindexes so as to reachieve consistency between its current purposes and the other three basic construction decisions? This simple question should not be passed off lightly, because parity indexes computed for commodities, for types of farming areas, for types of farms, or for geographical regions can vary widely. For example, 5 years ago I compared 1 State parity index with the U.S. index and discovered a difference of 60 points (20 percent) between the annual averages for 1 year.

2. My second point relates to the first, in part, and simply stated is: If we had good basic information from farmers on gross income and gross expenditures, the necessary raw data would be available to construct the index numbers for agriculture and two important related sets of problems would be solved. Currently the procedure begins with the collection of data for price indexes. These data are then combined with piecemeal physical data to arrive at net income estimates. Should not the procedure be reversed? Certainly our farm expenditures data need improvement on both the price and physical input sides.

The total task of improving both price and income data would require the dovetailing of several currently semi-independent operations

and could be accomplished any one of several ways. One approach would be to establish a continuous reporting system on a monthly basis, built upon a scientifically designed sampling system primarily with commercial farmers. Preliminary experimental work carried out in Michigan in cooperation with the USDA lends encouragement to this approach. This approach may be appropriate for other indexes as well. Basically, it says, if you want farm price information, go to farmers; if you want consumer price information, go to consumers. For 9 years, our department of agricultural economics at Michigan State University operated a weekly food panel with approximately 250 families in the city of Lansing, Mich. One of our graduate students developed a retail food price index based upon the data collected and compared it with the BLS indexes for Detroit and all U.S. cities. In short, he discovered that the pattern of movements was similar (correlation with BLS Detroit, for example, was 0.91), but the BLS prices were generally higher than those actually paid by the panel families.

Whatever the methods used to compute or improve price indexes, close cooperation among agencies is desirable and here I endorse the review committee's recommendations.

3. My third point deals with the review committee's recommendation on research. Its recommendation is to establish units within those bearing the responsibility for computing the indexes, but isolated or at least insulated from them. It was further recommended that they deal primarily with the quality problem. My feeling is that the research and operations people should work hand-in-glove, and in some instances, people should have dual responsibilities. Furthermore, they should concentrate on methodological problems over and above the quality problem.

Among the many important methodological problems is the linking problem. We ran into a strange and unexpected linking problem in 1954 when we were revising our index of prices received by Michigan farmers. We followed exactly the same procedures used by those who built the U.S. Index, and to our surprise we discovered that a linking bias caused a subindex for all crops in 1 month to be higher than any of its component parts. When an "average" falls outside a range, it is cause for concern. The concern should be even greater for those indexes requiring frequent modification of the base weights in order to be up to date. The seasonal problem is difficult indeed—so are the problems of sampling, reporting and formulas. All should command the attention of the research units and many are tied in directly with operating problems.

My remaining points are brief.

4. It has been stated that the two farm prices indexes are companions, but procedurally they have been treated more as twins. Actually, they are quite different and the methods employed should reflect these differences.

5. Analysts are not only concerned in levels of indexes and amounts of change, but reasons for these as well. Economists, for example, are interested to know whether changes were due to shifts in supply or demand or both, and the policy implications are quite different. Price indexes dissected in such a way as to reflect these would be highly useful.

6. While it is useful, as the review committee suggests, to publish detail on methods used, it might be even more useful to publish the

raw data. Individual nongovernment researchers could utilize them more fully for special purposes and possibly complement the work of the Federal research units.

Before closing my remarks, I should like to state that, although my comments have been directed primarily to the two farm price indexes, it should not be inferred that I regard these indexes independent of the others. So long as wages are tied closely to the CPI, farm prices to parity, and substantial overlap in commodities exists the indexes are closely intertwined. I hope that some of these points can be elaborated in the discussion period.

Finally, I should like to compliment once again the work of this subcommittee which has led to the development of this excellent report with its important recommendations.

Thank you.

Senator PROXMIRE. Thank you, Mr. Boger.

(The prepared statement referred to follows:)

AN EVALUATION OF GOVERNMENT PRICE STATISTICS

Comments by L. L. Boger, Professor and Head, Department of Agricultural Economics, Michigan State University, on "The Price Statistics of the Federal Government: Review, Appraisal and Recommendation"

Mr. Chairman and members of the subcommittee: I want to thank you for the invitation to appear at these hearings. Professionally, my main interest has been in the area of agricultural price analysis. Because of this I have made wide use of the indexes considered in this report, and have on occasion been forced to modify them as well as construct many new ones as the needs arose. For many years at Michigan State University we have computed and published a Michigan Farm Price Index modeled after the U.S.D.A. Index of Prices Received by Farmers. As a professional worker, I can sincerely say that it was a joy to read the committee's report on several counts, but especially these two: (1) It demonstrated a genuine interest on your part in having these important economic measures considered, and (2) its thoroughness, precision and recommendations make it a worthwhile document for many, and it rightfully deserves your serious consideration.

The tone of the comments that follow can be summarized thusly: I concur with the price review committee's general evaluation of the indexes and differ only slightly with its recommendations.

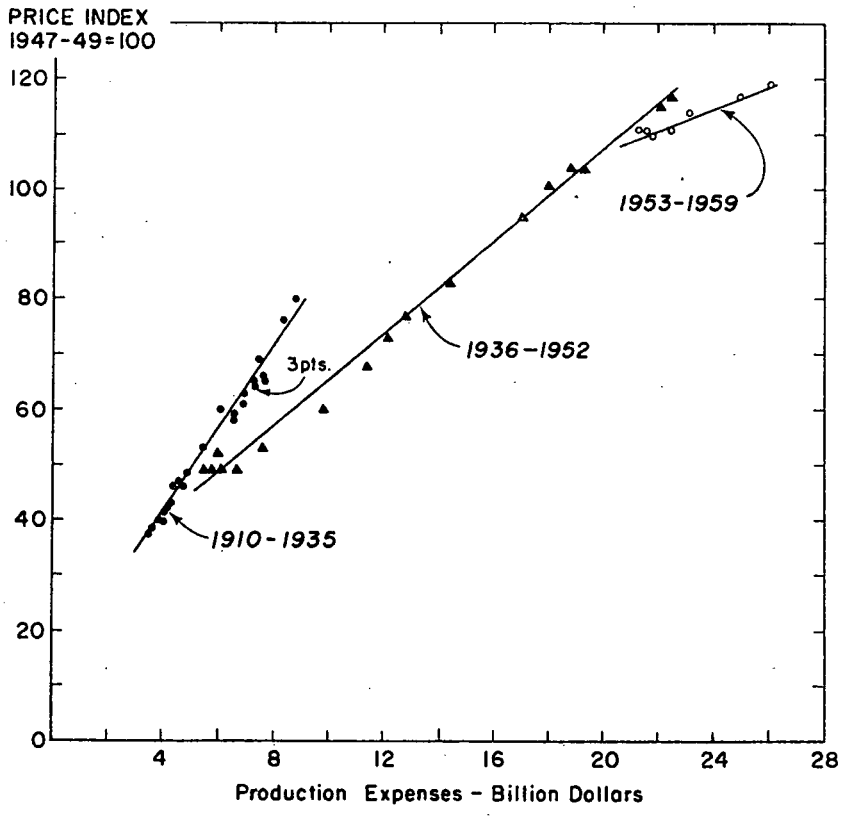
Because of the composition of today's panel, I will confine my remarks primarily to the two indexes for farmers, namely Prices Received and Parity. I present them with little elaboration in the following six points:

1. All first primers on index numbers point out that there are at least four important decisions to make in the process of constructing any index: (1) What is its purpose? (2) What commodities should be included? (3) What formula is appropriate; and (4) What base periods should be chosen? Quite often the first of these is either forgotten or ignored as the index number ages, and with use, pressures build up for wider application. The development of the parity index illustrates this. The forerunner of this index was the Index of Prices Paid by Farmers. Originally, it was constructed for the purpose of comparing levels of and changes in unit prices of items purchased by farmers with unit prices of commodities sold by farmers. When the new word "parity" entered the vocabulary of farmers, it was only natural that an index designed to measure purchasing power be given extended empirical application. There is no need to detail the history on this point. It is implied in the current document under review as well as in documents elsewhere. Suffice it to say that this index has been modified and criticized through time because its major use today is quite different from the use for which it was originally constructed. A staff paper in the report comments on parity indexes for commodities and efficiency modifiers to overcome the difficulties encountered through inappropriate, extended applications. Given the current problems, might it not be better to reconstruct the parity index, or rearray its subindexes so as to reachieve consistency between its current purposes and the other three basic construction decisions? This simple question should not be passed off lightly, because parity indexes com-

puted for commodities, for types of farming areas, for types of farms or for geographical regions can vary widely. For example, 5 years ago I compared one State parity index with the U.S. index and discovered a difference of 60 points (20 percent) between the annual averages for 1 year.

2. My second point relates to the first, in part, and simply stated is: If we had good basic information from farmers on gross income and gross expenditures, the necessary raw data would be available to construct the index numbers for agriculture and two important related sets of problems would be solved. Currently the procedure begins with the collection of data for price indexes. These data are then combined with piecemeal physical data to arrive at net income estimates. Should not the procedure be reversed? Certainly our farm expenditures data need improvement on both the price and physical input sides.[1]

FIGURE 1.—RELATIONSHIPS BETWEEN INDEX OF PRICES PAID BY FARMERS FOR ITEMS USED IN PRODUCTION INCLUDING INTEREST, TAXES, AND WAGE RATES AND TOTAL FARM PRODUCTION EXPENSES, NET OF GOVERNMENT PAYMENTS TO NONFARM LANDLORDS, UNITED STATES, 1910–59



[1] To illustrate, the price index for commodities used by farmers in production, including interest, taxes and wage rates, is composed of almost the same set of items used in computing farm production expenses, net of Government payments to nonfarm landlords. One series plotted against the other for the years 1910–59 yielded three highly significant relationships (figure 1). Each relationship was determined by the sets of years for which given quantity weights were in use in the price index—1910–35 with weights based upon 1924–29, 1936–52 with weights based upon 1937–41, and 1953–59 with weights derived from 1955 data. The correlation coefficients for the periods were successively 0.993, 0.996, and 0.985. The closeness of the relationships is surprising, but less so than their nature. Why should they be linear? It is also obvious that changing the weights in the price index injected a marked discontinuity into the functional relationships between prices and expenses—discontinuity which is probably more abrupt than it should be. This reinforces the Review Committee's recommendations that more frequent revisions of the weights in the price index may be necessary.

The total task of improving both price and income data would require the dovetailing of several currently semi-independent operations and could be accomplished any one of several ways. One approach would be to establish a continuous reporting system on a monthly basis, built upon a scientifically designed sampling system primarily with commercial farmers. Preliminary experimental work carried out in Michigan in cooperation with the USDA lends encouragement to this approach. This approach may be appropriate for other indexes as well. Basically it says, if you want farm price information, go to farmers; if you want consumer price information, go to consumers. For 9 years, our department of agricultural economics at Michigan State University operated a weekly food panel with approximately 250 families in the city of Lansing, Mich. One of our graduate students developed a retail food price index based upon the data collected and compared it with the BLS indexes for Detroit and all U.S. cities.[2] In short, he discovered that the pattern of movements was similar (correlation with BLS Detroit was 0.91), but the BLS prices were generally higher than those actually paid by the panel families.

Whatever the methods used to compute or improve price indexes, close cooperation among agencies is desirable. Here I endorse the Review Committee's recommendations. A few years ago, when I became excited about the differences in procedures employed by BLS and the then AMS, I correlated the family living component of the parity index with the CPI by years beginning with 1913, and discovered that the correlation coefficient was 0.97. This shook my scientific attitude a bit, particularly as it related to the issue "unit" versus "specification" prices—both have merit and neither is foolproof.

3. My third point deals with the Review Committee's recommendation on research. Its recommendation is to establish units within those bearing the responsibility for computing the indexes, but isolated or at least insulated from them. It was further recommended that they deal primarily with the quality problem. My feeling is that the research and operations people should work hand in glove, and in some instances, persons should have dual responsibilities. Furthermore, they should concentrate on methodological problems over and above the quality problem.

Among the many important methodological problems is the linking problem. We ran into a strange and unexpected linking problem in 1954 when we were revising our index of prices received by Michigan farmers. We followed exactly the procedures used by those who built the U.S. index, and to our surprise we discovered that a linking bias caused a subindex for all crops in 1 month to be higher than any of its component parts. When an "average" falls outside a range, it is cause for concern. The concern should be even greater for those indexes requiring frequent modification of the base rates in order to be up to date. The seasonal problem is difficult indeed—so are the problems of sampling, reporting and formulas. All should command the attention of the research units and many are tied in directly with operating problems.

My remaining points are brief.

4. It has been stated that the two farm price indexes are companions, but procedurally they have been treated more as twins. Actually, they are quite different and the methods employed should reflect these differences.

5. Analysts are not only interested in levels of indexes and amounts of change, but reasons for these as well. Economists, for example, are interested to know whether changes were due to shifts in supply or demand or both, and the policy implications are quite different. Price indexes dissected in such a way as to reflect these would be highly useful.

6. While it is useful, as the Review Committee suggests, to publish detail on methods used, it might be even more useful to publish the raw data. Individual non-Government researchers could utilize them more fully for special purposes and possibly complement the work of the Federal research units.

Before closing my remarks, I should like to state that although my comments have been directed primarily toward the two farm price indexes, it should not be inferred that I regard these indexes independent of the others. So long as wages are tied closely to the CPI, farm prices to parity, and substantial overlap in commodities exists, the indexes are closely interwined. I hope that some of these points can be elaborated in the discussion period.

Finally, I should like to compliment once again the work of this subcommittee which has led to the development of this excellent report with its important recommendations.

[2] Wang, Hsin fu, retail price index based on MSU consumer panel, Ph. D. dissertation, Michigan State University, 1960.

Senator PROXMIRE. Mr. Arant.

STATEMENT OF WILLARD D. ARANT, MANAGER, ECONOMIC RESEARCH DEPARTMENT, SWIFT & CO., CHICAGO, ILL.

Mr. ARANT. Thank you, Mr. Chairman.

I have a paper which is too long to read in the time allowed. I should, therefore, like to digest it as I go along and request that the complete paper be included in the record.

Senator PROXMIRE. Your complete statement will be included in the record.

Go ahead and summarize it in any way you wish.

Mr. ARANT. As a member of advisory committees to the Bureau of Labor Statistics for several years I have become acquainted with many of the staff of the Price Division and have a high regard for their ability.

The Price Statistics Review Committee did an excellent job on the whole considering the time available. There is some disappointment that it did not blueprint a complete price statistics program for the Federal Government for the next decade, but I think this would be expecting too much for the 1 year that it had to work on the problem. It does recommend more research and certainly more research will require additional funds.

Some of the additional costs could be offset in part by dropping the monthly index and putting the Consumer Price Index on a quarterly basis and also dropping the city indexes.

I note that this would not provide anything like a proportional saving but there would be some additional funds and time of staff that could be devoted to research. Contracts based on the Consumer Price Index could be adjusted to a quarterly index if parties are given sufficient notice. A quarterly index should also suffice for use in the national accounts.

Now I would like to devote a little time to one point and then cover several other points very, very briefly.

The main point I want to make is that the index has not covered a large part of the savings brought about by progress in distribution in recent decades.

I want to introduce this subject by reference to two points made by the Price Statistics Review Committee merely in order to establish the concept or the ideal which should govern the index.

1. The Committee has pointed out that buyers as well as sellers could provide prices. The Committee recommends that the BLS move toward buyers' prices for the Wholesale Price Index but theoretically this could also be done for the Consumer Price Index.

As Mr. Boger has pointed out, it has been done in some experimental cases. Here, however, I want to emphasize merely the theoretical aspect of this.

2. The Committee also stresses the importance of probability samples. A probability sample of consumers would theoretically provide an accurate measure of prices paid by consumers. It would not matter where the goods or services were bought.

Actually, it is probably impossible to obtain prices from consumers. They must in all likelihood continue to be collected from outlets.

Ideally the sample of outlets in each pricing period should be a probability sample of the outlets actually patronized by the consumers in that period.

The CPI reports prices in the same stores from 1 month to the next. New outlets are brought into the sample from time to time but only to improve the measurement of month to month changes in prices from then on. They are brought in by linking, just as new products are brought in by linking, in order not to impair the month-to-month measurement of price change.

The result is clear: Most of the reductions in consumer prices brought about by the growth of mass distribution in the United States in recent decades have not been measured by the Consumers Price Index. To this extent the CPI has an upward bias.

As an example, suppose that in time period I, all consumers bought their groceries at small, old-fashioned stores. Then in time period II, half of the stores, from a volume standpoint, were still small and half were modern supermarkets efficiently designed and using the most efficient methods of buying.

The supermarkets were able to sell their groceries at say 10 percent less than the small stores. Suppose that prices remained otherwise unchanged. In the following table (Table 1) let A represent the small stores and B the modern supermarkets. The average prices (averaging the prices of the two types of stores) declined 5 percent, from $1 in period I to 95 cents in period II, and 95 cents in period III. This is not reflected as a drop in the consumer price index because the supermarkets would not be brought into the index in period II. The index would remain at 100, being based entirely on the old stores. Changes in prices in supermarkets from period II to period III would be brought into the index, but since prices did not change from period II to period III, the index would still remain at 100, so that the progress represented by the original establishment of the supermarket is never measured.

However, the competition of supermarkets probably does have some effect on prices in the small stores. Suppose they were reduced 2 percent. All of that 2 percent reduction would be reflected in the Consumer Price Index provided the reduction took place before supermarkets were brought into the sample. (See Table 2.)

Hurrying along to table 3, we have here an example of the effect of a reduction in the prices in small stores taking place after supermarkets were brought into the sample. In this case the effect of the reduction in the small stores is diluted by the fact that you include supermarkets.

In practice, not all of the changes that are made by the small stores to meet the competition of supermarkets find their way into the index. Many such changes are considered by the BLS as major policy changes which are held to invalidate pure price comparisons from month to month. Some policy changes are eliminated, however, which do not effect services offered by the store, but do affect average costs and prices.

Turning to the second paragraph on page 7 of my statement, when a chain organization has the same prices throughout a city, and the chain is in the CPI sample, any economies developed by the chain which are reflected in lower prices are picked up and reflected in the Consumers Price Index.

I had an opportunity yesterday to check the number of supermarkets in chains and independents. From 1952 to 1960 independent supermarkets increased from 7,000 to 16,200. The number of supermarkets included in chain organizations increased from 9,540 to 17,100. In other words, in this period of time, more than half of the growth in supermarkets has been with independent supermarkets and that growth, generally speaking, has not been reflected in the index, whereas the growth in the case of many of the chains has been reflected.

I do not want to exaggerate the bias in the index that results from this. These changes have been occurring gradually ever since the index was established 40 years ago. Of course, not all stores have changed from the small old-fashioned type to the modern supermarket. The upward bias in the index is probably a small fraction of 1 percent per year. It is nevertheless one of the important biases.

One remedy would be to use a probability sample of outlets for each pricing period or at least at fairly frequent intervals, which would be desirable, but expensive. However, much of the needed change could be accomplished by a simple change in office calculations. The BLS does now have and uses weights for chains and independents. These weights change from time to time. When such changes are made, they should be reflected as changes in average prices to be used in calculating the index.

Research should be devoted to an estimate of the amount of upward bias in the index from this cause over past periods.

QUALITY CHANGES

This title should be broader than that because I get into things that are broader than quality itself.

I agree with the Committee that there is probably an upward bias in the index due to quality changes that are not recognized. I agree with the objective of moving toward a welfare or constant utility index. I emphasize "moving toward" because I know, as most everyone has pointed out, that it is impossible to define exactly what you would do if you went all the way to a constant utility index. However, I do not see any great difference in the concepts that the Bureau of Labor Statistics uses: "maintaining a constant level of living" and the Committee's concept of "maintaining a constant level of utility."

As pointed out by the Stigler committee, the Bureau has made modifications in its original market basket in order to keep up to date and this is in the same general direction.

In the Bureau of Labor Statistics' appendix statement which was filed with this committee on Tuesday, page 14, the various alternatives are descrived as a spectrum, with the strict market basket approach being at one end of the spectrum and the constant utility index at the other.

I am merely suggesting that we move as far as practicable along that spectrum in the direction of the constant utility index.

The objection has been made that you would then have a hybrid index which would be difficult to describe or defend. As I mentioned before, the current index is not pure. It is at least slightly hybridized, and I might comment also that the Bureau of Labor Statistics did not shrink from publishing the city workers family budget, which is very definitely a hybrid index.

I am not highly optimistic that research in this direction will be fruitful but I think the probabilities of success are sufficiently high that the effort should be made, and the Bureau of Labor Statistics agrees at least to some extent as to research on quality. I think, however, their recommendation there is limited to research on quality changes within the concept of the present index.

I give several examples which I think I shall have to skip.

I would like to mention the one on medical care, referring to a paper given by Dr. Leonard W. Martin, economist for the American Medical Association, in which he suggests that medical care is now measured to some extent in terms of the prices of inputs. The hospital room is an input in arriving at the total job of curing a patient. However, in the case of surgeons, the measure that is used he considers to be a measure of output. He would try to measure the cost of diagnosis or cost of curing a disease rather than a particular item such as a patient-physician visit or a hospital day.

Senator PROXMIRE. Can you put the rest of that into the record and then maybe we can come back and expand on some of these points?

Mr. ARANT. Yes.

(The complete statement referred to follows:)

STATEMENT ON GOVERNMENT PRICE STATISTICS BY WILLARD D. ARANT, MANAGER, ECONOMIC RESEARCH DEPARTMENT, SWIFT & CO.

Mr. Chairman and members of the committee, it is a privilege to accept the committee's invitation to comment on the report of the Price Statistics Review Committee of the National Bureau of Economic Research.

I am appearing as an individual. I do not pretend to speak for my employer or for any group of which I happen to be a member.

My statement will be confined largely to the Consumer Price Index. I shall develop one particular point in some detail and then cast my vote on several recommendations of the committee with brief explanations.

As a member of advisory committees to the Bureau of Labor Statistics for several years I have become acquainted with many of the staff of the Price Division and have a high degree of confidence in their ability. I think the Consumer Price Index is the best of its kind in the world, but there is room for improvement. Like the Price Statistics Review Committee, I realize that comments on problems of the index means that we pass over the strong aspects of the work.

The Price Statistics Review Committee did an excellent job, on the whole, considering the time it had available. There is some disappointment that it did not blueprint a complete price statistics program for the Federal Government for the next decade. I think this would be expecting too much for 1 year. Much more research is needed, as the Committee recommends.

Certainly more research will require more funds. Some of the additional cost could be offset in part by dropping the monthly index and putting the Consumer Price Index on a quarterly basis and also dropping the city indexes. Contracts based on the Consumer Price Index could be adjusted to a quarterly index if the parties are given sufficient notice. A quarterly index should also suffice for use in the national accounts.

PROGRESS IN DISTRIBUTION LARGELY IGNORED BY THE CONSUMER PRICE INDEX

I would like to introduce this subject by reference to two points made by the Price Statistics Review Committee in order to establish the concept or ideal which should be the goal of the index.

1. Buyers as well as sellers could provide prices. The Committee recommends the BLS move toward buyers' prices for the Wholesale Price Index. Theoretically, this could also be done for the Consumer Price Index.

2. The Committee stresses the importance of probability samples. A probability sample of consumers would theoretically provide an accurate measure of prices paid by consumers. It would not matter where the goods or services were

bought. The problems of sampling stores and service establishments would be avoided. All changes in types of outlets actually patronized by consumers would automatically be taken into account. This is the correct concept and it should be kept in mind for contrast with present practice as described below.

Actually, it is probably impractical to obtain prices from consumers. Price marks disappear when goods are taken home. Consumers could not always recall prices with accuracy. There would be much difficulty in holding to specifications. Therefore, prices probably must continue to be collected from outlets.

Ideally, the sample of outlets in each pricing period should be a probability sample of the outlets actually patronized by consumers in that period.

The Price Statistics Review Committee recommends "a study of the practical means for determining the changes in the relative importance of the various types of outlets in various marketing areas at frequent intervals" (hearings, p. 58). The Committee notes that some types of retail establishments of growing importance are not adequately represented in the index.

The Committee apparently makes the assumption that if the outlet sample did adequately represent all types of establishments, the index would reflect price changes brought about by changes in outlets; for examples, the growth of chainstores and supermarkets.

If this is a correct interpretation of the Committee's statement, the Committee must be unaware of the manner in which outlet changes are actually handled in the calculation of the CPI.

Briefly, the CPI reports prices in the same stores from 1 month to the next. The new outlets are brought into the sample from time to time, but only to improve the measurement of month-to-month changes in prices from then on. They are brought in by linking, just as new products are brought in by linking in order not to impair the month-to-month measurement of price change.

The result is clear: Most of the reductions in consumer prices brought about by the growth of mass distribution in the United States in recent decades have not been measured by the CPI. To this extent the CPI has an upward bias—it has risen more than it should have.

Some examples follow:

Suppose that in time period I, all consumers bought their groceries at small, old-fashioned stores. Then in time period II, half of the stores, from a volume standpoint, were still small and half were modern supermarkets efficiently designed and using the most efficient methods of buying. The supermarkets were able to sell their groceries at say 10-percent less than the small stores. Suppose that prices remained otherwise unchanged. Let A represent the small stores and B the modern supermarkets. Table 1 shows what actually happened to average prices.

TABLE 1

Stores	Weight	Prices		
		Period I	Period II	Period III
A	50	$1.00	$1.00	$1.00
B	50		.90	.90
Average	100	1.00	.95	.95
Index should be		100	95	95
Consumer Price Index shows		100	100	100

Average prices paid by consumers for groceries declined 5 percent. This is not reflected as a drop in the Consumer Price Index. The supermarkets would not be brought into the index in period II. Therefore, the index in period II would remain at 100. Changes in prices in supermarkets from period II to period III are brought into the index, but since prices did not change from period II to period III, the index still remains at 100. The progress represented by the original establishment of the supermarket is never measured.

The competition of supermarkets probably does, however, have some effect on prices in the small stores. Suppose they are reduced 2 percent. The actual average reduction in prices to consumers would now be the average of the 10 percent reduction in supermarkets and the 2-percent reduction in small stores, or 6

percent. If this price reduction by the small stores took place in the transitional month or at any time before the supermarkets were brought into the sample, the Consumer Price Index would catch all of the price reduction as in table 2:

TABLE 2

Stores	Weight	Prices		
		Period I	Period II	Period III
A	50	$1.00	$0.98	$0.98
B	50		.90	.90
Average	100	1.00	.94	.94
Index should be		100	94	94
Consumer Price Index shows		100	98	98

If the small stores did not meet competition until after supermarkets were brought into the sample, the effect on the Consumer Price Index, paradoxically, would be diluted by inclusion of the supermarkets.

Table 3 shows this situation:

TABLE 3

Stores	Weight	Prices		
		Period I	Period II	Period III
A	50	$1.00	$1.00	$0.98
B	50		.90	.90
Average	100	1.00	.95	.94
Index should be		100	95	.94
Consumer Price Index shows		100	100	.99

In this case the index would have been nearer to the truth from the standpoint of longrun trends if it had ignored the supermarkets. It would then have shown a decline in prices of 2 percent instead of 1 percent.

In practice, not all of the changes that are made by small stores to meet the competition of supermarkets find their way into the index. Many such changes are considered by the BLS as major policy changes which are held to invalidate pure price comparisons from month to month. Some policy changes should, of course, be eliminated. For example, the addition or termination of the services of credit and delivery. Some policy changes are eliminated, however, even though they do not affect the services offered by the store, but do affect average costs and prices.

For example, Smith's grocery feels the effect of nearby supermarket competition. Mr. Smith meets this competition by building a new, larger and more efficient store at the same site or in the same neighborhood. This new store is regarded by the BLS as a new outlet. It is linked in; that is, its prices are collected monthly but the prices for the first month are not used. The index picks up only the change from the first to the second month of the life of the new store, and the changes from then on. The savings that Mr. Smith has brought to consumers by the original establishment of his new store are never reflected in the Consumer Price Index.

Some changes in policy may work the other way, but the overwhelming trend has been toward more efficient retail outlets. This is true not only in food, but in many other retail lines—hardware, variety stores, discount stores, etc.

When a chain organization has the same prices throughout a city, and the chain is in the Consumer Price Index sample, any economies developed by the chain which are reflected in lower prices are picked up and reflected in the Consumer Price Index.

I do not want to exaggerate the bias in the index that results from failure to recognize much of the improved efficiency in distribution. These changes have been occurring gradually ever since the index was established 40 years ago. The

savings that have been developed by supermarkets and similar outlets must, of course, be averaged with those of stores which have changed little since the 1920's. The upward bias in the index is probably a small fraction of 1 percent per year. It is, nevertheless, one of the important biases in the Consumer Price Index.

One remedy, as indicated above, would be to use a probability sample of outlets for each pricing period or at least at fairly frequent intervals. This would be desirable, but expensive. However, much of the needed change could be accomplished by a simple change in office calculations. The BLS does now have and uses weights for chains and independents. These weights change from time to time. When such changes are made, they should be reflected as changes in average prices to be used in calculating the index.

Research should be devoted to an estimate of the amount of upward bias in the index from this cause over past periods.

QUALITY CHANGES

I agree with the committee that there is probably an upward bias in the index due to quality changes that are not recognized. I agree with the objective of moving toward a welfare or constant utility index. Much research will be needed and not all of it will be fruitful. I am not highly optimistic, but I think the probabilities of success are sufficiently high that the effort should be made. Some problems undoubtedly will not be solved, but others could be handled rather easily by adopting measures of utility that are available. Several examples may be given.

The example of the change from liquefied petroleum gas to piped natural gas given in the committee's report is one. There is no question as to the utility that the consumer is buying. He is buying heat and the price per unit of heat can be measured.

Tires are a familiar example. As tires become capable of delivering more mileage, the price per mile can be measured or at least estimated. It has sometimes been objected that when a new tire is placed on the market, there is no way of knowing how much mileage will be delivered until a couple of years have elapsed. This may be true, but it is better to be 2 years behind than to stay behind forever.

Automobiles have unquestionably increased in quality since 1947–49. We now have the compact cars which are comparable in size and horsepower to the low priced three in the late 1940's. Some measure of the degree of quality bias in automobiles could be obtained by comparing the price of say, a 1947 Ford and the price of a 1960 Falcon.

Improved quality of medical care has often been discussed. Dr. Leonard W. Martin, economist for the American Medical Association, speaking before the Chicago Chapter of the American Statistical Association, November 22, 1960, made a suggestion which seems to have good possibilities:

"In much discussion of medical care costs, both with respect to the consumer price index and in other contexts, units of input rather than units of output are commonly used for quoting prices or costs of the services of hospitals and of physicians other than surgeons. Procedures, or units of output, are used for surgeons, as fillings and extractions are used for dentists. But the unit employed for hospital services is the hospital day, indisputably a unit of input. It may not be equally obvious, and perhaps not so universally true, that patient-physician visits are units of input.

* * * * * * *

"Just as the stay for a given procedure or diagnosis ought to be the unit of service for hospital care, the diagnosis, ailment, or disease category rather than the patient-physician visit ought to be the unit of service or output in the realm of physicians' services."

In general, the objective would be to price the units of service the consumer gets out of a commodity rather than to price the purchase of the commodity itself.

When a new item replaces an old one, and provides essentially the same type of utility, the decision whether to link or make a direct comparison is often extremely difficult. The attitudinal surveys suggested in the committee report at page 37 seem worth exploring in spite of their expense.

Television as a means of entertainment has substituted to some extent for motion pictures or other theaters, and in the case of families with young children,

has eliminated the need to employ baby sitters. It is unlikely that this kind of substitution could be measured in a manner that would command general agreement.

It goes without saying that quality deterioration, as well as quality improvement, should be measured.

REVISIONS

I agree with the committee's recommendation of a revised annual index and corrections applying to months when errors were made rather than when they are discovered. It would be desirable, of course, for the current index to be final when published, but this does not make it so. The task of a statistical agency should be to publish accurate indexes, revised when necessary, and with all possible indications of bias. It is up to the users to decide what indexes to use and with what adjustments.

HOUSING

The weight for home ownership in the present index was determined by the average purchases of homes by the index population during the period 1940–50, except that purchases in excess of one by the same family were eliminated.

This procedure does not arrive at any very logical point.. If purchases are the measure of weight, why eliminate multiple purchases? If multiple purchases should be eliminated, why not eliminate those that occurred in other decades? Actually, the average home lasts longer than the average family's home ownership so that even one purchase during a lifetime is probably too many from the standpoint of measuring the consumption of homes. It sems clear that the present method considerably overweighs the cost of home ownership in an index family's budget.

Once the weight for the usage of houses is correctly determined, I do not think it is very important whether price changes are measured by rental values or the prices of houses. I tend to favor the rental value of owned homes, as recommended by the committee. Such rental values are not easily found, as the report notes. The same question arises in conection with proposals to tax imputed rental values as income. A study by Richard Goode of the staff of the Brookings Institution, "Imputed Rent of Owner-Occupied Dwellings Under the Income Tax," published in the Journal of Finance, December 1960, remarks that FHA appraisers and other estimate, as a matter of course, the gross rent which an owner-occupied dwelling would command. A higher standard of accuracy is demanded for income tax assessment, but the study concludes "the measurement of imputeed net rent * * * would involve difficult, but not insuperable, problems of administration. * * *"

NEW ITEMS

It seems to me that the committee has made a good case for the earlier introduction into the indext of new items. I do not think that the committee is required to specify exactly when each type of item should be introduced.

SEASONABLE ADJUSTMENT

Seasonal adjustment would be an improvement but it may not be worth the cost. I am much more concerned with longer run biases.

WHOLESALE PRICE INDEX

I agree with the idea of obtaining price quotations from buyers, but I do not think this should be done to the exclusion of price quotations from sellers. Many price reporting services obtain prices from both buyers and sellers.

I do not see much hope for improvement in the use of unit values. They might be used as checks of reasonableness of quoted prices but hardly as substitutes.

CONSTRUCTION PRICE INDEX

It seems to me that the experiments conducted in the past have not exhausted all of the possibilities and that further research in this area would be justified.

Senator PROXMIRE. Thank you very much.

Mr. HAMILTON?

STATEMENT OF W. E. HAMILTON, DIRECTOR OF RESEARCH, AMERICAN FARM BUREAU FEDERATION, CHICAGO, ILL.

Mr. HAMILTON. Mr. Chairman, I appreciate the opportunity to participate in this hearing.

While I am primarily interested in the Review Committee's discussion of agricultural statistics, I would like to offer a few observations on other points.

The value of index numbers depends not only on their construction but also on the way in which they are used. Price indexes are valuable analytical tools when used to determine what has been happening; but no general index can be expected to provide an infallible basis for adjustments in specific prices or wage rates.

The use that is to be made of index numbers is a matter of public and private policy. It is, however, pertinent to a discussion of proposals to improve such indexes to the extent that it helps us decide what we are trying to measure.

In my opinion, one of our real needs in the field of price statistics is to develop a better means of measuring changes in the general price level. Most people are opposed to inflation and deflation—at least in principle—but we don't have a generally accepted measure of changes in the value of the dollar. Neither the Wholesale Price Index, nor the Consumer Price Index, appears to be entirely adequate for this purpose. The implicit deflator of the gross national product may be the best available measure of changes in the general price level, but this index reflects efforts to measure changes in production rather than changes in the general price level. Furthermore, if it is to achieve general acceptance as a measure of the price level, it should be renamed as there is little popular appeal in the term "implicit price deflator."

The indexes of prices paid and received by farmers originally were developed as statistical measuring devices. With the advent of agricultural adjustment and price support programs, however, these indexes were made the basis for parity computations and the determination of price support levels on certain commodities. This led the Congress to enact a number of statutory requirements relative to the computation of the index of prices paid by farmers. As the Review Committee notes, "The Congress has passed legislation which fixes the price base period and specifies the addition of three items (farm wage rates, farm taxes, and mortgage interest per acre) to the combined index of prices paid."

The recommendations I will make are based on technical considerations without regard to possible effects on parity prices.

As a device for determining price support levels, the present parity formula has serious limitations; however, this would be true of any similar formula based on historical data. In my opinion, there are better methods of determining support prices, but this is not the place to discuss farm policy. Since the farm price indexes have important uses as measuring devices, it would seem that they should be constructed initially on the basis of good index number practice, even though special combinations or adjustments may be made subsequently in the computation of parity prices.

While the Review Committee tried to avoid farm policy issues, it raised technical objections to some of the statutory requirements for the computation of the so-called parity index, including the use of 1910–14 as a base period, the mixing of production and living costs and the treatment of interest and taxes. The Committee has some good points; however, the effects of statutory requirements may not be as serious as the Committee implied.

The Committee is quite right when it says that the 1910–14 base period "is so bold a contradiction of good index number practice as to defy rational defense." Many of today's farm expenditures involve items that had not been invented in 1910–14. It would be exceedingly difficult—if not impossible—to compute a realistic current index by making a direct comparison of today's prices with the prices paid by farmers in the 1910–14 base period; however, it is my understanding that the index is not initially computed on a 1910–14 base. Instead it is computed on a recent base period and then chained back to 1910–14.

For comparative purposes, both the combined index of prices paid and the index of prices received are published on a 1947–49 base as well as the statutory 1910–14 base. Important components of both indexes can easily be converted to a 1947–49 base by the use of regularly published data. It would, however, be highly desirable to shift all farm price indexes to a recent base period to simplify their computation, facilitate comparisons with other indexes, and increase confidence in their reliability. As the Review Committee noted, this could be done without changing the level of parity prices.

The statutory requirement that both production and living items be included in the index of prices farmers pay is a carryover from earlier times when living costs accounted for a larger percentage of total farm expenditures than is the case today. The mixing of production and living costs may be undesirable from a technical standpoint; however, separate indexes are published for production and living costs in a breakdown of the component parts of the parity index.

The Committee is correct in its conclusion that, "The present treatment of taxes and interest does not yield price indexes," but, here again, the index of prices paid is also published without, as well as with, adjustments for taxes and interest.

I have a table in my prepared statement showing some of the items that are published as a breakdown of the parity index and footnotes to indicate which are published on a 1947–49 base and which are easily transformed to this base by the use of published data even though they are not published on a 1947–49 base.

Since the major components of the index of prices paid, interest, taxes, and wage rates are available separately, the question of what is to be included in the combined index appears to be a policy, rather than a technical, matter. Technical changes in the combined index would make it more appealing to technicians, but such changes could not solve the basic problem involved in trying to use a formula based on past relationships to determine what prices should be today.

Although not important from an index standpoint, the legal requirements for the computation of parity prices have reduced the usefulness of some of the monthly farm prices reported by AMS. For example, the monthly average farm price of eggs is a composite of prices re-

ceived by farmers for eggs sold at wholesale, direct to consumers and for hatching. In this case, and a number of others, the farm prices reported by AMS would be more useful for many purposes if they were broken down into component parts or restricted to the most representative type of farm sales.

The Review Committee raised questions relative to the inclusion of interfarm transactions in the index of prices paid, and the present coverage of both the production and family-living components. I am inclined to agree with the Committee's conclusion that "only transaction costs of interfarm transactions should be included (in production costs) if the index is to represent farmers as a whole." Legislation probably would be required to eliminate interfarm transactions from the computation of parity prices; however, the USDA could publish a separate index, excluding interfarm transactions, to describe farmers as a group. Actually, it has on at least one occasion published an index which eliminates certain farm-produced items but this is not quite what the Committee had in mind.

The Committee concluded that "the production component of the index of prices paid is based upon a seriously incomplete concept of production costs," because it omits certain cost items that "are not explicit cash transactions." This raises the question of whether we are trying to measure farm costs or the prices paid by farmers. The present production component of the index is essentially a price index. In order to measure changes in farm costs accurately, it would appear to be necessary not only to include certain noncash costs which are now omitted, but also to make adjustments for changes in output per unit of input.

Incidentally, the USDA has developed an index of farm operation expenses, which is available on a per farm and per unit of output basis, as well as for farmers as a group.

The Committee also concluded that there presently is inadequate coverage of certain production items. These items are important and should be included, provided the required information can be obtained without an excessive increase in costs. The Committee's suggestion that AMS explore the possibility of using prices compiled for computing the Consumer Price Index also appears logical.

To summarize, it would be desirable to change the base period for the indexes of prices paid and received by farmers, and to make other technical changes in accordance with good index number practice. Such changes would improve the usefulness of these indexes as statistical tools; but they would not solve the basic problem involved in the use of a formula based on past relationships to determine support prices. This, of course, gets over into the policy field.

Thank you.

(The complete statement referred to follows:)

STATEMENT OF W. E. HAMILTON, DIRECTOR OF RESEARCH, AMERICAN FARM BUREAU FEDERATION, ON GOVERNMENT PRICE STATISTICS

I appreciate the opportunity to participate in this hearing on the report prepared by the Price Statistics Review Committee of the National Bureau of Economic Research at the request of the Budget Bureau. The growing use of the numerous price indexes computed by various Federal agencies more than justifies a comprehensive review of these statistics as a step toward improving them.

While I am primarily interested in the Review Committee's discussion of agricultural statistics, I would like to offer a few observations on other points.

The value of index numbers depends not only on their construction but also the way in which they are used. Price indexes are valuable analytical tools when used to determine what has been happening; but no general index can be expected to provide an infallible basis for adjustments in specific prices or wage rates.

The use that is to be made of index numbers is a matter of public and private policy. It is, however, pertinent to a discussion of proposals to improve such indexes to the extent that it helps us decide what we are trying to measure.

The question of what is to be measured is illustrated by the confusion that apparently exists in many places with respect to the significance of the Consumer Price Index. Once officially called the Cost of Living Index, the Consumer Price Index is still referred to by that name in many lay discussions.

Actually, the Consumer Price Index reflects an effort to measure the average level of prices paid by a specific group of consumers for a market basket of products, rather than the cost of living. As the Review Committee points out, a change in the price of durable goods does not immediately affect the cost of living for consumers who are still receiving a flow of services from goods purchased at an earlier date.

Furthermore, the impact of changes in consumer prices on the cost of living is often offset by substitutions. An index, such as the Consumer Price Index or the index of prices paid by farmers, cannot be both a cost and price index. We should decide which we want in each case, avoid trying to mix the two concepts, and try to improve public understanding of what each index actually attempts to measure.

In my opinion, one of our real needs in the field of price statistics is to develop a better means of measuring changes in the general price level. Most people are opposed to inflation and deflation—at least in principle—but we don't have a generally accepted measure of changes in the value of the dollar. Neither the Wholesale Price Index, nor the Consumer Price Index, appears to be entirely adequate for this purpose. The implicit deflator of the gross national product may be the best available measure of changes in the general price level, but this index reflects efforts to measure changes in production rather than changes in the general price level. Furthermore, if it is to achieve general acceptance as a measure of the price level, it should be renamed as there is little popular appeal in the term "Implicit price deflator."

The treatment of food products in the Consumer Price Index raises some questions that seem to require further exploration. On occasion, temporary increases in food prices—brought about by seasonal or weather factors—have resulted in increases in the Consumer Price Index. If the Consumer Price Index were used solely for analytical purposes, such developments would be of little consequence, but it is used for wage adjustments. If a temporary increase in food prices leads to wage increases and a consequent increase in other prices, the effect may be to prevent the Consumer Price Index from returning to its former level even though food prices do so. To the extent that this happens, temporary increases in food prices can operate as a ratchet to lift the level of the index.

The indexes of prices paid and received by farmers originally were developed as statistical measuring devices. With the advent of agricultural adjustment and price-support programs, however these indexes were made the basis for parity computations and the determination of price-support levels on certain commodities. This led the Congress to enact a number of statutory requirements relative to the computation of the index of prices paid by farmers. As the Review Committee notes, "The Congress has passed legislation which fixes the price base period and specifies the addition of three items (farm wage rates, farm taxes, and mortgage interest per acre) to the combined index of prices paid."

Each of these statutory requirements was adopted for the purpose of affecting the level of parity prices.

As a device for determining price support levels, the present parity formula has serious limitations; however, this would be true of any similar formula based on historical data. In my opinion, there are better methods of determining support prices, but this is not the place to discuss farm policy. Since the farm price indexes have important uses as measuring devices, it would seem that they should be constructed initially on the basis of good index number practice, even though special combinations or adjustments may be made subsequently in the computation of parity prices.

While the Review Committee tried to avoid farm policy issues, it raised technical objections to some of the statutory requirements for the computation of the so-called parity index, including the use of 1910–14 as a base period, the mixing of

production and living costs and the treatment of interest and taxes. The committee has some good points; however, the effects of statutory requirements may not be as serious as the committee implied.

The Committee is quite right when it says that the 1910–14 base period "is so bold a contradiction of good index number practice as to defy rational defense." Many of today's farm expenditures involve items that had not been invented in 1910–14. It would be exceedingly difficult—if not impossible—to compute a realistic current index by making a direct comparison of today's prices with the prices paid by farmers in the 1910–14 base period; however, it is my understanding that the index is not initially computed on a 1910–14 base. Instead it is computed on the basis of a recent base period and then chained back to 1910–14.

For comparative purposes, both the combined index of prices paid and the index of prices received are published on a 1947–49 base as well as the statutory 1910–14 base. Important components of both indexes can easily be converted to a 1947–49 base by the use of regularly published data. It would, however, be highly desirable to shift all farm price indexes to a recent base period to simplify their computation, facilitate comparisons with other indexes, and increase confidence in their reliability. As the Review Committee noted, procedures could be developed to permit a shift to a recent base period without changing the level of parity prices.

The statutory requirement that both production and living items be included in index of prices farmers pay is a carryover from earlier times when living costs accounted for a larger percentage of total farm expenditures than is the case with modern commercial agriculture. The mixing of production and living costs may be undesirable from a technical standpoint as the Review Committee concluded; however, separate indexes are published for production and living costs in a breakdown of the component parts of the parity index.

The committee is correct in its conclusion that, "The present treatment of taxes and interest does not yield price indexes," but, here again, the index of prices paid is also published without, as well as with, adjustments for taxes and interest.

The following breakdown of the major components of the combined index of prices paid, interest, taxes, and wage rates is published on a monthly basis:

	Index numbers		
	1947–49 average [1] (1910–14=100)	Mar. 15, 1961 [1] (1910–14=100)	Mar. 15, 1961 (1947–49=100)
Prices paid by farmers: Commodities and services, interest, taxes, and wage rates	250	302	[1] 121
Prices paid	240	277	[2] 115
Family-living items	244	290	[2] 119
Production items	237	268	[2] 113
Interest	79	228	[2] 289
Taxes	270	574	[2] 213
Wage rates	430	635	[2] 148
Production items, interest, taxes, and wage rates	255	311	[2] 122

[1] Published by U.S. Department of Agriculture.
[2] Converted to 1947–49=100 from published data.

Since the major components of the index of prices paid, interest, taxes, and wage rates are available separately, the question of what is to be included in the combined index appears to be a policy, rather than a technical, matter. Technical changes in the combined index would make it more appealing to technicians, but such changes could not solve the basic problem involved in trying to use a formula based on past relationships to determine what prices should be today.

Although not important from an index standpoint, the legal requirements relative to the computation of parity prices have reduced the usefulness of some of the monthly farm prices reported by AMS. For example, the monthly average farm price of eggs is a composite of prices received by farmers for eggs sold at wholesale, direct to consumers and for hatching. In this case, and a number of others, the farm prices reported by AMS would be more useful for many pur-

poses if they were broken down into component parts or restricted to the most representative type of farm sales.

The Review Committee raised questions relative to the inclusion of interfarm transactions in the index of prices paid, and the present coverage of both the production and family-living components. I am inclined to agree with the committee's conclusion that "only transaction costs of interfarm transactions should be included (in production costs) if the index is to represent farmers as a whole. Legislation probably would be required to eliminate interfarm transactions from the computation of parity prices; however, the USDA could publish a separate index, excluding interfarm transactions, to describe farmers as a group.

The committee concluded that "the production component of the index of prices paid is based upon a seriously incomplete concept of production costs," because it omits certain cost items that "are not explicit cash transactions." This raises the question of whether we are trying to measure farm costs or the prices paid by farmers. The present production component of the index is essentially a price index. In order to measure changes in farm costs accurately, it would appear to be necessary, not only to include certain noncash costs which are now omitted, but also to make adjustments for changes in output per unit of input.

Incidentally, the USDA has developed an index of farm operation expenses, which is available on a per farm and per unit of output basis, as well as for farmers as a group.

The committee also concluded that there presently is inadequate coverage of custom and veterinary services, repair and maintenance of automobiles and tractors, and farm construction in the production component and medical services in the family-living component. These items are all important and should be included, provided the required information can be obtained without an excessive increase in costs. The committee's suggestion that AMS explore the possibility of using prices compiled for computing the Consumer Price Index also appears logical.

To summarize, it would be desirable to change the base period for the indexes of prices paid and received by farmers, and to make other technical changes in accordance with good index number practice. Such changes would improve the usefulness of these indexes as statistical tools; but they would not solve the basic problem involved in the use of a formula based on past relationships to determine support prices.

Senator PROXMIRE. Thank you, Mr. Hamilton.

Mr. WEIDENBAUM?

STATEMENT OF MURRAY L. WEIDENBAUM, CORPORATE ECONOMIST, BOEING AIRPLANE CO., SEATTLE, WASH.

Mr. WEIDENBAUM. Thank you, Mr. Chairman.

I believe that the Stigler report admirably serves to focus public and professional attention on the strengths and weaknesses of our price indexes. I suspect that the report, but not by itself, will lead to major advances in Federal price statistics. As a document, however, the report is disappointing. I would have expected it to cover, first, a survey of the purposes and requirements of Federal price statistics, then to go on to analyze the extent to which the existing indexes meet these requirements and, finally, to present recommendations for bridging the gap. The report contains no such comprehensive approach.

However, I do not see much value in dwelling on the shortcomings or in debating each of the multitude of detailed observations and comments in the report. Basically, the report provides an opportunity for major improvements in Federal price data. Most of the improvements will have to come from the good judgment of the statistical agencies themselves. The attention being given to the

report should improve the climate for adopting significant revisions in the indexes.

I concure with the report's recommendations to increase the scope and coverage of the price indexes. However, I was disappointed in not finding a framework for a comprehensive system of governmental price statistics. The report avoided what it terms a "comprehensive but less intensive appraisal." Here, I would think that, in view of the kind remarks made about the "deflators" for the gross national product, the report would have gone on to demonstrate how the Consumer Price Index, Wholesale Price Index, and other existing and proposed price indexes could be brought together in a comprehensive system of price statistics. The gross national product deflators might serve as a capstone. Possibly this could be achieved by assigning the responsibility for preparing the gross national product deflators to a major price data agency such as the Bureau of Labor Statistics.

Specifically, I endorse the recommendations for (1) a more comprehensive Consumer Price Index for the entire population; (2) a revised Wholesale Price Index; (3) improved export and import price indexes; (4) revamped construction price indexes; and (5) new indexes of asset prices and transportation rates. If these proposals are carried out, they should result in significant improvements in the Federal statistical system, both for private users and the Government agencies involved in procurement and policy formulation.

The cost of preparing price indexes is not discussed in the report. This information would have been helpful in itself and also might have yielded an overall view of the price indexes—of the financial resources available, their allocation, and the benefits from alternative price statistics programs.

We might find, to cite a hypothetical example, that the funds currently devoted to preparing the city worker's family budget might be more usefully devoted to improving the scope or quality of the Consumer Price Index. Undoubtedly, questions of comparative cost will enter into the determination as to which recommendations of the report will be adopted.

The mandate by the Bureau of the Budget required the Stigler committee to review the uses of the indexes and to "take into account not only the needs of the Government but also those of the general public, including business, agriculture, labor, and private research organizations." The report does not contain such an appraisal. When it does demonstrate an awareness of the uses to which price data are put, many of the comments are negative, such as the observation that the indexes have been distorted by the attention to the uses to which they are put. We should not lose sight of the fact that these indexes are prepared to meet practical requirements, such as the estimation of changes in overall price levels and as a basis for labor-management negotiations and contracts for future provision of goods and services.

One of the obvious concerns of a user of statistical data is to be regularly furnished with statistical series that are consistent with previous information received. A balance needs to be achieved between the desire for improved reliability—often achieved through frequent changes in market baskets and weights—and the value of

having comparable data. The user should not be forced too frequently to rework his historical comparisons. I feel that the Stigler committee placed too great an emphasis on relatively small changes that might enhance the statistical validity of the data at the expense of the overall usefulness. However, the recommendation for firm schedules of periodical revisions of weights is a good one.

One of the major "nice" improvements that might detract from the basic usefulness of the indexes is the suggestion for an annual cost-of-living index which bears only limited relationship to monthly and annual series on consumer prices. The recommendation for a welfare or constant utility index rather than a consumer price index is most undesirable and impractical.

Also, the recommended seasonally adjusted price series would introduce another element of uncertainty and controversy among the users, especially in view of the crude nature of available seasonal adjustments. The proposed BLS procedure of publishing seasonal factors may be a good compromise.

The report points up, I think quite properly, the growing concern over possible upward biases in governmental price indexes resulting from the possibility that quality changes have not been properly accounted for. Other witnesses are in a better position to advise you as to the technical basis for this concern. I would like to underscore the need for preventing further loss of confidence in the price indexes because of the uncertainty of their validity in this regard. The report's recommendations for additional research and mathematical experimentation may prove helpful, but the issues of quality changes for the price indexes will have to be faced at the policy levels of the Federal statistical agencies.

The report's recommendations for expanded research on price statistics and also comprehensive publication of the theory and practice of the price indexes merit very strong consideration. Exploratory research and experimentation, either performed or financed by the price agencies, should be encouraged.

In essence, I found that the Stigler report affords the reader a good education into Federal price statistics. It contains a number of good suggestions, including many which were made earlier by the professional staffs of the agencies concerned. I echo its sentiment that the dedication of the governmental price-collecting agencies to "the improvement of the price indexes is one of our major resources in the area of price statistics."

In many ways, I found the report disappointing. It shows lack of concern over the actual purpose and application of price indexes; it lacks sufficient breadth of approach; and it just does not evidence the understanding and perception of the earlier Mitchell Committee report.

On balance, I believe that this report will be of great value if we view it as a catalyst, a vehicle for improvement, rather than a detailed blueprint to be executed.

Thank you.

Senator PROXMIRE. Thank you very much, sir.

Mr. Teper, I am going to ask some naive questions. I am certainly not a statistician or expert in this field at all, so that I will ask you to bear with me if my questions seem naive. I do think the questions

may be useful, though, in trying to make clear and simplify what is necessarily a complicated and technical situation for Members of Congress who will be reading the hearings and who will be interested in our conclusions.

I am referring particularly to page 2 of your presentation and I am wondering if, in various considerations going to assessing quality increases, the cost to the producer could possibly be considered as any kind of a basis. We had some discussion of this yesterday.

One of the witnesses said that there was some consideration being given to the weight of a car and the length of a car, and so forth, which horrified me because it seemed so subjective.

On the other hand, do you think that the cost of producing a car might provide a basis for quality assessment under these conditions: (1) the cost is incurred to meet a market, (2) there is competition among producers; and (3) the buyers find satisfaction in paying more for the quality improvement? This would provide us the objective fact of cost rather than relying on qualitative subjective satisfactions of the consumer.

Mr. TEPER. I will try to answer it. This question is a very good one because it has to be faced at all times when dealing with measures of price change.

First, the matter of the weight and length of cars was not a suggestion of the Bureau. This was a suggestion included in one of the technical papers appended to the Stigler committee's report, and sort of half-heartedly endorsed by the Stigler committee.

The gentleman who did the study relied on a number of factors such as car length, car weight, whether or not the car was a compact, disregarding the fact that some of these criteria related to the same thing, to evaluate quality. He attempted to determine, by comparing at any one time the relationship between these factors and prices of cars from the cheapest to the most expensive, what quality determinants would be.

Now, this type of an approach uses complex mathematical procedures. Depending on the year taken for comparative purposes, quite different results are obtained. As you pointed out yesterday, sir, and I fully agree with you, some of the characteristics alleged as descriptive of quality do not necessarily measure quality in terms of what you expect of a car as an instrument designed to provide transportation facilities. There may be other things in the car—and I am not a specialist so that I will not attempt to list them—which may be qualitative in character and as such should be recognized.

When it comes to quality, the problem of index number construction, however, is different from that of evaluating "Is this a good gadget to buy from a quality standpoint?" When we attempt to compare goods while shopping, we make choices, some on a highly subjective basis. We may be influenced by ads. We may be influenced, for example, by the fact that the meat industry tells us that if there is a lot of water in a ham (as is now permitted by the Department of Agriculture), what we buy is a better ham even though you get less meat poundage for the dollar than previously.

This is a kind of situation which is highly subjective.

The agencies that compile price statistics, particularly the BLS in its Consumer Price Index work, seek to measure price changes of the

basket of goods and services. When specifications change, the agencies seek to link such items in with the old ones, leaving the weights unchanged. In such a way they compare prices of identical items or substantially identical items between two periods of time. So that, if quality of an item changes, such as in the example of the ham I mentioned, they may price the old-fashioned ham without water in the first two periods but in the second and third period, the watered ham would be priced. Thereafter, the relative changes in the two price ratios would be linked and thus provide an indicator of what is presumed to be a change in the price of ham. This approach eliminates the quality factor caused by product changes for index number construction.

At other times BLS may recognize that a particular specification change should not be taken into account and handle the price difference between the old and the new item without adjustments. For example, suppose a small radio receiver with 4 tubes was redesigned. It now comes with a fancier box. It may have a gilded grille in front of the speakers. Yet its performance is substantially that of the old article. Irrespective of whether the price of the newer item is up or down, conceivably BLS may treat that price change as one for an identical article.

Now, what can be done to eliminate the quality factor? Unfortunately, as I indicated, we have no universal standards, judgment must be relied upon coupled with all available information.

Senator PROXMIRE. Perhaps I should not have given the example I gave but what I am trying to reach out for is the most objective possible method of measuring qualitative changes; and it would seem to me that, if we start from the producer's end of it and say it costs him maybe $100 more to add the tail fins, that people are getting some satisfaction because they are willing to pay for these additional tail fins and, therefore, perhaps we can relate this additional cost of something which the consumer apparently wants to an increase in quality and be objective about it because we are measuring it not in terms of some notion, some vague idea of additional satisfaction, but in terms of the actual cost that the producer has to assume in order to produce it.

Mr. TEPER. I would say no, we cannot use production costs as a standard of quality, first, because we really do not know whether the consumer wants the particular changes which cost extra or whether he has no alternative but to get a car with fins since those are the only ones which may be produced in a given year.

This is illustrated by the fact that, when American industry failed to produce a smaller car, the American public began buying, rather heavily, cars produced abroad; and, when the American industry began producing compacts, the American public went heavily for buying them, so that the trend was not in one direction.

Take this situation: Suppose an industry increases its cost by spending $100 more per unit of product on advertisements, without in any way changing the product but raising its price. Shall we then assume that the public that buys the newly advertised product for more money is paying extra for a quality improvement and that for index making purposes the expenditure for advertising should be

factored out, that is, it should be assumed that the consumer was not faced with a price increase? Obviously not.

Senator PROXMIRE. No, I was talking about a specific price that was incurred to produce a particular item, not advertising which is a burden cost which I can see.

I see Mr. Arant indicated he would like to comment on this.

Mr. ARANT. I wanted to point out that there were some small cars available which people could have bought, the Crosley, the Henry J. They appearently did not want them at that time.

There were also the so-called stripped-down models of the standard low-priced cars and those low-priced models were not bought to the same extent as the medium and higher priced models of the low-priced three so that there has been a shift in consumers' desires. They did have a choice at least to a degree even before the compact cars came in.

Senator PROXMIRE. Is it not true that certainly there was a great difference in model and make? One brand of car would have a longer tail fin, and so forth, than another. It would seem to me that the consumer would have a choice of buying a Ford or "Chevy" or some other car in the same general price bracket, and, if he did not like the tail fins, I would think that the automobile manufacturers being competitive would shift rather quickly.

Mr TEPER. It is true that the consumer has many choices in the market but they are not necessarily free choices, and, secondly, you cannot fully treat choice in terms of satisfaction. If you like a 1950 car because you fell in love with its shape, you cannot get an identical new replacement today.

Furthermore, if one wanted to buy a low-priced stripped-down model, as I wanted 1 year, I found that shopping through New York City I could not find one in a dealer's room and so I was forced to buy a more expensive model, but that was not my intent.

Mr. ARANT. Could he not order one from the factory?

Senator PROXMIRE. Mr. Weidenbaum.

Mr. WEIDENBAUM. I see a basic shortcoming in equating increase in quality with increasing cost, possibly because my own is a so-called decreasing cost industry. For example, it costs less to produce the 10th jet transport of a given model than the first. It costs much less to produce the 100th than the 10th. I would not agree that there was any quality deterioration in the 707 produced today compared to the one produced in 1958 at a higher cost. In fact we claim, of course, that there would be a quality increase. We would get the opposite relationship to that postulated; we would say there would be a quality increase at a time of declining cost.

Senator PROXMIRE. Well, I think that is a good objection but what I was thinking of was that the consumer, after all, has a choice with regard to automobiles. I am inclined to be extremely skeptical about the whole qualitative notion and inclined to reject it, and before I reject it completely, I wanted to explore any possibility.

It would seem to me that, if you are going to assess a qualitative improvement, a quality improvement, if it meets the test, the pretty stern test generally in America of reaching satisfaction in the competitive market, and persists, then you might say that the additional cost of this item is providing a satisfaction which the consumer is

willing to pay for and therefore that qualitative increase or cost increases have some value and might be considered as such. But it is terribly hard, I would agree.

Mr. Seidman?

Mr. SEIDMAN. I will just make a very brief comment. I tend to concur in this statement that Mr. Teper has made regarding the difficulty of determining what is quality, but, even if you can agree that a particular change does represent a quality change, then it seems to me you are faced with the further problem of trying to determine what is the impact of the cost increase for the producer for a particular item on the price of the whole item that you are talking about and, while I am not a technician in the field, I would think that this would raise some very serious practical problems in translating this cost increase which might or might not result from this particular change into the price of the whole item which you are including in the index and which you are pricing.

Senator PROXMIRE. Thank you very much.

Mr. Boger?

Mr. BOGER. Mr. Chairman, I was inclined to pass comment until you made the statement that you were skeptical of the quality problem and tended to discount it. The gentleman who wrote the staff paper that appears in this report has also done some other work on the subject. I would like to cite his work in fertilizer, a farm input, the quality of which has changed tremendously from the time that commercial fertilizer was first being used until today.

Senator PROXMIRE. I just want to interrupt a minute to say that I think there is a great difference between the quality which would seem to me to be measurable of a commodity sold by one producer to another producer.

Now you are talking about fertilizer and, if fertilizer can do a measurably more productive job which has a clear cost advantage, then it would seem to me that you can argue very convincingly that the quality should be taken into account.

On the other hand, with a consumer where you might get a very great increase in satisfaction, it is very, very hard to measure.

I just wanted to make that distinction.

Mr. BOGER. Well, in essence I think you concur with the point that I was going to make, namely that, with fertilizer, if you get twice as many bushels produced per pound of input now just because manufacturers have improved its quality, by all means account should be taken of the quality change.

The quality problem with fertilizer is in the same category with automobiles. It may be a little more difficult to measure with automobiles, but no more difficult than with combines or spike-toothed harrows or other farm inputs.

I would just urge that you do not discount this too rapidly, although I was the one who said that other problems need researching, also.

Senator PROXMIRE. I want to get as much of a contrary argument as I can.

Mr. Arant?

Mr. ARANT. Since meat is more important in the Consumer Price Index than automobiles and the question of hams has been raised by Mr. Teper, may I comment on it?

Senator PROXMIRE. I think I was the one who originally raised the point on the floor of the Senate. I pointed out that there had been an increase in the water content of hams. I know that there is an argument on the other side.

Mr. ARANT. Let me first put it into perspective. Of hams that are sold, only a small proportion are subject to the regulation on which the Department of Agriculture is now holding hearings. Many of the hams are sold fully cooked or canned or fresh. The new regulation does not affect those, since there was no change in the regulation with respect to those products.

As to the smoked hams that are not cooked, many are sold by nonfederally inspected meatpackers and there, again, the change would not have any effect.

The quantity of hams involved in this discussion is 500 to 700 million pounds per year, somewhere in that range, out of a total of about 2,400 million pounds of hams produced. This amounts to about 3 to 4 pounds per capita.

There is a question evidently as to whether water in the hams is a quality change or not. The meat industry contends that this is the sort of ham the consumers want at the prices at which it is possible to sell such hams, and these prices are lower.

Senator PROXMIRE. I think the point that I tried to make when I put it in is that it simply ought to be labeled so that the consumer would know that it did contain water and how much, with no prohibition about it.

Mr. ARANT. The industry has taken a position that the regulations are public knowledge. However, if identification on the package is desired, they would not object to that. Now, as to linking in, if this change should be deemed to be a quality change and ham prices were linked, then I think perhaps some treatment should also be given to pork chops, where the fat is now trimmed off to a much greater degree than it was a few years ago. Also, the chicken has more breast, as the Stigler committee pointed out.

Senator PROXMIRE. Of course, you get into a lot of trouble when you talk about trimming the fat off pork chops, because there are people who enjoy the fat.

Mr. TEPER. And some people enjoy dark meat, including myself, as I told Mr. Stigler.

Mr. ARANT. Nevertheless, there is more meat on the skeleton of a chicken. It may be light meat, but it is more meat for the money.

Mr. TEPER. I think this discussion, sir, illustrates the difficulty of dealing with the problem of quality.

Senator PROXMIRE. You would agree, Mr. Teper, would you not, with Mr. Boger's notion that there are some qualitative changes, particularly when they go to another producer, which are measurable, and fertilizer is an excellent example of that.

Mr. TEPER. That is correct. Once you define what you mean by quality, let us say output of wheat per acre, yes, you can account for it. In my paper I noted that, to the extent that we can, we should do that in order to measure pure price changes. But the point that I want to stress is that the issue of quality determination for index-number purposes is not necessarily the same as it is for purposes of making

decisions as to what product one should buy if one is trying to gage relative quality.

I did not mention ham in order to bait the meat industry. I think the Consumers Union Report for March 1961 does it much more effectively.

Mr. ARANT. That deals with a different question.

Mr. TEPER. But the issue is that here you have a conflict. The meat industry says the consumer wants watered hams. The consumer gets less meat in terms of protein value per pound. If you are going to measure quality in protein terms, then, certainly, the water in the ham must be considered as a negative quality factor. If you want to say that whatever a consumer buys that is different automatically provides him with more satisfaction than what he got before, then more water in a ham could be deemed a further improvement in the product. I do not hold to this latter point of view.

I am suggesting that you can lead an argument to absurdity once you talk in terms of satisfaction measured by what the consumer does in the market. The consumer does not have complete knowledge of the market. The consumer is influenced by ads. All the information about the product is not necessarily available to him, and that has to be taken into account while devising measures for determining what are the changes in prices the consumer pays.

Senator PROXMIRE. Then somehow I think we ought to have a greater degree of sophistication about our Consumer Price Index limitations because there is no question that there have been improvements in packaging and in the preparation of food and the built-in maid service argument, which I think is a legitimate and proper argument. I think, whether you can measure it or not, there ought to be some recognition and it ought to be made as widespread as possible that there is this improvement in quality which is not taken into account in the Consumer Price Index.

Mr. TEPER. I think that that is where the error lies. I think Consumer Price Index does seek to take quality factors into account by a variety of processes. In the case of cars they factor out, to use their language, some items which enter into the makeup of the car in order to insure comparability from time to time. For example, when automatic transmissions became part of a standard car, they took the price of this feature, on the basis of the charges made by the manufacturers for a separate unit, out of the price of the car. They thus compared what seemed to be more comparable identities. They took out certain other items as well.

As Mr. Clague testified here the other day, BLS did not allow for fins, but it did allow for mechanical changes which bear on performance.

Packaging is another item which is intangible.

Senator PROXMIRE. The example you are giving is unusual because it can be identified. Fins cannot be, as well. An automatic transmission, being an alternative on the part of the consumer, is easy to identify.

Mr. TEPER. Correct, and the big question is, does a fin add to the use of the car? I am not saying anything about looks. There, we would have plenty of room for disagreement. In other words, in deciding whether there is a qualitative change, we must make decisions as to what are the standards for gaging quality. The mere change in

design, ipso facto, does not mean a qualitative change In part this is recognized by Mr. Stigler. In his testimony he cited the example of ladies' hats this year as distinguished from last year, noting, that is not a quality change, but a change in taste. In this way he settled the problem easily. Yet, when he talked of sweaters, he distinguished between wool and Orlon.

I think there is a little inconsistency here. I do not blame him for it because the problem is tough. Judgment will enter into it. When it comes to price indexes, you have to rely on professional judgments of the agencies responsible for the statistics. The users of the data will have to have some knowledge about the judgments exercised, and some public debate about those judgments might not be bad.

Senator PROXMIRE. What I would like to do, if it is acceptable to the panel, is that I have at least one or two questions for each member of the panel and I would like to get through that as fast as I can and then I have one general question. I would appreciate it if you would make your replies as concise as possible. I do not want to rush you but at the same time I know that you are busy men and have other obligations and I do not want to hold you any longer than necessary.

I have one more question for Mr. Teper and I would like Mr. Weidenbaum to comment on it because he mentioned it, too.

On page 7 of your remarks, Mr. Teper, and in Mr. Weidenbaum's remarks, you discuss the seasonal question and you both take the same position that seasonal adjustments either are too complicated or would reduce confidence in the index, and I see Mr. Arant also had it in his remarks although he did not have a chance to read that part. At any rate this proposal was rejected and I think in all cases it was pretty much of a simple statement that you did not approve of it rather than any justification for your position.

All three of you gentlemen agree that it is not very helpful.

So that I would like to call your attention to the fact that yesterday John Lehman, the committee clerk, called to my attention the fact that seasonal changes do make a difference of about one half of 1 percent over a year.

While that may seem to be quite small, it is at the same time I think significant in the range up and down.

Would you like to comment, Mr. Teper?

Mr. TEPER. Yes. When Mr. Lehman mentioned a half-percent range, he really meant a quarter of a percent deviation in the index in either direction, so that the deviation is really smaller than its range would suggest. That is the first proposition.

Secondly, the index as a whole shows very little seasonal movement.

A recent study published in the latest issue of the Journal of American Statistical Association shows, for example, in discussing wage escalation that, if General Motor's wages were adjusted on the basis of a seasonally corrected index there would be no significant change in the amount or timing of adjustments.

When I say substantially no change, I mean that in one instance people would have gotten a penny more and in another instance they would have gotten a penny less, and in all other instances the adjustments would have been identical over a 10-year period.

The next proposition is this: Depending on the formula used for seasonal adjustments, utilizing the same raw material for computation, the results would be different. As BLS pointed out in its testi-

mony, the use of seasonal adjustments applied now by the Bureau of Labor Statistics in case of the employment-unemployment series, and the use of the methodology developed and applied by the Bureau of the Census, would yield quite different results with occasional different movements. In other words, one seasonally adjusted index would show an increase while the other a decrease. Because seasonal variations in the Consumer Price Index are so small, seasonal adjustment would really lie within the range of possible error, particularly since adjustment for seasonal variation is an art rather than, strictly speaking, a science. We try to penetrate into the facade of economic reality when we do that.

Senator PROXMIRE. Thank you very much, Mr. Teper.

Do you want to comment, Mr. Arant? Your remark was quite brief.

Mr. ARANT. I do not know about the technicalities of these various adjustments that Mr. Teper mentioned. I merely remark that most important economic series are seasonally adjusted and that generally speaking that is an improvement. However, in this case I think the need for it is so small that I doubt whether resources should be devoted to it.

Senator PROXMIRE. Mr. Weidenbaum.

Mr. WEIDENBAUM. I opposed the seasonally adjusted price indexes because I felt they might be a bone of contention among the private parties that use them.

Senator PROXMIRE. Suppose you just take the simple mathematical method which is the one most commonly understood but the one that I thought was fairly customary of just taking the prices for each month over a period of years and then, on the basis of this totally objective—but maybe erroneous for various reasons—comparison make the seasonal adjustment. Is this the way it is done with unemployment statistics?

Mr. TEPER. Crudely speaking, yes, this is what is done.

Senator PROXMIRE. In other words, if the cost of living tends to go up in November with the increased cost people have to pay for heating, for fuel, and so forth, why not make an adjustment to allow for that and then, as we do with unemployment statistics, have both the seasonally adjusted and nonadjusted.

Mr. SEIDMAN. I think one factor which we are not taking into account thus far in this discussion is that, although it is true that the Consumer Price Index, as such, is not seasonally adjusted in the sense of seasonally adjusting the particular prices, and I think this is because of the reasons that have been stated that this is minimal in any case, the Consumer Price Index does incorporate a measure of seasonality because the pattern of expenditures which is the basis for the weights that are used is taken over a period which incorporates all of the seasons, over a period of 1 or 2 years; and so the weights which are used in determining the Consumer Price Index do in effect take into account the seasonal factor.

Senator PROXMIRE. Maybe I can understand more clearly by asking the specific question I raised which may not be a clear example. Somebody who lives in Wisconsin or Michigan or in any section of the northern part of our country has to pay more for fuel because they have to buy more fuel in the winter. Is that taken into account in the Consumer Price Index?

Mr. SEIDMAN. In the sense that his pattern of expenditures over a year or 2 years is the one which is used rather than his expenditures during the month of November.

Senator PROXMIRE. I understand that. That is good.

Mr. WEIDENBAUM. I hope that they do go through with the proposed BLS procedure of publishing the seasonal factors which would be a good compromise because this would avoid having, say, two published Consumer Price Index figures for the same month.

On the other hand, researchers and scholars who should use seasonally adjusted series and do for statistics other than price indexes, would have a single basis for applying these seasonal factors against the unadjusted data.

Senator PROXMIRE. You think the cost would be minimal?

Mr. WEIDENBAUM. My impression is that BLS is going ahead with this although I cannot speak for BLS.

Senator PROXMIRE. Thank you very much.

Mr. Seidman, in your statement you say:

> Indeed, because of the wide general interest in price indexes, it might have been desirable for user groups to be represented on the committee.

This is the point I raised yesterday and I feel some concern about the fact that, although I think we have an excellent representation of producer groups, including labor and the farmer and business, we do not have the consumers.

I am wondering if you have any candidates in mind because we are very anxious to get that kind of representation.

Mr. SEIDMAN. What I was referring to here by user groups are the kind of people who are sitting at this table today.

Senator PROXMIRE. There is nobody sitting at this table today who does not primarily, it seems to me, represent a producer.

Mr. SEIDMAN. But what I had in mind was users of the index and they have been represented on the past review committees of various Government statistics.

Senator PROXMIRE. You are talking about the people who testified yesterday, the users of statistics; is that right?

Mr. SEIDMAN. Yes; and it seemed to me that it would have been desirable to have some of these user groups represented on this committee.

Now, among the user groups definitely are consumer groups, and I would think that it would be worth while to have consumer groups represented on such a committee.

Now I am talking about consumer groups in the ordinary sense rather than just users of the index.

Senator PROXMIRE. I did not mean to fail to recognize that everybody here is also a consumer and everybody also represents the people. Your A.F. of L.-C.I.O. and the farm groups represent millions of workers and farmers who are consumers, and the business representatives represent businessmen who are also consumers.

Mr. SEIDMAN. I would have thought it would have been worthwhile, as has been done on other occasions with the Review Committee on the National Account Statistics and before that the Review Committee of the so-called Anticipatory Statistics where a number of different committees were set up and on each of them or some of them there were represented what might be called the practical users of these

statistics, and in this particular case that was not done and I think that in some respects, at least in my judgment, some of the rather impractical recommendations of the committee might have been avoided or tempered if such user groups had been represented on the Review Committee.

Senator PROXMIRE. Very good.

In your statement you make a statement that has not come to my attention before at all. It is an interesting assertion, but I would appreciate it very much if you could give me just one or two examples. You say:

> There are both quality deteriorations and quality improvements which may balance each other out.

To what quality deteriorations do you refer?

Mr. SEIDMAN. I can give an example. The BLS does try to take account of quality changes and this has been discussed. But it cannot take account of all quality changes, and some of these quality changes are downward as well as upward. For example, if the BLS is pricing a certain item in a certain price line and, in order to maintain that price line the producer reduces the quality of the item in some respect, let us say a clothing item, the BLS is not always able to take account of that reduction in quality when it computes the index.

Now, the same thing may be true on the upside. In other words, during a particular period it may be advantageous for competitive reasons or for other reasons for a producer to improve the quality somewhat and maintain the price, and in that case the Bureau also may not be able to take account of that quality change.

Senator PROXMIRE. Undoubtedly there are some quality reductions, but you say "which may balance each other out."

Do you have any objective evidence that there is a balancing factor here because the argument has been very consistent from producer groups that their quality is improving and the ones that come to attention easily are the packaging jobs done in the food industry, the obvious improvement in horsepower, and many other things in the new cars. Certainly they are better than they were 20 years ago. There is no question about that.

There is a general tendency throughout the American industry for improvement in quality.

Do you really feel in this statement that quality deterioration may balance?

Mr. SEIDMAN. I think this is a subject which could very usefully bear a considerable amount of investigation.

I think this is something that we do not know enough about. I do think that there are changes in both directions. I think people tend to talk about this as if the changes take place only in one direction.

Senator PROXMIRE. That is a good wholesome note that you inject.

Mr. SEIDMAN. Whereas they do take place in both directions, I am not making an assertion that they do balance out. I am saying that this is a possibility.

Senator PROXMIRE. I thank you.

Mr. Boger, and I might ask Mr. Hamilton on this because both of you gentlemen represent farm groups, first I would like to ask both of you to discuss parity.

First Mr. Boger and then Mr. Hamilton might comment on it.

Do you not think that parity in a sense tends to greatly overstate the relative economic position of the farmer?

Let me just set forth a little bit what I am thinking about. Parity is now around 80 percent, give or take a little bit, and the per capita income on the farm is far less than half the per capita income off, including the value of food produced and consumed. The average hourly wage of the farmers in my State, which is a pretty productive and typical agricultural State, allowing 4 percent return on invested capital, is about 60 cents per hour. Now, the farmer works long hours. He makes a big investment and takes a big risk, and so forth.

In view of all that, do you not feel that one weakness of the parity formula is that people think the farmer is on a pretty comparable basis with other people and therefore 90 percent means that he is not badly off? Therefore, if you had a parity on the basis of income, he is far worse off than that and has consistently been worse off than that, and one of the difficulties in convincing city people that there is a farm problem that involves economic justice is trying to get this idea across.

I would like your philosophical comments on this since you have discussed this as an important statistic.

Mr. BOGER. Mr. Chairman, there are two points. "Parity" as defined by law does not define equity of farmers as equality with the nonfarm groups.

Senator PROXMIRE. I understand fully, I think, what parity does. I am just talking about the general usefulness of parity in terms of providing a better understanding of the position of the farmer with respect to other groups in our society.

Mr. BOGER. I have a feeling and concur with you that parity is much misused in this context, and in many cases I feel that it would overstate the relative position of farmers to nonfarmers. This is a big and broad and difficult question with at least two sides. A countering argument is that over time, increases in efficiency in farm operations will improve farm income if parity levels are constant.

Senator PROXMIRE. That is right, but what has happened is that increases in efficiency of the farmer, because he is so much more competitive than other elements in our society and because the demand for what he produces is so inelastic, have resulted in just economic devastation for the farmer. The more efficient he is the lower his return is. Is that not generally correct? I am referring to the farmer as a group, not the individual farmer. It pays for the individual farmer to be more efficient than the other farmers but, as a whole, he is suffering for his productivity.

Mr. BOGER. Yes. I would agree with your statement as you put it.

The question then really is much more involved than the issue of the parity index and how well the parity ratio reflects the well-being of farmers compared with nonfarm people.

I agree that it does not do a good job on that score and I further, as I indicated in my opening statement, do not believe that it was intended to do it when originally constructed.

The reasons for the low income of farmers and the distortions that parity give it are very involved, and I am not sure that you care to go into them at this point; but in Michigan there are good commercial dairy farmers paying $3.50 a day on the average for the privilege of

milking cows. This group represents 25 percent of the good commercial farmers in an important section of the State of Michigan, so there is a problem.

Senator PROXMIRE. That is an interesting figure.

You say they are paying $3.50 a day so that, if you allow for all their expenses including their interest, taxes, and depreciation——

Mr. BOGER. The net return to labor is negative.

Senator PROXMIRE. It is negative.

Mr. BOGER. For one-quarter of the commercial dairy farmers in southern Michigan it was negative in the amount of $3.50 a day in 1957.

Senator PROXMIRE. That shows what happens in a society which has different degrees of competition and where there is one element that is so competitive and, as I say, has an inelastic demand. As they produce a little bit more, the prices go down to the floor.

Do you want to comment?

Mr. HAMILTON. First, if I may, I would like to ask Dr. Boger about the contrast to the lowest one-quarter. What about the upper one-quarter?

Mr. BOGER. The figures escape me on labor income for the moment. Let me just put it this way. Even with the top commercial farmers in the State of Michigan, and I think nationally, there is an income problem. Now I will just let it rest there. I think all data show this—contrary to some of the interpretations that you have seen and I have seen.

Senator PROXMIRE. Did you want to comment on that?

Mr. HAMILTON. Yes. There is no question but what there is an income problem in agriculture and there is no question but what it varies greatly from farm to farm. You have had some very rapid changes taking place. You have had a shift toward larger, more mechanized farms. In the period between 1954 and 1959 the number of farms with gross sales of $10,000 or more increased 36 percent. If, as Mr. Boger says, even the top commercial farmers are in something of a squeeze, it is obvious that those that have less volume are in an even more serious squeeze.

Senator PROXMIRE. Yes. The fact that their gross income increases 36 percent in this period should be related to the increase in their gross costs.

Mr. HAMILTON. It does not tell us about their net. The census reports on gross sales. But it is an indication that some farmers are adjusting to the larger size business required by modern technology.

Senator PROXMIRE. Well, there are two things involved here. No. 1 is the fact, as you say, that they have a larger business. They have increased the size of their herd or land or production at any rate, and this is very obvious to anybody who travels in any farm area. The farms are much bigger, the herds are bigger, everything is on a bigger basis. Then that involves an increase in cost obviously. It does cost more from every standpoint, taxes on the land, interest being greater.

When you have a bigger operation it costs more for fertilizer and for everything you do. Often labor costs more if you have a big enough operation to hire a hired man.

In addition, the cost of what the farmer buys has gone up so that, if you put those two things together, I doubt very much if, for these farmers whose gross has increased, there is any increase in net. I would be surprised if there was not a fairly substantial drop.

Mr. HAMILTON. This is quite right, but I would approach it in this way: with today's costs you have to have a sizable gross to have any possibility of getting a satisfactory net, so those who have been able to increase their gross, who have made the adjustment, are closer to a solution to their problem than the people who have not made this adjustment toward a larger business because, with the type of technology we have now, it is not going to be possible for people to compete very long using the older type of productive methods that result in a low gross.

Senator PROXMIRE. I think that is right.

I am off the statistical subject and it is entirely my fault.

I think the terrible tragedy is that this farm depression is happening when we have a very serious and I think long-run automation problem in the cities so that the farmer who is thrown off the farm and goes to the city to look for a job swells the problem you have in the cities at a time when we have to improve our industry and have automation because we are being challenged as we have never been challenged before.

This is a very tough economic problem to which the whole farm economy is making a contribution because it is efficient. We are very proud of its efficiency, and I think the greatest difference between our efficiency and that of the Soviet Union is on the farms. The productivity of the American farmer is greater in relation to his opposite number in Russia than the productivity of any other worker in America.

Mr. HAMILTON. The challenge is to retrain people and help them find opportunities in other lines.

Senator PROXMIRE. I agree that the challenge is to retrain, but it is awfully tough to retrain them. Will you train them as autoworkers or as steelworkers?

As you know, it is very difficult to find the areas in which you can retrain them especially, since you have this terribly difficult problem with unemployment growing on a secular basis in the cities.

Mr. HAMILTON. It is not easy particularly for the older people, but the people who come off the farm as young folks and get an education can usually do most anything that anyone else can do, so there is a long-range opportunity to improve this situation by improving educational opportunity.

Actually, this has been going on ever since this country was founded. The problem has become more acute in recent years because things move so much faster now.

Senator PROXMIRE. That is correct.

I had better get back to business here.

Mr. Boger, in your statement, you have a chart, I believe. I would appreciate if you could spend a minute or two explaining that chart because it is an interesting one.

I did not get a chance to hear about it in the presentation.

Mr. BOGER. This chart is a part of the footnote which begins on the previous page and relates the price index on the left scale to production expenses expressed in billions of dollars on the horizontal scale.

Senator PROXMIRE. The 1910–35 is what? The arrow points to the one on the left.

Mr. BOGER. Excuse me. You are a bit ahead of me.

Senator PROXMIRE. Price index is on the left scale. All right.

Mr. BOGER. The price index is made up of about the same set of commodities that go into the production expense category. Both are official measures of the USDA. I have not adjusted them for perfect compatibility here. There are three functional relationships, as you notice, in the chart: 1910–35, 1936–52, and 1953–59, and each of these periods coincides with periods included in the revisions of the index of prices. I mentioned in the text the years they were linked. The closeness of the relationship does not surprise me too much, but in the chart the nature of the relationship does.

I would ask why should they be linear or straight line relationships? My own feeling is that the relationships ought to be curvilinear, knowing something of the nature of the demand for physical farm production or input items.

But the important point out of this is, when you change base weights, you change these functional relationships, and once changed we have lived with them for a long time. They can get quite a way out of kilter before they are brought back into line.

The Price Review Committee suggested frequent revisions of base weights, especially for the parity index, and I would say the major lesson to be learned for the purposes here this morning is that frequent revisions of base weights or reviews of these would be highly in order to make sure that you do not get too far out of line with the true relationships as long as they are operating on a straightline basis as they have.

Mr. TEPER. Mr. Chairman, just a very brief observation from one who is not an expert on farm economics. I suspect that the reason for these particular straightline relationships arises from the fact described by Mr. Boger in his text; namely, that the expenditures of farmers he used are not real expenditures, but are derived by multiplying quantities by the same price quotations he utilized for measuring price changes. So that you may have an interrelationship there which was created by the nature of the data. The frequent revision of weights would not cure that defect.

Mr. BOGER. In measuring farm expenses it might help, because of the methods used, to improve the price index.

Senator PROXMIRE. How frequently would you suggest?

Mr. BOGER. My feeling is that there ought to be good estimates of farm expenditures on a current basis so that you can watch these and revise weights whenever the mix changes appreciably, and we do not have these measures now. The last reference point, exclusive of census, was the 1955 Survey of Farm Expenditures. This was the basis for the revision for the period begining in 1953. It is now 1961 and I know of no plans to do a similar survey to revise the weights, and I would think that we ought to have a better current indication of the mix of farm production expense items to see if the current relationship is holding.

Senator PROXMIRE. You say that a subindex for all crops rose more rapidly than any one of the respective component parts. What is the trick there?

Mr. BOGER. This was for the Michigan Farm Price Index. We tried to follow the same procedures as used with the USDA index so that

we would have close comparability. In doing this and without really inspecting the data to decide where the link date should be, the methodology forced the index for all crops to be outside the maximum and minimum for any of the component parts. This is just an illustration again of the discontinuity that you build into index numbers where frequent linking is necessary. This is a complex and difficult problem.

Senator PROXMIRE. I think it is a technical error.

Mr. BOGER. Yes; it is very definitely a technical construction problem.

Mr. TEPER. Mr. Chairman, again on this particular point. It is possible, in some special cases, for an average to rise by a greater margin than any of the components. That would depend on the weights. I am not suggesting that in the case cited by Mr. Boger this was the situation; but you could have such an anomaly as a matter of pure arithmetic.

Senator PROXMIRE. No matter how you weighted it, even if you put the full weight on the most rapidly rising one, it would seem to me that you could not have it rise more rapidly than any of the component parts.

Mr. TEPER. I would be very glad to submit an arithmetical example.

Senator PROXMIRE. I would be glad to see it.

Mr. TEPER. Assume that you have two items each rising by different percentage as between two periods of time. If these items are not of equal weight or importance in each of the two periods, and consideration is given to the changes in their relative weights as between the two periods, it is possible that under certain circumstances—not in every instance—the percentage change in the aggregate will lie outside the limits of either component. It does not hold in every instance. It is an isolated situation.

Senator PROXMIRE. I wish you would give us an example. We would like to put one in the record.

Mr. TEPER. Very good. I will work it out for you.

(The information referred to follows:)

SUPPLEMENTARY STATEMENT SUBMITTED BY LAZARE TEPER

Under some conditions, percentage rise in the aggregate may be greater than the percentage rise of its component parts.

The paradoxical situation may best be illustrated by an arbitrary example. Suppose we deal with two commodities, A and B. At first, commodity A is sold for $1 per pound; its average weekly sales amount to 100 pounds. At the same time, commodity B is sold for $0.50 per pound; its weekly sales are also 100 pounds. The total amount realized from the sales of the two commodities amounts to $150 and the total poundage sold is 200 pounds. On a per pound basis, the unit value of sales is 75 cents per pound.

Subsequently, the price of commodity A rises by 10 percent, from $1 to $1.10 per pound; its sales rise to 130 pounds per week. The price of commodity B, on the other hand, goes up by 20 percent, from 50 to 60 cents per pound, while its sales decline to 60 pounds per week. The total amount realized from the sales of the two items now amounts to $179, while the total poundage sold is 190 pounds. On a per pound basis, the unit value of sales is 94.2 cents per pound.

If the percentage increase is now computed to show by what margin the aggregate unit value of sales increased, it will be found that it comes to 25.6 percent. This is a greater price rise, percentage wise, than that shown either by commodity A or B taken separately.

Senator PROXMIRE. In the paragraph marked subparagraph 5, you say:

> Analysts are not only interested in levels of indexes and amounts of change but reasons for these as well.

This could open up a terrific area of debate and discussion. Many of us would certainly like to have an analysis of that. It would be useful perhaps from the standpoint of stirring up more interest in antitrust and so on. On the other hand, I wonder if this would be the proper role for the statisticians in the BLS? Should that not be left to people who are not responsible for the statistics?

Mr. BOGER. Perhaps so.

Senator PROXMIRE. It is probably like the argument now going on over the CIA, as to whether they should retain the power not only to gather intelligence but to act on it.

Mr. BOGER. Yes, sir. I would not belabor who ought to do this at all, Mr. Chairman. I would merely let my case rest on this point: that for a policymaker, if prices go up it makes a lot of difference whether the change is due to forces that are operating on the demand side or on the supply side. If prices go up because of phenomena on the demand side, then perhaps you do not increase acreage allotments to counteract this force.

Senator PROXMIRE. You are speaking particularly then of the farm area?

Mr. BOGER. Oh, yes.

Senator PROXMIRE. You are talking about particularly a technical explanation, not a philosophical argument?

Mr. BOGER. Right.

Senator PROXMIRE. Mr. Arant, you talked about something that certainly is provocative and interesting and a little radical. You asked for quarterly rather than monthly Consumer Price Index reports. This is a very interesting but pretty far-reaching point.

Do you feel very firmly on that? Do you think that that would be satisfactory to various users as well as to your own industry, or do you feel that you are just voicing the position of your industry and the others might comment on it?

Mr. ARANT. This is largely a personal opinion. It is based in part on the history of the index. Prior to World War II, it was on a quarterly basis. In the uses of it at that time I think there was no great feeling that the users were too far out of date at any one time. I think now the changes are so slight from month to month, and this is true in most periods of time, that the changes are actually within the probable error of the index and that a good measure on a quarterly basis would serve all of the purposes of the index, I think, with the possible exception of food which may change and probably does change more rapidly than the other components.

It might be possible to supplement the quarterly index or the Consumers Price Index with a monthly index for food.

It might comment also that the index today is in a considerable part a quarterly index in that not all prices in all cities are priced on a monthly basis. Many of them are priced on a quarterly basis.

Senator PROXMIRE. But the general index when it is presented as a national figure is presented on a monthly basis.

Mr. ARANT. It is presented on a monthly basis, but it does include prices which were not collected in that particular month. They were collected in the previous month or in some cases 2 months.

Senator PROXMIRE. Fine.

In your analysis you compared the small store and supermarket. Were you comparing actual prices?

Mr. ARANT. No. These are hypothetical examples. I think that it would be fair to say that the 10-percent difference that I used in the price of food between small stores and large stores is a rough representation of the difference that exists today.

Senator PROXMIRE. What you are saying in this analysis is that there is a defect in the present method of gathering statistics. There is nothing inherent in the situation that should make it this way. If a supermarket moved in and priced food at a lower price so that the cost-of-living people in the area dropped down, then that should be subject to measurement. You are not saying that this is something that you just cannot do something about. You are saying that there is something that could be done and it should be done?

Mr. ARANT. I think it can and should be done. I think that samples of outlets that the BLS uses would have to be more extensive than they are now. I think each class of retail store would have to be represented in the sample.

Senator PROXMIRE. Why do you say probability samples would be a little too costly? You seem to indicate that that would be a method of helping us solve this, but then you shy away from it a little.

Mr. ARANT. Theoretically, if you took a probability sample each month of all of the outlets where people buy food and then extended this with the proper weighting to represent the total population, then you would have what I referred to at the beginning as a good representation of what consumers pay for food regardless of whether they have shifted to new outlets or have continued to buy at old outlets.

Whether or not this is practical is something that would have to be studied, and I am quite confident it would be more expensive than present methods.

Senator PROXMIRE. Thank you very much.

Now, Mr. Hamilton, you are asking for a breakdown when you talk about eggs here as an example. You are not asking that they not also present the composite figure. Would you not like them to continue the composite, or do you feel that this breakdown should replace the composite?

Mr. HAMILTON. I believe you are referring to the paragraph on eggs.

Senator PROXMIRE. That is right. You say:

> For example, the monthly average farm price of eggs is a composite of prices received by farmers for eggs sold at wholesale, direct to consumers and for hatching. In this case, and a number of others, the farm prices reported by AMS would be more useful for many purposes if they were broken down into component parts or restricted to the most representative type of farm sales.

The reason I ask this question is that it seems to me that it would be useful to people who are concerned about farm policy and it would be useful, I would think, to farmers, too, to know in general what the impact of the price the farmers receive for their eggs has on the farmers, and, unless it is weighted in accordance with the various sales of different items, what they amount to. Unless this is done for them

it seems to me that, if it is broken down, you lose all that and cannot tell unless you know.

Mr. HAMILTON. My point is that the farm price of eggs would be more useful if we could have a breakdown of the separate items that go into it because the farmer may get a much higher price for eggs delivered to consumers than he gets for eggs sold at wholesale but he also has additional costs.

Senator PROXMIRE. But unless he knew, unless it was known at least by people who were looking at this, what proportion of the farmer's sales are eggs sold to the consumer and what proportion are eggs sold to wholesale, it seems to me it would be difficult to assess what effect shifts in price have on the income of the poultry farmer.

Mr. HAMILTON. I think that is true. This is one of the problems. The price reported by AMS can vary because of a shift from one type of sale to another.

Senator PROXMIRE. Do you not think that shift ought to be reflected?

Mr. HAMILTON. Yes. Certainly as long as we have parity computations we need the composite price. Undoubtedly it would be of interest in any case but, in terms of finding out exactly what has happened, we also need more detail.

AMS has moved in the direction of giving more detail on some items.

Senator PROXMIRE. You have answers. You want more detail.

Mr. HAMILTON. That is correct.

Senator PROXMIRE. On page 6, you say:

> In order to measure changes in farm costs accurately, it would appear to be necessary, not only to include certain noncash costs which are now omitted, but also to make adjustments for changes in output per unit of input.

What noncash costs are now omitted?

Mr. HAMILTON. The Committee referred to some of them. One of the major things not taken into account is the return on invested capital.

You referred, or I think Dr. Boger referred, to allowing a 4-percent return on invested capital.

Senator PROXMIRE. I think I referred to it in the question.

Mr. HAMILTON. Right now there is no allowance for the cost of the farm operator's net investment.

Let me see if I can find the Committee's statement. It referred to a number of noncash costs. Here is the sentence:

> Certain components of production costs, notably inventory holding costs, cash balances costs, and return on net investment, are omitted, apparently because they are not explicit cash transactions, although expenditures for farm buildings are based upon indirect valuations rather than cash transactions.

Senator PROXMIRE. Thank you very much.

Mr. Weidenbaum, I have had two questions for you. I think you have answered both of them. One pertained to quality and one pertained to the seasonal factor.

I have two questions for the Panel now and I am through.

I might start with you, Mr. Weidenbaum.

The question is this: How significant do you think monthly changes are? Newspapers tend to make a great deal of a one-tenth of 1 percent change. I am talking about the Consumer Price Index.

Mr. WEIDENBAUM. I think monthly changes can be significant during periods of large price fluctuations. I have in mind the period of the Korean mobilization in 1950 to 1951 where month-to-month price changes were significant. Certainly during periods of relative price stability they are not. I was intrigued by one of the footnotes in the report, by Professor Ruggles I believe, suggesting rounding to whole digits. Instead of saying the cost of living went up from 110.1 to 110.2, just round it at 110 on the assumption that your margin for error is greater than that one-tenth. I might see some merit to that.

Senator PROXMIRE. Mr. Hamilton?

Mr. HAMILTON. I have a little different thought on these month-to-month fluctuations. In a paragraph I omitted reading at the bottom of page 2 of my statement I pointed out that—

> On occasion, temporary increases in food prices—brought about by seasonal or weather factors—have resulted in increases in the Consumer Price Index.

We had an occasion some years ago where a big freeze in Florida raised fresh vegetable prices. This was not a normal seasonal thing. It was an unusual situation. If this happens and the index is raised by one of these unusual circumstances, and if this leads to wage increases and the wage increases lead to further price increases, my concern is that the index may not return to its former level even though the temporary influence on food prices fades and food prices do drop back. If this happens the result is a permanently higher level for the Consumers Price Index.

Senator PROXMIRE. What do you do about that?

Mr. HAMILTON. I do not know. I am just raising the question.

Senator PROXMIRE. You are saying that the index plays a role and can play a role in inflation.

Mr. HAMILTON. I am saying that temporary increases in food prices can act as a ratchet to increase the level of the index if this chain of events develops: a temporary rise in food prices boosts the index, the higher index results in wage increases, and the wage increases then result in price increases. It may be a minor factor but I am suggesting it be explored.

Senator PROXMIRE. When we get to Mr. Seidman we will get his reaction. His reaction on that might be interesting.

Mr. Arant?

Mr. ARANT. I have addressed myself to some extent on this in connection with changing to a quarterly index. I do agree with Mr. Weidenbaum that, in periods of rapid changes, the monthly index may be important and we may feel the lack of it. However, those periods occur rather infrequently and perhaps special studies could be made at such time.

Senator PROXMIRE. Mr. Boger?

Mr. BOGER. My comment on this question is that we really have no basis for measuring sampling errors in the indexes and therefore we do not know whether one-tenth of 1 percent or a 1-percent movement from month to month is really significant, and here I would endorse the Committee's report to try to obtain the data on more of a probability sampling basis so that sampling errors can be computed.

The discussion by the panel thus far has been primarily pointed at the CPI rather than farm price indexes and here I would like to

underscore that I think the situation might be different especially with prices received where the seasonal question is an important one. One of the staff papers in the report recommends quarterly weights. I might even go so far as to suggest monthly weights for prices received if, in the eyes of all concerned, it would not confuse the public and the users more than it would clarify.

My own feeling is that we ought to have monthly weights computed where January index for 1960 is comparable to January 1961. This raises a host of related questions including how you compute the annual average.

Senator PROXMIRE. Maybe I should have sharpened this a little when I was asking the other gentlemen, but do you have any view on the degree of change which can be regarded as significant in view of the probability of error, the seasonal factor, or various other things when the cost of living is reported in the newspapers as increasing by 0.1 percent instead of reporting it as stable, which I think they should perhaps.

As an expert on this, what level would you say is the proper level?

Mr. BOGER. As an expert on this I really cannot answer the question because I have no notion of the sampling error involved. My intuition tells me that changes of one-tenth of 1 per percent in the CPI are not significant. A half percent rounded to the nearest digit would make me feel better but I have no really good basis for reacting to this.

Senator PROXMIRE. Mr. Seidman?

Mr. SEIDMAN. Well, I think we are losing sight of the fact that the index is not just the national CPI for all items but that it includes many components. While it may be correct to say, for example, that if the index goes up or down one-tenth of 1 percent that this is not a significant change, there may be some very interesting information for economic decisions, for collective bargaining decisions, or what have you, involved in perhaps compensating changes which may have occurred in the price movement for particular items or even conceivably in particular areas which the index covers.

I would like to just comment also on the point that Mr. Hamilton raised about the possible ratchet effect. I assume that he is referring now to the use of the index in escalator clauses in collective bargaining contracts. I think there again we are talking about what is significant and what is not. I think it is conceivable that, if some particular labor contracts fell in the quarterly period or whatever period it was when the bargaining was to take place, fell in a month where there was some aberration due to a temporary factor, that this might have an effect, but I would say a minimal effect on the cost structure of the economy as a whole.

I do not see how any aberration of this kind in the CPI could have any effect which could in any way be described as significant on cost structure because of the effect that it might have on the wages of what is after all a relatively small group of workers. I say relatively small, because even though 2½ million to 3 million workers are covered by escalator clauses, the changes do not all take place in the same months. They take place in every month for particular groups of workers so that I do not see how this could have any appreciable effect.

Senator PROXMIRE. They take effect in every month but, over time, do you think they could have any effect because this would accumulate, would it not?

Mr. SEIDMAN. No; because we are postulating a situation where this is an aberration, and what I assume Mr. Hamilton has in mind is that their wages might increase in response to a temporary increase in prices but that the prices then went down again in the next month and their contract did not fall due for 2 more months after that.

Senator PROXMIRE. That would relate to my question because I asked about the significance of the monthly change.

Mr. SEIDMAN. Pardon me.

Senator PROXMIRE. I say what you say is responsive because I asked about the significance of the monthly change and I assume Mr. Hamilton was responding to that aspect of it.

Mr. HAMILTON. Yes. However, the type of thing that I referred to is more than a matter of month-to-month changes. If you have a freeze in a large area like the Florida citrus area, it may affect prices for 6 or 8 months, and it may be the following year before you return to a more normal level on this particular item.

Mr. SEIDMAN. Then we are talking about the fundamental question involved here and that is whether wages should increase in response to the rises in cost of living, and, more particularly, in response to the changes in prices as measured by the Consumer Price Index.

Senator PROXMIRE. We are talking about that, it is true, but let us assume that they should. Should we not also recognize the total impact of this and maybe one conceivable inference is that, if you do have a freeze in California and Florida and the price of oranges and vegetables goes up very sharply and as a result of that the UAW and a number of others increase their wages because of escalator clauses and as a result of that maybe the cost of steel or automobiles increases and as a result of that the whole cost of living goes up, then you get the cost that the farmer has to pay for his tractors increasing and you get a ratcheting effect.

Mr. SEIDMAN. But the fundamental question, it seems to me, one that we are not really discussing here, is whether changes in wages or when you get over to the farmers you get the same problem with respect to parity, whether these changes should be made in response to changes in the prices that these people have to pay, and this is a fundamental question. Anything to the contrary is an assumption in which I do not concur.

Senator PROXMIRE. No; I submit that I am not examining that right at the moment. I am reserving my judgment on that. I am inclined to think very strongly that there is a great deal of merit in this. What I am trying to do right now is to find out whether there is any possible inflationary bias in this kind of thing.

I assume that, if you have an escalator that goes down as well as up, that that might help to eliminate it because these things might balance out in the long run.

Does the escalator tend to go one way or do most escalators go both ways?

Mr. SEIDMAN. Escalators go both ways. There is a lower limit usually set in the escalator clause as to how far down it may go.

Senator PROXMIRE. I want to say that there is great merit both for the farmer and worker in this, but I think we should be objective and fairminded enough to assess whatever demerits there may be in this if there are any.

I am just trying to see what possible demerits there are.

Mr. SEIDMAN. I think it should be said, since we got into this question, that one reason why the escalator clause has developed is because, although the changes in prices were always a factor that were considered in collective bargaining negotiations whether or not you had an escalator clause, assuming, as we have had, a gradual secular rise in prices in the United States, and, other countries as well, there was always a lag between the time when you recognized the price increase by a wage increase, during all of which time the wages were at the previous level. Really what is being done in the escalator clause is an attempt to reduce this lag. If you have a quarterly adjustment, you still have a lag but you do not have as much of a lag as you would if you were adjusting your wages at annual or biennial periods.

Senator PROXMIRE. Thank you very much.

Mr. Teper, I did not mean to omit you when I said Mr. Seidman might answer Mr. Hamilton.

Mr. TEPER. I fully understand.

Let me divide the answer to your question in several parts. If we are dealing with the change from 1 month to the next one which is of a magnitude of 1 decimal point, I do not think such an increase is too significant.

The likelihood is that that one-tenth of a point increase is within the realm of the statistical error. There is, however, a decided usefulness in computing the index to 1 decimal point. It lies in the fact that comparisons for escalation purposes or for policy purposes are not usually made in terms of the changes that occur between 2 consecutive months but over longer periods of time.

For example, under certain contracts, revisions take place when the index increases by a single point.

Well, if you rounded the index to the nearest whole point, you would find the following: that when the index first stood at 120.9 and then rose to 121.6, an increase of seven-tenths of a point, under a rounding system you would have had to give a wage increase on the theory that it was an increase of a whole point. In other words, rounding may have this kind of an exaggerated effect.

Secondly, if you had an increase from 120.4 to 120.6, that will be an increase, in rounded terms, from 120 to 121 when the rounding is done to the nearest unit. This illustrates a situation of an index increase of two-tenths of a point which leads to a wage adjustment based on change in a whole point.

I am suggesting that one must be pragmatic. It is better to have the index computed to one decimal point.

Normally the period of time that has to be taken into account is one that is longer than a quarter, even though wage revisions may be keyed to quarterly dates. However, the compilation of a quarterly instead of a monthly index will have an undesirable effect on wage adjustments because it will bunch them all at four points in the year. When the index comes out, there would be a multitude of adjustments all taking place simultaneously, and that may not necessarily be desirable.

I think it is much sounder to have monthly data.

Furthermore, for the deflation of national income figures, an index compiled once in a quarter will not suffice. While national income figures appear on a quarterly basis, they relate to the economy's operations for the entire quarter, whereas the index compiled once in a quarter portrays prices in a single week of that quarter. It is much better to have monthly data. At least we have three samples of price change in that quarter, 1 week in each of the 3 months.

Senator PROXMIRE. Thank you very much.

I think the second question I had is probably unnecessary to ask.

Does anybody else have any comment to make?

Mr. WEIDENBAUM. I believe the answer to your question, Is there an upward bias as a result of this ratchet effect? is "Yes" to the extent that downward escalator clauses are not universal. The only question is how great is this upward bias to the extent that some union contracts do not provide for downward adjustments.

Senator PROXMIRE. Let us look at it in this way. Suppose the management negotiating with the union decides that they will accept the cost of living instead of another nickel or another aspect of their increase in wages. I think this would generally be their viewpoint. After all, they would normally assume that there is general long-term bias of an increase in cost of living. Therefore, unless you can show that this is something that management either gives out of the goodness of its heart or gives with the feeling that they probably are going to have price stability, you are going to get some kind of wage increase in substitution for this if you do not provide the cost of living increase and, if you make that kind of assumption, then I would say there may not be this upward rise; is that correct? I think you are absolutely correct, however, that, if you say that the alternative to a cost of living increase is no cost of living increase and no other increase in wage rates, then I think you are right that there would be a rise. It may be so small as to be reflected only occasionally in the index, but it would seem to me that it is awfully hard to escape from the fact that it would be there if you make that assumption. I am not sure that I make that.

Did you want to say something?

Mr. SEIDMAN. I was just going to say that you would only have this bias conceivably if you had wage adjustments taking place every month in response to the changes in the index but, since the movement of the index is primarily upward and since you do not make these adjustments every month, then you have a compensating downward bias in effect, and I cannot measure these but I would think that the downward bias will be greater than any upward bias involved in the adjustment that takes place at these intervals.

Senator PROXMIRE. I do not understand that. If the tendency of the bias as of the index is up.

Mr. SEIDMAN. Because the wages are not adjusted at the point where the index goes up but only some months later; and, during that period, the wages continue to be at the lower level which has been determined by some lower level of the index.

Senator PROXMIRE. Well, I must have missed something. Maybe you will have to write me in a little more detail on this because, as I see it, I must say that, if you assume that the cost of living index is

something extra and has no connection with any wage increase, I do not see how you can escape from the idea that this has, however slight, some effect on the cost.

Mr. SEIDMAN. If you assume that you have price increases with wage increases, that is true. I would not concur in that assumption. Even with an escalator clause you do have a lag. You have an even greater lag if you make these adjustments over longer periods.

Mr. TEPER. May I add something here: the premise of the question seems to be that there are no increases in productive efficiency of our industry. If there are none, then obviously every adjustment in wage rates will translate itself into price increases. But you take productivity increases into account, for we are living in a progressive economy.

Senator PROXMIRE. I do not agree with that, Mr. Teper, because it seems to me that you can make the assumption that, of course, there is an increase in efficiency and, while the wages may increase regularly and fairly substantially, the wage cost may diminish. I recognize that. But there is still a tendency for any wage increase (as contrasted with not having that wage increase), there is not only a tendency but it is certain to increase the cost of wages in that sense; so that, if you have the alternative between having a cost of living index, number 1, which you expect to go up or not having that cost of living provision in the wage contract, the tendency of this provision would be to drive up wage costs over what they would be without it.

I would agree with you thoroughly that wage costs might drop and might drop regularly even though wages go up. All I am saying is that this specific thing does have a tendency; I think it usually is very well justified but it does have the tendency to drive up wage costs, drive up prices.

Mr. TEPER. This also must be borne in mind; namely, the reason for reopening provisions in contracts to enable the signing of longer term contracts between labor and management. If, for argument's sake, you had annual revisions of contracts, conceivably you may not need reopener clauses under normal circumstances because normally the index will not move much more than a point or a point and a small fraction of it in the course of a year. If you had that type of contract then you reopen the full question without any standards. Reopening or closing is merely the protective device to enable both management and labor to live in peace, in accordance with the treaty they concluded, for longer periods of time. I think also a footnote ought to be made to the effect that not all reopener clauses are automatic; namely, some of them are merely trigger points for the beginning of negotiations. This is true of some of the competitive industries such as the garment industry.

Senator PROXMIRE. But you and Mr. Seidman are making a big assumption which may be generally correct, but I do not think necessarily correct. That is you assume cost of living is the big factor in wage negotiations.

We have seen in many industries, textiles and many industries, where wages are decreased when negotiations are concluded even though the cost of living increases.

Mr. SEIDMAN. I fully agree with you. If I gave that impression, I certainly would like to correct it.

Senator PROXMIRE. In the experience I have had in collective bargaining and negotiations, there are many other factors, including the efficiency of the worker, the profits of the company, and so forth, which are much more important.

Mr. SEIDMAN. That is right.

Senator PROXMIRE. I did not mean to be unfair.

Mr. SEIDMAN. If I can add a word, I agree with you that there are many other factors. All I was saying was that, if you accept the assumption—and perhaps you will not accept this assumption or an individual may not accept this assumption—that it is right that as prices increase wages should increase so that the purchasing power of the wage rate is preserved, then you are going to create an institutional mechanism for doing this. You may do this in many different ways but it begins with this basic assumption. If you do not begin with this assumption, if you begin with the assumption that, as prices increase wages should not increase in response to those prices, then you have something entirely different and there may be certain consequences which result from this and you have to bear these in mind. But, once you accept this assumption, then you work on these problems from that point on.

Senator PROXMIRE. Are there any other observations?

Mr. Arant?

Mr. ARANT. I have made some notes as we went along. I do not know whether it is appropriate for us to try to summarize areas of agreement here or not.

Senator PROXMIRE. That would be very helpful.

Mr. ARANT. These constitute at least a sketchy summary. These are areas where it seems to me that the Panel has agreed or at least has not expressed disagreement.

Senator PROXMIRE. I think this is excellent. Why do we not have each member of the Panel who would like to make such a comment go ahead and do it. You start it off. That would be a good way to conclude.

Mr. ARANT. It seems to me we are agreed on the following points: Number 1, that the report of the Stigler committee was disappointing in the breadth of its study in that it did not provide a comprehensive framework for Federal price statistics in the near future; but nevertheless it was stimulating in providing a number of ideas that may be fruitful when further research is done.

Number 2, that further research is desirable in the agencies. There was not agreement an whether there should be separate research groups or whether the research should be done by operating people.

Number 3, that the scope of the indexes should be broadened to include, in the case of the Consumer Price Index, more of the population, the single workers and so on, and that also the new indexes suggested by the Stigler committee seem desirable.

Number 4, there is a need for research aimed at further adjustment for quality in a price index. There was not agreement on whether there is a quality bias or not.

Number 5, seasonal adjustment is not necessary. This, I think, is agreed but for different reasons. In some cases it is felt to be positively harmful and in other cases it is felt to be an imporovement but only a slight improvement.

Number 6, publication of methods for the use of the public and scientific workers is desirable. One reservation was made that this should not be at the expense of turning out good indexes currently.

Senator PROXMIRE. Thank you very much.

This is a wonderful idea. I vey much appreciate it. It is extraordinarily useful.

Mr. Teper?

Mr. TEPER. I would say that I am in basic agreement with this summary. I am not precisely certain what Mr. Arant meant when he said we are in agreement with the idea of the Stigler committee that new indexes should be computed, since the Stigler committee has gone far afield in suggesting the compilation of welfare indexes without defining the term.

If that is what Mr. Arant means, I would have to dissent.

Mr. ARANT. No, I meant construction, transportation.

Mr. TEPER. Yes, by all means.

Mr. SEIDMAN. I think this is a good summary and he has not included any points on which we did disagree and has hit on the major points with which we did agree; so that, with the amendment that Mr. Teper made, I would certainly endorse this as being the consensus of this group.

Senator PROXMIRE. Mr. Boger?

Mr. BOGER. Just two brief comments: Mr. Arant's stated conclusion on quality was that there was no agreement on the direction the bias. If I sensed the consensus here it was certainly that the bias was on the upward side and in my experience with the farm indexes it is on the upward side.

Senator PROXMIRE. You say the bias of the index is on the upward side due to quality changes?

Mr. BOGER. Yes, sir. On the point of seasonal adjustment, I think I would agree with what has been said here on the seasonal problem related to the Consumer Price Index, but I would not agree that it is unimportant in the farm price indexes, particularly the index prices received.

Senator PROXMIRE. Mr. Seidman, you dissented from Mr. Boger in saying that there would be some downward bias.

Mr. SEIDMAN. Yes, I expressed my point of view on that and, until we have a lot more exploration in the field, I do not think that we should hasten to draw a conclusion.

Mr. TEPER. I would like to add here that the Stigler committee report itself did not find that there was an upward bias in the Consumer Price Index. After citing what they thought was the opinion of the great majority of the economists to the effect that there was a bias, the Stigler committee report on page 35 went on to say and I quote:

> We have very little evidence at our disposal with which to support—or deny—the belief in progressive quality improvement. Indeed we are impressed with how little empirical work has been done on so widely held a view and potentially so important a problem.

Senator PROXMIRE. That was the Stigler view. The view of this panel, I take it with the one exception of Mr. Seidman, was that there had been an upward bias, is that correct?

Mr. TEPER. I would say that there is no evidence whatsoever, and I so stated in my statement, whether there is or is not a bias. I think the problem ought to be studied.

Senator PROXMIRE. All right. Fine.

Did you want to add one word, Mr. Arant?

Mr. ARANT. I should have said that the seasonal adjustment comment that I made applies to the Consumer Price Index only.

Senator PROXMIRE. Mr. Hamilton?

Mr. HAMILTON. I am in general agreement with what Mr. Boger has just said. I do have one reservation on the matter of weighting the farm price index on a monthly basis.

I am afraid that, if you did that, while it would be useful to Dr. Boger and to me, you would have a problem of explaining month-to-month changes to the public. If that problem could be worked out, I would be very much in sympathy with what he has said.

The other point I would like to stress is that price indexes certainly ought to be considered in such things as wage negotiations but I have some skepticism about using an index as an automatic factor for adjustment. It is only one of several things that should be taken into account and I have stressed that several places in my paper.

Senator PROXMIRE. Mr. Weidenbaum?

Mr. WEIDENBAUM. I believe Mr. Arant's summary is an excellent one and I concur. I would just like to report an informal poll on the subject relating to quality change that I conducted.

When I told my graduate students at the University of Washington that I was going to be testifying on price indexes before this committee, I asked, "Do you have any points that you think I ought to talk about?" Instinctively they reacted, "Quality changes."

I said, "What shall I say?"

Again the instinctive reaction: "The upward bias." This is a far poorer sample no doubt than referred to in Mr. Stigler's poll.

Senator PROXMIRE. There is no empirical evidence.

Mr. WEIDENBAUM. No.

Mr. TEPER. At least Mr. Weidenbaum conducted a poll and there is not evidence that Mr. Stigler did.

Senator PROXMIRE. Gentlemen, I want to thank you. This was not only a very helpful panel but was extremely interesting and enjoyable for me.

The committee will meet again tomorrow morning at 10 a.m., this time in room 457, Old Senate Office Building.

I want to thank you very much, and the committee stands adjourned.

(Whereupon, at 12:50 p.m., the subcommittee adjourned, to reconvene at 10 a.m., Friday, May 5, 1961.)

GOVERNMENT PRICE STATISTICS

FRIDAY, MAY 5, 1961

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

The subcommittee met at 10 a.m., pursuant to recess, in room 457, Old Senate Office Building, Senator William Proxmire (chairman of the subcommittee) presiding.

Also present: John W. Lehman, deputy executive director and clerk, and James W. Knowles, economist.

Senator PROXMIRE. The Subcommittee on Economic Statistics of the Joint Economic Committee will come to order.

We are delighted and honored to have the distinguished panel we have here today. We will ask the members of the panel to confine their opening remarks to 8 to 10 minutes.

I am going to start out with Mr. Bronfenbrenner and move right across the table.

Mr. Bronfenbrenner.

STATEMENT OF MARTIN BRONFENBRENNER, PROFESSOR OF ECONOMICS, UNIVERSITY OF MINNESOTA

Mr. BRONFENBRENNER. Mr. Chairman, ladies and gentlemen, I am only a consumer of the Government's price statistics, and a relatively uninformed consumer into the bargain. The report of the National Bureau of Economic Research on these statistics has pointed out some deficiencies and areas of possible improvement which I had already known or suspected. It has also pointed out others which were completely new to me. Upon first reading the report's recommendations, my initial reaction was all in their favor, except insofar as their additional cost might overbalance the value of the increased accuracy they would provide. This remains my position after a more careful reading of the report and a sampling of the 12 staff papers supporting it. I have however a few tentative additional suggestions of my own. Many of these do little more than emphasize points which are made in the report itself.

1. As a student of income distribution, I feel strongly the desirability of publishing separate consumers price indexes for different income groups and income levels, at least on an annual basis. There is always a question whether the distribution of real income may not be changing without our knowledge, due to the disparate movements of the prices of goods consumed in different income size brackets or by different income groups. In Great Britain, studies made of the war and early postwar years concluded that differential price move-

ments were perhaps the most important single factor in making the income distribution in that country more equal than it had been previously. This was because limited amounts of poor men's goods, including utility models of many durable items, were rationed at low prices, while larger amounts and rich men's goods were available only at higher prices. In the United States, many of us suspected that the effects were precisely the opposite after decontrol—that poor men's goods, particularly house rents and foodstuffs, had risen more rapidly in the inflation than rich men's equivalents. It would be highly desirable to have index numbers with which to estimate these effects. There is also the question whether consumers' price changes are not affecting the relative real income positions of rural as against urban consumers, of northern as against southern consumers, and so on.

2. I was impressed by the report's proposal that separate indexes for farm production costs and farm living costs be computed, in connection with farm parity determinations. Separate series on farm living costs, or prices paid by rural consumers in a number of sections of the country, are among the additional items just listed as desirable in my initial suggestion. I am informed at the Federal Reserve Bank of Minneapolis that requests are constantly coming in for living costs in the small towns and in the countryside of the Ninth Federal Reserve District. Figures for the Nation as a whole, or for the city of Minneapolis, are unsatisfactory substitutes. I should therefore suggest particularly that the various urban consumers price indexes be supplemented by a smaller number of small town and/or rural price indexes chosen selectively to cover the principal sections of the country. Perhaps one such series might be prepared for each Federal Reserve district, or 12 series in all.

3. All price indexes should be redefined to exclude sales and excise taxes, at least at the stage of the purchase priced for the indexes. This conclusion can be supported on the somewhat abstract grounds that a tax is not a price, and that price indexes should be neutral with respect to the community's tax system. This is the position of staff paper No. 12, appended to the national bureau report. There is also a strong public policy reason for excluding these taxes. It relates to the use of tax policy and fiscal policy as devices for fighting inflation. If we should decide to check inflation with higher taxes and surplus budgets—along with or instead of tight money—it is likely that some of the increase will take the form of new excise and sales taxes, not to mention higher rates on existing ones. With these taxes included in price indexes, they will operate contrary to their purpose. They will raise price indexes gross of taxes. These indexes will escalate wages and farm prices, and increase inflationary pressure at the same time that they decrease it.

4. The report suggests the development of new series on construction prices and asset prices. Along with these, it would be helpful to have available by major industries from year to year indexes of the prices of depreciable assets. Perhaps the most important use of such indexes would be the construction of realistic current-dollar depreciation figures for purposes of computing net income, tax liability, rate bases, an so forth, when price levels are changing. We have heard less about "replacement depreciation" recently than we did a dozen years

ago. One reason why the issue died down was the slower pace of inflation. Another was the unavailability of usable indexes by which historical cost figures could be adjusted to a replacement cost basis for depreciation purposes. The coming revision of the Government price indexes provides an opportunity to close this gap. It is important that the gap be closed, since replacement depreciation remains an important issue for the long run in view of the probable continued upward trend in the price level, which may be concentrated in the prices of depreciable assets like buildings and machinery.

5. It is not out of the question that significant segments of the price level may at some future date or in some future emergency be subject to direct controls, perhaps enforced by rationing and allocations. In this event, it would be desirable to insure ourselves as far as possible in advance that the controlling authorities will not treat commodities differently according as they do or do not happen to be included in the sample selected for particular price indexes. This was a real problem for the Office of Price Administration in World War II. To avoid temptation to statistical bias after the fact, it would be desirable to shift the detailed composition of price indexes from year to year, on a chain basis, by bringing in some new commodities and dropping some old ones each year, or in other words by changing each year some part of the sample on which the indexes are based. The report, as I understand it, advocates some such measure as a means of providing an indication of the sampling variability of the indexes. I second the motion, but mainly as a means of keeping the indexes honest in possible periods of price control.

6. It is important that any changes or new indexes should be carried back as far as practicable, say to 1929. The usefulness of the new or revised indexes would be lessened greatly were they to start in 1963 without reference to anything that will have happened previously. In my own work with the gross national product deflator, for example, I have been inconvenienced by the quarterly index not yet having been extended backward from its starting period in the first quarter of 1947.

7. I am painfully aware that all the suggestions I have made up to this point operate to increase the cost of preparation of the Government price indexes, even beyond the proposals of the national bureau report. It is therefore with a good deal of relief that I make a last suggestion which may have the opposite effect. This suggestion is to shift all but the Wholesale Price Index from a monthly to a quarterly basis, in line with the national income and product series and their price deflators. It seems that monthly data have few uses which could not be served equally well by quarterly series. Indeed, in many cases—wage escalation—adjustments are usually made quarterly even when monthly data are available. The lessened pressure for frequent publication would give the Bureau of Labor Statistics and the Agricultural Marketing Service more time and staff to devote to the substantive improvements suggested by the report. The result would be a better set of indexes all round.

I have not included the Wholesale Price Index in this suggestion, because this index is often used for purposes of short-term projection and forecasting. For this purpose, it is particularly important to have prompt and frequent official data.

In summary, I have made seven suggestions which aim at extending rather than criticizing the results of the national bureau report. These suggestions are, to repeat:

1. Publish separate consumers' price indexes for a number of different income groups, including income size brackets.
2. Publish separate consumers' price indexes for rural as well as urban areas, possibly by Federal Reserve districts.
3. Eliminate sales and excise taxes from all price indexes.
4. Publish price series of the prices of depreciable assets, by major industries.
5. Vary the composition of commodity samples from year to year, so as to avoid biased treatment of individual commodities in any future period of price control.
6. Carry back all new and revised series as far as possible from 1963, with 1929 as a conceivable goal.
7. Shift the Consumer Price Index and the farm parity indexes from monthly to quarterly series, freeing time and staff for substantive improvements in the quality of the series along the lines suggested by the report.

Thank you, Mr. Chairman.

Senator PROXMIRE. Thank you very much, Mr. Bronfenbrenner. The next witness is Prof. William Vickrey.

STATEMENT OF WILLIAM VICKREY, COLUMBIA UNIVERSITY

Mr. VICKREY. Thank you, Mr. Chairman.

Mr. Chairman, I would like first of all to express my whole-hearted support of the recommendations contained in the report of the Stigler committee. There are one or two minor technical points on which I would be inclined to modify them, but they are relatively unimportant and I have only admiration for the skillful and thorough way in which they have carried out their assignment.

You will have heard from others, no doubt, of the importance of improved statistics from the point of view of obtaining equity among various economic groups that are parties to agreements whose terms depend on the various indexes; also from the point of view of facilitating the economic research that is needed for the better understanding of our economy and more skillful control of its functioning. I would like to add to this the thought that providing adequate funds and directives for a thorough overhaul of price indexes and in particular of the Consumer Price Index can have a significant importance for the promotion of a healthy rate of economic growth.

It has become a widely accepted dogma of sound economic policy that the general price level should be maintained at as nearly a constant level as possible, and not allowed to rise or fall in any substantial or protracted degree. But what is meant by this depends on the measure selected to indicate this general price level; different specifications of this general price level lead to different profit expectations on the part of investors, different levels of private capital formation in the face of given capital market conditions, and in the absence of offsetting variations in the level of Government investment, to different rates of growth for the economy as a whole. If we want to leave the way open for high rates of growth, it is important to select as our criterion of

the general price level one which will imply attractive conditions for private investment.

At one extreme, some quite reputable economists, notably Sir Dennis Robertson and J. M. Keynes have either directly or by implications suggested that the price level of the factors of production, meaning chiefly the level of wages, should be taken as the level of prices to be held constant over time. This is often a convenient assumption to make for purposes of simplifying an economic analysis, and in some circumstances would have practical merit. But it does imply that the improvement of the economic condition of labor must take the form of a reduction in the prices of the goods they purchase. This in turn implies that for given conditions of capital supply, and with a given level of taxes impinging on investment, such as property taxes and the corporation income tax, prospects for profitable private investment will be less attractive than they would be if a standard for the general price level is adopted which allows wage rates to rise with increased productivity, and keeps the prices of final products constant.

There is a similar difference between the growth consequences of attempting to maintain a level "Index of consumer prices," which is what is to some extent approximated by the existing index, and attempting to maintain a level "Cost of constant living" index, which is what the Stigler Committee recommends as the goal toward which we should strive. Keeping a "Cost of living" index constant should amply satisfy the needs of those who regard inflation as a corrupting influence, and at the same time provide more encouragement to investment than would a policy of keeping an "Index of consumer prices" constant. This is due to the fact that an index which reflects only partially the benefits which consumers derive from improved quality and increased variety will have an upward bias relative to an index which attempts, however haltingly, to take these elements into account.

To be sure, not even the adoption of the many specific changes advocated by the Stigler Committee will go all the way to the creation of a true "Cost of constant living" index, but this is no reason for not going as far as we can, with due regard for the need for objectivity and reliability.

To stick to the present situation would be something like a man who was observed in Times Square looking earnestly along the pavement. He was asked what he was looking for. He said, "I lost my watch."

"Where did you lose it?"

"I lost it in the alley."

"Why don't you look in the alley?"

"It is dark there."

In other words, it is no use looking for something that is easy to find merely because it is easy to find when it really is not what we want anyway.

As an extreme example of this inherent difference between a consumer price index and a cost of living index, one might consider an economy in which no individual prices are ever changed, the only changes being in the introduction of new commodities, and the gradual disappearance of old commodities as consumers learn of and accustom themselves to the new and abandon some of the old. Under such circumstances, none of the procedures now commonly used in index number construction would show any change in the level of prices,

but there can be little doubt that an individual with a fixed amount to spend would find himself getting gradually better off, and that the cost of attaining a given standard of living would be gradually declining. It may not be possible to devise methods of measuring this type of improvement with any objective accuracy, and it may remain undesirable to attempt to incorporate such an improvement factor in an index that it is desired to keep as objective as possible. But the existence of such a factor would seem to make it more than ever desirable to make such adjustments for quality change that are available with full vigor, in the knowledge that even when this has been done the adjustment will still probably be falling short of the mark.

It is true that the literature describing the present Consumer Price Index carefully avoids calling it a "Cost of living" index and attempts to emphasize its nature as an "Index of consumer prices." But the earlier erroneous designation still hangs on in the public mind, and in the absence of an index that can be properly designated as a "Cost of living" index, the public tends to seize upon the nearest thing and treat it as though it were a "Cost of living" index. This creates a situation in which on the one hand all of the negative psychological implications of a well-publicized increase in the price level are associated with the expectation of pressures to take action of a deflationary sort, and the expectation of these measures, which are in reality not called for, has a repressing effect on private investment and growth.

In order, then, to end the adverse effect on private investment and economic growth produced by this confusion between the actual Consumer Price Index and a true "Cost of living" index, it is of great importance that adequate resources be made available to carry out the recommendations of the Committee in this area.

On the technical side, I have just one area to question, and that is the treatment recommended for insurance (p. 54). If automobile accidents increase, the increased cost of insurance is just as much an increase in the cost of driving a private car as it is a part of the increase in the cost of riding in a cab, or in the cost of bread delivered in a bakery truck. Only to the extent that rates increase by reason of increased rates of compensation for given injuries would I admit that there is any question as to the appropriateness of including the item with full weight in the index, and I am inclined to the view that there is a strong case for full inclusion of even this element.

For term life insurance, and the term insurance element in other life insurance contracts, I would incline to the view that a reduction in mortality represents a reduction in the cost of providing protection against this eventuality, and is a source of increased welfare at least to this extent. I would accordingly be inclined to recommend that weights and prices for life insurance be determined with a view to including the term insurance element, as well as the overhead expenses and profits of the insurance companies, and not these latter only, as is recommended by the Stigler Committee. There will, in practice, be a ticklish job of disentangling these elements from the savings element, but this would seem to be involved in any case in the Committee recommendations. It would in any case seem to be inappropriate to attempt to include the costs of the savings or endowment elements of life insurance policies in a cost-of-living index, inasmuch as no attempt is to be made to price other forms of provision for future contingencies

such as the accumulation of funds in savings accounts. The inclusion of a figure for mortgage interest on owner-occupied housing stands on a different footing, since this is an element in imputed rental costs.

I would like to especially note that further work needs to be done on the possibility of pricing consumer durable usage on a current imputed rental basis as suggested on page 48; while I have not thought the matter out at length, my present judgment is that I would want to treat the matter somewhat differently than the argument of staff paper 6 would seem to be indicating.

In the main, however, I regard the recommendations of the Committee as essentially sound, and I strongly urge that every effort be made to see that they are carried out to the fullest extent possible.

Thank you, Mr. Chairman.

Senator PROXMIRE. Thank you, Dr. Vickrey. Dr. Adelman?

STATEMENT OF IRMA ADELMAN, STANFORD UNIVERSITY

Mrs. ADELMAN. Thank you, Mr. Chairman.

First of all I should like to say that I am in general agreement with most of the recommendations made by the Price Statistics Review Committee. The reevaluation of the statistical practices of price collecting agencies contained in the committee's report is most comprehensive, sound and imaginative. In my opinion, all four of the recommendations for "All indexes" contained in paragraph I of the summary of the report ought to be adopted. I should like to argue in particular for the use of probability sampling (I, 2) and for a more direct treatment of quality change, (I, 4).

With respect to probability sampling, I believe that this approach is superior to the techniques currently employed for the selection of commodities to be included in an index. For one thing, the method of probabilistic sampling suggested in the report insures the absence of sampling bias in the index. (Of course, probabilistic sampling cannot eliminate bias arising from sources other than sampling procedures.) Secondly, probabilistic sampling enables us to attach an estimate of reliability to the index. With probabilistic indexes one can then answer the crucial policy question: How likely is it that, over a 1 year span, a 3.5 percent rise in the Consumer Price Index would be observed, if no true price increase had in fact occurred? Finally, a knowledge of relative sampling errors arising from sampling among cities, stores, and commodities as esential for efficient sampling design.

Implicit in a probabilistic sampling procedure is the abandonment of the fixed basket concept. The use of a statistical basket instead would have several additional advantages. Since, for example, different price relatives would be employed during each sampling period. changes in product quality can easily be incorporated into the index. By the same token, new products would have at least some chance of being selected as soon as they become available in the market. The average time lag before new commodities are introduced into the index would therefore tend to be significantly reduced. Moreover, the special problems arising in conection with seasonal commodities could be essentially eliminated, if the procedure of drawing different samples for each month of the year and pricing them a year apart were adopted.

Before prababilistic sampling can be employed effectively, however,

further research would be desirable. In particular, the grouping of commodities into strata from which specified in detail products are chosen by random processes should be carefully investigated. And, secondly, the design of the sampling procedure should be reexamined in the light of the fact that data on weights, as well as on price information are subject to sampling error.

In the area of quality change, I believe that the multiple correlation approach studied by Mr. Griliches and myself and recommended by the Committee is applicable to a large variety of goods and services. It is of sufficient importance to justify its early application to such significant categories of consumer expenditures as housing, individual consumer durables, and medical care and insurance. The adoption of this technique by the BLS would provide a systematic answer to the important question: "How much of the change in the Consumer Price Index is attributable to changes in product quality and how much reflects the true inflationary or deflationary tendencies of the economy?

In section IV of the report, which deals with "Consumer price indexes," there are two points upon which I should like to comment. On page 52 the Committee recommends that "when the BLS next revises its index (in 1963), it calculate this latter index for the 1952–63 period to provide an estimate of the maximum upward bias due to the use of a fixed-weight base." This recommendation is based upon the incorrect proposition that a fixed-weight base period Consumer Price Index always overestimates and a fixed-weight given year index always underestimates the "correct" index. Unfortunately, this theorem can be demonstrated only for the very special case in which it is known that no changes in consumer real income (defined in terms of satisfaction) have taken place between the base year and the given year. Frequent weight revisions and chaining are therefore still the only practical techniques for minimizing this bias in the general case.

I also disagree with the Committee's judgment in calling for the construction of a comprehensive consumer price index covering the entire population. The present restricted coverage Consumer Price Index has the advantage of being applicable to a more or less homogeneous group of consumers with respect to whom the assumption of similar tastes and income levels (which underlies the construction and interpretation of the index) can be made without seriously impairing its validity. By contrast, the definition of a constant-utility index for a group of consumers as heterogeneous as the entire population of the United States requires the weighting of the relative welfare of various groups of consumers. To bury the value judgments involved in such a statistical construct by delegating to the BLS or to any other organization the authority for the interpersonal comparisons of welfare implicit in the derivation of such an index would, in my opinion, be a serious mistake. It would be preferable to supplement the present wage-earner-and-lower-salaried-worker index with additional indexes for other economic groups. Each user of the indexes could then weight the relative welfare effects on each group in accordance with his own value judgment and in a manner appropriate to the problem at hand. He must, in the process, make these value judgments explicity.

I am also unable to endorse one of the committee's recommendations on the Wholesale Price Index. In view of the relatively limited use of this index, the recommendation that "the structure of the overall

index should be revised to reflect the prices of a condensed input-output table for the commodity-producing industries" seems inordinately elaborate and expensive. A more desirable alternative might be to discontinue the publication of the overall Wholesale Price Index entirely and to publish only price indices for individual commodity groups.

Before closing my prepared remarks, I should like to emphasize that improvements in price indices can be worth a great deal of money to the U.S. economy. A case in point is the systematic tendency for the present fixed-weight base-period Consumer Price Index to overestimate the true change in the cost of achieving the base period level of satisfaction and to underestimate the contribution of quality change to price movement. Because of these defects, it is quite possible that the apparent inflationary tendencies of the U.S. economy before and during the current recession had no basis in fact. Since the tight credit policies of the Federal Reserve System in 1958–60 were influenced strongly by the behavior of the Consumer Price Index, the inaccuracy of the present index may have cost the Nation as much as ½ percent in the annual rate of economic growth, or $2½ billion per year.

In conclusion, I wish to stress my belief that the Price Statistics Review Committee has made an excellent contribution to the theory and practice of index number construction.

Thank you, Mr Chairman.

Senator PROXMIRE. Thank you very much, Doctor.

Dr Neiswanger?

STATEMENT OF WILLIAM A. NEISWANGER, PROFESSOR OF ECONOMICS, UNIVERSITY OF ILLINOIS

Mr. NEISWANGER. Mr. Chairman and members of the subcommittee. Some of the views which I will express here are partially a result of a review of Government price statistics which I made as consultant for the Office of Statistical Standards in 1958. I wish to make clear at the outset, however, that any statements I make at this hearing are strictly on my own responsibility.

In the report which I made at that time, I attempted to direct attention to what I considered the basic defects of the price indexes in view of the important uses to which they are put and I suggested a number of changes to remedy those faults. The recommendations made by the National Bureau of Economic Research Review Committee agree with my own in most major points. I would, however, go further than the review committee in recommendations to correct, eventually, the improper formulas used in estimating average prices and in another important recommendation relating to sampling I think the Committee is much too enthusiastic.

Conceptual disagreements seem to be negligible but there are apt to be substantial differences among students of price indexes as to the causes of error; the kinds of errors which are important and their likely magnitude; the practical possibility of reducing them and the probable public acceptance of the techniques which would have to be used to correct the trouble.

64846—61—pt. 2——15

My position, and that of others, may be clarified by a rather course grouping of the main sources of error in the price statistics. (1) There are defects in the basic data such as the use of prices which appear on price tags rather than the price actually paid. (2) There are errors due to the improper specification of the formulas used to estimate the average price and changes in that average. An example is the use of fixed weight patterns of the market basket type when variable weights should be used. (3) Then there are errors which the review committee calls procedural errors which occur, for example, when there are no transactions for a time on certain markets and incorrect price interpolations are made. Or, prices are collected on products which bear the same name from time to time but which have changed in quality so much as to have but nominal uniformity. (4) Also, there are errors due to defects in the sample desgin as when too many stores are included in the sample and too few commodities are priced in each outlet. Finally, (5) there remains the sampling error which would be present under even the most efficient sampling designs because of the selection of sample communities, sample reporters, sample commodities and services.

We have no empirical estimates of the magnitude of any of these errors and there is serious doubt that they can be estimated by the categories in which they have been listed. Also, the error from the various causes will differ in magnitude from index to index.

In my opinion errors of class 2 above are important in the Consumer Price Index and AMS index of prices paid by farmers for consumer goods and services and I should like to discuss this class of error briefly—specifically the error due to the use of fixed weights in the estimating formulas. If this specification error could be measured separately it would doubtless be large since fixed quantity weights used in constructing these indexes are conceptually wrong for most of the important uses to which the indexes are put. As the review committee says of the Consumer Price Index, it should be a constant-utility (p. 52) index and it is not.

This use of improperly specified formulas for estimating average prices is of more than theoretical interest, for there is no doubt that the Consumer Price Index rises more rapidly than it should if it were properly specified. Again the review committee rightly says:

> Since consumers will substitute those goods whose prices rise less or fall more for those whose prices rise more or fall less * * * the fixed-weight base Consumer Price Index overestimates rises in the cost of equivalent market baskets (p. 52).

As a result of this and related defects in the Consumer Price Index the inflation has been overstated vis-a-vis the consumer; important payments have taken place under a variety of contracts containing escalation clauses and the growth in real personal income has been understated relative to estimates of it in current dollars.

There is no novelty in either these ideas or conclusions. The theory of the constant-utility index is well developed and the bias in fixed-weight approximations to it is well known. The review committee has gone about as far as it can in recommending moves toward a constant-utility index using conventional methods. To get satisfactory approximations to the constant-utility index, however, innovations of methodology will be needed and will require experimental

development. In my opinion, therefore, the review committee recommendations relating to class 2 errors are inadequate. I therefore suggest that the Bureau of the Budget recommend and the Congress provide funds for basic research in the appropriate agencies looking to the development and eventual publication by the Federal Government of an unbiased approximation to a constant-utility index.

Recent developments in methods of estimation and in the technology of calculation make this suggestion feasible now, though it might not have been a few years ago.

Before coming to a final point I would like to point out that the test suggested by the review committee under (a) at the bottom of page 55 will not reveal the bias in the Consumer Price Index relative to a utility-based index because income and price effects will both influence the outcome. This is also the reason frequent weight revisions of the kind recommended by the review committee are not really compatible with the concept of the utility-based index.

Finally, I would add that the review committee is much more optimistic than I over the benefits to be obtained from probability sampling. I do think, however, that at least one Bureau should be provided the funds necessary to design and operate a probability sample alongside the traditional sample which combines random and judgment selections. Replication would be useful as the review committee suggests. We may then learn whether the class 5 errors can be measured independently as the review committee contends; what the efficiency of the probability sample might be and how often, to what extent, and from which strata new samples could be selected to advantage.

So long, however, as biased estimates are obtained from the use of unsuitable estimating formulas the publication of standard errors to describe the reliability of estimates would be inappropriate, to say the least. This, I think, is another way of saying that a comprehensive program of basic research is required. The problems are interrelated and should not be approached piecemeal.

While this research on needed basic reforms goes on, I hope the important but lesser reforms recommended by the review committee for adoption in the immediate future can be completed.

Mr. Chairman, might I add that some of the recommendations made by the review committee and by me in my consultative report were, I think, actually suggested by members of the Bureau who are responsible for the indexes. I want to say this in their behalf lest these comments seem too critical of the established departments.

Senator PROXMIRE. Thank you Mr. Neiswanger. Dr. Bowman.

STATEMENT OF RAYMOND T. BOWMAN, ASSISTANT DIRECTOR FOR STATISTICAL STANDARDS, BUREAU OF THE BUDGET

Mr. BOWMAN. Thank you, Mr. Chairman.

The Bureau of the Budget is sincerely grateful to the Joint Economic Committee's Subcommittee on Economic Statistics for the opportunity which it has provided to make available to the Congress and other interested parties the report on price statistics of the Federal Government. The report was prepared, at the request of the Budget Bureau, by a committee appointed by the National Bureau of

Economic Research. This committee, as you know, enjoyed the leadership of George Stigler, professor of economics of the University of Chicago, and is commonly referred to as the Stigler Committee. The membership of the committee is an especially distinguished one and its services to the Government have been very large indeed.

It has been my good fortune to have had the opportunity during the past 6 years to champion the cause of a Federal statistical program. Since the question was raised in these hearings on price statistics earlier this week as to the need for continued review in the Federal Government of the adequacy of these programs, I take this opportunity to indicate that the Budget Bureau does have this function and believes it has been exercising it with some success. The Budget and Accounting Procedures Act of 1950 provides in section 103 as follows:

> The President, through the Director of the Bureau of the Budget, is authorized and directed to develop programs and to issue regulations and orders for the improved gathering, compiling, analyzing, publishing, and disseminating of statistical information for any purpose by the various agencies in the executive branch of the Government * * *.

This section was further implemented by Executive order of the President No. 10253, "Providing for the Improvement of the Work of Federal Executive Agencies With Respect to Statistical Information."

The office of Statistical Standards recognizes that however competent its staff there is need from time to time to solicit the expert advice of persons who may approach problems somewhat differently. The importance of price statistics which I shall indicate a little more fully later made it seem imperative at this time to undertake such a review by an outside expert group. Many of the members of this committee have had extensive experience with Government statistical programs. Similarly a few years ago the same type of review of the national economic accounts of the Federal Government was made, I believe, with major success. The Joint Economic Committee itself recognized the importance of outside views and even earlier had asked the Board of Governors of the Federal Reserve System to assemble committees to review the statistics in five principal areas as follows: plant and equipment expenditures, saving statistics, consumer survey statistics, inventory statistics, and general business expectations.

These reports have been extremely helpful in guiding the Office of Statistical Standards in the selection of programs which would improve Federal statistics in a way which would make economic analysis more penetrating and provide a sounder basis for policy guidance. The work of committees of this sort should not be thought of as a substitute for, but rather as a supplement to the continuous work with statistical agencies by my office.

For example, in the field of price statistics, Mr. Thomas Mosimann was recently brought to our staff to devote his exclusive atention to the field of price statistics both as an aid to the committee and as a person to follow through eventually on those recommendations which seem appropriate and feasible for implementation. It is our intention, once the evidence is all in, to provide some type of interagency discussion, perhaps through an interagency committee to arrive at a program of implementation, but it should be recognized that some things will take a longer time than others and priorities must be established and relationships recognized.

There is a major problem in approaching the Federal statistical program from the standpoint of critical review. To some people criticism means condemnation. I would like to make it crystal clear that, in my opinion, the Federal statistical program is a good one, but in the light of present needs significant improvements are necessary. This should not, however, cause people to think that what is now being done is without merit or excellence. I know of no country in the world that has better price statistics than the United States, but this should not blind us to the fact that improvements can, should, and must be made if we are to achieve certain benefits which are imperative for economic analysis and policy guidance.

I would like to turn now to the importance of price statistics and the opportunity that is available to us to introduce reforms at a time when one of the principal price indexes of the Government is being updated as to weights and when other revisions can also be incorporated. Price statistics are important not only for the production of price indexes but also in their own right so that we may obtain knowledge of a variety of price behaviors in an economy whose basic guidance comes through market prices. It should also be recognized that prices put together in special price indexes provide the deflators which make it possible for us to estimate changes in the real output of the economy, in our national income and product accounts, and in other forms of national accounting. The accuracy of the price data and the way in which the index numbers are constructed influence the measurements which we make of the changes in real output. In addition, price data are important to various segments of the economy in relation to contracts for the purchase of goods and in wage contracts. All of these factors must be taken into account and undue priorities not given to any one of them.

It is not appropriate at this time to specify in detail those recommendations which it may seem most desirable to implement immediately. I do want to review, however, some of the actions that have been taken and to suggest some of the areas where controversy seems to have arisen in the testimony and on which I would like to have my views before you.

(1) It is clear that more emphasis will have to be given to export and import prices and to the organization within the Government for obtaining such prices and constructing appropriate indexes. The recommendations of the committee in this connection will be given careful attention.

(2) The committee's recommendation with regard to the need for compiling construction cost indexes has been recognized and funds have been included in the 1962 budget now before the Congress for the Bureau of the Census to initiate a program in this area. Developmental work is in progress but it is clear that some of the problems involved require a great deal of study before the project will be completed.

(3) Periodic review of base-year weights is important. The Bureau of the Budget will take the responsibility for recommending such reviews at regular intervals. This will require consideration of the budgetary arrangements as may be necessary. It is our opinion that decade reviews of the Consumer Price Index will under ordinary circumstances provide for sufficient revision of the weights. Unusual

circumstances may require interim reviews. At the time of weight revisions it is practical to compute Paasche-type indexes, and provision should be made for these computations, which will be useful for comparison with the regular series of Laspeyres-type indexes. The revision of weights for the Consumer Price Index has in the past been made by special studies of consumer-expenditure patterns. Such studies are costly and should not be carried out more frequently than is necessary. When they are carried out, however, they should be made to serve other purposes as well as the weight revisions in the Consumer Price Index and it is this procedure that is being followed in the consumer-expenditure survey which is now being carried forward by the BLS. The possibility should also be explored of making weight revisions by alternative methods. In particular, maximum use should be made of data collected by other agencies of the Government which may have a bearing on this problem.

Weight revisions for the Wholesale Price Index are based on Census data and should be timed in accordance with the 5-year Census intervals.

The revision of weights for the indexes of prices paid by farmers also requires special studies of expenditures and consumption by farm families. For the index of prices received by farmers estimates of production, marketing, and farm-product sales collected regularly by the Department of Agriculture are used. These revisions should also be placed on a periodic basis and, in the case of the prices paid index, the necessary studies should be coordinated in the most efficient manner possible with data collected by other agencies for the nonfarm population.

(4) I would like to comment on the quality problem. This problem pervades all areas of economic analysis. Almost every comparison between any one time and any other time and any one place and any other place involves questions and decisions as to whether similar or different things are being compared. This is particularly important in the field of prices. Thus, for both the Consumer Price Index and the wholesale price index we need to price the same things at different times. But things do not remain unchanged; so attention must be paid to those changes which involve significant differences in quality. Let me also point out that this is just as important in an index of industrial production as in an index of prices. While significant quality differences must be taken into account, and is taken into account to some extent in our present practices, the committee is, in my opinion, correct in recommending that more attention be paid to this problem. It is my opinion, however, that practices to take account of change in quality should be restricted to those areas where fairly objective measurements can be developed and where there is some considerable agreement as to the factors that should be taken into account. During these hearings a suggestion was made to add a small arbitrary allowance to the index for the effect of quality change and for new products. I do not believe that any gain would result from such an arbitrary adjustment of the index. There is no professional unanimity on the theoretical basis for such an adjustment and even those who favor it would recognize that in some years the adjustment should be larger and in some years smaller. A preferable procedure would seem to be to incorporate an interpretative paragraph

into the description of the index to call attention to the quality-change problem and to its possible effect upon the index.

(5) The area in which there seems to be the most controversy or major misunderstanding in connection with the report has to do with the committee's recommendation that the Consumer Price Index should attempt more closely to approximate a cost of living or constant utility index. I believe that the essence of the committee's recommendation is sound, but I also believe that the index which we compute should continue to be called a Consumer Price Index and that it attempt to approximate as closely as possible the cost of a constant level of living for the group of persons whose purchases are represented by the index number. It is my present opinion that it is not possible, and not likely to be possible, to compute a precise measure of changes in the cost of living or the cost of a constant-utility budget.

The theoretical literature on this is both complicated and extensive and little would be served by entering into it here. The committee says what can be said on this subject when it indicates that—

> In a society where there are no new products, no changes in the quality of existing products, no changes in consumer tastes, and no changes in relative prices of goods and services, it is indeed true that the price of a fixed market basket of goods and services will reflect the cost of maintaining * * * a constant level of utility.

But it is perfectly obvious that such a situation cannot exist over time. Prices change, the quantity purchased changes, the quality of things called by the same name changes, and the tastes of the purchasers change. This does not mean, however, that practically speaking we cannot seek to get a better approximation to a cost of living index. What the committee suggests is that the procedures which we follow should be made as specific and objective as possible and that we use as the guiding principle an attempt to price things of equal utility at different times. This, I think, is the lesson the committee would teach.

(6) The committee recommends that the wholesale price index be shifted to the format of an input-output system. I approve this suggestion in principle since the resulting data would facilitate economic analysis and render the index components more useful, especially for the deflation of the national accounts.

(7) The Committee stresses the importance of probability sampling in the price indexes. I believe there is general agreement with the Committee that wherever practicable probability sampling methods should be introduced in the compilation of the indexes. I interpret the Committee's recommendation as calling for a progressive utilization of probability methods in the existing series. The extent to which such methods can be introduced at various stages will require much research and study.

(8) The Committee urges the periodic publication of the full description of methods by which each index is constructed. I believe there will be general agreement with this recommendation.

(9) Finally the Committee recommends that small research staffs be established within the price agencies to analyze research problems and to devise methods of dealing with them in line with the current uses of the statistics. I heartily endorse this recommendation although I recognize that it will be difficult to implement. The pressure of day-to-day operations almost forces people to pay more attention to today

and tomorrow than to 10 years from now, but every effort must be made to implement this type of development not only in the price statistics area, but in many other areas as well. Only in this way can Government efforts keep abreast of new developments taking place in academic and scholarly circles. At the same time, I wish to emphasize that the universities have responsibilities in this area. Their research must continue and their efforts be utilized by the Federal Government. They can be more venturesome in some of their approaches than is possible in a Government agency and the literature of the journals can take care of the unwary. The Government must itself cooperate with research efforts and find ways of making its materials more easily available so that research beneficial to the community may go forward.

As a general statement, this covers the main points I would emphasize and I shall be happy to participate with the other members of the panel in answering any questions that the committee may wish to ask.

Senator PROXMIRE. Thank you, Dr. Bowman.

I have a question or two for each member of the Panel and then I have some general questions that I would like to have each member of the Panel take a crack at.

Beginning with Mr. Bronfenbrenner, on page 1 of your testimony, Dr. Bronfenbrenner, you refer to a study in Great Britain. You say this:

> In Great Britain, studies made of the war and early postwar years concluded that differential price movements were perhaps the most important single factor in making the income distribution in that country more equal than it had been previously.

Now, was this simply an analysis based on whatever the Consumer Price Index they had, or was it an actual compilation of the kind of statistics which you advocate here?

Mr. BRONFENBRENNER. I believe that it was the latter, sir. The reference, in case anyone is interested, is Dudley Seers' "Redistribution of Incomes in Post War Britain." I think I have this approximately right.

An attempt was made to compute separate price indexes for different income groups in the British economy.

Senator PROXMIRE. Has this been continued?

Mr. BRONFENBRENNER. I am not familiar with the British statistical series. I have never visited Great Britain. As far as I know, this was a once-and-for-all study of the immediate postwar period.

Senator PROXMIRE. I see.

Mr. BRONFENBRENNER. Seers is a university man.

Senator PROXMIRE. It is very intriguing and has very obvious public policy implications.

I would think that, if there was a feeling that it was useful and accurate or was accurate and reliable, that it might be of interest.

Mr. BRONFENBRENNER. The need to continue it has been somewhat less because the British rationing and allocation system has been more or less eliminated, so that the problem was more important for the period which Mr. Seers covered than it has been for the period since,

You see, this point of a kind of utility budget having its prices held constant while rich man's goods were essentially left free was a special condition of a particular period so that the magnitude of it was much greater for the period Seers covered.

Senator PROXMIRE. I understand that, but it seems to me that, in a country like Britain which is as conscious as they are of economic justice——

Mr. BRONFENBRENNER. This is right.

Senator PROXMIRE (continuing). And which has a broad a control or as broad an influence on wages and so forth and income generally, that this kind of statistic would be invaluable even though you do not have the specific use that you had in wartime with the rationing.

Mr. BRONFENBRENNER. I would argue that it would have been interesting if it had been continued, and that it should be continued even in economies which are not subject to price control of rationing in the same extent that the British society was in the period Seers was talking about.

Senator PROXMIRE. Is there any indication of the cost of these statistics?

Mr. BRONFENBRENNER. I do not know. I do not have and indication of how much it cost. I believe it was a university study by Mr. Seers.

Senator PROXMIRE. I see.

Mr. VICKREY. If I may interpose a comment, it seems that continuation of the study might even show that the tendency that Seers found reversed itself more or less naturally after the rationing was removed, but this we do not know.

Senator PROXMIRE. It would certainly be an expectation in view of the conditions created by the fact that you had rationing.

Mr. BRONFENBRENNER. The suspicion was that in the United States without rationing it worked the other way.

Senator PROXMIRE. The situation you say in the United States without rationing worked the other way?

Mr. BRONFENBRENNER. It may have been. The argument is that many individuals who were unemployed before got big increases in money incomes as a result of the war and the immediate postwar period. Therefore, the particular sorts of food, housing and clothing that those particular people consumed went way up in price whereas there was no corresponding increase in money income for persons higher up in the income scale.

For example, let us take the special case of housing. The belief is that poor man's housing, both rental housing and owned housing, went up much more than rich man's housing did. This is only a general suspicion that, as far as I know, has never been verified but this is the kind of thing that is involved here.

Senator PROXMIRE. I think there is a logical commonsense impact that rationing would have in restraining the power of the rich man, the man with the good income far more than the man with little income. Obviously, a poor man can only afford to buy a very limited amount and, if everybody is required to buy a limited amount, the poor man might be completely unaffected by rationing or affected only a little bit. When the sky is the limit and your income is so high you can buy what you wish, rationing hits you hard. So, there is a commonsense application which we can get without having to worry about statistics.

You say there is also this very useful discriminative information that you can get.

Mr. BRONFENBRENNER. If I may comment on the British rationing system a little more, as I understand the way it worked, some goods were subject to rationing and these were mostly poor man's goods. Other goods were more free. These were mostly rich man's goods so that the poor man was able to buy at rationed prices a large proportion of whatever it is he purchased whereas the rich man could buy only a smaller amount of his total purchases at rationed prices, and this was the reason for the differential. It was not that the rich man was limited in the amount he could buy by the rationing system. This is why it worked the way Seers said it did.

Senator PROXMIRE. Because the expectation is that people all have C cards for buying gasoline, as we had during the war, or if you can buy a certain amount of sugar per person.

Mr. BRONFENBRENNER. You bought a certain amount of it at the ration store. If you wanted any more than that, you had to go in the free market somewhat as I am told is done in Russia.

Senator PROXMIRE. You say:

I was impressed by the report's proposal that separate indexes for farm production costs and farm living costs be computed, in connection with farm parity determinations.

Would you mind explaining that a little bit?

Mr. BRONFENBRENNER. Yes. If I understand the report correctly, what it said is that farm parity should largely be determined as a matter of what the farmers received for their products as compared with what it cost the farmers to produce them, and that the question of farm living costs, what the farmer paid just to live after he got his income, be more or less excluded from farm parity, that what is really important for farm parity determination process was the comparison of what the farm income-farm production cost was.

This is what I was inclined to go along with, that strictly farm living costs had very little to do with the determination of farm parity.

Senator PROXMIRE. Of course, a basic purpose of parity from the standpoint of the Congress is to determine the justification for certain levels of price support.

It is necessary, therefore, for Congress to take into consideration farm living costs. Parity is an extremely unsatisfactory index at best.

Mr. BRONFENBENNER. I agree.

Senator PROXMIRE. It certainly needs to be vastly improved. At the same time, there is some element of justice in considering factors other than farm input, it would seem to me, perhaps.

Mr. BRONFENBENNER. I would agree with you that either the farm parity index needs to be improved or I would go further and say thrown out altogether, but that is a separate issue. But certainly, if you are going to consider what a strictly speaking farm living cost is, then you ought to consider urban costs in connection with the parity index.

Our parity index is a peculiar kind of three-legged monster at the present time I think. It involves farm receipts, farm production costs, and farm living costs, but does not regard living costs for any one else.

Senator PROXMIRE. It grossly overstates the economic position of the farmer and tends to exaggerate his well-being. I think many

people look at the present percentage of parity and feel that the farmer is not really doing so badly and is about on a parity with the people off of the farm, and he is far from it. He is lucky if he can get up to two-thirds of the per capita income.

Mr. BRONFENBRENNER. I do not want to comment with regard to the direction of the bias except that it is related to the relationship of the farmer and non-farmer, I believe, in the golden age of agriculture. But I would agree with you, Senator, that farm income was even then not up to income off the farm.

To get to the strict economics of it, I wonder whether there is any reason that this differential, after all, is a function; that our proportion of the farm population has been declining; that the faster it declines the less is our surplus problem; that there are too many farmers and that, if farm income were raised to the level of urban income, then this rate of decline would probably decrease even less and we would have more of a surplus problem.

Senator PROXMIRE. I do not want to get off the subject. I could discuss that with you in some detail, but I would simply say that I think you can make an awfully good case for the fact that the farmer makes a very big investment, $40,000 to $50,000 per farm in our State, and he works long hours and now has to be an expert bookkeeper, know farm management, animal husbandry, soil chemistry, complex farm machinery and he is making 65 cents an hour for his labor on the Wisconsin farm.

I do not want to take advantage of my position here to cut off debate, but I would like to go on to your part 3 in which you talk about leaving sales taxes out of account. Maybe there is broad agreement that this should be done but this startles me quite a bit. If you leave sales taxes out of account you still do not have a reflection, it seems to me, of the price before taxes. How about the corporation's income tax which you certainly have passed on to some extent in the final product and within certain monopoly situations or semimonopoly situations it is passed on almost entirely.

How about the personal property tax which is generally passed on, the real property tax on businessmen which I presume is where the incidence is largely on the consumer. Where do you draw the line to know the price that the consumer has to pay? Why do you pick on the sales tax and say "throw it out"?

Mr. BRONFENBRENNER. I think that what you are trying to do is to make your price index more or less neutral with regard to what kind of a tax system you have. One of the main issues is income taxes versus sales taxes in very many of our States, including both your State, Senator Proxmire, and my State, which is the neighboring State of Minnesota, and this is the main reason why I am arguing that the sales tax should be left out of the price index.

Senator PROXMIRE. Is it made comparable if you compare, say, Minnesota's prices with Illinois? Illinois has a sales tax, a big one, and Minnesota I guess does not have one.

Mr. BRONFENBRENNER. Minnesota does not yet.

Senator PROXMIRE. Wisconsin does not. At any rate, when you compare these situations, it seems to that the Minnesota product is likely to reflect the Minnesota corporation's income tax and I know the Wisconsin product reflects the Wisconsin corporation's income tax. It

reflects the higher Wisconsin and personal property tax and the higher Wisconsin and real property tax.

As Illinois gathers its funds through the sales tax and Wisconsin through corporation and property taxes, you get a much more comparable situation by taking the price to the consumer, after taxes.

Mr. BRONFENBRENNER. I am dubious mainly because I think I disagree with you as to the extent in which these other taxes get themselves reflected in consumer prices. I think, insofar as there is any difference between us, it is a difference with regard to tax incidence.

I happen to believe that the sales tax, the sales and excise taxes are much more directly and exclusively reflected in consumer price indexes than either corporation income taxes or general property taxes or State income taxes.

Senator PROXMIRE. I would agree with that. There is no question about it, but I would also point out that we have utilities where the corporation income tax is completely reflected; and where you have a near monopoly situation, you tend to have the taxes reflected very largely in the price that the consumer pays and throughout industry we have something fairly similar to that. We have rare instances of pure competition.

Furthermore, even where you have pure competition, the laws of entry and so forth would see that you have some tendency for the tax to be passed on to the consumer.

Mr. BRONFENBRENNER. I think this is a matter of greater or less; and if the difference in calculability is sufficiently great, so that I would still stand on my proposition that the sales tax should be left out and that we should ignore the other taxes.

Senator PROXMIRE. I have just one more question.

You propose a number of reforms and you suggest that one way that these might be achieved without greater cost is to have the quarterly rather than the monthly price index.

Mr. BRONFENBRENNER. Yes, sir.

Senator PROXMIRE. What savings do you calculate? How many jobs would be saved? How much would be saved by this kind of approach?

Mr. BRONFENBRENNER. Here you have me, Senator, because I have not had the advantage of working in the Office of Statistical Standards and I do not know how great the saving would be. Mr. Bowman, I am sure, or Mr. Neiswanger would know much more about this than I would.

Senator PROXMIRE. I see Mr. Neiswanger shaking his head.

Mr. Bowman?

Mr. BOWMAN. I do not believe there would be any significant savings in cost. I think the real merit is whether or not you would have a more accurate reflection of the movement of prices quarterly than you do monthly.

There could be some savings, but we already make some savings by collecting many prices only quarterly rather than monthly.

I think in some instances our collection program would not be significantly affected. There would be somewhat of a decrease in the tabulation program, but I would not think it would be a very large saving. I do not know how much it would be.

Mr. BRONFENBRENNER. There has been a demand that our national income and product series be made available monthly whereas it is now available quarterly, and the argument is made that this would cost too much, so that I assumed that if this would cost too much then it might be that shifting the national price series from monthly to quarterly would save some money; but this may be an example of what economists call the irreversibility of costs.

Senator PROXMIRE. At least in a bureaucracy.

Mr. Knowles tells me this is partly because the index is now on a rotating quarterly basis.

Mr. KNOWLES. You do not correct every month on a monthly basis so that we are already taking advantage of the quarterly operation. You have the computing of the publishing costs to consider and you have less of a margin in which to save.

Mr. BRONFENBRENNER. You are telling me, Mr. Knowles, that we do not really have a 100 percent monthly price index even now.

Mr. KNOWLES. This is correct.

Senator PROXMIRE. Dr. Vickrey, I would like to start a little dialog between you and Mr. Bowman on quality adjustment since you disagree.

You argue, I think, very vigorously and eloquently, in favor of quality adjustment. The point that was raised yesterday by the panel of distinguished representatives of business, labor, and farm interests is that this might destroy confidence in the index. You have met that to some extent in your remarks, but it seems to me that that question still remains that, as I understand Mr. Bowman's position and the general position that I have heard before in justifying the Consumer Price Index, it is that they are doing their best to make these adjustments. For instance, with automobiles when there is an automatic transmission, they will include that kind of adjustment because it can be objectively measured and separated. But when you have tail fins which obviously some people think add to the quality of a car, it is awfully hard to separate them. How can you determine whether there is actually a greater satisfaction in view of the limits on the consumer?

For these reasons it seems to me that it is terribly hard to construct something that would give you a really accurate picture of consumer satisfaction on a quality basis without destroying the objectivity that is vital and essential if we are going to have a Consumer Price Index that people can trust.

Mr. VICKREY. Well, you certainly have to call some limit on quality adjustments that are made purely on somebody's arbitary say-so. That is, you have to have some kind of an objective basis and I think the kind of work that Griliches did on the automobiles admirably illustrates the kind of thing that can be done and which is fairly objective and which produces what were to me absolutely surprising differences.

Before reading this document I would have had no idea that the kind of quality adjustment that could be justified on the basis of these regressions would have such a really surprisingly large effect on the index of price of automobiles.

Senator PROXMIRE. Do you agree that there has been that?

Mr. BOWMAN. I agree that we should do more analytical work in this field of trying to measure the quality changes.

I think some of the suggestions in the report and some of the work that Professor Adelman has done in the same general area are ways of getting at this.

The thing that disturbs me is whether or not another analyst using different factors equally reasonable might not come out with a quite different estimate of what the quality change has been.

There will be very strong interest in various areas. For instance, if we take automobiles, the automobile industry would like to show that the price increase has been very, very little, that it is all in quality.

This would be true in many of the durable goods areas.

I do not think this is a reason for not doing it, but I think more research has to be done, more experimenting has to be done before we could really adopt this as a basic procedure in the price index field.

Senator PROXMIRE. Dr. Vickrey, how about the suggestion that Dr. Bowman made to try and create a greater degree of sophistication in understanding this, say by use of footnotes and doing all we can to call attention to the fact that there are some changes?

Mr. VICKREY. With all of the publicity that you can do of this sort, I think the fact remains that Consumer Price Index is, in the popular mind, a cost-of-living index and will continue to be a cost-of-living index as long as it is the nearest thing published to a cost-of-living index.

If it is, then I am very much afraid that pressures will be brought to bear on public policy from all directions to try and avoid increases in Consumer Price Index on the basis that this is avoiding increases in the cost of living.

Mr. BOWMAN. I thought your argument was in the other direction; in other words, that Consumer Price Index now shows too large a rise.

Mr. VICKREY. Yes, and because the Consumer Price Index shows a rise in consumer prices and not in the cost of living, while the public might be willing to accept a policy that insures a level cost of living, it is insisting on a policy or trying to insist on a policy that insures a constant level of consumer prices under the illusion that it is getting a constant cost of living.

Mr. BOWMAN. I do not disagree with you. The question I raise is how do you measure the cost of living, and I agree that you should try to get in more attention to quality changes. I do not quite agree that we have made as much progress in doing this as perhaps you think has been made.

I think we should try to find out how much more progress we shall make in this direction and, when we have made that progress and there seems to be reasonable degree of unanimity with regard to it, then I think these practices ought to be incorporated into the computing of the cost of living.

Mr. VICKREY. In the meantime, until you have done this we will continue to have this upward bias and continue to have this demand for deflationary policies that will prevent the Consumer Price Index going up. Perhaps you will say that this is not your fault; this is the fault of the public having an erroneous viewpoint. Perhaps we ought to get a campaign on to educate the public, but unfortunately

I am afraid it is going to be a long time before the public gets educated.

Senator PROXMIRE. Why not as a first step call the index a Retail Price Index instead of a Consumer Price Index?

Mr. BOWMAN. Because in a sense what the index is now, and I think this is why people want to keep it, is an index that measures costs to urban wage earners for buying a bundle of goods which represents the principal things that urban wage earners buy. It is not an index of retail prices generally, although these are retail prices. What we are trying to do is to find out, and in this I agree with the report, whether or not it costs individuals in this particular class of consumers more or less or the same amount to maintain a standard of living.

Mr. VICKREY. "Standard of Living" are the crucial words.

Mr. BOWMAN. I do not disagree one bit with the fact that we ought to approximate as closely as possible a constant-utility index. I do not, however, want to make bias corrections in the other direction any more than I want to continue the biased material that we now have. I think it would be just as wrong to make a lot of quality change corrections and show that the cost of living has gone down inappropriately as it would be to now recognize that to some extent the rise in the Consumer Price Index interpreted as a cost-of-living index has not risen as much as the figures actually show.

Now, as you know, one of the members of the committee indicated that, if you took what he considered a correction which everybody more or less agrees to, 1 to 2 percent, and if you applied that from 1947, that you would have had almost a constant cost of living; and I say you can do that in a paragraph much better than you can do it for 100 or 200 individual commodities that may need corrections each month or each year until you know that there is some solid foundation for those corrections.

Senator PROXMIRE. I want to come back and ask the whole panel this question a little later on because I think, with this distinguished representation, it would be extremely helpful to us. However, I would like to proceed with Dr. Adelman, if I could, so that I can get each of the panelists to elaborate a little bit or simplify mainly what they have said so that those of us who are far from expert in the field will know what has been talked of.

Dr. Adelman, in your remarks, will you explain how it is possible that the Consumer Price Index could rise 3.5 percent with no true price increase? Will you explain how it is possible? I can see how it can rise, but how can it rise that much?

Mrs. ADELMAN. I am not prejudicing the answer to this question. In other words, I do not mean to imply that I believe that, due to sampling errors in the CPI, a 3½-percent rise would necessarily not be statistically significant, but I do mean to imply that the very asking of the question is important and that, with respect to smaller rises, such as a 1- to 1½-percent rise, it is very probable that the answer would in fact be that no true rise had occurred.

Senator PROXMIRE. It is very, very startling.

Mrs. ADELMAN. In fact, I did a pilot study on food prices and the answer which I got over a short period seemed to be consistent with this point of view.

Senator PROXMIRE. Is that because of the packaging, the so-called built-in maid service, and so forth?

Mrs. ADELMAN. No; this is simply a question of the fact that we use a sample of prices to represent the movement of all commodity prices.

Senator PROXMIRE. I see.

Mrs. ADELMAN. And that the average price of the sample will in general differ by a certain specified amount from the average for all prices.

Senator PROXMIRE. I am sure that the people who are selecting these prices are completely honest. I cannot see why the effect would not balance out. Sometimes they would pick some on the downside and sometimes on the up, so that, in terms of a bias, it would wash out.

Mrs. ADELMAN. This argument is not a question of bias. It is a question of sampling variability, and you are quite correct in saying that, on the average, errors would tend to cancel out provided the index is unbiased.

Senator PROXMIRE. I misunderstood what you said. I thought there could be that much of a bias that we would have a rise of 3½ percent in the Consumer Price Index which was in error.

Mrs. ADELMAN. There are, of course, reasons for believing that there may have been an upward bias, and Professor Vickery and myself and I think Mr. Bowman have pointed out some of these reasons.

Senator PROXMIRE. Now, you refer to a multiple correlation approach to qualitative changes which is very fascinating. I wonder if you can describe that? You say:

> I believe that the multiple correlation approach studied by Mr. Griliches and myself and recommended by the committee is applicable to a large variety of goods and services. It is of sufficient importance to justify its early application to such significant categories of consumer expenditures as housing, individual consumer durables—

and so forth.

Mrs. ADELMAN. I will try to be as simple as I can. With respect to a particular product, one can attempt to select a number of quality dimensions which would hopefully represent what the consumer buys when he buys that product. Specifically, with respect to, let us say milk, one could use the butterfat content, the vitamin content, the perishability as some of the quality dimensions. With respect to intoxicating beverages, Stone of England has recommended that the alcohol content and the additives be the quality specification of the product.

Senator PROXMIRE. Alcohol content and what?

Mrs. ADELMAN. Additives.

Senator PROXMIRE. As a Wisconsin Senator, I am with you on milk. I am not sure of the other unless you are talking about our beer.

Mrs. ALDEMAN. What Stone argued is that, when people buy beer, they pay for the alcohol content of the beer in particular. But starting out with these quality specifications, any particular product can be described as a bundle of various levels of each one of the quality dimensions, and a price. In this manner, by comparing the prices of various grades of the same commodity and various quality dimensions of the various commodities, one can obtain an indication of the aver-

age price paid by consumers at a particular point of time for each particular quality dimension.

Senator PROXMIRE. If I can interrupt, Dr. Bowman, why cannot the Consumer Price Index take such objective criteria as we have in the case of milk, butterfat content and vitamin content, which is precise, measurable, and objective, and make an appropriate adjustment; or does it?

Mr. BOWMAN. They can, and Dr. Adelman has already made one study with respect to the price of milk. I think her illustration is very apt. You have to recognize that at some particular time you may have to price milk which has one quality in it dominantly and therefore has a certain price and another type of milk that has another quality in it and has a different price. By correlating these, you try to find out how much of the price difference between these milks is due to the qualitative difference and then you make an allowance for that when you actually compute your price series over time.

Now, in the case of milk, I do not know whether this is true or not, but it might well be, that milk with a low butterfat content might be selling in stores at a higher price than milk with a high butterfat content, if the people who are buying milk want to reduce their weight and milk with a low butterfat content is not sold in large quantities and consequently commands a higher price than milk with a high butterfat content.

If we use this analysis it would come out that milk with a high butterfat content has a "lower" quality than milk with a low butterfat content.

Am I right in that?

Mrs. ADELMAN. Not entirely. I should like to point out that, in making these adjustments, we are striving toward an objective criterion rather than toward a subjective criterion. What we are trying to answer is: "on the average, how much were consumers willing to pay during the base period for a particular change in specifications?" The answer to this question may or may not be justified on real grounds. In other words, we may very well find that consumers happen to be irrational in what they do choose to pay for particular sets of quality specifications.

However, I do not think that it is our function to judge the rationality of consumers in this respect, and, if they are irrational, they are free to be so.

Senator PROXMIRE. Not necessarily irrational, but just wanting to take off weight. As a matter of fact, we resent it out in my State, but the medical profession has been talking about how butterfat contributes to heart attacks and so forth. This is a changing matter. Twenty years ago there was very little concern about this, and butterfat was a very much more objective determination. This just does change.

Mr. BOWMAN. I will give you an illustration that developed in connection with a debate at the United Nations Statistical Commission. There one of the representatives from one country indicated that recently in his country, a legal requirement was adopted decreasing the butterfat content of milk. The truth of the matter is that this decree was put through in order to avoid an increase in the price of milk. He argued that the consumer index showed no rise because the price did not change. Some of us argued, in line with Dr. Adel-

man, that it should have risen because they were selling a lower quality milk.

He argued lower butterfat milk is better milk for the population than a higher butterfat milk and therefore we should not take into account the quality of change.

Senator PROXMIRE. This may be unfair to Dr. Adelman in a sense because we have taken a commodity which has changed quite a bit and one of the few which has changed as dramatically as this perhaps.

Do you think that may be true, Dr. Adelman, or am I missing something here?

Mrs. ADELMAN. No; I do not believe that this is in fact true. The main value of quality adjustments is for commodities which do tend to change rapidly and for commodities whose weight in the index is important.

Mr. VICKREY. The great difficulty with quality adjustments comes when you have essentially a change in the tastes of the consumer.

Mrs. ADELMAN. That is right.

Mr. VICKREY. Then it is very difficult to define in principle what you mean by a constant utility index.

Mrs. ADELMAN. This is true in any case.

Senator PROXMIRE. That does not dim your enthusiasm for attempting to achieve a quality adjustment.

Mr. VICKREY. It dims my enthusiasm in certain areas.

I think one is always going to find a great deal of difficulty in having a quality adjustment in areas that are dominated by style.

Mr. BRONFENBRENNER. I think the term "quality adjustment" causes a little trouble here. The issue is not whether it is actually a higher or lower quality. I think the panel will agree with me on that. It is a question of whether consumers will or will not pay more for it, whether they are rational or irrational.

Here I would be inclined to agree with Dr. Adelman that this multiple correlation approach which is gone into in some detail in Staff Paper No. 3, Mr. Griliches' paper, is worth working with; and I think that it is or can be made sufficiently objective to be reliable.

Do not fling the word around "Is this a higher quality or a lower quality?" Simply ask the question, "Are consumers for whatever reason willing to pay more for it?"

Mr. VICKREY. I think there is almost an objective test at this point as to where you have a consistent taste situation or a change of style of situation because you can perform this correlation at two time periods. If you perform the correlation on 1950 automobiles and you get a series of coefficients, and you perform it again on 1955 and 1960 automobiles and get coefficients that look pretty much the same, then in effect the kinds of things that people are wanting are pretty much the same throughout and you can see that you have had a change in quality and not a change in people's tastes.

On the other hand, if you go and take the length of skirts as your dimension and you have it positively correlated with the price of skirts in one period and negatively correlated in the other, then you have a quite objective demonstration that what you have is a style change and not a genuine quality change.

Mr. BOWMAN. Do we not have something of that in automobiles, the shift from a situation in which the longer the car the more people

wanted to buy it, to one as now in which, perhaps the shorter the car the more people want to buy it?

Mrs. ADELMAN. In fact, this was reflected in the correlation study of Mr. Griliches in two ways. One was a decline in the price paid for car length over time. The other was that the pricing of the new compact cars was in line with what would have been predicted by the regression analysis which has been carried out without taking the compacts into account.

Senator PROXMIRE. Dr. Neiswanger, in your statement you list five main sources of error in the price statistics and then you say:

> We have no empirical estimates of the magnitude of any of these errors and there is serious doubt that they can be estimated by the categories in which they have been listed. Also, the error from the various causes will differ in magnitude from index to index.

Now, for Congress to determine whether or not these errors are sufficient to warrant an appropriation to make a study, which is I presume what you suggest, it seems to me we need the answers to a few questions, one of which is that it has to be the roughest kind of estimate because you say you cannot tell. I presume that you feel that the error may very well be quite significant and might distort the true picture rather greatly; is this true?

Mr. NEISWANGER. That is right. I think we have some evidence that bears on the question, but I do not know of any direct measurements. Some of the desired measures are impossible to obtain on the basis of present calculations and concepts of the indexes.

I am reminded, for instance, of one piece of evidence which is relevant, but is not direct evidence. It comes from the Federal Reserve Board and shows that when it used base period weights and then terminal period weights, with an interval of only 9 years, the difference in the two indexes was 15 percentage points. That was during a period of rather rapid structural change in the economy and you expect these differences to be larger at such times. This sort of error is what I have refered to as an error in the formula, the type 2 error with which I am considerably concerned. This reference is not to a price index, and I have cited it to show that we have bits and pieces of evidence and we try to make inferences from these, but they are very imperfect.

If you make the same test in a later period, the differences are smaller; but, if by defects in the formulas we can get, at certain times, differences so large as these, it seems to me we have an important issue and the U.S. Government should spend large sums on research to correct current methods of estimation.

I think in the same way about quality changes. You have heard four or five different definitions of quality here this morning and there are technical questions about some of the regressions used in the illustrative case, correlations exist among all the variables and probably correlations also exist with the shocks, to use a technical term. So, I am inclined to Dr. Bowman's views that we need a lot of experimental work.

Senator PROXMIRE. I take it that on 2, that is errors due to improper specifications where you argue that variable weights should be used instead as a matter of more accurate technique, and 3, which you call procedural errors, that is when there are no transactions at all.

Mr. NEISWANGER. And the quality problem I brought in there.

Senator PROXMIRE. And this is not taken into consideration. And 4, those are errors which it would seem to me are a matter that should be just determined on the basis of professional pride by the Consumer Price Index and they should almost go ahead with them, although again this is making an assumption that there is acceptance, general broad acceptance that these evaluations are correct.

Dr. Bowman, how about this?

Mr. BOWMAN. Well, I think Mr. Neiswanger and I have talked about this many times. Mr. Neiswanger is really proposing a model to be used in connection with constructing a cost-of-living index and that model would allow weights to be adjusted for what we call price elasticity and income elasticity measurements.

This is a model which I would like, first of all, to work out algebraically and see what the model implies. Secondly, the question is, Can the data be provided that will give us reliable estimates of price elasticity and income elasticity? It seems to me that we are then back right to the same correlation problem that we have with regard to the quality changes.

In order to get his price elasticities and income elasticities, he is going to have to do some of the same sorts of things that are done in relation to the quality change.

The only thing that bothers me about the quality change discussion is that it is almost entirely restricted to the talk of the Consumer Price Index, and the quality change problem is just as important in every price index and even in the index of industrial production.

If I know the number of automobiles produced in a particular year and the number of automobiles produced in a second year, and I say, "This is an increase of 50 percent," it is not an increase of 50 percent if each automobile in the second year is the equivalent of two automobiles in the first year.

This quality change pervades all areas of economic comparisons and I think it ought to be studied.

I am just not quite willing to say that enough work has been done yet for the Government to apply this technique extensively.

That is my position.

Senator PROXMIRE. Now I have a question for Dr. Bowman, but I think it is a question that I can ask of the whole panel so that I think we will start with Dr. Bronfenbrenner and I will go through these questions that I have for the panel.

I want to ask all of you to answer this question. Is there agreement on the part of every member of the panel that there has been an overestimate of the rise in the cost of living in the Consumer Price Index?

Mr. BRONFENBRENNER. My guess is yes, that the net effect of all the errors has probably been to overestimate the rise in the Consumer Price Index.

Senator PROXMIRE. Would you care to indicate how significant or substantial it is?

Mr. BRONFENBRENNER. No. This is where my status as a badly informed consumer of the Government price statistics enters in. I am scared of this. I do not know. I have not studied this.

Senator PROXMIRE. At any rate, you think it is significant enough to warrant corrective action?

Mr. BRONFENBRENNER. Here I am in the position of accepting the word of people for whom I have professional respect and who have studied the problem more than I have. They believe that it is significant enough to warrant revision in the index, and I am inclined to go along.

Senator PROXMIRE. Mr. Vickrey?

Mr. VICKREY. My view is almost the same as Dr. Bronfenbrenner. I must say that, prior to having read the report of the committee, I had been much more complacent than I am now concerning the degree of the bias. If you had asked me 6 months ago, I would have said my general impression is yes, there is probably some bias but it probably is not important. Now, having read the report and thought about it just a little bit, I am much more alarmed at the degree to which the upward bias in our Consumer Price Index may have led to policies that are less well designed to promote economic growth than they might have been.

Senator PROXMIRE. Dr. Adelman?

Mrs. ADELMAN. As I stated in my remarks, it is my belief that the present Consumer Price Index tends to overestimate the cost of acquiring the base year level of satisfaction fairly significantly. In fact this overestimate by having led to erroneous credit policies may very well have resulted in a lower rate of economic growth by as much as one-half of 1 percent.

Senator PROXMIRE. Dr. Neiswanger?

Mr. NEISWANGER. My answer to your question, Mr. Chairman, is "yes."

Senator PROXMIRE. Dr. Bowman?

Mr. BOWMAN. I would agree. We seem to be unanimous that there is an upward bias in the Consumer Price Index. I would like to say that the only view I would like to express is that, from about 1947–49 on, this bias is probably present. I am not sure that an adverse bias was not present during the war period.

Senator PROXMIRE. Would you be willing to accept or would you be willing to consider it very possible that Dr. Adelman's estimate is correct, that it would be as high as one-half of 1 percent in regard to gross national product?

Mr. BOWMAN. Yes, I think Allen Wallis after some work at the University of Chicago indicated that between 1947–49 and 1958–59, about half of the increase could be written off as not an increase in the cost of living.

Senator PROXMIRE. You say there is empirical work on this?

Mr. BOWMAN. I have never seen his empirical work. I have written to him for a copy of it. I am not sure that there is any substantial body of empirical work in this area. This was stated during the political campaign and I am not sure it is anything more than an informed guess.

Senator PROXMIRE. If the committee is interested in that, we will write to him and try to procure this.

Is there any further comment on this?

Then my next question is whether or not the panel agree with Dr. Bowman that no country in the world has better price statistics than the United States? I might say before you answer that question that you might feel more comfortable in answering it if you know that

our astronaut was successful and has been returned. He is on board the ship and is alive and well, and the flight was successful.

Dr. Bronfenbrenner?

Dr. BRONFENBRENNER. I do not know of any country which has better price statistics than the United States.

Senator PROXMIRE. Mr. Vickrey?

Mr. VICKREY. My knowledge of other countries is limited, but my answer is the same as Dr. Bronfenbrenner's.

Senator PROXMIRE. Dr. Adelman?

Mrs. ADELMAN. I believe that the only possible contender here would be Great Britain, and I think that actually the statistical work of the U.S. Government is superior.

Senator PROXMIRE. Mr. Neiswanger?

Mr. NEISWANGER. I accept Dr. Bowman's opinion and may I take this opportunity to congratulate him on asking for this Review Committee report because it has opened up many areas of investigation which might have remained closed for years had this study not been made.

I think the emphasis the report puts on the controversial questions is a kind of emphasis the departments of the Government could not very well place. This has been a significant contribution and he should be commended for having arranged it.

Senator PROXMIRE. Dr. Bowman?

Mr. BOWMAN. Mr. Chairman, I want to say that I do not want to place the emphasis on how good we are. I want the emphasis to be on how good we ought to be. The statistical program is not good enough, but I wish to indicate that it does have real merit. I do not mean, by saying that we were the best price statistics country in the world, to imply that we do not need to do a lot of things that we are not doing now. This is particularly true in the area of economic growth. Our measures of economic growth are tied in with our measures of prices since we deflate outputs with prices. If our price inputs are too high our deflation is too great. On the other hand, I do not want to take a very short-run view because, if we were to make these corrections, let us say, for the present decade, then our comparisons with the past decades might be quite far off.

I think we have to be careful that what we are doing is the right thing to do and we have to spend resources in the most productive way.

That would be my main comment.

Senator PROXMIRE. Yes, Mr. Neiswanger.

Mr. NEISWANGER. Mr. Chairman, sometime, before the hearing is over, I would like to say a few words in defense of the memory of OPA.

Senator PROXMIRE. Go right ahead. We would be very happy to hear it.

Mr. NEISWANGER. Would this be all right at this time? You noticed that Professor Bronfenbrenner in his point No. 5 stated that he wants to change the items in the index from time to time to circumvent any future price controller who might wish to stabilize an index of prices rather than prices.

Now, as a member of the OPA in those good old days, I would remind him of General Max. General Max was a general maximum price regulation which covered the waterfront, if a maximum price

regulation ever did. The significance of these words is in what they say with respect to the policy the practice and the accomplishments of that agency. Thank you, sir, for the opportunity to say this.

Mr. BRONFENBRENNER. I believe that I remember during that war period something called the apple-orange-peanut butter roll back, where specific commodities were taken, which happened to be in the index, and treated somewhat differently from other commodities.

I think I also remember during the war, though this does not reflect on OPA in any way, our Secretary of the Treasury arguing that a sales tax would be inflationary, but that selective excises would not be because the particular commodities selected were commodities that were not in the price index, and this is the kind of thing that bothers me. I do not wish to engage in general smearing of the memory of either OPA or Dr. Neiswanger's part in it.

Mr. NEISWANGER. Thank you, sir.

Senator PROXMIRE. I think this was an enlightening exchange. In view of the answer to my previous question, I presume that there may or may not be an answer to this one. I intended to ask the Panel yesterday, and I did not, but I asked it of several of them later, informally. What can we learn from the statistical systems of other countries?

Mr. BRONFENBRENNER. This involves a country-by-country analysis, it seems to me, of areas in which various countries are better than the United States.

Senator PROXMIRE. Has this analysis been made?

Mr. BRONFENBRENNER. I do not know of its having been made, but I would not be at all surprised if it had been. This is something that Dr. Bowman would know better than I.

When I was young and foolish, or perhaps young and with a better excuse to be foolish than I now have, I remember being told by instructors that some of the Scandinavian countries and some of the Australasian countries were particular areas in which we had most to learn. I do not know if this is true or not.

Mr. BOWMAN. In population-problem areas, it is particularly true.

Senator PROXMIRE. On population statistics?

Mr. BOWMAN. Yes, and I think in some of their earlier work in statistics of national income and product, but I do not think that the comparison is as valid now. A tremendous amount of work has been done by the United Nations in the last two decades, and comparisons have been made of the statistical program in various countries, but it is still difficult to compare each individual statistical series between countries in this way. When you find a person like our own Milton Gilbert, who is making a study on Great Britain, France, Norway, and Denmark on an industry basis, saying that the only country in which he found adequate data to do the job well was the United States, it makes you recognize that we do have a large volume of data here which are not available in many countries.

I would like to stress one point in this connection. A statistical system is no better than its critics. That means it has to be used and it has to be criticized. That is why this criticism is so important. In many other countries and particularly some of the new countries statistics have become a fad. They want to have them because other countries have them. I do not think, however, that we want to be

complacent by thinking that, because we have had leadership in this area for a considerable period of time, improvement will come without criticism.

Senator PROXMIRE. It seems to me that that qualitative problem is such a universal problem that other countries that have consumer price statistics would have been concerned with it and had studies of it. None of them has gone any farther than we have.

Mr. BOWMAN. Not that I know of. A special paper was presented by the United Nations, and I am sure Dr. Adelman has seen it, in which various suggestions were made as to how to deal with the quality problem. They are all suggestions that have been mentioned in this report and in many other reports. They involve the introduction of new commodities. They involve the correlation technique. They involve the problem of taking two commodities that are being sold side by side.

Senator PROXMIRE. But none of them has gone ahead and done it.

Mr. BOWMAN. So far as I know, none of them has done it any more extensively than we have done it.

Senator PROXMIRE. Dr. Adelman, I saw you nod. Did you have anything to add?

Mrs. ADELMAN. It is quite correct that these techniques are still fairly new.

Senator PROXMIRE. The reason I asked that is because I have been very concerned, as I am sure many people have been, with the fact that we are at the bottom of the totem pole in economic growth. It was used in the last presidential campaign. It is a matter that concerns us very, very greatly and deeply affects public policy.

In view of the error in our own statistics, which you all concede, and you all concede that it understates the improvements in quality and understates the improvement in standard of living because it overstates inflation, is it possible that we are exaggerating the lag of the U.S. growth in comparsion to growth of other countries both in the free world and, as to our real opponent, the Communist world in view of the fact that we know ours is wrong, and ours is the very best?

Mr. BRONFENBRENNER. I suspect that there may be some truth in this—less perhaps because of the error in our own statistics than because of the upward bias in some of the statistics which seem to be coming out of the other side of the Iron Curtain.

Senator PROXMIRE. First let us take a look at the free world. We have the enormous improvement in productivity and gross national product in Germany, in Italy, in Japan, in France. It has been very disturbing. We like this and are enthusiastically in favor of it. It is a great success story and we are responsible for it in part in the Marshall plan. At the same time we are disturbed because we are not doing as well. I wonder if there is a statistical caveat here that should concern us.

Mr. BRONFENBRENNER. I am inclined to suspect that the statistical component here is probably rather slight. I would say that Dr. Adelman's half of one percent per year may be, if anything, on the high side.

I think also, Senator, that it would be a great mistake for us to make a lot of noise about this statistical caveat. It sounds too much like sour grapes; and so, until we know a great deal more about it than we now do, I think that we should spend more of our effort in im-

proving our statistical series and not spend much of our effort in trying to explain away the deficiencies of our own performance as being purely statistical.

Senator PROXMIRE. But, as far as the other side of the Iron Curtain is concerned, you would have a bigger caveat, I presume, or would you?

Mr. BRONFENBRENNER. There you run into some very real problems. Let me just indicate what two of them are. I am speaking with relation to the Soviet Union about what I am by no means an expert. The Soviet statistics include only goods and not services, very briefly speaking, and what the Soviets have done has been concentrating growth in goods and neglecting services. This very high rate of growth that they speak of is, as far as we are concerned, only part of the picture, the most favorable part.

Senator PROXMIRE. Well, at the same time the concentration in goods particularly to the extent that it is industrial goods indicates a dangerous potential as far as we are concerned.

Do we have a comparable picture here, because the gross national product is such a massive figure and includes services. Our production index, I take it, would be comparable.

Mr. BRONFENBRENNER. This is much more production than prices. This is another point I was going to make. Many of the prices that the Russians report to the UN, and I believe the UN is forced to accept, are official prices; and this means that they are controlled prices and there is no gurantee whatever that goods are actually available at all times at these prices. In fact, some fuss has been made currently in Russia that meat, for example, is unavailable at official prices, that the prices at which goods generally are available are at subsidiary markets or free markets or gray markets or black markets or whatever you wish, and that those prices are not included in the price index.

I would say that this is an important feature.

Also getting into growth, and this I believe is the third point and I said I was only going to give you two, the Russian index is total amount of goods produced which means that they count the wheat and then the flour that is made out of the wheat and then the bread that is made out of the flour. They do it three times, whereas we are on a value added basis and, if I understand it correctly, there is a good deal of crosshauling and shipping back and forth there which, in the Russian statistics, serves to overemphasize from our point of view their national income and therefore their rate of growth, whereas we attempt to eliminate this double counting.

Senator PROXMIRE. I can see how it would overestimate their national income and gross national product. I do not see how it would overestimate growth. As a matter of fact, to the exent that they have any achievement and growth in efficiency, it might tend to underestimate.

Mr. BRONFENBRENNER. From our point of view again there is so much double counting that the more double counting the better their rate of growth is. Even with all this, I do not want to give the impression that their growth rate may not have been greater than owns, particularly since they were recovering from a war; but I still think

that the statistical comparison, from our point of view at least, tends to overestimate the rate of growth in the Iron Curtain countries relative to ours.

Senator PROXMIRE. Thank you.

Mr. VICKREY. There is at least one other statistical practice that is relevant in this connection. The Russians tend to use prices, in their aggregates, of the first year of introduction of new goods and, as goods are introduced then in subsequent years, although the costs may have gone down they are still valued for index purposes at this first year of introduction, and this has a tendency to overstate the relative importance of the new commodities that are being introduced and hence to increase their rate of growth.

This is something that has given our statistical experts rather a great deal of difficulty in interpreting the Russian figures.

Senator PROXMIRE. Are our experts able to get a pretty good rough approximation by making corrections for these things such as the double counting?

Mr. VICKREY. Attempts have been made. I am not close enough to it but certainly different people compute with different results and it is not at all a nice, easy thing to do. In connection with our rate of growth relative to those of other Western countries, while it is true that this quality adjustment factor in our indexes would tend to underestimate our rate of growth, it is also true that other countries would have a similar tendency to underestimate, so that any differential would have to be based on this quality factor being more important with us than with them. I think possibly it is but it is a very small margin so that I would again say quite possibly there is a very small element of truth in this idea that the fact that we are lagging is slightly exaggerated but it is very , very slightly and I do not think it is enough on this score to change the general picture.

Senator PROXMIRE. Thank you very much.

Dr. Adelman?

Mrs. ADELMAN. I was going to make exactly the same point that Professor Vickrey just made; namely, that it is the differential rate of technical progress and quality improvement between the United States and other countries which is the determining factor.

I also believe that our rate of technical progress has exceeded that of other Western European countries and that of the Soviet Union.

Senator PROXMIRE. Would you say that this is true in the last 10 years?

Mrs. ADELMAN. Yes.

Senator PROXMIRE. You say the GNP and I presume probably the production index would indicate a greater rate of progress. We are still ahead perhaps but, because they started from such a low base, I wonder.

Mrs. ADELMAN. But they started with new equipment.

Senator PROXMIRE. I am just wondering what the statistical picture would suggest to you then. This surprised me because what you say, as I understood you, would contradict what the statistical picture shows. You are telling me that our growth has been greater and our improvement in technological progress, our efficiency, our productivity has been greater than that of the Western European countries. Do you feel that this is the case in spite of statistics?

Mrs. ADELMAN. The only aspect of technical progress with which I am concerned is changes in the quality of industrial and consumer products.

Senator PROXMIRE. I see.

Mrs. ADELMAN. These are not measured.

Senator PROXMIRE. You are not talking about productivity. You are talking about quality.

Mrs. ADELMAN. Which is not measured in our statistical series.

Senator PROXMIRE. I see. Thank you very much.

Dr. Neiswanger?

Mr. NEISWANGER. I would only say, Mr. Chairman, that Hodgman who made one of the outstanding studies of production in the Soviet Union, has stated that he got quite different results depending on the type of weight patterns he used in making the indexes. His observations bear in this way on our problem. The index number weighting problem is very important as his work has shown, but I am not prepared to say how much these differences were nor to cite his publication at this time.

Senator PROXMIRE. Thank you very much.

Dr. Bowman?

Mr. BOWMAN. Commenting specifically on your question, I think that the device that we have been talking about is not a significant element in the difference between the U.S.S.R. rate of growth and our rate of growth. I think it is one element but I do not think it is a significant element.

On the basis of the studies I have seen and the work I have done personally, I do not think there is any doubt that in the last decade or two the U.S.S.R. rate of growth calculated in any way is more rapid than has been the growth of the United States. I think that is natural and I do not know that it will continue, but it will continue for some time.

I think there are other areas even more important than the price area that we are talking about; for example, in our own national income and product account. In any wealthy country, in any country with a high level of income, services become a more important element. Their inclusion in the gross national product introduces special problems distinct from the problems of commodities. One of them is the fact that we allow no increase in productivity for the Government workers. The Government sector itself has been expanding. When we deflate basically by wage rates, if we assumed the same rate of productivity increase for Government workers as we do for other workers, a recent calculation I made would have indicated that the GNP would have increased by three-tenths of a percentage point per year more.

Senator PROXMIRE. Can you not limit it to comparable work because I think the factors of automation and so forth might not apply to Government workers where it would have a very great effect otherwise.

Mr. BOWMAN. If you are interested, I recall a paper that shows what would happen if you assumed an increase of 1 percent, 1½ percent, 2 percent, and the results can then be compared with any data for any other group.

Senator PROXMIRE. I have just one final question. It is a very big one but perhaps it can be handled rather quickly.

This question relates to the recommendation of Dr. Bowman and what the Government intends to do in the field of statistics. I wonder if there are any sharp differences or if you feel that there are some omissions here?

I will go over them very quickly:

(1) It is clear that more emphasis will have to be given to export and import prices and to the organization within the Government for obtaining such prices and constructing appropriate indexes.

(2) The Committee's recommendation with regard to the need for compiling construction cost indexes has been recognized and funds have been included in the 1962 budget now before the Congress for the Bureau of the Census to initiate program in this area.

(3) Periodic review of base-year weights is important. The Bureau of the Budget will take the responsibility for recommending such reviews at regular intervals.

As far as 4, the argument is that quality differences should be taken into account but the argument is quite generalized.

(5) The Committee's suggested procedure should be made as specific and objective as possible with regard to constant utility index and attempt to price things of equal utility at different times is the intention of the Bureau of the Budget.

(6) That the Wholesale Price Index be shifted to the format of an input-output system is approved.

(7) Wherever practicable probability sampling methods should be introduced.

(8) Periodic publication of the full description of methods by which each index is constructed.

(9) Small research staffs be established within the price agencies to analyze research problems.

That is heartily endorsed wherever practicable.

I realize that this is imposing on you to ask this at 23 minutes past 12, but, if you have any strong views one way or the other on these things and think some of these recommendations are wrong or would like to add something, or if there is an omission which you would like to call to the committee's attention, we would be grateful.

Mr. BRONFENBRENNER. There is a conservative overtone here. This is probably because Dr. Bowman has responsibility and I am an irresponsible academic; but I get the idea that "as far as practical" or "to a certain limited extent" or "as a pilot study" or something like this implies that rather little would be done.

I had hoped that perhaps more might be done by 1963. That is my first point.

My second point, of course, is due to the fact that I have some hobbies of my own which I have listed in my own paper and I would naturally like to see something more done along some or all of these lines than Dr. Bowman has indicated in his statement.

Senator PROXMIRE. Dr. Vickrey?

Mr. VICKREY. I, too, would hope that the quality problem especially could be attacked with some what more vigor. I have in mind that I will admit that one cannot pinpoint the correct quality adjusted index but I should think that it would be more useful to aim to straddle this objective with more salvo than to be so reluctant to move in this direction that one is almost certain to fall short of achieving an index which will fully account for this matter. That is, I would like to see the possibility of errors in both directions rather than stay entirely on one

side and try to be absolutely sure that I make no overadjustment for quality.

I think it is better to risk some overadjustment than to stay fully on one side.

Mr. BRONFENBRENNER. I think what Professor Vickrey is trying to say is that it is better to be imprecisely right than to be precisely wrong.

Senator PROXMIRE. Dr. Adelman?

Mrs. ADELMAN. I agree with both the general comment made by Professor Bronfenbrenner and the specific comment made by Professor Vickrey. I do not think that I have much to add over those and over my prepared remarks.

Senator PROXMIRE. Dr. Neiswanger?

Mr. NEISWANGER. I would like to say that I have had some doubt that we ought to do too much to Consumer Price Index but that we ought to make every effort to get out another index with the properties that a constant utility index should have. I am not sure that I agree with Mr. Bowman in the gradual change of Consumer Price Index, partly because I do not know just what he means.

I am sure that all parties here know that there are some unique problems in the index numbers of prices received and prices paid by farmers and I think it is very important that your committee, Mr. Chairman, follow the recommendations of the review committee on those points particularly with respect to the move toward specification pricing and clearing up what I consider to be very substantial sampling problems.

I wish Mr. Bowman had put in also a recommendation toward the use of buyers' prices rather than sellers' prices. I think there is substantial agreement on this everywhere unless it is in his office, which I doubt. I believe that I would have emphasized this therefore and would have listed a few other things as well.

Senator PROXMIRE. Thank you very much.

I might say that yesterday's panel was split on this about the buyers' prices proposal. These were representatives of business, labor, and farm groups, statistical users. There was no agreement among them.

Mr. NEISWANGER. It is very interesting to learn this.

Mr. BRONFENBRENNER. I think there is agreement here. I think Professor Neiswanger is right in saying that there is agreement here.

Senator PROXMIRE. This would make a majority in view of the fact that they were split yesterday.

Dr. Bowman, I just want to conclude by saying that we are very grateful to you. Maybe it is unfair to say this but I presume that the frequent view of the budget that cost is the determinant would not be true in this case in view of the relatively minor cost of improving statistics and the enormous benefit, so that I take it that these decisions that you make have been made strictly on the basis of your judgment of how to provide the most accurate useful statistics rather than the cost of doing so.

Mr. BOWMAN. Yes. May I just say, Mr. Chairman, that it was not my intention at this time, and I thought I said it is not appropriate at this time, to specify in detail those recommendations which may seem most desirable to implement immediately.

I do want to review, however, some of the actions that have been taken and to suggest some of the areas where controversies seem to have

arisen in the testimony and on which I would like to have my views before you.

Senator PROXMIRE. Yes.

Mr. BOWMAN. There are a lot of others. I am sorry we did not debate more the question of buyers' prices versus sellers' prices, or the sampling of outlets. There are a lot of problems in this particular area.

Senator PROXMIRE. The committee has not adjourned yet. You have four opponents if you choose to take the position against buyers' prices.

Mr. BOWMAN. I do not. I agree with the position this panel has taken with respect to that.

Senator PROXMIRE. You can hardly have a debate then.

Mr. NEISWANGER. Mr. Chairman, can I amend my previous comments about the proposals Dr. Bowman has brought in?

If you will note, he says: "(9) Finally the committee recommends that small research staffs be established * * *" I would take a rather vigorous dissent, Mr. Chairman because these are very large and very complicated questions and I hope that you and your committee will not take that word "small" too seriously. I think it should read we should "establish substantial budgets for such research" and leave the question of size of staff to the technicians who will do the work.

Senator PROXMIRE. Dr. Bowman, would you like to qualify that word "small"?

Mr. BOWMAN. I mean small research staffs in the light of the agency's staff used in putting out the statistics. It would not be more than 5 or 10 people in light of the agency's overall work. I would expect that the agency might have research money to ask for research to be done at universities and other places but I would not advocate large research staffs for this particular function.

Senator PROXMIRE. Thank you very, very much.

This has been a very enlightening panel and I deeply appreciate it.

Without objection, I would like to include in the record the written statements of seven organizations and agencies in response to the subcommittee's request.

(The statements referred to follow:)

NATIONAL SHOE MANUFACTURERS ASSOCIATION, INC.,
New York 17, N.Y., April 12, 1961.

Hon. WRIGHT PATMAN,
House Office Building, Washington, D.C.

MY DEAR SIR: On April 4, 1961, I sent to Senator Paul H. Douglas a letter stating our position on the Consumer Price Index, thinking that he was still the vice-chairman of the Joint Economic Committee. I apologize for this oversight and enclose a copy of this letter for your files. Another copy of this letter has been addressed to Senator William Proxmire who I understand to be chairman on the Subcommitter on Economic Statistics.

We would very much appreciate hearing from you or Senator Proxmire if you have any questions about the position we have taken.

Sincerely,

IVER M. OLSON.
APRIL 4, 1961.

Hon. PAUL H. DOUGLAS,
Chairman, Joint Economic Committee, New Senate Office Building, Washington, D.C.

MY DEAR SIR: We understand that the Joint Economic Committee will look into the problem of the adequacy of the Consumer Price Index in May. For use by your committee, we are enclosing a copy of an analysis by the Bureau of Labor

Statistics entitled "Footwear: Prices and Average Factory Values." This study demonstrates that the Consumer Price Index for footwear reacts very sensitively to movements in prices of a basket of footwear.

The selection of footwear items to price for Consumer Price Index was made from among the different kinds purchased in volume as indicated by the BLS study of consumer expenditures in 1950. This product-mix has not been updated and it is our belief that the Consumer Price Index sample does not reflect adequately the changes that have taken place in the proportions of types of footwear being purchased.

In contrast, these shifts have been accounted for by the index of factory values of shoes, based on data collected by the census of manufactures. This is demonstrated on page 155 of the attachment. Please note from the chart that the index of factory values has remained fairly constant while Consumer Price Index has soared. Unfortunately, the excessively volatile Consumer Price Index has determined much of the public's notion about footwear values, since it receives far greater publicity than the average factory value index.

We understand that the BLS has been working on a revision of the index and of changing the base period. It is our hope, of course, that this revision will properly represent footwear currently purchased by consumers as well as during the years ahead. We are, however, concerned about the new index becoming obsolete in the same manner as the current index. Can the index itself be improved to avoid such obsolescense?

We believe that a solution to this problem would be to compute the new index from an index of average factory value of shoes by taking the estimated factory value of shipments with adjustments for retail markups and inventory changes. This approach would reflect a changing, representative basket of goods.

Please let me know if there are any other data or information that you or members of the Joint Economic Committee may require on this matter.

Sincerely yours,

IVER M. OLSON.

[From the Monthly Labor Review, February 1959—Reprint No. 2310, U.S. Department of Labor, Bureau of Labor Statistics]

SUMMARIES OF STUDIES AND REPORTS

FOOTWEAR: PRICES AND AVERAGE FACTORY VALUES

In September 1958, retail prices of shoes were 10.2 percent higher on the average than they were 3 years earlier and 30.1 percent above the average for 1947–49, as computed by the Bureau of Labor Statistics for its Consumer Price Index (CPI). Producers' prices for shoes in the Bureau's Wholesale Price Index (WPI) rose by an average of 9.4 percent in the 3 years to a level 21.9 percent above the 1947–49 average. But reports by the Bureau of the Census on manufacturers' shipments indicate that the average factory value per pair for all footwear combined has shown comparatively minor changes (apart from seasonal variation) in the last 3 years and has been at about the same level as in 1947–49 or lower since World War II except during the Korean period. The apparent discrepancies between these estimates have raised questions on the interpretation of the data.

The purpose of this article is to describe the methods used by the Bureau of Labor Statistics to measure shoe price changes in the Consumer and Wholesale Price Indexes, and to show why those estimates differ from changes in average unit values derived from Census reports.

THE PRICE INDEXES

The Bureau of Labor Statistics price indexes are designed to measure changes in prices from one period of time to another. To do this, the price comparisons are based on an identical sample of items of the same type, quality, and quantity from one pricing period to the next. Generally, the items, and the weights used in combining their prices into the indexes, remain unchanged in the period between general revisions of the indexes. If it is necessary to make a change in the list of items or in the specifications priced, the substitution is linked into the indexes in such a way as to prevent it from affecting the index level in the month it is introduced.

The Wholesale Price Index measures changes in prices of commodities in primary markets, that is, at the first commercial transaction stage for each commodity. The Consumer Price Index measures changes in retail prices for the commodities and services purchased by wage-earner and clerical-worker families for their daily living.

The type of shoes selected for pricing, the sources of prices, the pricing procedures, and the weights used in computing the footwear segment of the indexes are determined by the purpose and nature of each index, as indicated in the following sections.[1]

Footwear items priced for the indexes.

Since it is impossible to collect prices continuously for the many thousands of types of shoes available in the United States, the Bureau must necessarily base its price comparisons on samples. For both indexes, the shoes selected for pricing include the most important kinds of footwear (in terms of production or family consumption) and also those that represent the price trend for a group or family of unpriced items with similar price trends.[2]

For footwear, as well as for most other commodities in the Wholesale Price Index, data on factory shipments in the 1954 Census of Manufacturers were used to define the major categories. The importance of the various quality levels within the major categories was estimated from the 1956 Census Facts for Industry Reports,[3] which show production by manufacturers' selling prices. With these facts as a guide, the Bureau consulted with industry representatives regarding the selection and description of representative models for continuous pricing. Seventeen types and qualities of shoes were selected to represent price changes for all footwear in the Wholesale Price Index (table 1).

TABLE 1.—*Deriviation of weights for footwear in the Wholesale Price Index, January 1958* [1]

Priced item	Allocation of 1954 Census of Manufactures values to priced items [2]	
	Percent allocated	Shipments for—
Men's and boys' footwear:		
Oxford, calf upper	18	Men's, youths', and boys dress shoes.
Oxford, kip upper	33	
Oxford, side upper	49	
Work shoe, side upper	100	Men's work shoes.
	100	Men's, youths', and boys' athletic shoes.
Slippers, Romeo	100	Men's, youths', and boys' house slippers.
	100	Men's, youths', and boys' play shoes.
Women's and misses' footwear:		
Pump, Goodyear, calf	4	Women's and misses dress shoes.
Pump, cemented, calf (high quality)	7	
Pump, cemented, medium quality	38	
Pump, cemented, low-medium quality	25	
Oxford, Littleway, kid	15	
Oxford, Goodyear, side upper	11	Women's, misses', and children's athletic shoes.
	100	
House slippers, full turned	35	Women's and misses' house slippers.
House slippers, slip lasted	65	
Play shoes, slip lasted	60	Women's and misses' play shoes.
Play shoes, cemented	40	
Children's footwear:		
Stitchdown, elk upper	48	Children's, infants', and babies' shoes.
Goodyear, elk or kip upper	52	

[1] Date of last weight revision.
[2] Import values (from U.S. Imports of Merchandise for Consumption, Bureau of the Census) were added to the Census values of shipments. Price changes for minor categories of shipments not specifically shown are estimated from the weighted average for all priced footwear.

[1] For detailed descriptions of the Wholesale Price Index and the Consumer Price Index, see Techniques of Preparing Major BLS Statistical Series, (BLS Bull. 1168) chs. 9 and 10.
[2] For example, if five or six types of shoes have shown approximately the same percentage changes in prices for a period of time, the Bureau selects one for regular pricing to represent price changes for this family.
[3] Series M31A.

The selection of the footwear items to price for the Consumer Price Index was made from among the different kinds purchased in volume by the families covered by the index. A Bureau of Labor Statistics study of consumer expenditures in 1950 provided the data on what items families purchased, the number and price of each purchased, and the amount spent.[4] From this compenhensive study, the importance of different types of footwear and of all other commodities and services in the spending of index families was determined. For each of the major types, the importance of the various quality levels was estimated by tabulating the prices paid to determine the price level at which family purchasing was concentrated.[5] Seven types and qualities of shoes were selected to represent retail price changes for footwear in the Consumer Price Index (table 2). Shoe repairs are also included in the total footwear component in this index.

Weighting factors

To combine price data into index numbers, weighting factors expressed in dollars were developed from the same studies that were used for the selection of the priced items. The weight for each priced item of footwear is made up of the value for the specified shoe plus the values for all the unpriced items of footwear it was selected to represent.

For the Wholesale Price Index, the present weights are based on the values of shipments for footwear as reported in the 1954 Census of Manufactures (table 1). Direct allocations of values to the priced items were made where there was evidence or reasonable assurance of similarity of price changes. Values for the remaining census categories were distributed among the priced items. The Bureau's policy is to revise the Wholesale Price Index weighting structure each time the results of a new census of manufactures become available. The present basic weights will remain in use therefore until the 1958 Census of Manufactures data are available.

TABLE 2.—*Derivation of weights for shoes [1] in the Consumer Price Index, January 1953 [2]*

Priced item	Allocation of family expenditures as reported in the Bureau of Labor Statistics 1950 consumer expenditure survey to priced items	
	Percent allocated	Expenditure for—
Men's shoes:		
Street shoes:		
Calf or kip upper	50	Men's street or business shoes and house slippers.
Side upper	50	
Workshoes	100	Men's workshoes.
	100	Boys' [3] workshoes, sandals and sneakers.
Rubbers [4]	100	Men's sandals, sneakers, rubbers, and arctics.
	100	Women's, girls',[3] and boys' [3] rubbers, arctics, and boots.
Women's shoes:		
Street shoes:		
Oxfords	100	Women's oxfords and ties.
Pumps and sandals	56	Women's pumps, sandals, and straps; loafers and nonleather shoes; house slippers; other leather shoes.
Play shoes	44	
Children's shoes:		
Oxfords	100	Girls' [3] oxfords, pumps, loafers, and other leather shoes; nonleather shoes and house slippers.
	100	Boys' [3] street shoes and house slippers.

[1] Excluding shoe repairs, which are included in the footwear subgroup of the Consumer Price Index. Reported expenditures for shoe repairs were allocated to 2 priced items as follows: 30 percent to half soles and heels for men's street shoes and 70 percent to heel lifts for women's dress shoes.
[2] Date of last weight revision.
[3] Aged 5–15 years,
[4] Not priced after December 1954. Price change thereafter was estimated from weighted average for all other footwear items.

[4] See Technical Note on Consumer Expenditure Study, 1950: Field Methods and Purposes (in Monthly Labor Review, January 1951, pp. 56–59); Family Income, Expenditures, and Savings in 1950 (BLS Bull. 1097, Revised); and Study of Consumer Expenditures, Income and Savings, Statistical Tables, Urban U.S.—1950 (University of Pennsylvania, 1957), vols. 14 and 15.
[5] See Average Retail Prices: Collection and Calculation Techniques and Problems (BLS Bull. 1182), pp. 9–10.

The weighting factors for the Consumer Price Index were developed by the same procedures, except that the values represent the average annual purchases in 1950 by index families (brought up to 1952 by adjustments for price changes). Table 2 shows the grouping of shoe expenditures to obtain weights for the footwear component of the Consumer Price Index. There are separate expenditure weights for each commodity or service for each of the 46 cities included in the index. In the calculation of the index, the 46 cities are combined into a national figure with the use of population weights.

Pricing procedures

To assure that prices are collected for the same quality of footwear items in successive pricing periods, the Bureau has developed quality descriptions for each item, with the advice and assistance of the trade association, members of the shoe industry, and retailers. The quality guides for the important categories obtained from census reports and from family expenditures studies, which were in general descriptive terms and approximate levels of price, were translated into specifications expressed in nonprice terms.[6]

TABLE 3.—*Relative importance of individual shoes in the footwear component of the Wholesale Price Index, December 1957*

Item	Percent of total footwear
Total, footwear	100.0
Men's and boys' footwear	36.5
Oxford, calf upper	2.7
Oxford, kip upper	22.3
Oxford, side upper	2.7
Workshoe, side upper	6.5
Slippers, Romeo	2.3
Women's and misses' footwear	53.3
Pump, Goodyear, calf	1.9
Pump, cemented, calf (high quality)	5.2
Pump, cemented, medium quality	7.6
Pump, cemented, low-medium quality	12.7
Oxford, Littleway, kid	6.4
Oxford, Goodyear, side upper	9.3
House slippers, full turned	.7
House slippers, slip lasted	2.0
Play shoes, slip lasted	4.4
Play shoes, cemented	3.1
Children's footwear	10.2
Stitchdown, elk upper	6.1
Goodyear, elk or kip upper	4.1

For the Wholesale Price Index, a questionnaire is prepared containing the description of the shoe for which prices are desired along with such identification as brand name and style number of a shoe manufactured by the producer to whom the questionnaire is sent. The questionnaire also provides for reporting the type of customer accounting for the bulk of sales and the discounts which

[6] For example, a man's medium quality calf oxford is described as follows for the Consumer Price Index:
Style: Oxford, black or brown, bal or blucher; Material: Upper, calf, medium quality grade (excludes reverse calf and kangaroo); outsole, leather, semifine grade, eight to nine irons; insole, gemmed, grain leather, buffed, four to five irons or belly center or hind shanks, five to six irons; lining, quarter, full cut, calf, kip or split leather: heel pad, full cut, chrome sheep leather; heel, composition or fiber base with rubber top lift or, if not available, solid leather base with rubber top lift; construction: Goodyear welt, steel shank; size range: 6 to 11, A to D.
Specifications for all footwear items priced for the Wholesale Price Index and the Consumer Price Index are available on request.

apply, e.g., trade, cash, and quantity discounts. Such questionnaires are mailed to a sample of shoe producers every month to obtain prices for the specified shoe. When a producer no longer makes the specified shoe, or when it ceases to represent a significant volume of his shipments, he is requested to substitute prices for the shoe of the most nearly comparable quality in his line, and to supply its description. For each shoe, producers' selling prices are obtained from a minimum of three manufacturers.

TABLE 4.—*Relative importance of individual items in the footwear component*[1] *of the Consumer Price Index, December 1957*

Item	Percent of total shoes
Total shoes	100.0
Men's shoes	35.4
Street shoes:	
Calf or kip upper	23.7
Side upper	
Work shoes	11.7
Women's shoes	40.3
Street shoes:	
Oxfords	28.3
Pumps and sandals	
Play shoes	12.0
Children's oxfords	24.3

[1] Excluding shoe repairs. Shoes represented 89 percent and shoe repairs 11 percent of total footwear in December 1957.

For the Consumer Price Index, prices are collected by personal visit of trained field representatives to retail stores in 46 cities. The stores visited include all the important types in which the specified qualities of shoes are sold, such as chain and independent specialty and family shoe stores, department stores, and others. In each store, prices are obtained for the specified qualities and additional identifying details are recorded so that prices for the same number can be obtained in succeeding price collections. When it is necessary to make a substitution because the retailer has discontinued the shoe for any reason, he is requested to report prices for the most nearly comparable number. For each item, a minimum of four quotations are obtained in each city. A review of the sample of outlets reporting retail prices to the Bureau is now in progress to assure that the sample is representative of shoe stores selling to wage-earner and clerical-worker families in each city. In some cities, the sample of stores will be enlarged to include suburban stores.

Calculation of the indexes

Both indexes are calculated as weighted averages of price relatives. For each item, an unweighted average of prices reported for the current period is compared with the average from the same producers or retailers in the preceding period. The percentage change is then applied to the value weight for the preceding period, and the current value weight thus derived is compared with that in the base period (1947–49) to derive the index. The procedure is equivalent to getting the total cost at current prices for a fixed number of pairs of shoes of a specified quality and dividing by the total cost for the same shoes in the base period.

TABLE 5.—*Percent changes in shoe prices: Average factory value per pair and the footwear components of the Wholesale Price Index and Consumer Price Index, selected periods*

Period	Average factory value per pair	Footwear components of the—	
		Wholesale Price Index	Consumer Price Index
1947–49 average–Sept. 1958	0	+21.9	[1]+30.1
Sept. 1947–Sept. 1950	−5.4	+12.4	+10.7
Sept. 1950–Sept. 1951	+15.4	+12.9	+13.7
Sept. 1951–Sept. 1952	−10.7	−9.3	−4.5
Sept. 1952–Sept. 1955	−1.4	+0.7	+3.4
Sept. 1955–Sept. 1958	+2.6	+9.4	+10.2

[1] If shoe repairs are excluded, the change is 29.7 percent.

SOURCE: Average factory value computed from Bureau of the Census Facts for Industry, M31A. Price indexes from Bureau of Labor Statistics.

The relative importance of the priced items in the December 1957 footwear indexes are shown in tables 3 and 4. Footwear represented 0.8 percent of all items in the Wholesale Price Index and 1.5 percent of all items in the Consumer Price Index. These figures were obtained by calculating the percentage distribution of the values in the December 1957 indexes.

THE AVERAGE FACTORY VALUE PER PAIR

The average factory value per pair is derived from the monthly reports of estimated factory shipments of footwear issued by the Bureau of the Census.[7] These reports show the total number of pairs shipped and the total value for all footwear.

A simple division of total value of shipments by total number of pairs shipped produces the average factory value per pair. It must be emphasized that the figure thus derived is not a price index. This average is affected not only by price changes but by changes in the relative quantities of shoes of different types included in the total shipments. For example, if 90 of every 100 pairs of shoes shipped in a year were men's dress shoes valued at $5 each and the remaining 10 pairs were house slippers valued at $2 each, the average factory value would be $4.70 per pair. If, in the next year, 80 pairs of the $5 dress shoes and 20 pairs of the $2 house slippers were shipped, the average factory value would be $4.40 per pair, or a decrease of almost 6½ percent.

TABLE 6.—*Percent of total footwear production (in pairs) accounted for by four major types, 1947–57*

Year	Men's shoes, other than work	Women's dress and work shoes	Women's sandals and play shoes	House slippers
1947	17.9	35.1	8.8	9.0
1948	16.2	30.4	12.4	9.9
1949	15.1	29.9	13.8	11.5
1950	14.7	30.8	14.4	11.1
1951	15.0	30.2	14.2	10.1
1952	14.8	30.7	15.7	9.9
1953	14.7	30.5	14.2	11.2
1954	13.8	32.7	13.5	10.7
1955	13.3	30.2	16.1	11.6
1956	13.4	30.6	15.7	11.4
1957	13.1	30.0	16.2	11.9

Source: U.S. Bureau of the Census: 1947 to 1953—Shoes and Slippers, 1947–1955 (Series M68A–05 Supplement, March 1957); 1954 to 1957—Facts for Industry (Series M31A–05 to 07).

[7] See footnote 3.

In the shoe industry, such variations in the proportions of types and qualities of shoes are usual and are sometimes accompanied by changes in price for all or for part of the lines produced. The trend in the average factory value per pair would correspond closely to the trend of footwear prices only if the shoe industry produced approximately the same proportions of different types of shoes from one year to the next, and maintained the same proportion of production by quality or price line. As industry conditions are not usually so static, the trend of average factory value per pair rarely conforms to price trends.

It is apparent that the price indexes and the averages of factory values are quite different figures and should not be used for the same purpose. Failure to appreciate these differences has led to frequent misuse of both measures. Thus, for example, the shoe price index in the Consumer Price Index is sometimes used to estimate trends in aggregate consumer expenditures for shoes. This is clearly incorrect. Short of an actual field survey, the trend in consumer expenditures could, however, be estimated from the factory value of shipments, with adjustments for retail markups and inventory changes.

TABLE 7.—*Average factory value per pair and percent of total value of factory shoe shipments, four shoe categories, 1947 and 1954*

Category	Average factory value per pair			Percent of total value of factory shoe shipments	
	1947	1954	Percent change	1947	1954
Men's shoes, other than work	$5.49	$6.22	+13.3	17.7	13.1
Women's dress and work shoes	4.27	4.06	−5.0	38.2	33.2
Women's sandals and play shoes	2.48	2.27	−8.5	6.1	13.4
House slippers	1.74	1.65	−5.2	9.0	10.6

Source: Bureau of the Census, 1954 Census of Manufactures, vol. II, pt. 2, p. 31A–16.

TRENDS SINCE WORLD WAR II

In September 1958, producers' prices for footwear were 21.9 percent higher than the 3-year average for 1947–49, consumer prices were 30.1 percent higher, and average factory value per pair was the same as the 1947–49 average. Except for the Korean period, when all three measures moved up and subsequently declined, average factory value per pair had a general downward trend for the post-World War II years, while prices were generally rising (table 5).

The accompanying chart shows the annual average indexes for the three series, beginning with 1947, as well as monthly indexes for recent years. The wide month-to-month fluctuations in factory values are produced by seasonal variations in product mix, which do not, of course, affect the price indexes. In comparing trends of prices at the producer and consumer levels as shown by the Bureau's two price indexes, it must be remembered that the Consumer Price Index component is limited to the kinds and qualities purchased by wage-earner and clerical-worker families in 1950, whereas the Wholesale Price Index covers all kinds and qualities.

While it is not the purpose of this article to describe in detail the movements of the wholesale and retail shoe price indexes, some features of the two series should be noted. Both series approximately coincided during the first 3 years shown on the chart. In 1950, the impact of the Korean crisis affected both series. Wholesale shoe prices rose very sharply, the monthly index increasing by 21.4 percent between June 1950 and February 1951. Shoe prices at retail also increased, but at a somewhat slower pace.

Prices and Average Factory Values of Footwear, 1947–58

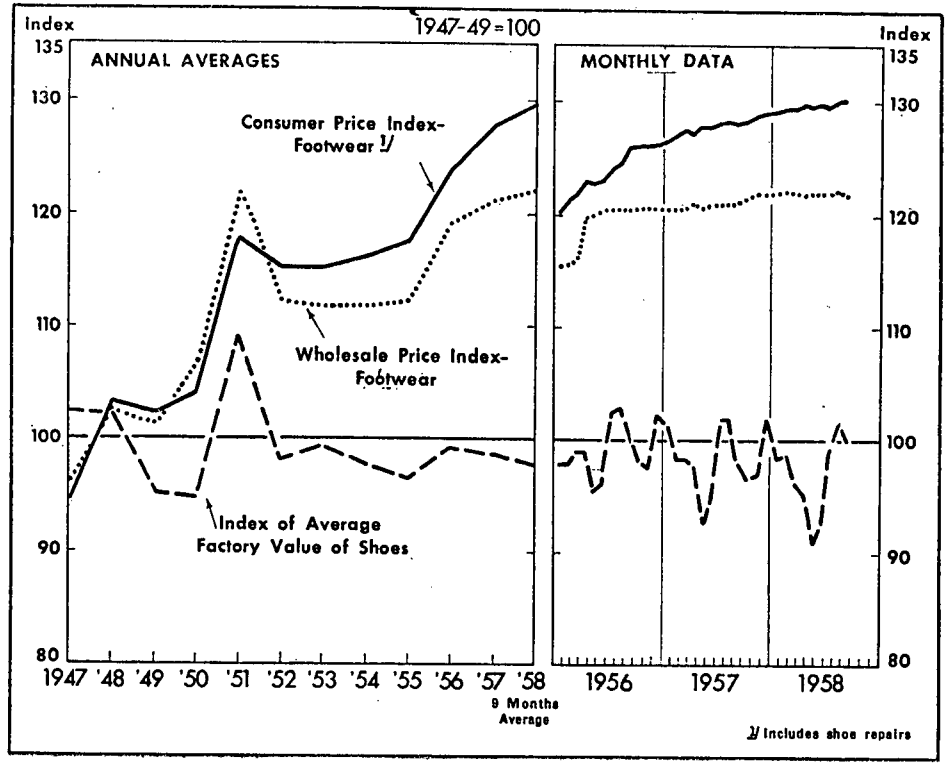


TABLE 8.—*Percent changes for footwear items in the Wholesale Price Index, selected periods*

Item	1947–49 average to September 1958	January 1947 to June 1950	June 1950 to March 1951	March 1951 to June 1952	June 1952 to September 1955	September 1955 to September 1958
Total footwear	+21.9	+9.1	+19.9	−9.8	+0.4	+9.4
Men's and boys' footwear	+22.9	+10.1	+22.0	−13.0	+.6	+11.5
Oxford, calf upper	+19.9	+10.7	+23.0	−11.7	+2.5	+6.2
Oxford, kip upper	+26.1	+8.4	+23.7	−10.1	+.9	+10.0
Oxford, side upper	+24.4	+11.7	+20.3	−14.0	+1.4	+13.1
Workshoe, side upper	+15.5	+3.3	+28.4	−15.1	−3.3	+10.6
Slippers, Romeo	+28.1	+10.0	+22.9	−4.5	−1.3	+10.5
Women's and misses footwear	+22.2	+9.4	+18.8	−7.5	−.1	+8.3
Pump, Goodyear, calf	+15.8	+11.9	+8.9	−1.8	+2.2	+1.8
Pump, cemented, calf (high quality)	+30.6	+16.0	+13.1	−4.6	+1.0	+13.0
Pump, cemented, medium quality	+15.9	+6.1	+18.2	−10.8	−.1	+7.0
Pump, cemented, low-medium quality	+18.7	+12.4	+16.2	−6.8	−.5	+5.7
Oxford, Littleway, kid	+18.7	+7.4	+20.4	−8.8	+1.0	+6.9
Oxford, Goodyear, side upper	+33.9	+7.9	+27.5	−8.1	−.6	+14.6
House slippers, full turned	−1.8	−3.8	+19.9	−18.3	+2.2	0
House slippers, slip lasted	+6.4	+1.1	+10.5	−.5	−.6	−1.5
Play shoes, slip lasted	+29.0	+8.8	+22.6	−4.7	−2.5	+8.1
Play shoes, cemented	[1] +27.1		+24.6	−10.6	−.3	+13.0
Children's footwear	+15.0	+2.6	+17.2	−10.9	+2.1	+7.7
Stitchdown, elk upper	+11.8	+1.4	+18.9	−13.1	+2.0	+7.1
Goodyear, elk or kip upper	+19.9	+4.2	+15.0	−7.9	+2.6	+8.4

[1] Percent change from January 1950 to June 1958. Cemented play shoes were added to the list of priced items in January 1950.

The wholesale index began to decline after February 1951, whereas the Consumer Price Index shoe price series did not turn downward until November of that year. At that point, the two indexes were nearly indentical, at about 20 percent above their 1947–49 average. From the February 1951 peak, the wholesale shoe price index dropped by 11.3 percent to a post-Korea low in July 1952, but the retail index again lagged and showed a much smaller decline. The retail shoe price index has, since 1951, maintained a higher level than the wholesale index

The most significant factor in the decline of average factory value per pair was the variation in the proportions of types of shoes produced.[8] Between 1947 and 1957, the share of total footwear product represented by men's and women's dress and street shoes declined from 53 percent to about 43 percent (table 6). During this 10-year period, house slippers and women's sandals and play shoes combined increased from 18 to 28 percent of total number of pairs produced. The lower value per pair for such shoes reduced the average factory value for all shoes.

Another factor apparently contributing to the lower level of average factory value per pair in some years was the shift from higher to lower price lines within categories. (Information on production by factory price lines is not available for all years.) For all women's shoes, for example, the changes in the brief period from 1953 to 1955, were rather striking. In 1953, the number of pairs valued at $3 or less was 53.6 percent of all women's shoes, while in 1955, this price class had risen to 56.2 percent of the total. The share for the higher priced shoes ($7.21 or more at the factory) dropped from 7.9 percent in 1953 to 5.4 percent in 1955. In 1956, the higher price lines became somewhat more important but did not regain their 1953 position.

[8] Differences between annual shipment figures, on which the average value series is based but which are not shown separately by types, and production figures included in this paragraph are relatively minor.

TABLE 9.—*Percent changes for footwear items in the Consumer Price Index, selected periods*

Item	1947-49 average to September 1958	March 1947 to June 1950	June 1950 to September 1951	September 1951 to September 1952	September 1952 to September 1955	September 1955 to September 1958
Total footwear	[1] +30.1	+9.2	+17.1	−4.5	+3.4	+10.2
Men's street shoes:						
Calf or kip upper	+28.6	+10.0	+19.9	−5.0	+4.0	+5.8
Side upper						
Men's work shoes	+29.5	+3.9	+22.1	−5.8	+1.0	+13.7
Women's street shoes:						
Oxfords	+26.7	+6.9	+15.6	−6.6	+5.2	+11.4
Pumps and sandals						
Women's play shoes					[2] +4.5	+7.8
Children's oxfords	+35.8	+8.6	+16.7	−3.0	+4.7	+13.0

[1] If shoe repairs are excluded, the change is 29.7 percent.
[2] Percent change from December 1952 to September 1955. Play shoes were added to the list of priced item in December 1952.

The only information on what happened to average factory value by type of shoe is that contained in the 1947 and 1954 Census of Manufactures. Table 7 shows the changes in average factory value per pair for the four major categories and their share of total value for all shoes shipped.

Price changes for the various types and qualities of shoes included in the Bureau's price indexes have shown considerable similarity since 1947. Table 8 shows the percentage changes in prices for the individual footwear items in the wholesale price index for specified periods and table 9 the percentage changes for footwear items in the Consumer Price Index.

A brief mention should be made of the possible effects of revising the weights in the price indexes to take account of the changes in production and consumption since the last revisions. The similarity of price movement among the items in each of the indexes suggests that the use of current weights would have little effect on the movement of the price indexes for all footwear combined, so long as the price changes were computed from prices for the same qualities from one period to the next.

ETHEL D. HOOVER AND HARRY KAHAN,
Division of Prices and Cost of Living.

THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE,
Washington, May 8, 1961.

HON. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economic Statistics, Joint Economic Committee, Congress of the United States, Washington, D.C.

DEAR SENATOR PROXMIRE: The opportunity offered in your letter of April 17, 1961, for expression of the views of the Department of Health, Education, and Welfare with regard to the report on the price statistics of the Federal Government is deeply appreciated.

Copies of your letter, together with copies of your subcommittee's hearings on Government price statistics, which contained the text of the report, were circulated for comment to the constituent agencies of this Department. The responses may be summarized very briefly as expressing strong agreement with and support of the report submitted to the Bureau of the Budget by the National Bureau of Economic Research. Certain recommendations were singled out for special emphasis, and special aspects of price statistics which are of particular significance to the programs of this Department were stressed. The attached statement sets forth these views in more detail.

This Department, in its development and administration of programs in health, education, and welfare, must rely upon Government price statistics, and especially the Consumer Price Index, in order to measure the economic needs of the people served by its programs. The interest of the Joint Economic Com-

mittee, as evidenced by the current hearings and distribution of the report, in bringing about improvements in these statistics is most encouraging.

Sincerely yours,

WILBUR J. COHEN,
Assistant Secretary.

COMMENTS ON REPORT ON "THE PRICE STATISTICS OF THE FEDERAL GOVERNMENT" BY THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

The Social Security Administration urges strong support of the four general recommendations summarized on page 21 which are aimed at improving the quality of all price indexes. The principal interest is in improvement of the Consumer Price Index. Development of a comprehensive index appropriate to measurement of changes in national welfare and to accurate deflation of the national accounts would be desirable. At the same time, the suggestions for development of indexes for special subclasses of the population are strongly supported. Furthermore, modification of the Consumer Price Index in the direction of a welfare or cost-of-living (constant-utility) index, as recommended by the Committee (p. 55) would make it much more useful for most social security purposes, even if released only on an annual basis, than the fixed market-basket index now issued.

The analysis undertaken for staff paper No. 7 suggests on the one hand that there could well be significant problems of interpretation if a family of subindexes were developed, and on the other, that differences between certain subindexes and a general index might be small. It is clearly noted, however, that adequate data to test the hypothenses are lacking. We would strongly urge, therefore, that funds be made available both to allow the special research units recommended to design experimental studies in this area and also to provide for collection of the retail price data necessary to carry them through. Indexes for the low-income population stratified by such characteristics as age, family type, size of community, etc. (as suggested on pp. 370–371) would be of material aid in appraisal and development of the social security programs. A special index for the aged, in particular, has frequently been urged and it could be very useful. More work is needed, however, to determine whether an index should be developed for all the aged, or for the retired aged only, and whether or not such an index would differ significantly from one for the general population.

Improvement of the medical care price index is of great interest to this agency because of concern with financing medical care. The committee's suggestions as to quality changes and treatment of new products in the index (pp. 35–39) are particularly important in respect to this category. They could greatly increase the validity of the group and subgroup indexes for medical care in the light of the rapid changes in treatment methods and drug innovations. In this connection, too, the suggestions for improving the item and outlet samples should receive particular attention in the case of medical services. Some specific problems and suggestions in this respect discussed in "Medical Care in the Consumer Price Index, 1936–56" by Langford in the *Monthly Labor Review* for September 1957 might well be considered.

It is suggested that any research undertaken regarding treatment of insurance and Government services and taxes should (as suggested on pp. 54–55) cover not only the aspects indicated by the committee but also the proper treatment of payroll taxes as for old-age, survivors, and disability insurance, railroad retirement, temporary disability insurance, etc., and income taxes.

The Public Health Service calls attention to the importance of a number of problem areas in the medical care component of the Consumer Price Index, stressing particularly changes in quality of medical care, lagtime in adjusting for new components of the medical care "marketbasket," and the small number of samplings made.

The committee's suggestion for development of a Consumer Price Index for the whole population and not, as at present, merely for the urban-worker family, is strongly endorsed. The index of prices paid by farmers for family living appears to need considerable reexamination. The suggestion that data on the spending patterns of farm families be incorporated into a revised and broader Consumer Price Index has a great deal of merit. In addition, the need for development of a Consumer Price Index for the aged is stressed since their expenditure pattern, both in medical care and in other areas, departs markedly from that of an urban-worker family.

The Office of Vocational Rehabilitation singles out, for special emphasis and support, recommendations calling for: (1) periodic publication of the full description of the methods by which each index is constructed; (2) review of the respective index programs by independent but closely-related research units, in order to reexamine basic conceptual problems and experiment with new methods of collecting and analyzing data; (3) extension of the Consumer Price Index to make it a more comprehensive index for the entire population, suitable for general policy and scientific needs, but with special group indexes (e.g., by income level); (4) measurement of the precision of the indexes through the use of probability sampling; and (5) more frequent revision of weight bases, in our rapidly changing economy.

The Food and Drug Administration notes the emphasis given to changes such as the introduction of new products, quality changes, and seasonality, and would call attention to the need also for observing variations in quantity. The consumer may receive less value in a given product as a result of deceptive packaging and short weight.

The Office of Education has an interest in an index of public school prices, since such an index would be useful in analyzing school finances and might ultimately have implications for legislative allotments of Federal funds.

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM,
Washington, May 5, 1961.

HON. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economic Statistics, Joint Economic Committee, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: With further reference to your letter of April 17, 1961, the Board of Governors and its staff since the very early years of the Federal Reserve System have participated in programs to develop and improve economic statistics. Policy formulation in the areas of the Board's responsibility obviously requires as complete and detailed analysis of economic developments as possible. The quantity and quality of economic statistics have increased substantially over the years, permitting analyses of greater insight and more timeliness. At the same time, standards of economic understanding performance have been raised, creating continuous demands for still more and still better information. In this area, perhaps, demands are never excessive. We endorse worthwhile efforts to improve economic statistics generally, and particularly price statistics.

With regard to the report on the price statistics of the Federal Government, we agree with the emphasis given to the collection of good basic data on a broad scale in both wholesale and retail markets as well as to the improvement of the broad indexes. The basic data have many uses in the calculation and interpretation of other statistics, including those for production, productivity, and sales in terms of constant dollars. Good basic data are of great importance in the interpretation of price trends, moreover, for no single index can be relied upon for this purpose. Also with these considerations in mind, serious consideration should be given to the recommendation in the report for research on prices of tangible assets and on prices in other market areas where little or no price information is presently available.

Sincerely yours,

C. CANBY BALDERSTON,
Vice Chairman.

HOUSING AND HOME FINANCE AGENCY,
Washington, D.C., May 5, 1961.

HON. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economic Statistics, Joint Economic Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR PROXMIRE: It would be presumptuous to attempt in a short time to comment in detail upon the extensive report on the price statistics of the Federal Government prepared for the Bureau of the Budget by the Price Statistics Review Committee of the National Bureau of Economic Research. The report and the supplemental staff papers seem to make a very able presentation of the problems involved in the very difficult and complex area of price measurement. I do not believe that we can add anything of substance to the wealth of technical background that has been presented.

I do, however, want to emphasize the great importance that price statistics have to this Agency, especially in its work in general policy formulation in the areas of housing and urban renewal. We are particularly concerned with statistics which can shed light upon the cost of adequate shelter, the components of such costs and how they change in level over time.

Specifically, we have a need for reliable indexes of price movements in rental housing, in the elements of housing expense such as water, gas, electricity, coal and fuel oil, home furnishings and household operations. Similarly we have an active continuing need for good indicators of levels and trends in the costs of home ownership including, in addition to the foregoing elements of housing expense, such items as sales price of new and existing homes, mortgage interest rates, taxes, and insurance premiums, along with trends in the elements of home maintenance costs. Equally important are good price indexes of the costs of land, both raw and developed, of building materials and of building labor.

Many of these items in which we have an interest are already components of the Consumer Price Index. Some, notably purchase prices of new and existing houses, interest, taxes, insurance, home maintenance expenses, land costs, and residential materials and labor, either are not now gathered or if collected are not now reported separately. I fully recognize the many technical problems involved in the development of adequate price indicators for all the items in which we are interested. Nonetheless, it would be my hope that while the subject is being explored, full consideration can be given to the full array of price items we have listed above in this letter.

While the Consumers' Price Index is being reviewed, I would like to bring to your attention the fact that there are technicians who feel that the procedures currently being used in developing the housing component of the index lead to an understatement of the level of housing expense. This is certainly a matter which bears looking into so that if need be appropriate steps may be taken to remedy the situation.

It is most encouraging that your subcommittee has been holding hearings on this very important subject. I sincerely hope that as a result, the efforts of the Bureau of the Budget and the Bureau of Labor Statistics to improve and broaden the coverage of the price statistics of the Federal Government will get a further impetus.

Sincerely yours,

ROBERT C. WEAVER,
Administrator.

NATIONAL PLANNING ASSOCIATION,
Washington, D.C., April 27, 1961.

Hon. WILLIAM PROXMIRE
New Senate Office Building,
Washington, D.C.

DEAR SENATOR: Your letter of April 17th addressed to Mr. Sonne has been referred to me for reply. We appreciate your asking for our views concerning the recent report on the price statistics of the Federal Government which has recently been prepared for the Bureau of the Budget by a special committee from the National Bureau of Economic Research.

A very thorough and painstaking job has been done by this special committee.

The National Planning Association has been very interested in this field. A staff representative of National Planning Association has attended the Federal Statistics Users' Conference on Federal price statistics on March 17th.

We are in general agreement with the committee's recommendations aimed at improving the quality of the price indexes. We are conscious, however, that for a task of this magnitude, and bearing in mind the limitation of resources that can be assigned to a revision of price statistics, certain priorities must necessarily be established.

Turning now to the more specific recommendations, we have the following comments:

I. All Indexes.—We feel that priority should be assigned to give funds for research divisions for price collecting agencies (recommendation No. 4). The early adoption of this recommendation would help immeasurably to implement as many of the other recommendations as possible with the least friction and dislocation of existing arrangements.

We are in agreement with the suggestions for periodical weight revisions every 5 years, and with the recommendation that new commodities could be introduced more promptly. Concerning the desirability of probability sampling, we feel that this should be one of the tasks the research divisions could properly evaluate.

II. Consumer Price Index.—We are in general agreement with the committee's recommendations but feel a comprehensive index for the entire population should have a somewhat lower priority, in view of the many difficulties that would be experienced in the collection and proper evaluation of data for such an index.

III. Wholesale Price Index.—We are in sympathy with the committee's recommendations for revisions of this index and its reclassification of a five-digit commodity basis. We particularly appreciate that this will result in greater accuracy in the measurement of the implicit price deflators of an important sector of the gross national product. We have some doubts, however, that collection of transaction prices from buyers (instead of from sellers as before) would really be an improvement on existing methods. Before adopting this proposal, we suggest that some pilot studies might usefully be made.

IV. Agricultural Indexes.—The committee's recommendations are excellent, but in this field the indexes are often set up in response to legislative requirements and these may not be changed easily.

In general, we have two further suggestions:

It is our belief that the "services" sector is underrepresented in the collection of our present price statistics. Possibly the recommendation for a revision of weights on a 5-year basis may do something to correct this imbalance, but this problem requires further attention.

In addition, we suggest that the feasibility of constructing an index that takes account of public services should be studied since we feel that these will become increasingly important in the years ahead. Such a more comprehensive index, taking adequate account of all services—both rendered by the private as well as by the public sector would be useful in measuring overall improvements in the real standard of living.

In conclusion, we wish to express our hope that as many as possible of the excellent recommendations made by the special committee be adopted speedily.

Sincerely yours,

GERHARD COLM, *Chief Economist.*

NATIONAL ASSOCIATION OF MANUFACTURERS,
New York, N.Y., May 1, 1961.

Senator WILLIAM PROXMIRE,
Chairman, Subcommittee on Economic Statistics, Joint Economic Committee, Congress of the United States, Washington, D.C.

DEAR SENATOR PROXMIRE: Thank you for your invitation to the National Association of Manufacturers to comment for the record on the report on "The Price Statistics of the Federal Government." Our president, Mr. John W. McGovern, has asked me to send you our views.

Government price statistics are of great interest to our association and to the great majority of our member companies and we appreciate this opportunity to offer some observations with respect to the report on Government price statistics prepared by the price review committee of the National Bureau of Economic Research.

Many of the proposals offered by this committee are quite far reaching in their effects on the concepts and procedures used currently in compiling price indexes. In most cases these proposals have great appeal from a strictly logical point of view. We would be quite hesitant, however, in recommending the abandonment of present concepts and procedures in favor of the new proposals, until the latter had been thoroughly tested in regard to their feasibility and meaningfulness. We might find, for example, that despite the theoretical advantages of the proposed concepts, the existing indexes have an offsetting advantage in that they are more amenable to precise definition and measurement.

In this regard we are particularly concerned with the proposal that the Consumer Price Index be changed to a welfare or constant-utility concept. The subjective decisions and assumptions inherent in such a suggestion may tend to destroy the acceptance of that price index as a measure of changes in consumer prices. The price review committee, further, did not demonstrate that such a welfare index could be compiled and, if it could, that it would satisfy

the current uses of the Consumer Price Index or that it would be a desirable replacement for the Consumer Price Index.

The price review committee also expressed concern over the failure of present price indexes to take account fully of quality changes. This is a problem which has long been recognized. It is a field in which continued research should be carried on. We are not sure, however, that it can presently be established that the net effect of this factor is to create a systematic bias in the general price indexes.

The price review committee's suggestion that the Wholesale Price Index be compiled on a buyer's rather than a seller's basis has certain merits, though there was no claim made that the trend of such an index would be materially different from that of the current method of compilation. While fluctuations in particular products or product groups would undoubtedly be more frequent, the basic purposes for which the index is used would not be altered and the more frequent fluctuations of the proposed index might be misleading.

We believe that the committee's recommendations for publication of a full description of the methods used in the current price indexes, for greater research into the problems surrounding the compilation of indexes, and for examination of the feasibility and need for additional price index series have merit and should be investigated further. However, some of the ideas proposed appear to be impractical, to overestimate the development of the art, or to require additional funds that would not be justified by the results.

Therefore, we believe that the committee's report should be regarded as a starting point for further research and a basis for discussion as to future programs aimed at increasing the accuracy and usefulness of Government price statistics. We would be sorry to see it regarded as a plan or changes to be undertaken immediately.

Sincerely yours,

JAMES R. BEATON, *Assistant Director of Research.*

AMERICAN FEDERATION OF LABOR AND
CONGRESS OF INDUSTRIAL ORGANIZATIONS,
Washington, D.C., May 5, 1961.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economic Statistics, Joint Economic Committee, Senate Office Building, Washington, D.C.

DEAR SENATOR PROXMIRE: I appreciate the opportunity you afforded me to comment on the report prepared on "The Price Statistics of the Federal Government."

We think that the committee has performed a most useful service in reviewing these price statistics. It is important that a professionally qualified group of outsiders review at regular intervals the Government's professional work in the field of statistics. Only in this way will the users of these figures retain full confidence in them.

The committee has made a number of useful recommendations. There is no need for me to comment on most of them. A member of our research staff, Mr. Bert Seidman, as well as Mr. Lazare Teper, research director, International Ladies' Garment Workers Union, have participated in the hearings of your committee and the views they have submitted generally represent the thinking of the AFL–CIO.

I would only like to comment on two points that particularly affect the usefulness of these price statistics for the labor movement.

I am sure you realize the importance of the Consumer Price Index for collective bargaining purposes. Both union and employer negotiators have expressed confidence in the present structure of the index by utilizing it to reflect the effect of price changes on the purchasing power of workers' wage rates. I think it is to be regretted that no member of the Price Statistics Review Committee had direct experience with the role that the index plays in collective bargaining. As a result, some of the Committee's recommendations seem to have been made without recognizing some of their practical effects on the usefulness of the index for bargaining purposes.

This is true, for example, of some Committee recommendations directed toward developing more highly refined procedures for the Consumer Price Index. This includes recommendations looking toward a welfare type of index, as well as proposals that the index be seasonally adjusted and that for each month the figures be issued first on a preliminary and then on a final basis. These refinements may or may not be desirable from the standpoint of economic theory, but they would not enhance the usefulness of the index for collective bargaining

purposes. Rather, they would tend to confuse union and employer representatives by introducing controversial matters which have little bearing on the actual course of prices.

The second point I wish to mention concerns the degree of price change experienced by the American economy. There has been some dispute on this question among professional economists. The basic measuring rod for determining the extent of inflation has been the price indexes of the Federal Government. From these indexes it should be possible, for example, to determine the extent, if any, that the indicators of basic economic activity such as the gross national product are affected by price changes as distinct from changes in physical activity. Similarly, it should be possible to determine to what extent, if any, changes in incomes are offset by changes in prices. These are very important questions as I am sure you realize.

The report before your committee very properly urges increased research work into this problem by the price statistics agencies of the Government. We think it is particularly important that additional research be done to determine to what extent, if any, changes in quality do affect the behavior of the various price indexes. Such findings will have an important bearing on the measurement of true price changes.

Thank you for this opportunity of making these few comments in connection with your committee's hearings.

Sincerely,

GEORGE MEANY, *President.*

Senator PROXMIRE. Thank you very much.

The committee stands adjourned.

(Whereupon, at 12:35 p.m., the hearings closed, the subcommittee to reconvene at the call of the Chair.)