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GOVERNMENT PRICE STATISTICS

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A REPORT  
OF THE  
SUBCOMMITTEE ON ECONOMIC STATISTICS  
OF THE  
JOINT ECONOMIC COMMITTEE  
CONGRESS OF THE UNITED STATES



JULY 1966

Printed for the use of the Joint Economic Committee

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## LETTERS OF TRANSMITTAL

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JULY 12, 1966.

*To the Members of the Joint Economic Committee:*

Transmitted herewith, for your consideration and use and for the use of other Members of Congress and other interested parties, is a report entitled, "Government Price Statistics" by the Subcommittee on Economic Statistics.

Sincerely,

WRIGHT PATMAN,  
*Chairman, Joint Economic Committee.*

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JULY 11, 1966.

HON. WRIGHT PATMAN,  
*Chairman, Joint Economic Committee,  
U.S. Congress, Washington, D.C.*

DEAR MR. CHAIRMAN: Transmitted herewith is a report of the Subcommittee on Economic Statistics on "Government Price Statistics."

This report summarizes our findings and contains our recommendations based on hearings held May 25, 26, and 27. By means of these hearings, the Subcommittee has reviewed the progress made by the statistical agencies in implementing past recommendations of this subcommittee and of the Price Statistics Review Committee of 1961; and it has heard testimony on the uses of price information in diagnosing inflation, the limitations of the data, and their adequacy for policy requirements. The hearings were particularly timely in view of the recent price advances and present concern over inflationary pressures.

Witnesses generally expressed disappointment that so little progress has been made in implementing past recommendations. There is widespread recognition that our price information is not adequate for the burden of public and private policy formulation that it must carry. Better price statistics are urgently called for, since they are necessary in making decisions affecting billions of dollars in output, but more importantly—the well-being of the American people.

The report concludes that the additional cost of substantially improved price statistics would be small in relation to the benefits in terms of more timely, reliable, and comprehensive price information, which is so necessary if economic policy is to remain meaningful in our highly complex economy.

We wish to thank the witnesses for their excellent prepared statements and observations. The participating witnesses were:

Jules Backman, Research Professor of Economics, New York University.

Raymond T. Bowman, Assistant Director for Statistical Standards, Bureau of the Budget.

Solomon Fabricant, formerly Director of Research, and now a Director at Large, National Bureau of Economic Research.

Nathan M. Koffsky, Director of Agricultural Economics, U.S. Department of Agriculture.

Irving B. Kravis, National Bureau of Economic Research and Professor of Economics, the University of Pennsylvania.

Arthur M. Ross, Commissioner, Bureau of Labor Statistics.

Richard Ruggles, Professor of Economics, Yale University.

Lazare Teper, Director of Research, International Ladies' Garment Workers' Union.

Sincerely yours,

WILLIAM PROXMIRE,  
*Chairman, Subcommittee on Economic Statistics.*

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# GOVERNMENT PRICE STATISTICS

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## INTRODUCTION

Economic policy, both public and private, is no better than the information on which it is based. For maximum value, economic intelligence must be accurate, comprehensive, and promptly available. One large and basic body of economic data where this is particularly true involves prices, price trends, and their measurement. A major concern of the Joint Economic Committee is that government economic policy and its own policy recommendations be based on reliable price information.

Specific public policy decisions dependent on price information include promoting maximum employment and stable economic growth, and maintaining broad principles of economic equity. Reliable price indexes are, thus, prerequisite to—

- (1) measuring economic output;
- (2) recognizing inflation;
- (3) diagnosing imbalances in the economy;
- (4) measuring consumer welfare; and
- (5) preserving economic equity among income groups.

Accordingly, the Subcommittee on Economic Statistics has kept a watchful eye on the construction of price indexes, and on several occasions has studied their reliability and comprehensiveness for analytical uses.

On May 25, 26, and 27 of this year, the Subcommittee on Economic Statistics held further hearings on Government Price Statistics to review the progress made by the statistical agencies, especially with reference to the findings and recommendations of the Price Statistics Review Committee of 1961.<sup>1</sup> That penetrating and thorough report was the focus of earlier hearings by this subcommittee which, in turn, led to its recommendations contained in a report dated July 21, 1961.<sup>2</sup>

The subcommittee also heard testimony on the uses of price information in diagnosing inflation, the limitations of the data, and their adequacy for present policy requirements. The hearings were particularly timely because of the recent price advances and present concern over inflationary pressures.

The members of the subcommittee are aware of national budgetary constraints and of the budgetary difficulties of the agencies which produce, maintain, and disseminate our Government statistics. We hope that the subcommittee's hearings have provided a forum for weighing priorities and alternatives, and that they will spur the producing agencies to undertake more careful planning in the search for

<sup>1</sup> The Price Statistics Review Committee was organized by the National Bureau of Economic Research at the request of the Bureau of the Budget. This Committee, popularly called the Stigler Committee after its Chairman, Prof. George Stigler, of the University of Chicago, submitted a report: "The Price Statistics of the Federal Government," which was included in the record of the hearings on "Government Price Statistics," held before the Subcommittee on Economic Statistics, 87th Cong., 1st sess.

<sup>2</sup> "Government Price Statistics," Report of the Subcommittee on Economic Statistics, July 21, 1961.

improvements in the reliability and timeliness of our price statistics, while keeping in mind the overall necessity for economy. Moreover, the needed information should be obtained with a minimum burden upon business enterprises and persons.

This report concentrates on some of the major issues of price statistics in relation to effective public policy. Particularly, attention is directed to the reliability, coverage, and uses of the data with reference to the recommendations of the Price Statistics Review Committee of 1961.

## I. PREVIOUS RECOMMENDATIONS AND THEIR IMPLEMENTATION

### PREVIOUS RECOMMENDATIONS

The Price Statistics Review Committee, referred to above, summarized its own recommendations for improving the quality of the major price indexes, as follows:

#### I. All indexes:

1. Schedules of periodical revisions of weight should be adopted.
2. Probability sampling should be used, so that the precision of the index can be measured.
3. New commodities should be introduced more promptly.
4. The price collection agencies should be given funds for research divisions. The development of methods of coping with quality changes \* \* \* should be a major task of such divisions.

#### II. Consumer Price Index:

1. The present index should be extended to include single persons as well as families, and the index should cover rural nonfarm as well as urban workers.
2. A more comprehensive index for the entire population, not only the wage and salary earners, should be made.

#### III. Wholesale Price Index:

1. The structure of the overall index should be revised to reflect the prices of a condensed input-output table for the commodity producing industries.
2. The individual product prices should, where feasible, be collected from buyers (not from sellers, as at present) to get more accurate information on actual transaction prices.

#### IV. Indexes of Prices Received and Paid by Farmers:

1. 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.
2. The coverage of the indexes (particularly that of prices paid for living) should be increased.
3. The indexes for farms as production units should be segregated from the index for farms as consumer units.
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.<sup>3</sup>

<sup>3</sup> "The Price Statistics of the Federal Government," prepared by the Price Statistics Review Committee of the National Bureau of Economic Research, published in "Government Price Statistics," Hearings before the Subcommittee on Economic Statistics, pt. I, 87th Cong., 1st sess., p. 21.

Although these recommendations involved improvements in major existing indexes, the Review Committee elsewhere called attention to the need for new indexes of (1) export-import prices, (2) construction prices, (3) asset prices, and (4) transportation rates.<sup>4</sup>

In addition, the Review Committee believed that knowledge of changes in "real" national product is basic to understanding growth trends and broad price changes. It believed that the deflation of the National Income Accounts to reflect constant prices was sufficiently important to justify an enlarged price collection program and the explicit recognition and cooperation of the price collecting agencies.<sup>5</sup>

The Review Committee classified its recommendations under first and second priorities:

*First priorities*

- (a) Extension of the price index program:
  1. A major program for expansion of the export and import price indexes.
  2. The assumption of real responsibility by the Federal Government for a comprehensive and reliable construction cost index.
- (b) Reorientation of the major price indexes:
  1. The Consumer Price Index and the Index of Prices Paid by Farmers for Family Living. Indexes 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.
  2. The Wholesale Price Index 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.
- (c) Scientific procedures of the price collecting agencies:
  1. Full descriptions of the procedures employed in constructing each index should be published after every major index revision.
  2. Separate research units, working in close collaboration with the operating divisions, but free of operating responsibilities, should be created within each agency.
  3. Probability sampling systems should be adopted as rapidly as possible at all stages of index number construction.
- (d) Revision policies:
  1. 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*

- (a) Consumer Price Index:
  1. Extend the coverage of wage and lower salary earners' families to single persons and to the rural nonfarm families.
  2. Produce an index number of consumer prices for the entire nonfarm population.
- (b) Wholesale Price Index:
  1. Move as rapidly as possible toward the collection from buyers of more realistic prices of finished and semifinished goods.

<sup>4</sup> *Ibid.*, pp. 28-30.

<sup>5</sup> *Ibid.*, p. 30.



## (c) Indexes of Prices Paid and Received by Farmers:

1. Adoption of stricter specifications of commodities whose costs vary substantially at one time or change appreciably over time.
2. Extension of pricing in certain neglected areas such as medical care and purchase of services in production, in collaboration with the Bureau of Labor Statistics where this is appropriate.<sup>6</sup>

On the basis of its hearings in 1961, the Subcommittee on Economic Statistics made the following recommendations:

## General:

- (1) The basis for continuing improvement of our price statistics lies in a modest but continuing provision for research in the agencies.
- (2) Description of the procedures used in constructing each index should be published after every major index revision.
- (3) Comprehensive weight revisions should be made on a regular schedule at least once every 10 years for each major index.

## Individual indexes:

- (1) Expand and improve the export and import price indexes.
- (2) A program for an adequate comprehensive construction price index should be begun at once with a view to its early adoption and implementation.
- (3) Extend the Consumer Price Index coverage of wage and lower salary earners' families to single persons and investigate the possibility of also extending the coverage to rural nonfarm families.
- (4) For the Indexes of Prices Paid and Prices Received by Farmers, review carefully the specifications of commodities whose qualities vary substantially at one time or change appreciably over time, and extend pricing to such areas as medical care and purchases of services used in production.<sup>7</sup>

## IMPLEMENTATION

Since these recommendations were made, a Division of Price Research has been established in the Bureau of Labor Statistics. Frequently, researchers and technicians in the Bureau have published articles describing procedures used in index construction as well as new and experimental methods of adjusting for quality changes and the introduction of new products.

Significant improvements have been made in the Consumer Price Index. Coverage has been extended to include the products purchased by urban single wage and clerical workers living alone. There have been technical improvements in making adjustments for new products and for qualitative changes in products.

In the construction of the Consumer Price Index, probability sampling has been introduced to the extent thought feasible, and general statements can now be made concerning the reliability (error) of the index. Two "replicated samples" were taken, making it possible to estimate the sampling variability. But in estimating

<sup>6</sup> "Government Price Statistics," Hearings before the Subcommittee on Economic Statistics, pt. II, 87th Cong., 1st sess., pp. 530-536.

<sup>7</sup> "Government Price Statistics," Report of the Subcommittee on Economic Statistics, July 21, 1961, pp. 10-12.

variability or sampling error, random sampling had to be used in (among many ways) the selection of areas, outlets, and items. Any index, as complicated as the Consumer Price Index, must be based on a whole complex of samples, and it has not been possible to specify exactly the range of error.

However, witnesses at the recent hearings generally expressed disappointment that so little progress has been made in implementing the recommendations of the Price Review Committee. There is widespread recognition by the statistical agencies themselves, as well as by others outside the Government, that much still needs to be done to bring our price information up to the standard of adequacy thought necessary 5 years ago and which is even more pressing today.

## II. COORDINATION AND A LONG-RANGE PROGRAM FOR PRICE STATISTICS

The subcommittee again stresses the need to plan and work for a coordinated and comprehensive statistical program of the U.S. Government. The statistical agencies should strive to make our various statistical series more comparable, so that it will be possible to relate and to analyze series on output, inputs, prices, costs, employment, and unemployment. For example, at the present time price information by industry is available on a very limited basis, making it difficult if not impossible to relate price and cost information.

At the present time, Government statistical series are incompatible in several respects. First, the data are not organized by means of standard classification codes. Second, the responding unit may differ in the case of two series, which an uninformed user may unknowingly assume to be similar. Third, the data as assembled by the Government agencies may not suit the particular needs of the user. A partial solution to this latter problem would be to preserve the raw data in a usable form so that various indexes could be constructed.

Dr. Arthur M. Ross, Commissioner of the Bureau of Labor Statistics, summarized a proposal for a "Long-Range Program for Comprehensive Price Statistics." The comprehensive price index system, as envisioned, would have three major parts: industrial sectors, final demand sectors, and financial transactions. Concerning the program, Ross stated:

\* \* \* our proposal provides for a network of price data covering all important economic activities, organized in a consistent and integrated manner. The vehicle for this organization would be a classification of transactions, both input and output, on an industry or sector basis. Data collected for the present Wholesale Price Index would provide the core for the industrial sectors but expansion and improvement would be necessary. Likewise, an expansion of our Consumer Price Index coverage would be required to represent purchases by all consumers—the household sector—as well as to represent all sales at the retail level of distribution. New indexes would have to be established for final demand sectors other than households—the business investment sector, the foreign trade sector, and the government sector. Once these sector indexes are established they could be com-

bined with appropriate weights to provide several types of general economy wide price indexes.<sup>8</sup>

While the subcommittee has not had the opportunity to examine in detail the proposal by the Bureau of Labor Statistics, it commends long-range planning in this area. Efficient near-term goals in our statistical program can only be achieved if they are consistent with the long-term needs of the Nation.

### III. RELIABILITY AND SCOPE OF EXISTING PRICE INDEXES

#### CONSUMER PRICE INDEX

The Consumer Price Index is a measure of changes in the prices of goods and services purchased by urban wage and salary workers. The observed prices are weighted by the quantities purchased in some base period.<sup>9</sup> Although the present index is sometimes called the "Cost of Living Index," the popular title is a misnomer. As stated by the Price Statistics Review Committee:

It is often stated that the Consumer Price Index measures the price changes of a fixed standard of living based on a fixed market basket of goods and services. 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 (for an individual household or an average family) a constant level of utility. But in the presence of the introduction of new products, and changes in product quality, consumer tastes, and relative prices, it is no longer true that the rigidly fixed market basket approach yields a realistic measure of how consumers are affected by prices. If consumers rearrange their budgets to avoid the purchase of those products whose prices have risen and simultaneously obtain access to equally desirable new, low-priced products, it is quite possible that the cost of maintaining a fixed standard of living has fallen despite the fact that the price of a fixed market basket has risen.<sup>10</sup>

The Consumer Price Index undertakes to estimate or measure the price changes of a fixed market basket of goods and services purchased by one large group constituting about 40 percent of the population. Although other major groups buy many of the same products, the Index is an incomplete reflection of price trends affecting these other groups, for example, nonurban workers, retired workers, professional and managerial workers, and poor persons. (The Index, incidentally, bears no relation either in compilation or uses to the so-called Index of Prices Paid by Farmers, referred to later.) As an example of the problem of incomplete coverage, witnesses pointed out that medical care and food purchases were relatively more important components of the budgets of retired persons than those of wage and salary workers.

<sup>8</sup> "Government Price Statistics," Hearings before the Subcommittee on Economic Statistics, 89th Cong., 2d sess. (hereinafter referred to as "Hearings"), May 25, 1966, p. 52.

<sup>9</sup> At the present time the weights are based on extensive surveys carried out in 1960 and 1961, which were introduced into the Index in January 1964.

<sup>10</sup> "The Price Statistics of the Federal Government," op. cit., p. 51. A technical discussion of the Consumer Price Index compared to a "True Cost of Living Index" can be found in the appendix to the prepared testimony of Arthur M. Ross, Hearings, May 25, 1966, pp. 72-74..

In recent months, the CPI thus tends to understate price increases affecting retired persons.

Since the CPI measures the price changes of a fixed combination of goods and services, it does not take into account changes in consumers tastes and changes in relative prices. As relative prices change and as incomes rise, consumers purchase more of some products compared to other products.

The subcommittee was told that, as far as it goes, the Consumer Price Index is the most reliable of the major price indexes. Items are carefully specified and adjustments are made for new products and changes in quality. Probability sampling is followed so that the prices collected in the sample are representative of the results that would be obtained if complete enumeration were followed. In pricing many of the items, the Bureau of Labor Statistics sends enumerators to stores to collect the information.

#### WHOLESALE PRICE INDEX

The Wholesale Price Index, compiled monthly by the Bureau of Labor Statistics, is a comprehensive measure of price movements in 2,200 nonretail commodities. The prices of selected commodities within the comprehensive index are compiled and released weekly and daily. The weekly index is based on the prices of approximately 300 items, while the daily "Spot Market Index" is based on the prices of 22 basic commodities. In the collection of the price data, heavy reliance is placed on secondary sources and on mailed questionnaires submitted by sellers.

Originally, the Wholesale Price Index was used as a measure of general price changes, or changes in the value of money. Today its usefulness for this purpose is recognized as limited, and the CPI and the Implicit Price Index are often used for this purpose. The detail provided by the WPI is extremely useful to businesses concerned with prices affecting their operations. It is used extensively by Government in measuring output and in converting the current dollar value of output to constant dollar estimates.<sup>11</sup>

The Wholesale Price Index and its subindexes are used in detecting and predicting inflationary pressures, since the subindexes reveal price developments in early and intermediate stages of the production process, indicating probable future price changes at later stages of production. The Index is also used in sector analysis of inflation; however, its usefulness for this purpose is severely restricted, since the subindexes are not related to the Standard Industrial Classification System.

In analyzing inflation, the weekly and daily Wholesale Price Indexes are useful because of their promptness, but product representation in these indexes is controlled by the current availability of data from secondary sources. Commissioner Ross proposed to augment the sample used in the weekly index to include such commodities as chemicals, metals, and machinery. The index would then be a more accurate indicator of changes in the comprehensive index. The daily Spot Market Index is very sensitive to pressures in the basic commodity market. Although this index very quickly reflects market conditions, it sometimes gives "false starts," that is, varies independ-

<sup>11</sup> "The Price-Statistics of the Federal Government," op. cit., pp. 61-64.

ently of more general price movements. The Spot Market Index could also be strengthened and research undertaken to raise its effectiveness as a predictive tool.

The Wholesale Price Index contains a number of serious weaknesses which substantially limit its usefulness. Among its deficiencies are the following:

1. Its coverage is incomplete in such important sectors as construction and industries characterized by rapid growth or technological change (electronics and chemicals).

2. Because of the method of collecting the data, the Index fails to reflect fully quality changes in the products.<sup>12</sup>

3. The prices reported by sellers often do not represent actual transactions prices, which may vary markedly from list prices. In periods of high employment, when there is considerable upward pressure on prices, the Index tends to understate the degree of upward price movement. In like fashion, in a recession, this index tends to understate the extent of downward price movements. Although this source of error could have very serious policy implications, there has been no major attempt to measure it.

4. The index includes products at various stages of production, resulting in duplicated counting.

5. It is difficult, if not impossible, to relate components of the WPI with industry data.

Since the WPI is collected on a commodity basis, it does not lend itself to industry price and cost analysis. As stated by Jules Backman, Research Professor of Economics of New York University:

By changing the WPI, so that its subindexes conform to the Standard Industrial Classification, comparisons would be facilitated with other economic variables; and it would be more useful as a deflator of the national accounts.<sup>13</sup>

The Bureau of Labor Statistics, using information collected for the present WPI, has made a beginning by constructing industry price indexes for 52 industries for the period 1957-63. Commissioner Ross indicated that the Bureau plans to extend the coverage to about 115 industries when funds are made available.<sup>14</sup>

#### IMPLICIT PRICE INDEX

General price movements are sometimes gaged by the Implicit Price Index, obtained by dividing gross national product stated in current prices by the GNP stated in constant prices and multiplying by 100 (the index is now on a base of 1958 equals 100). In 1957 the National Accounts Review Committee<sup>15</sup> wrote “\* \* \* one of the areas of most needed development is the estimation of national product and its components in terms of constant dollars. \* \* \*” The Committee went on to point out that the Implicit Price Index is available only for total GNP and broad expenditure components.<sup>16</sup>

<sup>12</sup> Here the problem is often one of adjusting prices to reflect technologically superior products, for example, more powerful tractors or increases in the capacity of heavy electrical equipment.

<sup>13</sup> Hearings, May 24, 1966, p. 16.

<sup>14</sup> Hearings, May 25, 1966, p. 62.

<sup>15</sup> The National Accounts Review Committee was a group of experts organized by the National Bureau of Economic Research at the request of the Bureau of the Budget to study the quality and coverage of our national accounts. Their report was incorporated in the record of the hearings on “The National Economic Accounts of the United States,” Subcommittee on Economic Statistics, 85th Cong., 1st sess.

<sup>16</sup> *Ibid.*, pp. 158-159.

Since the Implicit Price Index covers the entire range of goods and services produced, it has been described by the Council of Economic Advisers as "our most comprehensive indicator of the price level."<sup>17</sup> However, the IPI falls short in a number of respects, and is therefore apt to be misleading. There are systematic upward biases, and the technical methods of construction are weak. As in the case of the CPI and the WPI, one of the major difficulties in the IPI revolves around changes in quality and the measurement of output. In the large service and construction sectors, for example, estimates of output rely heavily on estimates of inputs.

Prof. Jules Backman discussed some of the weaknesses of the Implicit Price Index:

Significant distortions are introduced into the IPI by the failure to allow for increases in output per man-hour in construction and in government services. Moreover, many of the price deflators in the private sector are not strictly comparable to the dollar totals to which they are applied. As a result, the total IPI provides a very unsatisfactory measure of changes in the general level of prices in the United States \* \* \*

Changes in the IPI overstate the magnitude of price inflation and result in an understatement of the increase in real gross national product. \* \* \*<sup>18</sup>

#### INDEXES OF PRICES PAID AND PRICES RECEIVED BY FARMERS

The Index of Prices Paid by Farmers is a measure of the change in prices paid by farm families for commodities and services used in family living and farm production, and is composed of five major groups of items weighted in terms of their relative importance in 1955. These groups are:

- (1) prices of items used in family living,
- (2) prices of items used in farm production,
- (3) interest on farm mortgages,
- (4) farm real estate taxes, and
- (5) wage rates of hired farm labor.

The Index of Prices Received by Farmers is a measure of changes in the unit value of farm products, weighted according to the relative importance of cash receipts from commodity subgroups during the period 1953-57. A major use of this index together with the Index of Prices Paid by Farmers, is in calculating parity prices as prescribed by the Agricultural Adjustment Act of 1938, as amended. While also used in estimating the gross output of the farm sector for National Income Accounting purposes, neither the indexes of prices paid nor of prices received as computed by the U.S. Department of Agriculture is integrated with the price information collected by the Bureau of Labor Statistics.

The statement of Mr. Nathan Koffsky, Director of Agricultural Economics, indicated that the Department of Agriculture:

- (1) has been "concentrating upon the application of probability enumerative sampling to the collection of prices

<sup>17</sup> Economic Report of the President, January 1966, p. 64.

<sup>18</sup> Hearings, May 24, 1966, p. 17.

received by farmers and prices paid by farmers, and in automating the summarization procedures for these data;"

(2) has been following product specification procedures to the extent possible while still using voluntarily mailed-in questionnaires;

(3) has published a "fairly comprehensive semitechnical description of the procedures used in constructing each index after the revisions of 1950 and 1959."<sup>19</sup>

At the present time, these indexes have a number of defects. The Index of Prices Paid by Farmers does not include such major components of family living expenses as medical, dental, and hospital services. It does include many items purchased directly or indirectly from other farmers, such as "feeder" livestock; and, thus, does not precisely measure farmers' costs in relation to other sectors of the economy. Heavy reliance is placed on mail questionnaires and almost none on personal enumeration.

The indexes are on a 1910-14 base as prescribed by law. According to Mr. Koffsky:

The Department submitted a report to Congress on January 31, 1957 . . . which recommended at that time a shift in the base period to the 10 years January 1947-December 1956 . . . With respect to the matter of the base period, however, it should be noted that for some time we have been converting both the index of prices received and of prices paid including interest, taxes, and farm wage rates to a 1957-59 reference base to facilitate comparison with other major indexes.<sup>20</sup>

The so-called Indexes of Prices Received and Prices Paid by Farmers are, in a sense, rather more operational tools relating to the Parity Index and commodity subsidies than to economic statistics for overall policy usage. The need for these particular indexes arises from the statutory requirements of the Agricultural Adjustment Act as amended; and the base period of the indexes is intimately tied to the concept of parity, an exceedingly complicated matter. Rapid technological change, among other factors, has led to continuous difficulty in developing measures of parity incomes for the agricultural sector under changing conditions. The period 1910-14 was generally favorable for agriculture, and therefore to policymakers represented a simple way of defining a base period when farmers' purchasing power was on a parity with that of the nonagricultural sector.

#### IV. THE NEED FOR ADDITIONAL PRICE INDEXES

##### CONSTRUCTION PRICE INDEX

The vital construction industry has been characterized by rising demand and escalating costs and prices. However, in this area, there is no remotely satisfactory price or cost index. In 1961, the Price Statistics Review Committee reported:

The Department of Commerce "composite" construction cost index, now compiled by the Bureau of the Census, is the

<sup>19</sup> Hearings, May 25, 1966, pp. 146-147.

<sup>20</sup> *Ibid.*, p. 148.

closest substitute for a comprehensive construction price index now available. It is a very distant substitute, being defective in almost every possible way. This is the inevitable result of the fact that the skimpiest of resources have been devoted to it. It depends entirely on secondary sources (no original data have ever been collected for it), and these are more than ordinarily defective.<sup>21</sup>

Assistant Director of the Bureau of the Budget, Dr. Raymond T. Bowman, indicated that the Bureau of the Census has worked on developing techniques for the construction of a sales price index of single family houses. However, funds have not been granted to collect the data and publish the index.

#### EXPORT-IMPORT PRICE INDEXES

In light of the persistent balance-of-payments problem, it is essential that more be known about the international competitive position of the United States. Although the Department of Commerce does maintain a unit-value index of exports, it is grossly deficient, reflecting changes in product mix and quality, as well as changes in prices. So-called unit values are the resultant of dividing gross sales by quantity measures. The need for a more adequate measure has been widely recognized for several years. Recently, Dr. Arthur Okun, Member of the Council of Economic Advisers, stressed the need for better data on our competitive position in international trade. He writes:

Since the competitiveness of the U.S. economy in world markets is one of the most important aspects of our balance of payments, it would be extremely useful to policymakers to have readily available more accurate statistics presenting international price comparisons, particularly comparisons of export prices.<sup>22</sup>

Prof. Irving B. Kravis, of the University of Pennsylvania, suggested appropriate criteria for a price index of internationally traded goods:

- (1) It should be based on actual prices or price offers, not unit values.
- (2) For goods which the country actually exports, the prices should refer to export rather than domestic transactions.
- (3) The indexes for different countries should refer to the same set of goods. (This requires that domestic prices should be taken for goods which a particular country does not export.)<sup>23</sup>

Professor Kravis proposed new measures of international price competitiveness based on research done for the National Bureau of Economic Research with support from the National Science Foundation. These indexes include:

- (1) International price indexes, which measure the change in each country's prices of the bundle of goods that was exported in 1963 by the OECD countries as a whole;

<sup>21</sup> "The Price Statistics of the Federal Government," *op. cit.*, p. 87.

<sup>22</sup> "Improved Statistics for Economic Growth: Comments by Government Agencies on Views Submitted to the Subcommittee on Economic Statistics," 1966, p. 79.

<sup>23</sup> Hearings, May 26, 1966, p. 186.



- (2) Index of price competitiveness, obtained by dividing the international price index for one country by the corresponding index for another country; and
- (3) Country-to-country comparisons of price levels for goods that enter into trade among the OECD countries.<sup>24</sup>

## V. PRICE INDEXES AND THE DIAGNOSIS OF INFLATION

Significance has often been attached to small, decimal changes or changes in the rate of change in the Wholesale Price Index or the Consumer Price Index in a single month. Although the Consumer Price Index is technically good as a statistical product, interpretation of small changes gains significance when viewed over a longer period than a single month. Although witnesses pointed out that a change of 0.1 percent was "statistically significant" (referring to a deduction from probability theory), they noted that because of rounding a change of 0.2 percent was more likely to be significant for analytical purposes.

The Wholesale Price Index and the Implicit Price Index are far less reliable and contain major and systematic biases. As previously noted, many of the prices included in the WPI are "list" prices as opposed to actual transaction prices. In the case of the IPI, comprehensive price information matching sectors of the national accounts is not available. The Implicit Price Index is defective, particularly in the areas of government, other services, and construction.

Even if the price indexes mirrored actual price changes, the implications for present and future policies are unclear, since changes in the price indexes represent history. However, the direction and diffusion<sup>25</sup> of changes in the Wholesale Price Index do have some predictive implications, when interpreted with care and caution.

The question arises: Which indexes are the best indicators and best measures of inflation, or the value of money? Prof. Jules Backman stated that the Consumer Price Index provides the best existing measure of the magnitude of past price trends.<sup>26</sup> It covers a large number of items, and the procedures used in constructing the Index are more exact than is the case for the other major indexes. However, it does not provide a measure of price trends in the industrial sector.

The Wholesale Price Index, although it contains serious flaws, gives the direction of price movements for items covered by the index, and it indicates trends which are likely to appear in later developments in the Consumer Price Index. The usefulness of the WPI for predicting general price movements could be greatly enhanced if the sample were strengthened and if price data were collected from buyers where list and actual prices deviate.

The Implicit Price Index is available only for large sectors of the economy and on a quarterly basis. In addition, the IPI is characterized by serious biases, tending to overstate to an unknown degree the

<sup>24</sup> *Ibid.*, pp. 186-187.

<sup>25</sup> The Department of Commerce publication, "Business Cycle Developments," regularly presents diffusion indexes of wholesale prices in 23 manufacturing industries and of materials prices for 13 industries. The diffusion index indicates the proportion of the subindexes which are either rising or falling.

<sup>26</sup> Hearings, May 24, 1966, p. 15.

Jules Backman and Martin R. Gainsbrugh have recently completed a thorough and very timely monograph entitled "Inflation and the Price Indexes." Their study, prepared for the National Industrial Conference Board under a grant from the Life Insurance Association of America, has been made available to the Subcommittee on Economic Statistics of the Joint Economic Committee. The materials have been printed as a Committee Print, under the same title, for use of the Subcommittee Members in connection with their continuing study of improving Government price statistics, especially in the context of the present economic situation in which inflation and its measurement are matters of high national concern.

extent of upward price movement. Jules Backman and Martin R. Gainsbrugh state, in their study of "Inflation and the Price Indexes":

To the extent that this index is used, there is much to be said for confining the measure of price inflation to the total IPI excluding compensation of government employees \* \* \* However, even this less comprehensive index tends to overstate the actual changes in the level of prices because of the inclusion of the inflated indexes for construction costs (p. 72).

Dr. Solomon Fabricant, formerly Director of Research and now Director at Large, of the National Bureau of Economic Research, suggested that many other factors besides available price indexes should be considered in determining price stabilization policy. Dr. Fabricant listed, among other factors, asset prices, wages, material costs, productivity, job vacancy data, and capacity utilization—measures of which, in some cases, are not available at the present time. He also called attention to data pertaining to unfilled orders and to financial markets, such as rates of change in the money supply and total borrowing.<sup>27</sup>

In any discussion of the detection of price inflation, it is important to keep in mind the changes in the price indexes arising from the nature of the index itself. Prof. Richard Ruggles pointed out that we can expect some upward movement in the price indexes simply because of the way they are constructed.<sup>28</sup> As wages rise, the price of private services and the costs of government services rise. This is because, in general, the output of services is measured largely in terms of the cost of the inputs, which assumes no improvement in factor productivity or in the quality of output. In the case of the construction industry, there is no adequate price index, so that it is impossible to estimate output accurately. Here, again, increases in costs are directly reflected as price increases without taking into account increases in productivity and changes in the quality of output.

In addition, there are structural reasons to expect some upward creep in the CPI and the IPI. The rise of wages and prices in sectors of rapid expansion will not be fully offset by declines in wages and prices in declining sectors because of rigidities in the economic system, and because over time some items are relatively fixed in supply (land, rare books, and paintings, for example).

In their monograph, Jules Backman and Martin R. Gainsbrugh point out that it is necessary to look beneath movements in a major price index to determine the causes:

Increases in the price indexes do not necessarily mean that the Nation is experiencing a general price inflation. Sometimes, the overall index moves up because of special conditions affecting a particular sector. For example, adverse weather, on occasion, has cut the supply of fruits and vegetables with dramatic effects upon their prices and, in turn, upon the total index. Similarly, the marked rise in farm products (particularly livestock) and foods (particularly meats) in 1965 reflected some decrease in supply. General monetary and fiscal restraints do not provide the tools to contain such price rises.

<sup>27</sup> Hearings, May 24, 1966, pp. 31-32.

<sup>28</sup> Hearings, May 26, 1966, p. 241.

Similarly, in analyzing the rise in the CPI—which automatically escalates some wages and creates a demand for higher pay in other cases—one important factor is the rising cost of services. Specific measures of a structural kind, rather than monetary or fiscal action, may be needed to prevent further large rises in costs of certain services, particularly medical care. For example, an increase in training facilities to supply more workers may be indicated. In the agricultural area and for stockpiled raw materials, some price changes occur as a result of Government programs. These price increases must be dealt with by changing the program rather than through monetary or fiscal policy.

By examining the changes in the sectors of an index—or even the changes in individual prices—such trouble spots can be identified so that specific measures may be devised to counteract them.<sup>29</sup>

One of the most difficult problems of index construction is in making adjustments for the introduction of new products and qualitative changes in the goods and services included in the index. Changes in quality, commonly, but not always, represent improvements. For example, in the area of durable goods there have been widespread quality improvements, while in some service areas there has probably been marked quality deterioration. Some of the witnesses before the subcommittee believed that present procedures for making quality adjustments led to an upward bias in the indexes, while others concluded the opposite. Unfortunately, at the present time the matter is largely one of subjective judgment and the extent of quality bias, if any, is uncertain.

It is difficult to quantify these factors that bias the indexes, but they call attention to the need for extreme care in interpreting small and short-term index movements as indicating either an acceleration or a moderation of inflationary pressures.

## VI. URGENTLY NEEDED: ADEQUATE PRICE INFORMATION

The Nation urgently needs better, more adequate price statistics. Though we have better information on prices and price changes than any nation in the world, it is not adequate for the burden of public and private policy formulation that it must carry. Our price data must guide monetary, fiscal, and employment policies; and they must measure the standard of living of the American people. This is in addition to the many private uses of the data; for example, in collective bargaining, in pension planning, and in countless marketing and investment decisions. Price indexes do not represent mere numbers or idle conversation pieces of economists, government bureaucrats, or newspaper media. The quality and coverage of these indexes have a direct bearing on the health of our multibillion-dollar economy.

The subcommittee found that the Government agencies have only begun to implement the recommendations of the Price Statistics Review Committee. In some instances these improvements are in the planning stage, while in other instances they are not even that advanced. Dr. Raymond T. Bowman, the Assistant Director for Statistical Standards of the Bureau of the Budget, estimated that it

<sup>29</sup> Jules Backman and Martin R. Gainsbrugh, "Inflation and the Price Indexes" op. cit., p. 15.

would take additional funds amounting to approximately \$2 million annually to make rapid progress in implementing the recommendations of the Stigler Committee.<sup>30</sup>

Commissioner Ross, of the Bureau of Labor Statistics, commented on what the additional funds would buy for the American people. His statement, which follows, can also be interpreted as a statement of priorities:

Prices occupy the Nation's attention to an unprecedented extent. Businessmen, employees, and housewives are vitally concerned with price movements. Legislators and government executives strive to obtain the most value for each tax dollar, and to assure stability of the price level consistent with other national objectives.

In this situation, it has become clear that the government's price statistics are not adequate for either private or governmental needs. It is essential—

that electronic data processing methods be adopted to make the indexes available more speedily;

that weekly wholesale price indexes be strengthened as indicators of the economic trend;

that actual transaction prices (and not merely list prices) be obtained in all cases;

that proper allowance be made for the gradual improvement in the quality of goods and services;

that price indexes be developed for all important industries, for Government purchases, and for goods moving in foreign trade;

that methods of compilation keep pace with changes in distribution channels and merchandising practices.

More accurate, complete and timely price data, at wholesale and retail levels, will have many specific benefits.

Businessmen will be better able to make rational investment decisions. They will be assisted in managing their inventories in such a way as to minimize losses. They will be able to choose among competing raw materials and semi-finished products to the best advantage. They can plan marketing and advertising campaigns with greater confidence.

Workers will be better informed as to the real purchasing power of their wages. They will be assured that the Consumer Price Index, always a major factor in wage negotiations, will reflect actual changes in the prices of what they consume.

Private savers, insurance companies, and other trust institutions will have more help in making prudent investment decisions.

Programs to adjust wage rates, annuity rates, and long-term production contracts on the basis of price changes can be placed on a more solid footing.

Decisionmakers in Congress and the Administration will have the benefit of more expeditious and reliable economic data for guidance in fiscal and monetary policies.

<sup>30</sup> Hearings, May 24, 1966, p. 34.

At a time when we in Government must practice the most careful economy, better price indexes will be good economy in every sense of the word.<sup>31</sup>

Witnesses from the universities, private research organizations, organized labor, and government, stressed time and again that price statistics are important and deserving of more resources. Their feeling is made clear by a few of their comments, as follows:

Professor Backman (New York University):

I would like to make one observation about the cost of producing better price statistics. Dr. Bowman has said it costs about \$6 million to prepare these price indexes and that this total could be increased by \$2 million. A major public policy decision is being debated on a wide scale today. If we are experiencing an inflationary situation, say some, we should do something about taxes at once. A 6-percent increase in taxes is worth about \$5 billion.\* \* \*

If we are making public policy decisions based on indexes which are not fully adequate, we can make mistakes that run into billions and billions of dollars as against this couple of million dollars that Dr. Bowman talked about in cost. I think that is the framework within which the appeal for additional funds must be made, the cost of the mistakes that you make if you fail to spend the preventive dollars.<sup>32</sup>

Prof. Irving B. Kravis (Wharton School of Finance, and the National Bureau of Economic Research):

I think the issues separating different positions on this business of expansion or holding line on prices and monetary policy are something like the difference between 2-percent inflation a year and 4-percent inflation a year. When the price indexes recently began to show 4-percent increase on an annual basis, people really got alarmed and pressures for tax increases mounted. So every 1 percent change in our annual measure of prices is significant for policy purposes. There is not \$100,000 involved, there are billions of dollars of gross national product. When we cut taxes a couple of years ago, I do not know how many billions of dollars—I have not looked up the numbers—but was it \$20, \$40 billion, which by now our gross national product is larger.<sup>33</sup>

## VII. CONCLUSIONS AND RECOMMENDATIONS

On the basis of its hearings, the subcommittee believes that further postponement of major improvements in our price information would be penny-wise, pound-foolish. There was general agreement among the witnesses as to what needs to be done, and there was unanimous agreement that judicious expenditure for better price information would be one of the wisest outlays the Government could make, paying for itself many times over in more efficient public programs and policies.

<sup>31</sup> Hearings, May 25, 1966, pp. 74-75.

<sup>32</sup> Hearings, May 24, 1966, p. 40.

<sup>33</sup> Hearings, May 26, 1966, p. 254.

The subcommittee recommends the following improvements as having very high priority:

#### GENERAL

(1) Renewed attention and effort should be directed to the recommendations of the Price Statistics Review Committee (the Stigler Committee).

(2) The immediate needs of our system of price information should be met in a way that is consistent with long-run objectives of comparability with other statistical series, reporting speed, comprehensiveness, and reliability.

(3) Continued effort should be made to introduce probability sampling, and to make adjustments for new products and for quality changes in products.

(4) The Government should move as rapidly as possible to computerize data processing and index compilation to accelerate the issuance of the indexes.

(5) Research should be undertaken on the development of selected price indexes for analyzing and predicting inflationary pressures and general price increases.

#### CONSUMER PRICE INDEX

(1) Research should be carried out to determine just how well the CPI measures price trends affecting major consumer groups.

(2) Research is needed to quantify the increase in the CPI which is due to changes in relative prices between base periods.

#### WHOLESALE PRICE INDEX

(1) The data base for the weekly Wholesale Price Index should be augmented with the objective of making it a more accurate indicator of current commodity price trends.

(2) Coverage of the industry price indexes should be expanded to about 115 industries from the present 52, with the objective of providing a basis for analyzing the sources, sequences, and impacts of price changes. In addition, this would mark a beginning in the development of an industry input-output table of price indexes.

(3) Collection of data on prices paid by buyers for selected products, such as metals and machinery, should be initiated in order to insure obtaining the terms of actual transactions which often differ significantly from list prices in periods such as the present.

#### IMPLICIT PRICE INDEX

(1) Price data used in deflating real output should be made comparable to the sectors being deflated.

(2) Specification pricing should be extended, for example, to the construction industry.

(3) Research should proceed on ways to improve the measurement of government and service output.

(4) Contributing agencies should consider the IPI of high priority in meeting their obligations.

## INDEXES OF PRICES PAID AND PRICES RECEIVED BY FARMERS

- (1) Personal enumerative pricing should be followed where specification prices are difficult to attain by mail survey.
- (2) The indexes of prices paid by farmers for family living expenses should be made more comprehensive to reflect actual changes in living expenses.
- (3) When there are significant regional differences, there should be regional subindexes of prices paid for family living.

## NEW PRICE INDEXES

- (1) A reliable and comprehensive index of construction costs should be added.
- (2) The Government should undertake research on the building of an adequate measure of international competitiveness; for example, the program suggested by Mr. Kravis might be undertaken on a pilot basis.

## COORDINATION AND LONG-RANGE PLANNING

The subcommittee believes that the coordination and long-range planning of the various statistical series is so important as to deserve special emphasis. The price indexes should be constructed efficiently, involving minimal duplication of effort by the government agencies and minimum reporting requirements of persons furnishing the information. Effort should be directed toward making our price information comprehensive. At the same time, data on prices, output, inputs, and costs should be made comparable so that more meaningful analysis can be carried out.

The "Long-Range Program for Comprehensive Price Statistics," presented by the Bureau of Labor Statistics, is a step in the right direction. This effort should receive the scrutiny of other government agencies responsible for the adequacy of our price information. We urge the Office of Statistical Standards of the Bureau of the Budget to support—indeed to push aggressively—this effort to evolve a suitable long-range plan. Yet, it is the responsibility of every government agency concerned with constructing price indexes to see that progress is forthcoming in this area of governmental efficiency and coordination.

The needs and opportunities for coordination and planning, which this subcommittee proposes to study more intensively in the very near future, is illustrated by the Index of Prices Paid by Farmers. Although the Bureau of Labor Statistics focuses on urban prices in its Consumer Price Index, it would seem that the experience and techniques arrived at and followed by the Bureau are not essentially different from those involved in covering largely identical items in the nonurban and rural areas. Thus, while the Bureau of Labor Statistics regularly collects monthly prices on common food and apparel items in urban areas, the Department of Agriculture, largely through a mail survey, collects from independent stores and chainstores similar prices on a monthly, quarterly, or semiannual basis. In some cases, the reports received by the Department of Agriculture on prices paid by farmers cannot be processed without frequent delay involving data from more than half of the States.

As another example where integration is called for, the subcommittee's attention was drawn to the interest of some observers in the initiation of a regular Timber Price Reporting Service. We did not consider it an immediate task of the subcommittee to evaluate the feasibility and need of such an index, but would suggest that this is precisely the kind of data which, if collected at all, should be integrated with other government statistics. It could, for example, be useful in the national income sector accounts, in the pricing of existing assets having wooden components; and it should be tied in with the much needed improved data on current construction costs.

These two instances are cited merely as examples of a larger problem. At subsequent hearings, we hope to look into the possibilities of a truly integrated system providing genuinely comparable statistics. At the moment, we suggest that statistics compiled for special or ad hoc uses ought to be consistent with, and mesh into, an overall system of economic statistics for reasons of both economy and reliability.

In making these observations and recommendations, the subcommittee believes that this country is interested in how we can improve our price statistics so that they can be as helpful as possible in determining the optimum economic policy. In view of the enormous importance of the price indexes, for both private and public uses, \$2 million annually in additional funds would be an excellent investment. Budget obligations for prices and price indexes were stationary at \$5.7 million from 1965 to 1966, and \$5.9 has been requested for fiscal 1967. Funds devoted to price information must surely rise much faster than this if economic policy is to remain meaningful in our highly complex economy.

