GOVERNMENT PRICE STATISTICS

HEARINGS

BEFORE THE

SUBCOMMITTEE ON ECONOMIC STATISTICS

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

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TUESDAY, MAY 24, 1966

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

The subcommittee met at 10 a.m., in room S–407, the Capitol, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senators Proxmire and Douglas.

Also present: James W. Knowles, executive director; William H. Moore, senior economist; George R. Iden, economist; Donald A. Webster, minority economist; and Hamilton D. Gewehr, administrative clerk.

Chairman PROXMIRE. The subcommittee will come to order. Gentlemen, we are delighted to have you here. In order to economize on time, I am going to place my statement in the record rather than reading it.

(The opening statement of Senator Proxmire, chairman of the Subcommittee on Economic Statistics, follows:)

OPENING STATEMENT BY SENATOR PROXMIRE

One thing that this subcommittee has learned and stressed throughout its successive hearings on Government price statistics is that no matter how good our statistics are, there is room and need for continuing improvement. The best way to achieve improvement of already good statistics is through a persistent, never-ending effort.

One purpose of hearings at this time is, accordingly, to take stock of the progress which has been made in recent years by the statistical producing agencies, especially in light of the findings and recommendations of the distinguished group of scholars and experts organized as the Price Statistics Review Committee by the National Bureau of Economic Research. Their report, submitted to the Office of Statistical Standards in the Bureau of the Budget, was the focus of earlier hearings by this subcommittee and led to our comments in a report dated July 21, 1961, entitled "Government Price Statistics."

As a starting point, I think it well to include the summary which the Price Statistics Review Committee made of its recommendations to improve the quality of the main price indexes compiled by the Federal Government. This summary reads 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 (some of which are discussed in the report) 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.[1]

While our own subcommittee did not undertake to evaluate each recommendation contained in the report of the Review Committee, we did comment on priorities and noted that "no country has better price statistics than the United States but improvements are still needed" and that "the basis for continuing improvement in our price statistics lies in a modest but continuing provision for research in the agencies." The subcommittee's hope and expectation is that these hearings will stimulate the producing agencies, the universities, and the statistics profession generally to do even better.

Members of this subcommittee, like every Member of Congress, are well aware of the budgetary difficulties of the producing agencies associated with collection and improvement of statistics, and we have tried to give our moral support wherever the possible gains seem to outweigh the additional public and private cost. Our studies not only provide a forum for viewing the needs of the economy but force the producing agencies to think through their own plans, searching for ways to improve and to economize.

The hearings this week are taking place in an atmosphere of threatening inflation. They consequently have this added immediate and topical concern along with the more general aspects involving the uses being made and the reliability of the statistics guiding policy de-

[1] "Government Price Statistics," report of the Subcommittee on Economic Statistics, July 21, 1961, p. 3.

cisions today, tomorrow, and over the years to come. Our schedule of hearings for this inquiry will be as follows:

Tuesday, May 24, 10:00 a.m.

"Progress on the Improvement of Government Price Statistics"
RAYMOND T. BOWMAN, Assistant Director for Statistical Standards, Bureau of the Budget
"Inflation and the Price Indexes"
JULES BACKMAN, Research Professor for Economics, New York University
"Use of Price Indexes for Diagnosing Inflation"
SOLOMON FABRICANT, formerly Director of Research, National Bureau of Economic Research

Wednesday, May 25, 10:00 a.m.

"Price Measures Needed for Economic Policy"
ARTHUR M. ROSS, Commissioner, Bureau of Labor Statistics
"Indexes of Prices Paid and Received by Farmers"
NATHAN M. KOFFSKY, Director, Agricultural Economics, U.S. Department of Agriculture
"Utilization of Price Indexes in Private and Public Policy Decisions"
LAZARE TEPER, Director of Research, International Ladies' Garment Workers Union

Thursday, May 26, 10:00 a.m.

"New Measures of International Competitiveness"
IRVING B. KRAVIS, Professor of Economics, Wharton School of Finance, University of Pennsylvania
"Domestic Price Statistics—Reliability as History and Usefulness for Policy"
RICHARD RUGGLES, Professor of Economics, Yale University

Chairman PROXMIRE. Representative Thomas B. Curtis, a member of this subcommittee, also has an opening statement which we will insert at this point in the record.

OPENING STATEMENT OF REPRESENTATIVE THOMAS B. CURTIS

For over 6 months economists and others interested in economic policy have been debating whether or not we have inflation and, if so, what we should do about it. In part, the lack of consensus has political roots. But perhaps even more important is the failure of our price indexes, except in extreme cases, to give clear and unequivocal signals of inflationary pressures. It is my hope that these hearings will point the way toward improvements in our price measures which will remove some of this ambiguity.

However, even if no doubt existed as to the accuracy of the indexes there would be difficulty in identifying what constitutes inflation. The Secretary of the Treasury has said that an annual increase of 2 percent in the Consumer Price Index is "tolerable." Just where should the line be drawn between acceptable and unacceptable price increases and on what criteria do we make such a distinction? This is a fundamental issue for public policy, but little understanding and even less agreement exists on the issue.

I am also troubled that so much is made of the fact that our price increases in recent years have been less sharp than those overseas. While this may have important implications for the balance of payments, what comfort is that fact to low-income individuals, savers and those on fixed incomes?

The problems of identifying inflation involve much more than merely improving our price indexes, as important as this is. It also

means developing a fuller understanding of the damage done by erosion of the purchasing power of the dollar and what degree of price stability, if any, we should sacrifice to achieve other objectives of policy.

These hearings should consider among other subjects, the following:

(*a*) What is a workable definition of inflation? Is this definition the same under all circumstances, or should it change through the business cycle or in the light of our balance-of-payments position?

(*b*) What is the usefulness of the Consumer Price Index as compared to the Wholesale Price Index as a means of judging the strength of inflationary forces in the economy and indicating the need for policy action?

(*c*) How reliable are changes in the indexes as a trigger for anti-inflationary policies?

(*d*) What is the degree to which the two major indexes understate or overstate inflationary pressures? Where does the bias primarily lie in each index? What are the major factors causing upward or downward bias?

(*e*) How accurate is the Consumer Price Index as a reflection of the current costs of various groups in the Nation? Does it reflect equally the living costs of the poor, the aged, city dwellers, rural residents, and suburbanites? What percentage of the population is now covered by the index? Do the weights attached to various items actually reflect their present significance in the family budget?

(f) How accurate are the foreign price indexes as a yardstick along which to measure our own performance?

(g) Are there signals other than the price indexes which might be useful indicators of inflationary pressures?

The development of better public policies to deal with economic instability requires that we find answers to these and other questions concerning our concept and measurement of inflation.

Chairman PROXMIRE. Mr. Bowman, you may now proceed.

TESTIMONY OF RAYMOND T. BOWMAN, ASSISTANT DIRECTOR FOR STATISTICAL STANDARDS, BUREAU OF THE BUDGET

Mr. BOWMAN. Thank you, Mr. Chairman. I am extremely happy to have the opportunity to testify before this committee.

The importance of price information at this time is quite apparent. I have prepared a statement which provides a complete review of progress made in recent years in improving price statistics, with particular reference to the specific recommendations made by the Price Statistics Review Committee, known as the Stigler committee, and of the recommendations of this subcommittee based on the hearings held following the issuance of the Stigler report in 1961. With your permission, I would like to submit my prepared statement for the record.

Chairman PROXMIRE. Without objection, you may do so; it will be printed in the record in full. (See p. 7.)

Mr. BOWMAN. In the limited time at your disposal I believe it would be more fruitful if I summarized orally the principal highlights of this recent history and of where we stand now. After that I would be glad to discuss further any particular aspects of the program in which you may be interested and also to answer any questions you may have.

As we see it, one of the tasks of the Bureau of the Budget's Office of Statistical Standards is to anticipate requirements for statistical improvements before they become critical. It was for this reason that the work of the Stigler Committee was promoted. Progress in implementing the recommendations associated with the Stigler Report has not been as rapid as we had hoped for, but considerable progress has been made or is underway.

With the increasing interest of the Government and the public in attempting to gage the extent of inflationary pressures as current policy has to be determined in an expanding economy approaching more closely its potential output, the need for the best price indexes possible has been sharply brought into focus.

The most important improvement in recent years centered in the extensive revision of the Consumer Price Index. This was a relatively massive effort beginning in fiscal year 1960. It required a sizable expenditure of funds and the time and attention of the top level administrative and technical staff of the Bureau of Labor Statistics. It was culminated in the publication of the January 1964 index on the revised basis. In this revision, new weights were introduced based on an extensive consumer expenditure survey. Probability sampling procedures were adopted in the selection of items, areas, and outlets so that estimates of the sampling errors in the CPI were calculated for the first time. Sampling errors for the year 1965 already computed but not yet published show for the "all-items index" a standard error of .03 for the month-to-month change, .05 for the quarter-to-quarter change, and .06 for the year-to-year change in the index.

Funds have been provided to the BLS beginning in fiscal 1963 to staff a small research unit. This was one of the strong recommendations of this committee at the time of the Stigler committee hearings. This has made it possible for attention to be given to the most important areas needing improvement for both the CPI and the WPI, namely, transaction prices, quality, the constant utility index and international price competitiveness.

Work undertaken by BLS in fiscal 1966 on standard budgets for city workers' families is expected to be extended in the 1967 program. Aside from the use of the results of this work as measures of the level of such standard budgets for families of different sizes and characteristics and of intercity comparisons, we are interested in them as a measure of, or substitute for, constant utility indexes over time.

Some considerable progress has been made in developing useful Wholesale Price Indexes for the various industrial sectors (industries) to improve the validity of deflation procedures in connection with input-output, national product by industry, and productivity estimates. BLS has recently published annual price indexes for 50 selected four-digit SIC industries. Mostly indexes for these industries will be published on a regular basis in the near future. The selection of these 50 industries, however, was largely determined by the price data currently available. Further progress in developing other industry price indexes on a valid basis will require new price collections.

One clear objective is to develop sector price indexes for at least the 160 industry sectors proposed for the 1963 Input-Output Table, which expands the 1958 Input-Output Table from 85 sectors.

Another of our objectives is provision for developing an index of international prices useful for determining the price competitiveness of U.S. products in international trade and for more effectively implementing the obtaining of actual transaction prices for the general improvement of all Wholesale Price Indexes. I think our work in the area of transaction prices needs a considerable amount of emphasis.

The international price indexes involve conceptual issues as well as special price collection difficulties. The Office of Statistical Standards has obtained the services of a consultant, Prof. Elmer Bratt, of Lehigh University, to undertake a special study of the best methodology for use in the construction of a price index that will facilitate analysis of the price competitiveness of U.S. products in foreign markets. His report is scheduled to be completed some time this summer.

The need to make certain that the WPI measures actual transactions prices rather than quoted or list prices is particularly important for current issues. It is almost particularly important for current issues. It is almost universally agreed that during periods of sizable price movements the failure to secure true transaction prices may significantly bias our indexes.

In another area of prices, Census has done considerable work on developing techniques for the construction of a sales price index for single-family houses. A report on the results of this work has been published. A request for funds in the President's budget for 1964 to initiate a data collection program for computing a price index was denied. Developmental work is continuing but actual operations on the construction of an index has been seriously delayed. This applies also in other areas of construction price indexes.

In the area of farmer's price indexes, essentially little progress has been made in carrying out the Stigler committee recommendations. In this case, there are certain conceptual, coverage, and methology problems involving particularly the indexes of prices received by farmers. The difficulties stem from the basic use of the indexes which is given emphasis. They are now primarily designed to measure the average changes in prices paid and received by farmers without taking into account differences in grades and qualities. The price indexes thus reflect changes in grades and qualities as well as changes in prices.

We believe, as did the Stigler committee, that the indexes are not true price indexes. We also agree with the Stigler committee that true measures of price changes in agriculture are required.

Chairman PROXMIRE. Could I interrupt and ask if you feel there is any bias involved here or if the errors tend more or less to cancel out?

Mr. BOWMAN. No, I think there is a continuing bias in the sense that there may be a trend shown by an improvement or a deterioration in quality of products rather than a change in the price of the same products over time.

Chairman PROXMIRE. Would the bias tend to overstate or understate prices?

Mr. BOWMAN. It depends upon the period of time. I do not think I want to make a statement now as to which way the bias might be at the present time, but biases are introduced by this decision.

Chairman PROXMIRE. Can you give us any indication of the amount of error that might be involved?

Mr. BOWMAN. I do not think so, Mr. Chairman. Not at this time.

At the present time the Department of Agriculture is carrying out an extensive review of all their pricing procedures to make a more adequate determination of both immediate and long-term needs. I assume that the Agriculture Department will discuss this work in their testimony.

My remarks have been directed to aspects of our price statistics which need improvement. This does not mean that our current indexes are not good indexes. They are for the most part excellent indexes. But they are not good enough for some of the critical and more sophisticated uses for which they are needed. I am sure that, so far as this committee is concerned, to indicate the need for improvement will not be interpreted as negating the value of what we have.

In summary, to give you an indication of where I think the greatest attention is required, it is in the area of extending the sector price index numbers, of continuing our work with the possible introduction of corrections for quality changes, in speeding up the promptness with which we can put our index numbers, in the area of transaction prices, in the area of international prices, and I am hopeful in connection with the work on speeding up promptness of our price indexes that programing in electronic data processing will help in this area, and so attention is being given to that at the present time.

Thank you, Mr. Chairman.

(The prepared statement of Mr. Bowman follows:)

PREPARED STATEMENT OF RAYMOND T. BOWMAN, ASSISTANT DIRECTOR FOR STATISTICAL STANDARDS, BUREAU OF THE BUDGET

The Report of the Price Statistics Review Committee to the Bureau of the Budget in 1961 contained recommendations aimed at improving the quality of price statistics and price indexes. The Subcommittee on Economic Statistics of the Joint Economic Committee held hearings on the Report. In its report following these hearings the Subcommittee listed those recommendations of the Review Committee which were given high priority by witnesses at the hearings and selected certain points on which it gave its own comments and recommendations.

This summary of progress made in carrying out these recommendations is organized in three parts: 1) points covered by the Subcommittee; 2) other higher priority recommendations; and 3) the other recommendations made by the Review Committee.

I. SUBCOMMITTEE COMMENTS AND RECOMMENDATIONS

1. The basis for continuing improvement of our price statistics lies in a modest but continuing provision for research in the agencies

A price and index number research division was established in the Bureau of Labor Statistics, Department of Labor, in fiscal year 1963. The major emphasis of the work of the division has been in developing improved techniques for measuring the value of quality changes of selected important items. Other work has included the study of the effect of various promotional features (e.g., trading stamps) on average market prices, the appropriateness of BLS price data for the uses to which they are put by other government agencies and the improvement of the wholesale price index by making every effect to secure true transaction prices.

The Statistical Reporting Service, Department of Agriculture, (SRS), is conducting a modest research project in the area of price statistics. Initially conducted in the State of Ohio, it has recently been shifted to Colorado to gain experience under a different set of agricultural conditions. The research relates to the application of probability sampling to collection of price data and to determination of the most efficient sample designs. It includes study of operating

problems, and also analysis of factors contributing to price differences between grades of commodities, position or level of sale, and related factors having a bearing upon achieving continued improvement in price operations.

At the present time the Department of Agriculture is carrying out an extensive review of the policies and practices of the price program of SRS. The purpose of a series of staff meetings which are still continuing concern: 1) the purposes served or to be served by the price data; 2) evaluation of the existing data in the light of the purposes to be served; 3) changes in program or practices that may be needed; and 4) feasibility of collecting the data required. A general report is to be written when the meetings are concluded.

2. Description of the procedures used in constructing each index should be published after each major revision

BLS is well along toward a full documentation of each step of the recent revision of the CPI. A bulletin describing the methodology of the CPI, including a description of the method of selecting the outlet and item samples, is in the final stages of preparation. A *Monthly Labor Review* article described in detail the method of selecting the areas for expenditure surveys and another described the statistical structure of the CPI. A shorter description of the technical features of the index will be included in the bulletin on techniques of preparing major BLS statistical series currently in preparation. A methodology monograph on the expenditure surveys will be published.

Each annual bulletin of wholesale prices and price indexes carries a description of the index which includes the selection of the sample, method of price collection, and index procedures. A description of the index will also be carried in the forthcoming bulletin on techniques of preparing major BLS statistical series. A description of the way in which the new industry and sector price indexes are being developed was carried in the *Monthly Labor Review.*

There has been no major revision of the series on prices paid and received by farmers since the publication of the Committee's report. There is a comprehensive description of how the series are currently constructed, which the Statistical Reporting Service will update when the series is revised.

3. Comprehensive weight revisions should be made on a regular schedule at least once every 10 years for each major index

There is general agreement that comprehensive revisions with updated weights should be undertaken periodically. The revision of the CPI recently completed was approximately 10 years after the previous one. We would expect another to be undertaken in the early 1970's.

If this 10-year pattern is to be followed, work on a similar revision of the index of prices paid by farmers must be initiated in the very near future. The first step will involve surveys to provide a basis for modernizing the weight structure and selection of commodity and outlet coverage. Because of general budgetary considerations and unresolved questions regarding the nature of the indexes discussed in later parts of this report, funds requested by the Department for this work in the last two years have not been included in the President's Budget.

This Office is now studying the feasibility of conducting a continuous consumer expenditure survey to serve a variety of purposes. Included in these is the provision of information of the extent and rapidity of changes in expenditure patterns. This should be useful in determining when these changes have become sufficiently large to warrant comprehensive revisions in consumer price indexes. It might also provide a basis for less comprehensive weight adjustments of some of the more volatile categories of commodities and services. Since a continuous survey would probably have to be conducted on a relatively small sample basis we are not assuming that it would obviate the necessity of a large scale consumer expenditure survey when a major revision is to be undertaken. However, such a survey might well be of a different character from those made in the past. Experience in evaluating and using the results will throw light on this point.

Quinquennial weight revisions of the WPI are now on a regular schedule. Work is now underway at BLS to incorporate new weights based on the 1963 economic censuses. It is anticipated that the revised weights will be introduced in the January 1967 index.

4. Expand and improve the export and import price indexes

There is general agreement that the unit value indexes which are now used to measure changes in the average value of exports and imports are far from

adequate for the purpose to which they are put. There appears to be very little more that can be done to improve the results available from this data source. BLS has cooperated with private research interests working on the problem of developing improved indexes by making certain existing data available for experimental use. However, requests in the President's Budget for fiscal year 1966 for modest funds to study and initiate direct price collection based on specifications of items exported and imported were not granted.

5. A program for an adequate comprehensive construction price index should be begun at once with a view to its early adoption and implementation

Census has done considerable work on developing techniques for the construction of a sales price index of single family houses. A draft report on the results of this work has been prepared and circulated for comment and discussion. A request in the President's Budget for 1964 for funds to initiate data collection and publication of the index was not granted, so that the project has not advanced beyond the developmental stage.

6. 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

When the CPI was revised its coverage was extended to include single persons. A reasonably satisfactory basis for calculation of weights which would be necessary to extend coverage to rural nonfarm families could be developed from a joint study made by BLS and Agriculture of the 1960–61 consumer expenditure surveys. Selection of outlets representative of rural nonfarm areas and items to be priced would be required. In order to provide a basis for further consideration of implementation of this recommendation, this Office will arrange to obtain estimates of the resources needed for this preparatory work and for the continuing price collection activities which would be required as data inputs for the index computation.

7. For the Indexes of Prices Paid and 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 of production

The Statistical Reporting Service of the Department of Agriculture expressed disagreement with the first part of this recommendation in hearings of the Subcommittee in 1961. This disagreement stems from basic differences in the concepts and uses of the indexes. They are now designed to measure the average changes in prices paid and received by farmers for the products they buy and sell. The data reflect changes in prices that result from differences in grade and quality as well as changes in prices for specified quality and grade. They are used as factors to apply to quantities in order to estimate gross farm costs and income, the difference being net income. The price data are also used to contrast the index of prices received, and the index of prices paid for both production and living. The index of prices received divided by the index of prices paid gives the Parity Ratio.

We believe the indexes themselves are not true price indexes as viewed from the standpoint of the interests of the Price Statistics Review Committee. We agree with the objective of the Committee on technical grounds. Resolution of the difference so as to meet both interests may be necessary and require the construction of two sets of indexes. The entire problem should be considered before the next major revision of the indexes is carried out.

There is complete agreement in respect to the second part of the recommendation; that prices paid by farmers for medical, dental, and hospital services should be included in the living segment of the index of prices paid, and that coverage of production items should be expanded to include custom services, and repair and maintenance of machinery. The Department has not presented to the Bureau of the Budget any program for implementing the recommendation but we believe it should certainly be provided for when the indexes are revised.

8. "Market basket" or "Welfare" index?

In line with the recommendation of the Subcommittee, BLS is studying the conceptual meaning of a welfare index, how such an index would serve some of the purposes for which the current CPI is used, what specific changes could be made in the CPI to move it in the direction of a welfare index, and the operational problems that would be involved in the compilation of such an index. A senior staff member of BLS has been on a leave of absence studying

these problems under a special grant. BLS is also preparing a memorandum setting forth the results of their study thus far as to the meaning of a welfare index, preparatory to presenting the matter to their Advisory Committees and we plan to initiate internal governmental discussion of the matter.

Rapid progress toward the formulation of a satisfactory and generally acceptable concept of a welfare index and the compilation of such an index is not anticipated in the near future. It is entirely possible, however, that work in this area may receive some impetus from interests in the development of better measures of poverty and of progress towards its elimination.

II. OTHER RECOMMENDATIONS GIVEN HIGH PRIORITY BY THE PRICE STATISTICS REVIEW COMMITTEE

1. The introduction of new products should be accelerated and the measurement of quality change given high research priority

This recommendation applies both to the Consumer Price Index and the Index of Prices Paid by Farmers for Family Living. Its implementation will always be a matter of degree. The list of items initially selected by BLS for inclusion in the revised CPI was considered as a sample of items in the 51 expenditure classes of the base period, rather than a group of items in a rigidly fixed market basket. Through the use of supplementary specifications and the practice of revising specifications, BLS attempts to include prices on varieties currently important to the index population. While the weight structure of the expenditure classes determined for the base period is maintained between major revisions, new items can be introduced within each expenditure class. The extent to which this is accomplished in practice depends on ability to keep abreast of and evaluate what is happening in the markets. Resources presently available do not provide for an augmented staff of "commodity specialists" for a comprehensive program of identification of new items, nor for the experimental pricing of such items before their introduction into the index. If a continuous expenditure survey, as discussed under "3" above, is initiated it may provide a samewhat more systematic basis than now exists for highlighting the appearance of important new commodities.

In the case of the index of prices paid by farmers for living items, the reliance on the pricing of "most commonly used items" within general categories in lieu of more rigid specifications, provides for more flexibility in introducing new items. While this would apply to such items as clothing made of a new material it would not automatically cover the appearance of a completely new item such as television. As in the case of the CPI there is not yet a systematic method for identifying such items nor of determining when purchases become sufficiently important to warant inclusion in the index.

The portion of this recommendation on research on quality change is discussed under "1" in Part I of this report.

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

The BLS has been expanding its wholesale pricing program and has recently published annual output price indexes for 50 selected 4-digit SIC industries and 5-digit product classes within these industries; monthly indexes will be published on a regular basis in the near future. The selection of the first indexes was determined largely by the distribution of existing WPI commodity price series. In order to increase the number of industry indexes to be computed so that indexes for larger and important sectors may be prepared and published; commodity prices coverage will have to be expanded significantly.

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

Probability sampling was employed to the maximum extent feasible for selection of items, areas, and outlets in the revised CPI and a system of replicated samples was developed to provide the capability for deriving estimats of sampling error. Preliminary estimates of sampling error have been released by major groups for the U.S. index and for the total city indexes for 18 cities from December 1963 through October 1964. Current sampling errors are being prepared and analyzed and will be made available in the near future.

No plans have been made to utilize probability sampling in the WPI. A basis is not readily available at present for the selection of a probability sample. Furthermore, as was pointed out in the report of the Price Statistics Review

Committee, it is the individual item and subgroup indexes that are used primarily in the WPI instead of the all-commodities index. Therefore, items need to be included on their own merit from this standpoint rather than according to probability.

SRS is conducting research on the application of probability sampling to their collection of price data and to the determination of efficient sampling design. Results of this work will be useful in redesigning the data collection program when the forthcoming major revision is undertaken.

4. Produce an index number of consumer prices for the entire nonfarm population

This recommendation is more far-reaching than that discussed under "6" in Part I of this report in that it would cover all nonfarm population, not just the wage and lower salary earners. There are no plans to undertake this extension until other high priority needs have been met.

5. Move the Wholesale Price Index as rapidly as possible toward the collection from buyers of more realistic prices of finished and semifinished goods

There is general agreement with the objective of this recommendation, i.e., that the WPI should reflect realistic, actual transaction prices, not quoted prices. Price respondents (sellers) are requested to report all discounts applicable to quoted prices; prices net of such discounts, when reported, are used in the calculation of the WPI. It is recognized that such discounts are not universally reported.

We agree with BLS that the first step toward the implementation of this recommendation should be through a limited and experimental program to identify commodity areas in which the differences are important and to provide a small field staff to work with respondents to obtain better reporting. Because of the heavy costs and respondent burden involved, collection of price data from buyers should be undertaken only if other methods are not successful.

III. OTHER POINTS ON WHICH THE PRICE STATISTICS REVIEW COMMITTEE MADE COMMENTS OR RECOMMENDATIONS

Two other recommendations were included in the summary contained in the first chapter of the Review Committee's report but not given priority rating in testimony before the Subcommittee. These both pertained to the Indexes of Prices Received and Paid by Farmers. One was that:

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.

The 1910–14 base requirement has particular relevance to the concept of parity. The official indexes of prices paid and received, used in the construction of the parity index are on this base. The Department recommended to the 85th Congress that the statute be amended to provide for a more recent base but no action was taken. However, the indexes of prices paid and received are computed and published by SRS on a 1957–59 base. In testimony before the Subcommittee, Department representatives indicated that they considered the use of data on interest and taxes as correct in computing the index of prices paid for production.

This Office considers the technical aspects of both of these points to be subordinate to broader issues involved in the Government's farm program. We believe the publication of the indexes on 1957–59 base which we have prescribed for other economic series meets the objective of comparability for analytical purposes. From this standpoint the obsolescence of the 1910–14 base has been overcome.

The other recommendation was that:

The indexes for farms as production units should be segregated from the index for farms as consumer units.

One component of the index of prices paid relates to changes in prices of family living items and another measures changes in prices of commodities bought for production purposes. Publication of these two components separately seems to meet this recommendation reasonably well.

Several other recommendations relating to the CPI or the WPI are contained in the body of the Review Committee Report. In testimony before the Subcommittee, representatives of BLS indicated their disagreement with some of them or stated that there was no feasible way of accomplishing them. Included in this category were recommendations pertaining to the following:

(1) The substitution of average interest rates on all outstanding mortgages for interest rates on new mortgages in the CPI, and parallel treatment of other types of interest paid by consumers.

(2) Investigate the possibility of developing a rent series for units that are actually rented but are as representative as possible of owner-occupied units in structure and location.

(3) Include life insurance with a weight representing only the expenses and profits of insurance companies.

(4) Use net weights for automobile insurance and review practices in weighting other expenditures typically covered by insurance.

(5) Experiment with the retroactive computations of city indexes, using imputed prices for certain items when data collection costs are high and the dispersion of price changes among cities is low.

We believe these points are of relatively minor significance and, unless evidence to the contrary is presented, do not propose to devote further study to them until higher priority objectives have been met.

Four other recommendations have been accomplished to the extent that they have been found acceptable or feasible. These are as follows:

1. *Publish seasonally adjusted series.*

To meet the considerable demand for research workers and analysts for seasonally adjusted data, the BLS computed seasonal adjustment factors for 66 series in the CPI (the all items index, 5 special groups and 51 groups and individual items) for the period June 1953–May 1961. Since these factors were based on the old series, they were not all appropriate for the new series.

Now that more than two full years of data have become available, the Bureau began publishing seasonally adjusted figures for 24 specially selected groups and subgroups of items in which definite seasonal movements are indicated. For 12 of these groups indexes begin with December 1965; for the remaining 12 groups the indexes begin with January 1966.

Factors for 183 commodities or commodity groups in the WPI for the period January 1948–December 1961 have been computed. Further consideration is being given to the development of seasonally adjusted indexes as priorities and resources permit.

2. *Issue preliminary indexes, which would be the basis of contractual and legislative uses. The final indexes can then be issued with the lag dictated by the flow of information. The present practice of misdating the changes in prices should be abandoned.*

BLS believes that because of the uses made of the indexes in contracts its present revision and correction practice is preferable to that recommended by the Review Committee. In the case of the CPI, the lag to which the Committee refers includes that resulting from the lack of resources to do a complete pricing of every item in all cities each month. In the revised CPI, expenditure values for quarterly groups in unpriced cities are held constant in interquarterly months at subclass levels from the latest period except for new cars. This method introduces a lag but is considered preferable to the alternative in use for most groups from 1953 to 1962 that resulted in overestimates for some cities, requiring correction in the opposite direction at the next regular pricing for the city.

Although the CPI is published as "final" in the first month it is issued, corrections are made in published figures when the magnitude of error reaches predetermined levels. These levels have been announced in an official statement and are available upon request.

The lag problem is somewhat less serious in the WPI where most commodities are priced monthly and more items are included in the index. In the first month of publication the WPI is issued as preliminary.

In the following month all available revisions and substitutions of actual for estimated prices are incorporated. After this revision, further revisions are made in the published figures when the magnitude of error reaches pedetermined levels. The level of error that results in the revision of published figures at each index level is shown in the annual wholesale price bulletins.

3. *An income limitation on salaried persons must be retained (for the CPI) if the group is to have any separate identity, although of course the $10,000 maximum of 1950 is obsolete.*

In the 1950 CPI revision the urban index population was defined on the basis of the occupation of the head of the household. There was some ambiguity in the designations of occupations as reported by the families compared with those used for determining whether or not the head of the household was a member of

the index population. Therefore, the $10,000 family income limitation was used as an editing device to eliminate families incorrectly classified. In the recent revision an urban family was considered within the scope of the CPI if 50 percent or more of its total income during the survey year came from wage or clerical occupations and if at least one member of the family unit worked a minimum of 37 weeks of the year. Because of this broader definition of the index population, the use of a family income limitation as an editing device was not considered necessary. Furthermore, the limitation on family income did not seem appropriate in view of the increasing importance of families with two or more workers.

4. *Prepare a sampling frame, showing the distribution of consumer expenditures for particular goods and services by market area and type of retail establishment, as a means for determining the location of current data within the universe and for determining the feasibility and cost of collection of price statistics for the entire nation.*

The 1960–61 expenditure data have been tabulated and released by expenditure category for urban, rural nonfarm and farm populations separately, and for the total U.S., by geographic region. The compilation of an index representative of the total U.S. population, and the expanded price data collection program which it would entail are not contemplated in the near future. Therefore, analysis of the expenditure of the CPI population in relation to the universe and the estimation of costs of compiling a national index have not been undertaken.

The soundness and desirability of the objectives of four other recommendations are recognized.

1. *Expand price collection beyond needs of current price indexes to provide data needed for econometric and historical research, deflation of National Income Accounts, industry deflators for Census Bureau, BLS, and Federal Reserve Board studies of production on an industry basis, and the development of asset prices including vehicles and producer durable goods for use in estimating National Wealth.*

Resources have not been sufficient to permit BLS to expand its program beyond that needed for the current price series and other higher priority recommendations for improvement.

With respect to the last part of this recommendation, we hope that provision can be made for price data for producers' durable equipment and plant which will be needed in conjunction with the work on tangible wealth of the U.S. being planned for the later part of the decade.

2. *Study practical means for determining the change in the relative importance of various types of outlets in various marketing areas at frequent intervals.*

BLS plans to initiate a study of relative importance of the various types of retail outlets as revealed by the recent Census of Business as soon as the data for the CPI cities becomes available.

3. *The framework for the universe of the WPI should consist of the total sales and purchases of commodities other than at the retail level. Care should be taken to see that no important commodity class is omitted from the coverage.*

Funds have not been granted as requested in the President's Budgets in recent years for work on indexes of import and export prices and indexes of prices paid by governments. Research is continuing in an effort to extend coverage of the WPI to some commodity areas—such as electronics—that present very difficult pricing problems. The scope of the new industry and sector price indexes will cover all sectors of the domestic economy, including intermediate market levels, when resources permit.

4. *We (the Review Committee) believe an index of this latter type ("built to order" items having fairly distant delivery dates and—prices in contracts which run for specified periods) has enough interest and potential usefulness to justify at least a serious experimental program.*

Historically, the principal need for an index of sensitive prices has been for use as a prompt indicator of inflationary or deflationary pressures in the economy. There are certain commodities, largely raw materials, which are the first to reflect such pressures. Some commodities which formerly performed this role no longer do so accurately because they have come to be influenced more by secular trends, or by international market factors which are manipulated or controlled. Their price trends still may have considerable importance, however, as indicative of raw material costs in the American economy. Indexes of futures prices would have a function to perform in economic analysis, but it is a different function because of the speculative influences on futures markets.

We believe that development of such indexes have a lower priority than improvements in indexes of prices in current actual purchases which are sensitive to inflationary pressures. BLS proposes to continue its present index of prices of 22 basic commodities until such time as the composition of this index can be re-examined and revised as necessary to provide a better prompt indicator of inflationary, or deflationary pressures.

Chairman PROXMIRE. You say the data processing computer operation will help in the promptness of the report?

Mr. BOWMAN. We are hopeful that this will be true; yes.

Chairman PROXMIRE. To what extent have you used data processing?

Mr. BOWMAN. Not into the basic tabulations of the CPI. It has been used to some extent, and I think Mr. Ross can tell you more about the details of that, but we are even thinking now of the possibility that reporting might come more quickly by telephone and go directly to computers and we can speed this up to a considerable extent.

That is not the only thing we are trying to speed up in the pricing index, however. But this is one of the things that we have in mind.

Chairman PROXMIRE. In doing so, will you reduce, increase, or have about the same cost? In most areas where we have instituted the computers, as you know, there has been a dramatic increase in efficiency and a reduction in cost in relationship to the job being done.

Mr. BOWMAN. My hope, of course, always, is that we will reduce costs. But we have to recognize in many of these instances that the cost reduction we hope can be used for further improvements in the price indexes.

Chairman PROXMIRE. Yes, indeed. The only reason I raised that is just that it would not be very hard to sell Congress on getting more prompt statistics if you can get them for a lower cost at the same time.

Mr. BOWMAN. We shall certainly try.

Chairman PROXMIRE. We all recognize, of course, the excellent investment which this kind of expenditure represents.

I am going to return to you, Mr. Bowman. I have some substantive questions for you, but I think it might be helpful to have Dr. Backman and Dr. Fabricant go ahead with their testimony.

STATEMENT OF JULES BACKMAN, RESEARCH PROFESSOR FOR ECONOMICS, NEW YORK UNIVERSITY

Mr. BACKMAN. About a year ago, the Life Insurance Association of America made a grant to the National Industrial Conference Board to cover the costs of an intensive study of the price indexes, particularly with emphasis upon their usefulness in public policy, and more specifically, their usefulness in measuring price inflation. This study was conducted under the direction of Martin Gainsbrugh, chief economist of the board, and myself, and a copy of the report which has just been completed has been submitted to the committee.[1]

What I plan to do today is cover some of our main conclusions.

The three indexes upon which we concentrated were the Consumer Price Index, the Wholesale Price Index, and the Implicit Price Index, sometimes called the Gross National Product Deflator. What we have attempted to do is evaluate which of these three indexes best

[1] "Inflation and the Price Indexes," by Jules Backman and Martin Gainsbrugh, committee print, Subcommittee on Economic Statistics of the Joint Economic Committee, July 1966.

measures the magnitude of inflation, which is best for timing, which is best in coverage, and so on. I would like to indicate our conclusions.

The CPI (Consumer Price Index) provides the best measure of the magnitude of price inflation. The coverage of the WPI (Wholesale Price Index) is too limited for this purpose. The main value of the WPI and particularly of the crude materials component is to provide a warning signal that price inflation may be developing. The IPI (Implicit Price Index) is the least useful of the three price indexes. However, the IPI excluding compensation of Government employees can be used to confirm, with some lag, the general magnitude of changes in the CPI.

The three price indexes alone do not tell the entire story of price inflation. Other measures, such as prices of land, real estate, and common stocks may be even more revealing and significant in some periods. A complete analysis of price inflation, therefore, must review the experience in all of these areas.

Even more important, such an evaluation must be concerned with the basic causes of inflation, the demand-pull resulting from the fiscal and monetary policies of the Federal Government, and the cost-push created by excessive increases in labor costs.

There is urgent need for a more comprehensive set of indicators of prices and values if we are to have an effective "early warning system" to detect incipient inflation or even its actual development. All the data need not be compiled by a single Government agency. They should be compiled by the specialized agencies involved in a particular sector of the economy. This would be true, for example, for rail, truck, inland water, and coastal transportation rates (Interstate Commerce Commission); air transportation rates (Civil Aeronautics Board); electric and gas rates (Federal Power Commission); and telephone rates (Federal Communications Commission).

An interagency committee should be established to facilitate the collection and coordination of the required data. Such a group, properly staffed, could determine the significant gaps in our price intelligence, determine what Government agency should fill them, and provide for a systematic publication of all price data.

Let me turn now to a brief review of each of the three price indexes and the role they play in measuring price inflation.

WHOLESALE PRICE INDEX

The WPI does not provide a satisfactory measure of the general level of prices because of its inadequate framework of reference, inadequacies in the data collected, and a failure to reflect fully all changes in quality. The index could be considerably improved by expanding its coverage to include construction, transportation, trade, services, and prices of products entering into international trade.

I would associate myself completely with the recommendations made by Mr. Bowman.

Further research to determine the prices actually paid by buyers would indicate the extent to which sellers prices now used to compile the index reflect the actual fluctuations in prices in our economy.

Incidentally, the rise in prices in the past year has been greater than shown by the Wholesale Price Index, because at the start of this

recent increase in prices, there were many products sold below list and below the prices reported to BLS (Bureau of Labor Statistics). So what we have had is a twofold impact. First, the recovery to list or to the reported price as price concessions were eliminated and then the rise in those prices.

Chairman PROXMIRE. Did you measure or estimate what the significance of this is?

Mr. BACKMAN. No, I am sorry, we can't measure that. We just do not have the data. This is where the material dealing with actual transactions prices would be very helpful. But I do not think there can be any question about the fact that the rise, at least in wholesale prices, has been somewhat greater than reported.

Chairman PROXMIRE. By "somewhat," is there any way we can get any kind of evaluation? Is this significant? Would it be as much as a 1-percent difference?

Mr. BACKMAN. I don't think we can tell. There were some areas of the index where it is not important, like farm products and many types of processed foods, but for products like chemicals and electrical equipment, office equipment, and related areas, it was a very important factor. The overall measurement, we just do not know.

Chairman PROXMIRE. I see.

Mr. BACKMAN. 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.

The WPI contains considerable duplication since it includes products at different stages of production. As a result, a change in the prices of a key item may have a significant impact on the entire index. For example, a decline in the supply of livestock in 1965 was reflected in major increases in the prices of farm products, in processed foods, and in hides and skins.

The WPI is mainly useful in connection with the timing of inflation. The fact that the WPI is reported weekly as well as monthly is important in this respect. The WPI reflects the price movements at earlier stages of the production-distribution process and hence often is a good indicator of future trends of finished goods prices at the retail level. However, changes in costs, in profit margins, in competitive pressures, and/or pricing policies at later stages of distribution may blunt or accentuate the impact of rising prices of raw materials, of intermediate products, or of many finished goods.

The WPI tends to be more directly responsive to economic pressures than either the IPI or CPI. The raw materials component usually is more responsive than the entire WPI and hence is especially valuable as an indication of developing trends. However, these latter prices may have false starts—as during the Suez crisis in 1956—or may reflect special pressures—for example, sharply rising prices of fresh fruits and vegetables when supplies are short.

I think we should keep in mind that the index of raw material prices, has moved downward moderately in the past 3 months, during a period when there has been considerable concern about developing price inflation. The BLS index of 22 sensitive prices has declined from 115 on a 1957–59 base late in February, to somewhat under 111 in recent weeks. This is a portent that should not be ignored.

The extent to which the components of the WPI change in the same direction also may provide a useful guide to developing price trends. For example, the general stability of the WPI from 1958 to 1964 reflected offset increases and declines. In contrast, no major component of the WPI declined between December 1964 and December 1965. It was this rise in prices across the board—even though the increases for most groups were less than 1 percent—rather than the overall magnitude of the rise that caused considerable concern about further price inflation early in 1966.

The fact that the WPI covers prices at several stages of production makes it possible to trace price rises through successive stages from raw materials to finished fabrication. Thus, an analysis of the changes of the components of the WPI and the diffusion of price changes may provide a valuable early warning signal which reinforces the significance to be attached to turning points in the total WPI.

IMPLICIT PRICE INDEX

The coverage of the IPI is broader than that of the other two price indexes because it is derived from the comprehensive gross national product accounts. Although the Council of Economic Advisers has described the IPI as "our most comprehensive indicator of the price level," it is affected by several significant weaknesses which limit its usefulness as a measure of the magnitude of price inflation.

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 section 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 change in the general level of prices in the United States. Improvement in the quality of these price indexes is necessary. A comprehensive price index covering the national accounts is vitally needed to improve our measures of real economic growth and output per man-hour. Hence every effort must be made to eliminate the defects of the present IPI.

Changes in the IPI overstate the magnitude of price inflation and result in an understatement of the increase in real gross national product. The measurement of the price changes for compensation of government employees is particularly inadequate. Yet it is the changes incorporated for government which account for most of the disparity between the changes recorded by the IPI and the CPI. For example, in the period 1958–64, the rise in the total IPI was 8.9 percent. For the gross private product, after elimination of all Government services, the increase was 7.1 percent and for the CPI the rise was 7.3 percent. Thus, the breadth of coverage of the IPI is a disadvantage in determining the degree of price inflation because of the significant influence of the inadequately measured government sector.

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—about 90 percent of the coverage. However, even this less comprehensive index tends to overstate the actual changes in the level of prices because of the inclusion of the inadequate indexes for construction costs.

The IPI is published quarterly and hence has much less value as a measure of the timing of inflation than either the CPI published monthly or the WPI available weekly and monthly. Since the IPI is based in large part on the components of the CPI and WPI—45.6 percent is derived from the CPI and 12.3 percent from the WPI—the mechanics of its compilation make it unavoidable that even the publication of the quarterly data will lag behind the other two indexes.

Because of its infirmities as a price index, the total IPI does not provide a good measure of general price inflation. There is vital need for a program to improve the quality of price data used to deflate the national accounts. A WPI based upon an input-output matrix, the development of indexes for products entering into international trade, and improvements in the price data for government and construction are required. Until such improvements are achieved, the trends recorded by the IPI add little to the picture shown by the broad trends of the other two price indexes.

CONSUMER PRICE INDEX

The CPI is the index used most widely to measure the magnitude of price inflation. The CPI has broader coverage than the WPI because it includes a wide range of services (which account for about one-quarter of GNP) as well as excise taxes, sales taxes, and property taxes. On the other hand, the CPI coverage is significantly smaller than that of the IPI. However, the CPI does not have the infirmities noted earlier for the IPI and hence it is a better measure of trends of prices.

To the extent that wholesale prices cover the same products (about one-third of the CPI), the CPI reflects the changes which are passed through to the final consumer.

One of the interesting aspects of our study was a detailed product-by-product comparison of the CPI and the WPI to determine the extent to which they had products in common. We found that at the outside, because one could not match up every single item, at the outside, only one-quarter of the weighted importance of the items in the Wholesale Price Index were the same products that went through to the Consumer Price Index, where they accounted for about one-third the weight.

Included in these estimates of one-quarter and one-third were several questionable areas. For example, the WPI measures the price of industrial and commercial electricity whereas the Retail Price Index uses residential electricity. We counted that as being the same product, although actually they may have different price movements.

It is important to keep this difference in coverage in mind, because very often emphasis is given to what will happen to the CPI because certain things have happened to the WPI. Thus, these are some changes in the WPI that may affect part of the CPI rather than the entire CPI.

The CPI also provides the best measure of the degree of price inflation experienced by the final consumer and hence when used to adjust his income indicates changes in the levels of living. However, the CPI does not measure the extent of price inflation affecting business concerns because it does not cover raw material and capital goods.

Selected components of the WPI are far more useful in this connection, particularly as an early warning system, flashing signs of incipient inflation as the costs of materials begin to affect final product prices.

The CPI gives major weight to items bought by city workers' families and single individuals. It does not attempt to measure price trends for rural areas (a sharply declining segment of the economy) or for higher income groups. Nevertheless, it is probable that the CPI does provide a rough indication of price trends for those areas and groups because of the geographic relationships among prices and the tendency for all groups to buy many of the items they require from the same types of outlets.

Despite the advantages as compared with the other two indexes, there are some limitations to be noted. The CPI usually tends to be more sluggish and to lag behind the WPI. For example, the CPI did not begin its upward movement in the middle 1950's until about a year after the WPI had turned up in the late spring of 1955. Thus, in the past, the CPI has been less useful as a measure of incipient price inflation than the WPI. However, between 1958 and 1964 the WPI was the lagging index. In 1965 and early 1966, on the other hand, the WPI again played its historic role of leading the CPI. Whether this historic role will continue to be followed in the months ahead provides a very interesting question, because the wholesale index has shown practically no change for the past 3 months, that is, since mid-February.

During this period, the Consumer Price Index has continued to advance. So it is going to be rather interesting in terms of long-term relationships to see what happens to the CPI in the months immediately ahead in light of this recent stability in the Wholesale Price Index.

Incidentally, Mr. Chairman, I had the occasion to give a talk several weeks ago, before the National Association of Purchasing Agents, in which I analyzed the relative changes in recent months and over the past year in the CPI and the WPI. If you think it would be of interest to the committee, I could file a copy of that talk.

Chairman PROXMIRE. Yes, indeed, it would be very welcome. I am sure it will be helpful.

(Material referred to follows:)

THE OUTLOOK FOR PRICES [1]

(By Jules Backman, Research Professor of Economics, New York University)

There has been a quickening of the pace of rising prices in the past 15 months. How much have prices risen? The answer to this question depends upon which of three indexes is used for measurement: the Consumer Price Index, the Wholesale Price Index, or the Implicit Price Index derived from the national accounts. During the 1958–64 period, one could conclude there was no price inflation by emphasizing the unchanging WPI or one could insist there was a price rise of 7.3% by referring to the CPI or of 8.9% by emphasizing the changes in the IPI. On the other hand, during the period from December 1964 to March 1966 the WPI rose by 4.6% and the CPI by 2.9%.

The question of how to measure price inflation is vital because government decisions concerning monetary policy, fiscal policy and other programs are significantly influenced by the answer. In this connection, Martin Gainsbrugh and I have just completed a study in depth of the three price indexes. This

[1] An address before the National Association of Purchasing Agents at Cobo Hall in Detroit, Mich., May 4, 1966.

study is now in the hands of the printers and should be available from the National Industrial Conference Board in the near future.

We have concluded that the CPI provides the best available broad measure of price inflation. Although the coverage of the WPI is not adequate to serve this purpose, the raw materials component does provide an early warning of incipient price inflation and hence is useful at turning points. Moreover, since the WPI includes the prices of the products which influence business costs, this index, and particularly the industrial price component, is of greatest interest to purchasing agents.

The IPI, which has the broadest coverage, is the least useful of the three price indexes. Its movements are exaggerated because employee compensation is used to measure the price of government services and because it fails to allow for changes in output per manhour in the construction industry. In addition, the data for the business investments sector are not very satisfactory. If government services are included, the changes in the IPI tend to parallel those in the CPI.

It must also be recognized that inflationary pressures may be reflected in the prices of securities, land, and property which are not covered by these three indexes. That an unhealthy degree of speculation has been taking place in the securities market is apparent to every experienced observer. When this rampant speculation will end cannot be foretold. But end it will and then the new roads to riches will prove to have the same dead ends they have had in the past.

Anatomy of CPI

An examination of the major components of the CPI shows that the rise in the past year has been concentrated largely in food prices:

	Percent change, annually	
	1958–64	March 1965–March 1966
Total index	1.2	2.8
Food	.7	6.5
Other commodities	.7	.8
Durable	.4	−1.2
Nondurable	.8	2.3
Services	2.3	2.6

Prior to 1965, the prices of services rose much more rapidly than the other components of the CPI. Between 1958 and 1964, for example, the annual increase in the prices of services was more than three times as large as that for foods and other commodities. The experience in the past year provides a marked contrast. Prices of services have increased at the annual rate of 2.6% or only slightly more than in the preceding six years. On the other hand, the prices of foods increased by 6.5% or substantially more in one year than in the entire preceding six years. The prices of other commodities increased at about the same rate as in the earlier years largely because of the reduction in the federal excise taxes; the prices of non-durable goods have been increasing more rapidly.

Clearly, the doubling in the rate of increase in the CPI has been due almost entirely to the sharp rise in food prices. All consumer prices other than foods increased by 1.5%. (This rise would have been about 1.8% if federal excise taxes had not been reduced).

The increases in various categories of food prices have been as follows:

Percent increase, March 1965–March 1966

	Percent
Meats, poultry and fish	17.4
Food away from home	4.0
Other foods at home	3.4
Dairy products	3.0
Cereals and bakery	2.4
Fruits and vegetables	1.8
Total	6.5

The sharp rise in the food price index has been due overwhelmingly to the 17.4% increase in meats, fish, and poultry. In fact, this group with a weight of 5.6% in the entire CPI was responsible for more than one-third (34.6%) of the 2.8% increase in the CPI in the year ending March 1966. The rise in meat prices appears to have been due more to a shortfall of supply than to an expansion in demand. As the supply of livestock has increased prices of hogs and cattle have receded from the peaks reached in late December 1965 and early March 1966.

I am not attempting to minimize the rise in the CPI. To many families the particularly sharp rise in food prices is a reality about which they are very much aware. And tragically, the lower the income the larger the proportion of income spent on food and hence the greater the hardship resulting from this rise.

Insofar as the readings of the CPI indicate to date, it seems evident that the greater rate of rise in the total index has been attributable primarily to special factors affecting food supplies rather than a response to a marked expansion in demand (though the rise in income was above average in 1965 and early 1966). Higher livestock prices in 1965 reflected a reduction of about 3% in total red meat production.

This is not the stuff out of which continuing price inflation is made. Rather, as the shortfall in supply, particularly of livestock, is overcome, some easing of food prices is probable. The U.S. Department of Agriculture expects that by the end of the year farm prices of poultry and eggs will drop by 15 to 20%, vegetables by 20 to 25%, potatoes by 10%, and meat animals by 5%. But even if all these declines do not develop, there would be no reason to anticipate a further sharp rise in food prices in the balance of 1966 unless a crop failure should take place. In recent weeks some declines in food prices have already taken place.

Should food prices stabilize or decline, as the Secretary of Agriculture has predicted, the rise in the CPI over the next year would be less than the 2.8% which took place in the past year. We should not be complacent about such a smaller rate of creeping inflation since an erosion of even 2% a year in the purchasing power of the dollar falls with heavy weight upon fixed income groups and those with lower incomes.

Anatomy of the WPI

Does the rise in the WPI in the past year portend an acceleration in the increase in the CPI in the months ahead? Except for the period from 1958 to 1964, changes in the WPI have tended to lead those in the CPI; the changes in the WPI also have been of larger magnitude. This pattern has again emerged in 1965 and 1966.

Changes in the WPI are not necessarily translated into similar changes in the CPI. The price study to which I referred earlier includes a detailed analysis of the extent to which the same products are priced for the WPI and the CPI. We found that a maximum of about 25% of the weighted importance of the WPI was accounted for by products which are also in the CPI where they accounted for about one-third of the index. With this limitation in mind the changes in the WPI have been as follows:

Percent increase, February 1965 to February 1966

	Percent
Farm products	13.6
Processed foods	9.4
Industrial	1.9
Total	4.1

The large rise in the WPI was due primarily to the 13.6% increase in prices of farm products and the accompanying rise of 9.4% for processed foods. These increases have already been reflected in retail food prices as I noted earlier. The more important figure is the increase of 1.9% in industrial prices.

Of course, we must recognize that the rise in the industrial price index does not show the full extent of the inflationary pressures for two reasons: (1) the actual price rise has been greater than reported because the official index does not reflect all price cutting and (2) government exhortations and actions against price rises for steel, aluminum, copper, cigarettes, and hides undoubtedly have resulted in greater restraint in corporate pricing than otherwise would have taken place. Thus, we have had a larger price rise than recorded by the industrial

wholesale price index but not so great as the basic underlying pressures would have yielded in the absence of government intervention.

Prices increased between February 1965 and February 1966 for each of the 13 subgroups which comprise the industrial price index although the increases were less than 1% for 5 groups. This across-the-board rise in prices was a markedly different pattern from that which prevailed in the period up to December 1964. In that month, the industrial price index was 1.8% higher than the 1957–59 average but for 6 of the 13 components of this index prices had declined. In other words, the relative stability of prices in that period reflected offsetting advances and declines in important groups of prices.

This pervasiveness of the recent advance is more important than the precise magnitude of the rise because it reflects the broad inflationary pressure prevailing in the economy.

During the remainder of 1966, the extent of these pressures may be obscured if attention is focused only on the total WPI. Thus, stability or a decline for farm products and processed foods could act to hold down the rate of increase in the total WPI as compared with the year ending in February. The more significant indicator will be the behavior of the industrial price index alone.

Trends since November 1965

Public concern over the danger of price inflation was largely activated by the rise of 1.74% in the WPI between November 1965 and February 1966. This was an annual rate of increase of about 7%. A continuation of that rate of increase would be a serious and intolerable amount of price inflation. It was the sharp rises in farm product prices (annual rate of 28%) and processed foods (annual rate of 15%) which accounted for this marked advance in the WPI in a three-month period. During the same period, the increase in industrial prices was 0.6% or an annual rate of 2.4%.

The trend since mid-February has been in marked contrast to that in the preceding three months. The WPI has recorded no increase; while the industrial price component has advanced 0.2%. It may be recalled that during the same period last year, the price indexes also were relatively stable so that a short period of price stability should not lull us into a sense of complacency concerning further price inflation.

Nevertheless, recent changes have been small. In this connection, too, it should be noted that the sensitive index of 22 commodities which had increased sharply from 106 (1957–59=100) in November 1965 to 115 on February 23, 1966. has drifted lower to about 113. The changes in these indexes must be watched carefully in the coming weeks to determine whether this has merely been a temporary lull in the price inflation.

Because retail prices tend to lag behind changes in wholesale prices these recent trends have not yet been fully reflected in the CPI. It should mean a slowdown in the rate of increase in the months ahead as compared with the large advance—0.9 percentage points—reported in February and March.

BASIC INFLATIONARY PRESSURES

The basic pressures for price inflation usually are found in three areas: fiscal, monetary, and labor costs. In the present situation, rising labor costs thus far have played an unimportant role.

Fiscal inflation

There is an understandable widespread belief that the balanced budget projected for fiscal 1957 will fall short of the mark. First, there is concern that the escalating Vietnam War will require larger increases in defense spending than are now projected. Second, rising interest rates probably will add to expenditures. Third, the balance is obtained in part by bookkeeping measures such as the sale of $4.7 billion in government assets and a seigniorage profit of $1.6 billion. The latter is merely an inflationary method of financing a deficit and hence should not be counted as revenues. Excluding these two items there is a substantial deficit. Fourth, non-defense spending may be higher than projected because the President has said he is "unwilling to declare a moratorium on our progress toward the Great Society" and because Congress appears to be unwilling to accept proposed cuts in spending for some programs.

Thus, the balanced budget is a mirage. In fact, even a balanced budget will fall short of today's requirements when a good sized budgetary surplus is essential. But at the present time, it appears that even a balanced budget is more hope than reality.

The restoration of excise taxes on automobiles and telephones and the deferral of cuts scheduled for January 1967 and the speeding up of collections of corporate and individual income taxes will add an estimated $1.1 billion to revenues during the current fiscal year and $4.8 billion in fiscal 1967. The rise in social security taxes this year has increased payroll taxes by almost $6 billion.

These are all constructive steps. But they do not go far enough. Unless the Vietnam War stops escalating or comes to an end, the danger remains that we shall again have a budget deficit in 1967 with further pressures for price inflation.

Monetary pressures

The major rise in our economy during the past 5 years has been fueled by a large expansion in credit with the largest increases in the past year. When there are substantial unused resources, such an expansion of credit can be absorbed with little or no price inflation. But an expansion in credit of these dimensions when the economy is operating close to capacity will create significant pressures for price inflation.

Credit has become increasingly tight and promises to become tighter. The speed up of corporate tax payments probably will be accompanied by an increasing demand for credit by many corporations because they will be less able to finance their working capital needs through deferred taxes.

Business is planning to increase its expenditures for plant and equipment by about 16%. If profits do not increase as much this year as in 1965—and I question whether they will—then internal sources of funds may be inadequate to finance this expansion thus adding to the demand for funds. However, tighter credit, higher interest rates, and shortages of equipment may cause a cut back to some extent in the planned expansion thus reducing the pressures of demand for men, materials, and financing.

The banks cannot continue to expand credit at the high rate which has prevailed recently. Rationing of credit by the banks and higher interest rates indicate that monetary conditions can adversely affect the rate of expansion in the economy.

The Federal Reserve Banks already have turned the credit screw a notch by raising the discount rate. However, with Treasury bill rates ¼% to ½% higher than the discount rate, another increase in the discount rate would not be surprising. Although the Fed has raised the discount rate, it has continued to broaden the credit base by its large-scale purchases of government securities. A tightening of credit both in terms of tapering off open market purchases and a further rise in the discount rate is necessary to curtail the basic inflationary pressures which are being generated in this area.

Wage inflation

Despite the considerable public discussion of labor cost increase in excess of the Administration's guideposts, unit labor costs in *manufacturing industries* in the last quarter of 1965 were *lower* than in 1964 and 1.6% below the average for 1957–59. Rising prices generally have not been due to higher labor costs in manufacturing industries although there are some industries where this pressure has been generated.

The increase of about 1% in unit labor costs for the *entire corporate economy* in 1965 undoubtedly has created greater pressure for higher prices than did similar increases in the preceding few years, because the reduction in excess capacity has made price increases easier to obtain and more readily acceptable.

An increase in hourly wages and fringes of about 4% is probable for 1966. In addition, higher social security taxes could add about ¾ of 1% to hourly labor costs. The net result could be an increase of 2% to 2½% in unit labor costs this year or a higher rate than in recent years. Together with higher material prices this would mean increasing pressure on prices from the cost side.

Even greater pressures from higher labor costs threaten for 1967 when contracts in several major industries will be negotiated. At that time, the impact of higher living costs and the effect of labor shortages will have their greatest influence on total labor costs unless the economy has leveled off or turned down moderately. Excessive increases in minimum wages later in 1966 also could add to the pressures in 1967.

Vietnam and prices

The most important factor determining the outlook for prices is the war in Vietnam. Actual war expenditures have accounted for only a small part of the sharp rise in gross national product to date. Recent estimates suggest the cost

is about $10 billion a year. However, the escalation of the Vietnam War undoubtedly has contributed to the current level of economic activity as American industry has begun to produce weapons and equipment and in the process has stepped up the rate of inventory accumulation. This added volume has helped to utilize unemployed resources and has resulted in capacity or close to capacity operations in the affected industries. The resulting shortages have resulted in more optimistic projections of the new plant capacity required and probably have contributed to the rising volume of demand in this area. The reduction in unemployed resources also has resulted in a weakening of the forces containing monetary and fiscal inflation.

Let me review in capsule form the impact on prices of the three possible alternatives in the Vietnam War:

1. No further escalation beyond that now scheduled. (An estimated 400,000 men in Vietnam.) It is probable that the maximum pressure from this source is taking place now and probably in the next few months. By next fall inventory accumulation would be at a lower rate, government spending would peak out, and the rate of increase in plant and equipment spending would be lower. At the same time, the enormous expansion in plant and equipment will be coming on stream and utilization rates would probably decline. Under these conditions, there would be continued pressure for further increases in industrial prices in the months ahead but these pressures would taper off later in the year.

2. Further escalation in Vietnam beyond that now scheduled. The pressures for price rise would be intensified as the federal budget deficit expands. Price inflation would become more serious. The extent to which prices would rise would depend on (a) the amount of the escalation and (b) the counter measures taken to combat price inflation. Past history suggests that any anti-inflation program will probably be too little too late and hence on balance prices would probably rise more rapidly.

3. We fail to reach the presently scheduled goals or our Vietnam activities are cut back. Either development would take the bloom off the boom. The threat of serious price inflation would evaporate. Growing surplus capacity would result in intensified competitive activity with the accompanying concessions in price.

I have no way of knowing which of these alternatives will develop. They are presented as a guide to your own thinking as events in Vietnam unfold.

SUMMARY AND CONCLUSIONS

The danger of price inflation has been increased primarily because the barriers—surplus capacity and unemployment—which have contained it have been weakened. With the economy operating close to full utilization of resources, even moderate fiscal and monetary inflation will intensify the pressure on prices.

Expectations concerning price trends can be critical. If businessmen and consumers expect price inflation they help to bring it about by increasing their purchases: businessmen by adding to inventories and speeding up the construction of new plant and equipment and consumers by becoming less willing to save and more anxious to acquire goods now. Such developments activate price inflation.

The widespread concern that has developed, can not be calmed down by soothing statements from Washington. Actions not words are required to dampen the present fears. When psychological factors take hold, the more the government temporizes, the more skeptical people become about any proposed anti-inflation programs. The time to abort these psychological forces is *now*—before they become significant.

We must attack the basic causes of price inflation. This means vigorous action to hold down burgeoning demand by fiscal and monetary restraint. The answer to the expanded threat of price inflation is not found in wage-price guideposts nor in government control of wages and prices which have proved to be inadequate in the past.

In the fiscal area, we must shift from a budgetary deficit to a meaningful budget surplus. If the federal budget does not develop a surplus under boom time conditions of full utilization of resources, when will it do so? It is imperative that we curtail non-defense government spending by resisting the adoption of new programs and the expansion of older ones. If adequate economies cannot be achieved by such measures then higher taxes will be necessary.

In the monetary area, a further rise in the discount rate may be necessary. But even more important, the Federal Reserve System must stop adding to bank reserves and thus facilitating credit expansion.

These are largely preventative measures. When price inflation gets under way, it is difficult to reverse until after many people experience hardships and distortions develop in the economy. Thus, while I question whether we face a step up in the rate of price inflation at this time, it would be prudent to take out some insurance in the form of tighter fiscal and monetary policies.

Mr. BACKMAN. Repeatedly, it is asserted that the CPI overstates the actual rise in prices because of various imperfections in its compilation. These alleged imperfections are (*a*) a failure of the CPI fully to reflect quality improvements, (*b*) a failure to add new items and to subtract old items from the index rapidly enough, (*c*) delays in reflecting the effect of new methods of distribution at lower prices (discount house and supermarket), and (*d*) a built-in overstatement of price rises because the index is constructed by using fixed base period weights. It has been claimed that if these defects were eliminated, the CPI might show no price inflation during much of the decade ending in 1964.

It is impossible to determine with any precision the net quantitative effect of these various criticisms. I should add that in the body of the report, which has been filed with the committee, we have examined in considerable detail the available data dealing with each of these areas. Our conclusion is that when allowance is made for the sectors of the index which are not affected and for those goods and services which appear to have experienced an offsetting deterioration in quality, the net effect upon the CPI appears to be very minor.

For example, it is no great secret that the quality of many types of services has been deteriorating rather than improving, with the major exception of hospital care. But if one wants to have his car fixed or to get any type of service for anything within a house, whether it be painters or plumbers or electricians or anything else, the deterioration in service, measured in the quality of work, measured in the time you have to wait to get these people to show up, and all other aspects, is very vivid.

For those of us who do a little commuting, the quality of commuter service has certainly not improved. Although, here, we get a rather interesting development. We get a one-time big improvement such as the introduction of air conditioning. Then we find there are fewer and fewer trains and poorer and poorer service. This is part of the quality factor just as surely as the alleged improvement in an automobile or the changes that may have taken place in hospital care.

Chairman PROXMIRE. I think it is awfully hard to reduce to any kind of measurement. So much of it is on the basis of our experience. For example, yesterday as I was driving over those magnificent freeways in New York State—I happened to be out there—I was struck by the fact that so much of this is new. In New York, it is relatively new—15 or 20 years old. In my part of the country, it is within the past 2 or 3 years. This represents a tremendous improvement in the quality of transportation.

Now, it is true that there is a gas tax increase that perhaps reflects this to some extent. But I wonder if there is any way of measuring this? I assume there is not.

But certainly, in terms of the satisfaction that the consumer gets in riding over these beautiful roads and being able to get from one place to another far more rapidly and efficiently, it does represent an improvement in services.

Mr. BACKMAN. I think that is true and this is one of the great difficulties. It is largely subjective. Much of the discussion of the quality bias, or alleged quality bias, in the CPI is built round alleged understatements of improvements in automobiles, a factor which, incidentally, has almost disappeared in the last 5 or 6 years, the improvements in hospital care so that your stay is fewer days and so on. We felt that the emphasis and overemphasis upon these areas made it desirable to take a look at all of the components of the CPI.

For example, what has been the improvement in the quality of mortgage interest, to take a silly type of illustration? But it is in the index and it has an important weight.

For many types of food, there has been no improvement. For other types, there has been some. But as we began to look over the entire index, and we tried to identify the areas where this would be the case, we found areas of minus, we found areas of plus, and we found areas of no change. Generally, the changes are not statistically measurable.

As we examined these various areas, it became at least clear to us, and I am sure there will be many who will disagree, that by emphasizing the positive—the quality improvement—which has been the nature of the bias discussion, and by ignoring the areas where these improvements have not taken place or where the reverse has happened, a distortion has developed.

For example, in the Economic Report of the President—a year ago—President Johnson stated that practically all of the increase in the CPI might have been offset by improvements in quality, and similar statements are made very frequently. Now, Martin Gainsbrugh and I just do not agree with this. There is really only one area where much quantification has been made of the quality bias and that is for automobiles.

It is interesting to note that those studies end in 1951. Mr. Griliches, who made those studies, indicated that there was a substantial overstatement in the rise in the automobile index and this also applied to other durable goods. Interestingly enough, for the last 3 years that he covered, 1958–61, his index showed about the same changes as the BLS index. And since 1960, the ability of BLS to obtain much more detailed information from the manufacturers and the multiplication of the number of models has made it possible from year to year to slot in, to measure similar types of cars so that the problem of weight, length, and horsepower with which Mr. Griliches was largely concerned, has disappeared. So I would say, even in that area, which has been the basis for much of the claims concerning the alleged quality bias, the BLS indexes are much improved and I would doubt if today it does have the kind of overstatement that was alleged for the earlier postwar years.

Chairman PROXMIRE. The other area where I have heard this alleged is in the area of so-called maid service, or built-in service provided when you buy foods in stores. Because of the way it is packaged, prepared at the diners, and so forth, that there is a lot more in what one buys in a store for food than before; one can just take it home and heat it up, whereas before, it required a considerable amount of work.

Mr. BACKMAN. That is right, but you also pay more for it.

Chairman PROXMIRE. My question is whether the increased price of food was fully allowed for by the quality improvement?

Mr. BACKMAN. I would think that substantially this is measured in the index. Whenever BLS makes one of its periodic expenditures studies which, incidentally, are at roughly 10-year intervals, it naturally picks up whatever the latest patterns in consumer buying have been.

Now, in between, there is a problem of how to measure the change between a frozen food and a fresh food, between the "bake-and-serve" and the buns that are already cooked. And you run into some problems. But we concluded that the overall magnitude of these problems has been extremely unimportant and that the index itself shows pretty fairly the magnitude of change in the general level of prices. That is why we have concluded that on balance, the CPI provides the best index to measure the extent to which price inflation has developed.

Each of the indexes serves to provide some insight into the current and prospective course of prices. More can be learned through concurrent observation of all three indexes of prices than by complete reliance upon any single measure. Although these indexes have been improved in recent years, they are still in need of further development to maximize their value as guides for anti-inflation policies.

Chairman PROXMIRE. I might say to Senator Douglas that we have been following a policy of permitting each of these men to deliver his statement before questioning, although if there is any question on anything that has been said to this point that you would like to inquire about, go right ahead. Otherwise, we will hear Dr. Fabricant.

Senator DOUGLAS. That method of proceeding will be quite satisfactory to me, Mr. Chairman.

STATEMENT OF DR. SOLOMON FABRICANT, FORMERLY DIRECTOR OF RESEARCH, NATIONAL BUREAU OF ECONOMIC RESEARCH

Mr. FABRICANT. I am sorry, Mr. Chairman, that I was not able to prepare a written statement. I run the hazard, therefore, of either taking too much time or not taking enough time. I would like to suggest, however, that I might submit a supplementary statement for the record with your permission, Mr. Chairman.

Chairman PROXMIRE. Feel perfectly free to do so, Mr. Fabricant.

(Supplementary statement referred to appears on p. 33.)

Mr. FABRICANT. Let me say, first of all, that I confess to a feeling of disappointment at the progress that has been made in improving the quality of our price information since the Stigler report was completed in 1960. My disappointment is all the greater because the problems that we have in mind when we worry about our price data are important. Let me say further that some work done at the National Bureau, which I shall report briefly, indicates that something can be done to meet some of the recommendations of the Stigler report, particularly on obtaining actual prices and not merely list prices.

After a word on that, I will address myself to the way in which one might use the available price data for diagnosing inflation, which is the subject of these hearings.

Permit me to express my belief that it is possible for the United States to have prosperity without inflation. By this I mean that it is possible to have prosperity that is widely diffused and not withheld from any group, particularly those with fixed money incomes. It is

possible to have prosperity that is sustained, not purchased for a period at the price of later, more severe adjustment than would otherwise be required; that it is possible to have prosperity that will rise to ever-higher levels as technology, skills, and capital grow. And I believe it is possible to have this prosperity together with and not at the cost of the kind and degree of political and economic freedom that the American people have always made it clear they cherish.

I say it is possible to have this. I believe we will have it. But as Justice Holmes once wrote, "the way the inevitable comes to pass is through effort." We must take steps to deepen our knowledge of economic behavior, to increase the quantity and improve the quality of the information that is required by government and also by the private sectors of the economy to manage their affairs efficiently, to strengthen the institutions and administrative arrangements that Government must have to discharge its grave responsibilities, and of course, all must act in the light of this knowledge that we seek. This requires, to focus on the subject of this hearing, improving our statistics; and not only improving our statistics, but also learning how to use them to the best advantage.

Steps in this direction have been taken, as Dr. Bowman indicated, and as I am sure we shall learn in the later course of the proceedings. But the road to this important goal of prosperity without inflation is a long one. There is much to do, and for this reason I confess to a sense of disappointment on hearing Dr. Bowman speak on the extent, speed, and intensity of effort on the part of the Federal agencies, where, we must recognize, most of the work on price data needs to be done. I hope these hearings will help to intensify that effort.

I say the price data are important, and by price data, I mean more than price indexes, for indexes are only one way to summarize price information. They are important because, as Professor Backman said, they have a variety of uses, not only to determine the rate and extent of inflation, but to understand also its impact on the well-being of various groups in our society and on our competitive position in foreign markets, and to analyze the causes and strengthen the control of inflation.

We already have more inflation than most of us appreciate. I would emphasize more than Professor Backman that we understate the recent rate of price rise, especially in the Wholesale Price Index.

I rather imagine there is a cyclical fluctuation in the degree of bias as well as a secular——

Chairman PROXMIRE. Do you say we understate the——

Mr. FABRICANT. Degree of price rise, especially in the Wholesale Price Index. I think Professor Backman indicated his feeling, but I would underscore that feeling a little bit more, perhaps, than he did.

Chairman PROXMIRE. You say especially in the wholesale prices?

Mr. FABRICANT. Yes.

Senator PROXMIRE. Do we also understate it in the CPI?

Mr. FABRICANT. I think to a lesser extent.

Chairman PROXMIRE. You not only would agree with Dr. Backman that the so-called quality improvements do not account for the price increases, say, between 1960 and 1963 or 1964, but you would go so far as to say they are not only *not* overstated—the price increases overstated as some people have argued—but you say they are understated?

Mr. FABRICANT. I would agree, I think, in general, with what Professor Backman said, namely that there have been some improvements in quality, there have been, in a few cases, deterioration in quality, and in many commodities there has been no appreciable change.

Chairman PROXMIRE. I understood you to say that CPI understates the rise in prices?

Mr. FABRICANT. No.

Chairman PROXMIRE. I misunderstood you?

Mr. FABRICANT. I did say that. The reason I say the CPI does understate is that I do not think we get all the price increases that occur. This has nothing to do with the quality factor. The quality factor is a separate point.

In connection with the point that was raised about quality, I think most of the changes that occur in quality are of the long-term type, and I do not think that in the last few years, the change that would be made in the index, if a quality factor were properly taken care of, is terribly important.

But I would stress this: The mere fact that there are strong differences of opinion about the importance of the quality factor in price indexes suggests the need for doing research. Nobody, I think, would quarrel with that indeed. And one of the reasons I am disappointed is that we have not really started as much as we should. There is a lot of work to be done on that, on the question of quality. There is not only the Griliches kind of analysis, which Andrew Court started a long time ago and other people have done more recently. Phillip Cagan, who used to be at Brown University, did a very interesting study of quality changes in automobiles, using a rather different method and getting somewhat different results. The fact is that there is work that has to be done. It is a terribly complicated problem and I think the sooner we get started on it seriously, the sooner we will be able to resolve these differences of opinion.

To return to the point I was making about the importance of our price data, these are vital also in diagnosing the rate and extent of change in the phyiscal volume or real value of output, as it stated in the Stigler report and as has been stressed again this morning.

The presence of Senator Douglas reminds me of his early work on the wage statistics of the United States and the cost of living before World War I. It makes a difference what kind of statistics we have. One of the very interesting changes in the interpretation of the economic history of the United States between about 1890 and 1914 resulted when Prof. Albert Rees, working for the National Bureau, did a very considerable revision, starting from Senator—formerly Professor—Douglas' book. And this led to a complete reinterpretation of our economic history of that time.

Senator DOUGLAS. It showed a much lower increase in cost of living than did my earlier index.

Mr. FABRICANT. Yes.

Senator DOUGLAS. I will come to that later, but not at the moment.

Mr. FABRICANT. But the point is it makes a difference what figures we have on prices.

Not less important are the measures of productivity to which Professor Backman and others referred. I am reminded—I received only yesterday the proceedings of the American Economic Association which reported on the Christmas papers. There was one very inter-

esting paper by two gentlemen. One was Professor Griliches, whose name has already been mentioned. The other was Professor Jorgenson of the University of California. These two brilliant young econometricians collaborated on a paper in which they in effect recalculated the rate of growth in what is called total factor productivity in the United States over the period from 1929, a very basic statistic for understanding the rate of our economic growth.

One of the things they did in recalculating was simply to make some, what to them were reasonable assumptions about the rate of change in the cost of construction, one of the very dark areas in our price statistics. They did a few other things of that sort, particularly on the quality of capital equipment. And on the basis of what to them, as I say, were rather reasonable alternative price indexes for these various items, they get quite a different story on what has happened to total factor productivity in the United States, particularly a much lower rate of growth in factor productivity in the United States, than you get by using the present conventional figures. These things are important.

I need not add, of course, how important price data are in thinking about problems like that of our balance of payments.

Very obviously, price data are essential in dealing effectively with matters of public policy. We talk a great deal, or perhaps were until very recently talking a great deal about the price and wage guideposts, without reasonably adequate price data and also, productivity data. We cannot apply these policies with any degree of effectiveness or get the collaboration of the public as long as there are serious differences of opinion as to what is happening to prices.

Well, for all these and other important uses, we need more, better, and more promptly available price data.

There is no doubt that there has been some progress since the Stigler report and some progress since the earlier Mills committee report of about 1943–44. But not as much as we should have. What we need is the kind of information requested by the Mills committee in 1944, not all of which is yet available, and by the Stigler committee in 1960–61. Yet we have only barely begun to obtain the kind of information they recommended. And I ought to add, incidentally, that the summary of their recommendations which appears in the front of their report, and appears again today in the statement by our chairman, does not provide a complete list of the recommendations. I think there are important recommendations the Stigler committee made which do not appear in that summary.

We have made progress, there is no doubt about it. But one must judge that progress not in absolute terms but in terms of our capacity to do better. And the reference made to electronic computers this morning is simply one indication of how we can do better.

We know much more about statistical theory today than we did when Professor Douglas was doing his basic work on prices.

Senator DOUGLAS. Agreed.

Mr. FABRICANT. And, therefore, we ought to judge the level of our accomplishment today in the light of that greater capacity to work.

And more important, I think, our standards as to what is right and proper for the American people are higher than they used to be. I think we need to make every effort to improve these price statistics

because they are concerned with the welfare of American people. They are not theoretical things that only statisticians and economists are worrying about.

I mentioned that some work going on at the National Bureau indicates the feasibility of doing some of the things that were recommended by the Stigler committee. Let me refer very briefly to just two such studies. One is by Professor Stigler himself, which he is conducting at the National Bureau. He is not yet ready to report on its findings, but it looks as if something useful will come out of it. It is a study of prices obtained from purchasers as well as sellers of commodities—these are the actual prices, not merely the list prices. We are obtaining information on the prices involved in the transactions, the extras, the discounts, and other relevant information that should prove interesting, not only in analyzing changes in prices, but also in analyzing the operations of our free market economy, which economists are so proud to have been the first to discover.

The study that Professor Kravis is undertaking in the National Bureau is much the same thing, though it is focused primarily on commodities that enter into international trade—a preliminary progress report has already been published on that, and I understand that Professor Kravis will be here on Thursday to tell you about it, so I shall not take any more time.

Let me address myself now to the subject of the hearing as it is put in terms of the title, the use of price data for the diagnosis of inflation. If I were given the responsibility of diagnosing inflation—and here I express my personal opinions, not any findings of the National Bureau or any other organization—if I were given the responsibility of diagnosing inflation—that is, of trying to figure out what was happening, why it was happening, what might happen in the future, and what ought to be done about it—I would want to begin with a better list of indicators of inflation than we now have. But if I had that responsibility, I would do the best I could with what there is now available. And in such a list of indicators of inflation, I would include not only the price indexes that have been mentioned by Professor Backman and Dr. Bowman, and not only the summary price indexes, but also the components.

I would want to include in my list of price indexes not only the prices of commodities that are flowing through the economy in terms of new goods and services produced; I would want to include also the prices of existing assets. I think one of the interesting developments in our economy in recent years has been the rise in land prices and the prices of homes. We are all aware of what has happened to stock prices because they appear in the morning newspaper. But that is not quite true of our land prices and I think there are some very interesting things that could be done. In any case, these need to be looked at.

We need not only price indexes, we need price diffusion indexes, as Professor Backman said, and in my list there would be such indexes. One or two of these already appear in Business Cycle Developments, a publication of the Department of Commerce.

I would add other things of the same sort. But I would not confine myself in this list of indicators of inflation to price data alone. In order to understand what is happening, why it is happening, and what might be expected to happen, one needs to look also at what is

happening to productivity and what is happening to wages and material costs. These, as they change during the course of the business cycle, pave the way for the developments in prices that we frequently try to foresee, and also pave the way, in one sense or another, for the changes in profits that might conceivably heat up the economy in one situation and at a later point might lead to a decline in investment decisions and the beginning of a recession.

I have not mentioned this before, but one of the interesting publications that the National Bureau issued within the last year or two is Thor Hultgen's book, "Costs, Prices, and Profits," which I think adds a great deal to our knowledge of what typically occurs during the business cycle and thus provides a basis for using price, wage, productivity, and profits data for understanding, and for diagnosing, inflation.

I would also want to use data that would not be considered to be price or cost data at all, and yet which are highly relevant and should appear in any list of indicators of inflation. In the case of the labor markets, for example, there is the kind of information that the Conference Board is publishing regularly on "help wanted" advertising. Recent efforts to improve our information on job vacancies, taken by themselves and taken in comparison with the data we have on unemployment, I think, would be a vital item in a list of indicators of inflation. The rate of overtime hours, of which we know something, also would appear in any good list.

In addition, there are the capacity utilization rates. The Joint Economic Committee had a hearing on that and produced a very interesting little document. I think that information is important in diagnosing inflation. Also, vendor performance, changes in unfilled orders, changes in backlogs of capital appropriations, and I refer again here to the Conference Board and Department of Commerce type data. Vacancy rates in housing is another example—information of that sort tells us something about the inflationary situation.

And, of course, I hardly need to take the time of this committee to say that, in any list of indicators of inflation, there would appear a variety of data dealing with financial markets—free reserves, total borrowed reserves—which frequently tend to be neglected—rates of change in money supply defined in a variety of ways, changes in nonbank liquid assets, total borrowing, and so on.

There was an item in the newspaper only a day or so ago about debts outstanding in American economy. I think these ought to be followed very closely in thinking about inflation. And, of course, we need to look at the Federal cash surplus or deficits, income velocity, and so on. But I need not take any more time.

If one were to prepare such a list of indicators, or if one had been following such a list of indicators over recent years, I rather believe—and I shall conclude with that statement—that one would have suspected inflationary pressures not only today, when the smell is in the air, to quote Senator Proxmire, but would have suspected that inflationary pressures were developing a year or two ago.

It is extremely important in diagnosing and dealing with the problem of inflation, to look ahead, to take anticipatory action—not a "slamming on the brakes" kind of thing, but a "taking one's foot off the accelerator" kind of thing, earlier, before the prices have actually

gotten to the point where they are bothering people everywhere throughout the country.

(Supplementary statement, later submitted by Dr. Fabricant, follows:)

SUPPLEMENTARY STATEMENT BY SOLOMON FABRICANT

To improve our information on prices and to deepen our understanding of how to use this information more effectively for the public's benefit would cost money. As always, scarcity of funds raises the question of priorities that Senator Proxmire posed.

It may aid in the deliberations of the Subcommittee on Economic Statistics, and of the Congress as a whole, on this question if a number of points are kept clearly in mind:

1. The economic and social problems out of which the need for better price data arises are of vast importance, not only to the present welfare of our own people, but to the future of the entire free world. The particular problem of inflation, which stimulated the present hearings, is only one of these problems. Yet even by itself it is important enough to warrant a substantial increase in the rate of Federal Government expenditures to improve price information. This strong statement is justified because inflation is leading to serious social injustices; inflation is impeding the restoration of balance in the country's international economic relations; inflation is threatening a severe problem of adjustment when it is stopped or even moderated, as in the end it must be.

2. Improved price data are not all that are needed to diagnose the problem of inflation and deal effectively with it. But better price data would help. We would not have to guess as much as we now do about what has been happening to the cost of living of the aged or to our competitive position in international trade or to actual prices in industrial markets. In my opinion, a substantial increase in the modest sum now being spent by the Federal Government on price information—even a doubling of that sum—would yield a rate of return sufficiently high to warrant the investment. I would support such an increase even if it meant a corresponding increase in total Federal Government expenditures.

3. When, as in the present situation of our economy, it is desirable to hold down total Government expenditures, or even to reduce them, we should not neglect the possibility of increasing expenditures on price statistics without increasing total expenditures. The economic health of the American people is not of minor importance compared with the other worthy purposes on which the Federal Government spends millions and billions of dollars. Far too little is being done to diagnose, maintain, and improve the health of our economy, compared with what is being done in other directions. We need not and should not view the question of priorities as involving only a choice between one or another kind of improvement in our price statistics. We should discard the blinkers that limit our vision and choose, if choose we must, among the items in a much longer list. To get the maximum benefit out of the money Government spends requires distributing funds among *all* budget items, not just among items relating to price statistics, in such a way as to equalize the social benefits derived from the marginal dollar allocated to each. I believe that if funds to aid in the improvement of our economic statistics in general and our price statistics in particular were obtained by shifting a very modest sum from each of many other present Government budget items, it would serve on net balance to increase substantially the country's welfare without raising the total of Federal Government expenditures.

4. The Congress does not have the time to get involved in all the details of every budget item. It must make its decisions on the major budget items. Once the Congress has made these decisions, the choice of priorities within budget items should—indeed, must—be left to the agency spending the money. Apart from this difficulty, the Congress cannot know how developments in work loads, advances in techniques and equipment, changes in opportunities to obtain specially skilled personnel, or the emergence of ideas developed in professional discussions in which the staffs of the Bureau of Labor Statistics and Census and other statistical agencies participate—the Congress cannot know how these will affect the choice of what to do first and what second, what to explore in a pilot study and what to carry through on a full scale.

These various considerations lead me to feel that a substantial increase is warranted in the budget provided for price and related statistics; that this increase does not necessarily require an increase in the total Federal budget,

for it can be financed, to the benefit of the country, by trimming small amounts or percentages from any other items in the Federal budget; and that the choice among the Stigler Committee recommendations should be left to the discretion of the Bureau of Labor Statistics and other statistical agencies, working under the eye of the Bureau of the Budget's Office of Statistical Standards.

Chairman PROXMIRE. Thank you very much, Dr. Fabricant.

Mr. Bowman, you have given us a very, very welcome report, I think, as you say, a complete review in improvement of price statistics, particularly with reference to the Stigler report. And you join Dr. Backman and Dr. Fabricant in expressing your concern that progress has not been as rapid as you wish it could have been. You acknowledge that we could have done, we would like to do much more than we have done. So all three of you agree on that basic objective and need. It seems to me that under these circumstances, the most useful thing we can do this morning is to arrive at some kind of priority and determine what the costs are. Mr. Backman has made an enormous contribution, I think, in his great study, along with Martin Gainsbrugh of the value of these things. We have a Congress to persuade. As you know, we have not been successful in getting anything like all the information we would like to get for statistical work and we have to be definite in being able to justify the increased expenditures to the extent that they are called for by these improvements.

Mr. Bowman, can you give us any impression of what the cost will be in expanding to 164 the—was it 82—list of industries with price sector indexes?

Mr. BOWMAN. I can give you an indication of what we think the next step would be, which would be to expand by about 60 or 70 sectors to add to the 50 sectors we now have. That would not quite get up to the 180 sectors right off the bat.

Chairman PROXMIRE. Is that a very expensive thing?

Mr. BOWMAN. No; I do not think it is expensive in terms of what you are getting. It would be about $300,000.

Chairman PROXMIRE. Well, that certainly is very modest in terms of these other costs.

Mr. BOWMAN. We did, as I think you remember, have a program in the 1966 budget which was something under $300,000, in which we were taking a step in this direction, as well as a step in the direction of preparing an international price index, and also doing some work on an index of prices paid by Government. But that was not approved and we are now reevaluating the next steps and I think, personally, that one of the most important areas is this development of sector price indexes for the WPI. And I think the next step should be something in the neighborhood of the addition of 60 to 70 sectors.

Chairman PROXMIRE. Can you give us an idea of how much additional funds per year would be needed to enable the Bureau of Labor Statistics and other agencies to make rapid progress on the Stigler recommendations?

I know this is hard to answer just off the top of your head but I wonder if you can give us an idea of roughly how much money we are talking about?

Mr. BOWMAN. I have made estimates. This estimate of mine—it is in the neighborhood of a couple of million dollars.

Chairman PROXMIRE. How much is the U.S. Government currently spending for the collection, processing, and dissemination of price statistics?

Mr. BOWMAN. Our statistical budget shows all of our price statistics programs—let me check my memory on this—are now running about $6 million—$5.7 million. Now, our principal series——

Chairman PROXMIRE. What resistance have you run into in this area? Has there been resistance?

Mr. BOWMAN. There are resistances.

Chairman PROXMIRE. On price. I am talking about the cost of this. Because I am quite surprised at the moderation of that cost as compared with the cost of determining unemployment, for example, and some of these other things.

Mr. BOWMAN. Well, it is true, and that is why I said in my statement, I think my job, the job of the Office of Statistical Standards, is to anticipate statistical needs, not wait until they happen. It was for that reason, when there was not a great deal of discussion about price statistics, that we organized the Stigler committee report. We were thinking of the future, not of the immediate present.

Chairman PROXMIRE. This would be an increase from about $6 to about $8 million to really do the job?

Mr. BOWMAN. I would say from about $6 to $8 million, that is right. I do not want to say the job would be finished at $8 million, but major steps could be made in the direction of the thing.

Chairman PROXMIRE. What I think this committee is especially interested in, what I am interested in and what I think the country is deeply interested in, is how we can improve our price statistics so they can be used as the most helpful possible method of determining economic policy. Would this be the same thing as fulfilling the recommendations of the Stigler report?

Supposing we put our emphasis and our top priority on getting the most adequate and accurate statistics we can get necessary to give us the best instrument available for economic policy.

Mr. BOWMAN. Well, of course, from my vantage point, this is economy being practiced properly. In other words, it is spending in order to get a product which is more valuable than the cost of what you are spending. But I also have to recognize that in many instances, you have to pick priorities. And I would not want to say, for example, we want to overemphasize the price areas as contrasted with a lot of other areas in statistics.

Not only that, they have to be balanced. In order to get the most work out of our GNP, in our input-output tables, we need better prices. Better prices without doing some work in these other areas is not merely getting the major benefit out of them. So I have been very happy with the support this committee has given to the overall statistical program. I think that is where the support ought to be, to a balanced program of statistical programs. But we run into various problems with appropriation requests. We run into difficulties in terms of what different agencies think are the proper priorities for the development of the statistical work.

Chairman PROXMIRE. But it does seem, in view of the enormous importance of the price index in so many, many ways, not only for economic policy, but in terms, for example, of the decisions made by labor unions and management in increasing or decreasing wages, and the effect it has on business plans and so forth—it seems that this is an extremely modest budget that we have for price statistics and that $8 million would be an excellent investment.

Let me ask all three of you gentlemen, these specific questions regarding how we can use the CPI in economic policy actions—first, what do you think is the size of the statistical change that is necessary to be significant? I understand from what I have heard, without having this studied or documented, that, in general, a one-tenth of 1 percent increase or decrease, for example, is not statistically significant in prices, that if prices go up one-tenth of 1 percent per month, it might be a matter of error and in any event, would not be so significant that we should take any particular action. If this is true, how big a change would you regard as significant?

Mr. BOWMAN. Well, I think we have to be careful what we mean by "significant" here. As I indicated——

Chairman PROXMIRE. Well, the term that is usually used by economists is statistically significant.

Mr. BOWMAN. In terms of sampling error, the work, improvements in CPI have indicated now that if you are just looking at sampling error alone, the sampling error associated with the monthly change in the CPI, the overall index is about 0.03. Now, if we want to be real cautious as statisticians, we multiply that by three and we get 0.09. Then we say that, on sampling reasons alone, 99 cases out of 100, we would not expect a movement larger—we would expect a movement larger than 0.09 to be significant.

Chairman PROXMIRE. This means one-tenth of 1 percent would be significant?

Mr. BOWMAN. Right.

Now, becoming a little more realistic, remember, when we publish the index only to one decimal place, you cannot tell from one month to another whether or not the index has really gone up a full point or not. But being realistic and taking into account other things, I would not be overly disturbed by an index number change of 0.1 from one month to the other. But if it were 0.1 in one month and 0.1 in the same direction in the next month and 0.1 in the same direction the following month, then I think we know the index is——

Chairman PROXMIRE. That was my next question. I would like Dr. Backman and Dr. Fabricant to comment on it, too, but I would like you, Dr. Bowman, to say what is the direction of the price change that should concern us. You say if it is only one-tenth of 1 percent one month, then if it follows through with several more months, we have to be concerned. Can you give us a more precise picture in terms of this duration factor?

Mr. BOWMAN. You see, as Professor Backman and Professor Fabricant also pointed out, there are other factors that you have to take into account besides sampling error. In other words, if we have not been recently recording, or if we have been using list prices and if list prices rapidly deviated from current transaction prices, which is what generally happens when prices start to move more rapidly, you change your discount practices. Then it may have been that our index numbers, as we have been showing them, have not shown the full rise.

Chairman PROXMIRE. You see, this is what concerns me. Dr. Fabricant particularly emphasized the deficiencies that we now have in our CPI, as well as in the others, even more in some of the others, and Dr. Backman also made an excellent analysis. So that recognizing those deficiencies, the lack of comprehensiveness and so forth, we have in

addition to the statistical concern here a matter of recognizing that these are limited and somewhat defective indexes. So how should this caution us in using these statistics for policy conclusions and policy action recommendations?

Mr. BOWMAN. Well, even as the indexes are now constructed, I think they are reasonable policy guides.

Now, if you are asking me the question, should I be concerned about a 1-percent rise in the price index over the year or should I say 1 percent is not very important, should I be concerned about a 2-percent rise, I think you should be concerned about any consistent rise in the price index, any persistent rise in the price index.

Now, you can get into arguments on which differences of opinion have been expressed; namely, some people have said that a 1-percent rise in the CPI should not be thought of as a rise at all over a year, that because the CPI does not take an adequate account of quality changes, it may really be that the CPI did not go up 1 percent. Mr. Backman has said that he does not believe there is a significant bias in this direction so far as the CPI as a whole is concerned.

I do not know whether Mr. Fabricant agreed in general on that or not.

Chairman PROXMIRE. He seemed to.

Mr. BOWMAN. But I would say our price indexes now are telling us that prices are rising more rapidly and I think we have definitely to take that into account.

Chairman PROXMIRE. You say that even though the Wholesale Price Index, according to Mr. Backman, has been stable for the last 3 months?

Mr. BOWMAN. Well, now, that is a 3-month period.

Chairman PROXMIRE. Well, now we are getting to what I really am asking about. A 3-month period you ignore because it is not sufficiently——

Mr. BOWMAN. No; I do not ignore it, but as Mr. Fabricant said, I would look at a lot of things other than price indexes.

Mr. FABRICANT. And one must also look at what has happened before and what one expects to happen later. For example, a given rise—1 percent, 2 percent, 5 percent—in any kind of index depends on whether it is occurring at the beginning of a revival in business, in the middle of a revival in business or at the end of a revival in business, so to speak. You have to look at the whole context to judge the meaning——

Chairman PROXMIRE. That is the kind of statement, Dr. Fabricant, that just leaves me not knowing. We do not know if we are at the beginning, at the end, or in the middle. If we did know, that would be fine, but we do not. Are we at the beginning of what is maybe going to be the longest expansion of our economy in history? It may be the beginning, the end, the middle. We do not know.

Mr. FABRICANT. You were asking two questions, if I may be so bold as to say. One was a general question: How do we judge these things in general? Then you asked a specific question about today, certain things are happening: How do we judge what is happening?

I would go on and say in the light of what I know about business cycle developments in the economy in the last few years, in the light of what the unemployment situation is like, in the light of all such things, I would not assume that the plateau in the WPI in the last

few months suggests that inflation has stopped. I would expect that prices will move up again in the WPI and in the CPI and in the IPI, unless the expansion comes to an end. But I do not see any reason at this time for believing that the end is immediately in sight. That, you see, is a way of interpreting what we see.

Mr. BACKMAN. I think one must get behind these figures, but I would like to make a general observation on these comments. It seems to me that you have raised the word "significant" or used it in two different senses. One is statistically significant about which there would not be too much dispute and I do not think there would be too much of a problem. The other is the use of the word "significant" in the sense of what triggers public policy or actions on the Government front. In other words, getting away from this one-tenth of 1 percent a month or figures like that—I do not think any of us are too much concerned about that. But as I interpret the questions you are raising, do we start to move in fiscal policy and other areas when prices have gone up at the rate of 2 percent, 3 percent, or 4 percent or what cumulative total?

Now, in this area, it seems to me there is a combination of forces to be analyzed. I agree, you must look at things other than the price, because the price is the result, largely, rather than the cause.

For example, if our program in Vietnam is not escalated any further, then I would assume that the maximum pressures on our economy from Vietnam are being experienced right now. The reason I say that is because the anticipation, the filling of the pipelines, the building up of inventories, raw materials, and everything else that must go into the final product, is taking place now to permit delivery in the fall. The maximum impact is being felt right now and I think the maximum impact on prices is being felt right now if Vietnam follows the previously announced program and does not escalate or de-escalate, as the case may be.

Now, I think in analyzing the trends of these indexes, each of us has stressed the importance of studying the trends of the components. In the current situation, we have a wonderful illustration of why that is important. In my judgment, the Consumer Price Index is going to go up less rapidly than it did in the past 3 months—that is, February through April. It will rise less rapidly because I think food prices, which have played the predominant role in the past year, are going to move up less rapidly.

A couple of figures might be of interest to indicate the nature of the increase which has taken place.

For example, from March 1965 to March 1966, the food price index rose 6.5 percent. But if you look behind the total food index, what you find is this: meats, poultry, and fish advanced 17.4 percent and no other component of the index went up more than 4 percent.

Senator DOUGLAS. Mr. Chairman, may I break in?

Chairman PROXMIRE. Yes, sir.

Senator DOUGLAS. Man controls the breeding cycle of hogs and cattle, does he not?

Mr. BACKMAN. Well, to a large extent he does, because he controls the feeding practices. Incidentally, this is one place where price determines what happens to supply.

Senator DOUGLAS. We shall not get into the sex life of animals, but is it not true that man controls, so to speak, access to the sex life of animals and therefore controls the breeding cycle of hogs and cattle?

Mr. BACKMAN. It is really two things. It is not only controlling the breeding life, but how heavy he lets the animals get. Cattlemen describe steers as the frames on which they grow meat.

Senator DOUGLAS. Is it not true that when prices are low, naturally, fewer hogs, fewer calves are bred, is that not true?

Mr. BACKMAN. That is right.

Senator DOUGLAS. And then, when prices go up, the rate of reproduction is permitted to increase; is that not true?

Mr. BACKMAN. That is true.

Senator DOUGLAS. So there is a cycle there and something of a self-correcting cycle; is that not true?

Mr. BACKMAN. This is absolutely the case. And in connection with hogs, it moves rather quickly. In connection with cattle, of course, it is a longer term cycle.

Senator DOUGLAS. That is right, largely because of the greater size of the litter.

Mr. BACKMAN. This is one of the interesting areas where price determines supply rather closely, rather the reverse.

Senator DOUGLAS. That is right.

Mr. BACKMAN. It is because of this situation that I believe that the prices of meats will not continue to rise so rapidly as in the past year.

Now, we must understand this: If the price of meats merely remains stable—let's not assume any reductions—the contribution made by higher meat prices to the food component disappears. Then the magnitude of the rise will depend upon what happens to the prices of services and the nonfood.

The point I wanted to emphasize is that if we look at the overall index, we find that there was a rise of 2.8 percent. However, the rise in food prices was 6.5 percent and no other group rose as much as 2.8 percent. So, merely eliminating food as a factor of price increase would change the magnitude of the increase.

Now, in the Wholesale Price Index, we have a much more interesting problem, because it is entirely possible that the Wholesale Price Index will show relatively small changes in the months ahead even if the inflationary pressures are increasing. This paradoxical situation would develop if the farm component and the processed food component stabilize or go down. Such a development would make possible a larger rise in the nonfarm, nonfood price index than in the past, and yet the overall index need not go up as much.

For example, if we take the period from February 1965 to February 1966—I take this period because there has been stability since—we find that the overall index was up 4.1 percent. But the farm products components rose 13.6 percent, largely because of livestock, processed foods were up 9.4 percent, largely because of the meats, and industrial prices were only up 1.9. Now, I would think if industrial prices, instead of rising in the next year by 1.9, were to rise by a larger amount, this would reflect greater inflationary pressures than we have now even though the overall index would not be going up by 4.1 percent. So the importance of looking behind aggregates becomes especially important today.

Now, if we had had a large rise in food prices reflecting a general price inflation, then we would have a different situation. But we have

had a large rise in food prices primarily because of a shortfall in the supply of livestock because of the effects of the cycle to which Senator Douglas has referred.

So we get a paradoxical situation. In my judgment, the CPI will not continue to rise at the rate of 5 percent a year, which it rose in the last 3 months. It will rise at a slower rate in the balance of the year. In my judgment, the Wholesale Price Index will not rise at the rate of 4 percent that it rose in the year through February.

In the 3 months from November 1965 to February 1966, the Wholesale Price Index was rising at the annual rate of 7 percent. This development created great concern. The overall index was up 1.7 plus, which is an annual rate of 7 percent. However, in the past 3 months the index has been stable.

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 the Wholesale Price Index is the best index of inflation, we should do absolutely nothing about taxes, because inflation is behind us rather than before us. If the Implicit Price Index is the best overall index of inflation, as the Council of Economic Advisers says, or if the Consumer Price Index, as the rest of us are saying, is the best index of inflation, then we ought to be running pretty scared because a 5 percent increase is a rate that is intolerable. I do not know whether 2 percent is the trigger, or 2½, but I know 5 percent is beyond the trigger point.

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.

Chairman PROXMIRE. Thank you very much, Professor Backman.

Mr. BOWMAN. I wanted to make one final statement, because I did want to make a positive answer to your question, Mr. Chairman. The failure of the Wholesale Price Index as a whole to move in the last 3 months, in my opinion, is a significant fact that should not be overlooked. I agree with everything else that has been said. You must look behind it. But our indexes are good enough to tell us that so far as 3 months are concerned, there has been no significant movement in the price index. Looking behind it, yes. And I am afraid the other thing we always have to learn is, if we ever expect to have statistics in which there will be no disagreements with regard to their interpretation, that I think is a millennium which will never come. But that does not mean we should not improve them in order to make the elements of debate as narrow as is at all possible.

Mr. BACKMAN. I agree with that statement about the Wholesale Price Index. I just wanted to caution about what you may find if you look only at the aggregate index. You may see it going down when there may be these pressures developing underneath.

Senator DOUGLAS. I would first like to make a statement without any reference to the present participants. I remember sitting

through hearings in the 1950's, from 1952 to 1960, when the cost of living was going up at the rate of about 1 percent a year according to the index. We would then hear witnesses say that prices were not really going up because there was an improvement in quality. Hence, the seeming increase in the cost of living was fictitious. Now, I find—this is no reference to anyone here—quotations from people of status and reputation saying that there is no improvement in quality, that there are offsetting factors, so that you can now disregard the quality consideration. The Consumer Price Index, that is to say, can be trusted.

I hope I shall not draw upon my head the ire of the statistical profession when I say that statisticians, like the Supreme Court, sometimes follow the election returns, not only in a positive but in a negative fashion. That is my first comment.

My second comment is a technical one and I would like to address it primarily to Dr. Bowman.

What actual difference do you find if you use end-year weighting systems rather than base years? In other words, if you use the so-called base formula rather than the Laspeyres formula?

Mr. BOWMAN. Senator Douglas, when the CPI was revised, I asked the Labor Department if they would prepare a paper indicating how much change there was in the index if they went back and reweighted it with the new weights——

Senator DOUGLAS. Using end-year weights?

Mr. BOWMAN. Yes. It has proved a little more difficult. I have a paper from them. However, it does not seem to provide a very definitive answer with regard to the changing of the index with the shifting of the weights alone. But we do have a study underway on that and I will be glad to send you the information as soon as it is available.

Senator DOUGLAS. I would appreciate that. But theoretically, would you not expect that end-year weights would give a lower composite index than base-year weights, because the increases in quantity would tend to be greater in those commodities which either increased less in price or actually decreased, on the principle of substitution?

Mr. BOWMAN. I would expect the Laspeyres index to be biased a little bit upward and a Paasche index to be——

Senator DOUGLAS. This is an element which shows that with present year, base-year weights tend to exaggerate the increase?

Mr. BOWMAN. Senator, the work that has been done in the past does not indicate that the weights have very much effect on the prices.

Senator DOUGLAS. I have not seen these results.

Mr. BACKMAN. It is important to consider the time period. In other words, if we are looking at a period of time which is 5 or 10 years, the distortion will tend to be small. The magnitude of the changes in the index also must be considered. If the rise is 5 or 10 percent the difference between base-period and end-period weights may be relatively small. The most significant study I have seen is the one by Simon Kuznets. He took the national income accounts, going all the way back to the Civil War, and showed that if you used the end-year weights, you had a threefold increase but if you used the base-year weights, you had a fourfold increase in the national income.

But basically, how much time elapses is important. This is another one of the reasons why there is a great value, it seems to me, in having 5-year instead of 10-year revisions of weights, the shorter the time period between major revisions in weights, the less significant is the influence of the weighing system used.

Senator DOUGLAS. But we are using a 10-year revision.

Mr. BOWMAN. That is right.

Senator DOUGLAS. So that might make a difference.

I have always thought Irving Fisher was more correct than either of these men in using a geometric average of the two. But even so, that would result in a combined index lower than base-year weights alone.

Mr. FABRICANT. Senator Douglas, I agree with Professor Backman that it depends on the length of time. Various calculations which Kuznets and other people did suggest that if the time period is long enough, you get such a transformation in the structure of production and of prices as to make a significant difference between the Laspeyres and the Paasche. And I might say that it makes a big difference, especially in a country like Russia. One of the most interesting comparisons of this I ever saw was in a book by Prof. Abram Bergson of Harvard University, where he made comparisons of this sort for the Russian economy. There you had so violent a transformation in the structure, and you had peculiarities because of the price system they have, that it made a terrific difference what base you used.

Senator DOUGLAS. That is my point, there is an inherent tendency of the Laspeyres formula to overstate the increase. I think probably the Paasche formula tends to understate and that Fisher was correct when he recommended 40 years ago use of the geometric average of the two.

Mr. FABRICANT. There is another reason, perhaps, why the Laspeyres might be deficient; namely, the introduction of new commodities. You have a distant early base. You will exaggerate the rise in prices of the commodities covered in that base and you will be omitting the new commodities which are moving downward. This is part of the correction that the Paasche produces, but it is a separate point.

Mr. BOWMAN. The truth of the matter is that we have no really Paasche indexes.

Senator DOUGLAS. You can change the end-year quantities.

Mr. BOWMAN. The other difficulty, just from a cost point of view, of a combined Paasche-Laspeyres, is the additional information you need for weighting currently as well as in the base year, which means that in addition to having information that gives you the weights for the base year, you have to have information that gives you the weights for each year. On the other hand, theoretically—I do not know about my colleagues—I do not agree that the economic meaning of a Fisher cost-weighted index is an improvement in index number interpretation. Now, I just happen to personally feel that way. I do not know about Mr. Fabricant.

Mr. BACKMAN. We took the Implicit Price Index, which is weighted in terms of current-year weights, and we weighted it in terms of the 1958 weights. To our surprise we found that the 1958 weights gave us the larger rise. It was only a little larger, but it may be the accident

of the recession year and so on. But that is another factor you have to consider.

Senator DOUGLAS. Theoretically, you would expect the opposite.

Mr. BACKMAN. That is right. That is why we were surprised.

Senator DOUGLAS. You get a similar problem in a different phase involving an index of physical production, where you weight by prices. If you weight by end-year prices, you get a different result than by base-year prices. My memory is not perfect on this, but I think you get a higher result there with using end-year prices than if you use base-year prices, because the increase in quantities has been greatest in the commodities whose prices increased most.

Mr. FABRICANT. It depends on how you get your physical volume index. The deflated GNP kind of thing that we make so much use of today is obtained by devising a value index by a Laspeyres-type price index, which means you have a Paasche-type real output index.

Senator DOUGLAS. If you take physical quantities as the original indexes of production did and weight them by base-year prices you get a different index of production than if you weight them by end-year prices values.

Mr. FABRICANT. You get the same difference as in the price indexes, as you said.

Senator DOUGLAS. So I think the talk about the Paasche formula here gives a higher index of physical production than the Laspeyres, whereas in a few of the places, it gives a lower one.

Mr. BOWMAN. They are reversed, the production index and the price index.

Senator DOUGLAS. That is all, Mr. Chairman.

Mr. FABRICANT. May I comment just very briefly on that question you raised, Mr. Chairman?

Chairman PROXMIRE. Yes, indeed. I wish you would.

Mr. FABRICANT. When you were asking Mr. Bowman about the range of error around these various indexes, one of the recommendations by the Stigler committee was that probability sampling should be used so the precision of the index could be measured. Until an adequate job is done on that, Dr. Bowman would not really be able to answer the question that you posed. He would have to do a lot of guessing.

Mr. BOWMAN. It has been done for CPI.

Mr. FABRICANT. What about the WPI?

Mr. BOWMAN. The Stigler committee did not recommend probability sampling for the WPI, largely because you wanted to select your prices with respect to particular representations of different industries or important commodities.

Mr. FABRICANT. You have sampling problems in any case.

Mr. BOWMAN. Now that we are working on sector indexes, we shall definitely try to work out a probability selection of prices to be repetitive of each sector.

Mr. FABRICANT. May I add just another remark, Mr. Chairman?

Chairman PROXMIRE. Yes.

Mr. FABRICANT. This is stimulated by Professor Backman's suggestion that we need to look not only at the aggregates but at the parts of the indexes. I think it would be desirable—this is recommended in one way or another by various committees—to have CPI in-

dexes for different groups within the economy. And I have always been particularly concerned about the low-income groups. I guess on the basis of what little we know about it that the cost of living in terms of the Consumer Price Index for the low-income groups in recent years has risen more rapidly, perhaps much more rapidly, especially because of the food price development, than the CPI index suggests. Since we all worry about the pensioners and others with fixed income and low income, we worry about them in one way and do not worry about them when we tax them at the rate of 4 percent or more on their incomes, and allow no exemptions on that tax, which is what essentially a rise in the CPI index means to them.

Chairman PROXMIRE. Dr. Bowman, has there been any attempt to try to evaluate price increases in terms of income groups?

Mr. BOWMAN. The BLS has just undertaken a study—I do not know whether it is finished yet—I think in cooperation with the Department of Agriculture, on "Do the Poor Pay More?" making a study of the differential in prices paid.

Chairman PROXMIRE. May I interrupt to say I am not concerned with that? I think that is very helpful, but I am also worried whether or not there is any determination about the impact of price changes over specific periods of years on various groups. In other words, there could be a period in which the poor would pay more, other periods in which they would pay less. If food prices remain stable—as Professor Backman seems to indicate—or relatively stable, go up less rapidly, this may result in the poor paying not as much.

One other thought is that some people argue that when there was an appeal to the consumer not to buy the expensive cuts, many people went out and bought the less expensive cuts, with the result that the less expensive cuts went up and this had an adverse effect on the people with the low incomes.

Mr. BOWMAN. One of the recommendations of the Stigler committee was that we think seriously about the development of a family of index numbers. As it is now, the CPI really applies to urban wage earners. We have given some thought to this, and of course, there is a wide variety of groups for which you could develop index numbers. The statement that I made in my prepared statement to the committee was that while we agree this should be done, we do not consider it as high a priority item as some of the other things I mentioned, and that while we will pay some attention to that, it is not of the highest priority.

Chairman PROXMIRE. From the standpoint of economic policy it seems to me it ought to get pretty high priority. If you are thinking of economic justice, this should be a very important consideration.

Mr. BOWMAN. What do you mean by the poor?

Chairman PROXMIRE. Let us not use that term, then; the people with incomes of less than $3,000. We are working in all kinds of ways to give them better opportunity through the antipoverty program. This would be one way we could evaluate the economic effects on them. We are spending billions of dollars on that program. I think it is an excellent investment. But we would be in a better position to evaluate it if we had better information.

Mr. BOWMAN. This is certainly an area to which some attention is being given now. I am not sure I am completely up to date in this

area, but I think the suggestions in the Stigler committee had been a price index for the aged, a price index for certain professional groups.

Chairman PROXMIRE. That would be helpful, because the aged, by and large, many of them are in this in much higher proportion. For instance, I understand that some 80 percent of people over 65 have no Federal income tax liability, which would indicate how many of them are in low-income categories.

Mr. FABRICANT. I might add, Mr. Chairman, that if there have been quality improvements in such things as automobiles and other things, which make the Consumer Price Index biased upward, that particular bias would hardly apply to the impoverished people of this country. They do not buy these goods that improve in quality.

Chairman PROXMIRE. The maid service built into the fancy foods would not be helpful, either. They are inclined to buy staples and do their own work.

Mr. BACKMAN. May I make one general observation about this? Early in the postwar period, in many wage negotiations, questions like this would come up, particularly in connection with higher paid workers: Did the cost of living go up as much for them as the index showed? and so on. On a number of occasions, I attempted a crude approach to answer this question by taking the relative weights that we could get for the expenditures of different income groups and applied them to the components of the Consumer Price Index as reported. Now, of course, this omits the very important differences in the composition of the actual expenditures for different groups. But one of the interesting things that emerged from those exercises is that it did not affect the magnitude of the rise in the index very much when the weights were changed. There were other offsetting compensations throughout the index.

Now, actually, to do this job, what you have to do is start from scratch and make the expenditures studies for each of these groups. If you do not do that, I suspect that merely changing the weights is not going to show very much difference, except at the extremes, that is, below what we call the poverty level now, and way above what we would call a good income level. It would be at those very extreme areas that a large rise in certain of these areas or a little rise would have its major effect.

But you really have to make expenditures studies to find out what they are consuming. I would venture to guess that in the sort of market we have had in the last 10 years—incidentally, food prices went up relatively little from 1958 to 1964—it would have little effect. Food prices went up more in the last year than they did in the preceding 6 years. So presumably, the groups you are talking about would not have suffered as much during that period as they would have suffered during the past year.

Chairman PROXMIRE. I would like to ask you, Dr. Backman, since you said something that I would challenge: You indicated that we might very well have severe inflationary pressure—you implied this; you did not say it—if the Vietnam war is substantially escalated. Now, I have been very much impressed by the statistics showing that we spent more as a proportion of our gross national product on our military efforts in each year since 1955 through 1963 than we are going

to spend in 1966 or 1967, including the Vietnam spending—much more. It was something like 8.6 percent in 1955 and 1956. Now it is around 7.8 percent. We can escalate in Vietnam quite a bit without this kind of inflation pressure that has concerned us so deeply. Because that is a relatively modest involvement.

Furthermore, if the proposal of the majority leader which has been supported by others should eventuate, that we should withdraw some of our troops from Europe—leave a smaller force there and indicate very clearly our determination to provide a nuclear retaliation and so forth, but leave a force there—this could very clearly compensate for an increase in Vietnam.

Now, we are inclined to concentrate, it seems to me, on Vietnam because it is spectacular and there is a war psychology that may have great significance. But in a $730 billion economy, this step-up of $3 or $4, or $5 or $6 billion which would be a great escalation over there, would be relatively modest, would it not?

Mr. BACKMAN. Well, let me make clear what my position is and indicate the differences between the earlier years so that we can see why greater pressures would develop. In the first place, my position would be that to the extent Vietnam is further escalated, there would be further pressures on prices.

Chairman PROXMIRE. What do you mean when you say that?

Mr. BACKMAN. What I mean is this: suppose that instead of saying we are shooting for a target of 400,000 men, we say we are going to shoot for a target of 600,000 men. This involves a different degree of addition than if we say we are going to shoot for a target of 800,000 men or a million men. There is a degree of spending. But even more important, this comes back to one of the earliest illustrations I remember when I took my first course in economics. That is whether the 12th man was sinking a boat or the first 11 were sinking the boat. Senator Douglas will remember the old marginal type of approach.

We did not have 11 men in the boat in the earlier years, so when an additional man came in——

Chairman PROXMIRE. We have a bigger boat now.

Mr. BACKMAN. But today's bigger boat has more people in it and today's bigger boat is operating with a utilization ratio of 91 or 92 percent capacity, not the 80–82 percent we had in the earlier years to which you referred. It is operating with an unemployment rate of about 3.8 or 3.7 percent, rather than a 5 or 6 percent——

Senator DOUGLAS. Seven percent, including involuntary part-time unemployment.

Mr. BACKMAN (continuing). And it became 7 percent. It was operating without the shortage of skilled workers which characterizes the economy today, because the overall employment figure conceals the degree of shortage which develops, has developed. The want ads that Professor Fabricant referred to and published by the Conference Board would be one of the things that indicate that. So it seems to me it is a question of——

Chairman PROXMIRE. Let me interrupt right at that point, because I think this is very, very crucial. That is that we are at about 90 percent of capacity. But the biggest expansionary factor in the economy is business investment in plant and equipment which is expanding the capacity itself and has been doing so for the last 3 years

at a fairly consistent rate—14 percent 3 years ago, 16 percent last year, 16 percent this year. This is bound to increase our capacity to meet these demands.

Furthermore, we are adding a million and a half to our labor force each year, probably by far the biggest improvement and increase in training and upgrading of skills we have ever had, private business as well as Government action. So are we not getting into a position where we are likely to meet any 1 percent increase that comes from Vietnam, which would be a $7 billion step-up?

Mr. BACKMAN. I think these increases that you have described are very important. One of the reasons why I am not overconcerned about price inflation is that the containing forces such as the expansion in capacity and increase in labor force and so on are very important. But it is still a question of what are we building on top of and what goes along with an expansion in Vietnam.

Now, if we had not had this escalation in Vietnam, I do not think we would be talking about price inflation today. If there had not been this escalation on top of where the economy was 6 or 8 months ago, I think we would be talking about what do we do to sustain the economy, not what might be done to hold it down.

Now, such a development also pulls people out of the labor force and it pulls out trained as well as untrained people. It means that not only do you have the expenditures for the things the Government wants, but all the expenditures which that generates. So it is not a question of the Government spending only $5 billion more on Vietnam or, let us say, defense, and that is just $5 billion against $730 billion. It is $5 billion multiplied by all things that it generates. And when you do that on top of an economy that is operating fairly close to capacity, this is where you get the pressures we have been discussing.

I do not think it is an accident that we had this problem with wholesale prices during the past year. When there was surplus capacity, companies were cutting prices in an effort to keep their plants operating at higher rates. The reason why those price concessions have disappeared is that plants are now going full blast. As you add a little more at that stage, that is the 12th man in the boat.

So my feeling is that the larger the further rise in defense expenditures the more serious it is. This is an entirely different situation than it was 3 years ago, 5 years ago, or 8 years ago.

Chairman PROXMIRE. Senator Douglas?

Senator DOUGLAS. I have no further questions.

Chairman PROXMIRE. I want to thank you very much, gentlemen. You have raised a lot of questions and made an excellent contribution. This is an excellent panel, as competent men as I know in the Government. The three of you are very able critics who have spoken out on what you feel should be done, and must be done, if our price statistics are going to be made more useful. You will have an opportunity, of course, to revise your remarks and add to them as you wish.

Mr. Fabricant, you listed a whole series of improvements, and they were very welcome and desirable improvements. If you could put some indication of priorities on them, it may be helpful, particularly to the extent that you think some of these improvements might involve additional expenditure.

Mr. FABRICANT. May I add just a word, Mr. Chairman?

Chairman PROXMIRE. Yes.

Mr. FABRICANT. I was bothered by this feeling that in talking about priorities, we must choose among price statistics of one kind or another. We are assuming that we have a limited fund for price statistics, or more broadly, for statistics generally in the U.S. Government. I think we ought to weigh priorities against other uses of funds in the Federal Government, not only for statistics but for non-statistics. We are dealing with the economic health of the American people.

Chairman PROXMIRE. You are absolutely right, and I am sure Mr. Bowman recognizes that. He has a tough problem. He is in the Budget Bureau. He has to convince the people in the Budget Bureau that that is the case. Then it has to go to the Appropriations Committees. But it is extremely hard.

I think certainly he has an understanding of the enormous benefit we have gotten from the statistics. But unless he can marshal the best possible arguments, it is going to be very hard to get what we need.

Mr. FABRICANT. I shall be glad to do what I can.

Chairman PROXMIRE. The committee will meet tomorrow morning and hear from Arthur M. Ross, Commissioner of the Bureau of Labor Statistics; Nathan M. Koffsky, Director of Agricultural Economics of the U.S. Department of Agriculture; and Lazare Teper, director of research of the International Ladies Garment Workers Union.

The committee will stand in recess until 10 a.m., tomorrow morning.

Thank you.

(Whereupon, at 12:15 a.m. the committee was in recess, to reconvene on Wednesday, May 25, 1966, at 10 a.m.)

GOVERNMENT PRICE STATISTICS

WEDNESDAY, MAY 25, 1966

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

The subcommittee met, pursuant to recess, at 10:05 a.m., in room S-407, the Capitol, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire.

Also present: James W. Knowles, executive director; William H. Moore, senior economist; George R. Iden, economist; Donald A. Webster, minority economist; and Hamilton D. Gewehr, administrative clerk.

Chairman PROXMIRE. The subcommittee will come to order.

This morning we have two distinguished witnesses here now and a third just coming to the table. Commissioner Arthur Ross of the Bureau of Labor Statistics, our first witness, will speak on price measures needed for economic policy.

Mr. Ross, you have a mighty impressive statement. We are delighted to have you handle it in any way you wish. We will certainly place the entire statement in the record. (See p. 53.)

STATEMENT OF ARTHUR M. ROSS, COMMISSIONER, BUREAU OF LABOR STATISTICS, DEPARTMENT OF LABOR; ACCOMPANIED BY ARNOLD E. CHASE, ASSISTANT COMMISSIONER FOR PRICES AND LIVING CONDITIONS

Mr. Ross. Thank you, Mr. Chairman. I shall refrain from reading the entire statement and ask that it be placed in the record. I will summarize it very briefly.

Since becoming Commissioner, I have spent a good deal of my time appraising our price measurements in the light of current requirements for price information and analysis. This document, which I hope will reveal thought as well as weight, reflects the conclusions which I have arrived at up to the present time with respect to price statistics and analysis. My first conclusion is that the price measurements available in the United States are good, especially for the traditional uses of price measurements in the past. They are carefully constructed; they do not reflect any systematic bias upward or downward. For what this is worth, they are the best in the world, although I think that statement is very faint praise when you look at price measurements in other countries. They are certainly sufficiently good that the Government and management and labor can have confidence

that they do give us an approximation of actual movements in prices and that until something more accurate and more complete is available, they are well worth following or well worth paying attention to in the making of private and public decisions.

The second conclusion which I have reached is that our price measurements are no longer adequate for the tasks. This is primarily because of the more demanding requirements which we place upon statistics these days. Our requirements of public policy for maintaining high employment and reasonable price stability and the other objectives which have concerned the Joint Economic Committee since its very inception do place demands upon the price statistics which they are not fully capable of satisfying.

Likewise, in the private sector, business planning of inventories, of marketing programs, of production programs, the needs, the informational needs of labor organizations in collective bargaining, call for price measures and analysis with a degree of completeness and precision which we do not now have.

Thirdly and finally, the developments in economic theory and the analytical possibilities of the computer now throw light upon the inadequacies of the statistics more harshly than would have been the case 10 or 15 years ago.

All of these developments—the requirements of public policy, the closer types of business planning, and the more complex contents of collective bargaining agreements and the possibilities of economic analysis and computer analysis—call for several major improvements in the price measurements of the Federal Government. Specifically, they must be more complete, they must be more precise, they must be more timely, and they must be compatible with other economic measures. We feel that these are the four principal requirements which must be satisfied more fully.

In my statement, I evaluate the current condition of price measurements, concentrating primarily upon the Bureau of Labor Statistics program in terms of these requirements, and try to indicate where we do measure up to them and where we do not. The summary statement at the end of that evaluation reads as follows:

To summarize: Until a few years ago, price indexes which measured the direction and general magnitude of price trends were adequate for most purposes. This situation has changed markedly in recent years. The change has grown out of several developments, including (1) an awareness of the full impact of the responsibilities placed upon the Government by the Employment Act; (2) a better understanding of the influence of monetary and fiscal policies on the course of the economy; (3) our balance-of-payments problems; and (4) the increasing impact of our military commitments. Achievement and maintenance of full employment together with reasonable price stability, in the face of our foreign aid commitments—for both economic development and defense purposes—is forcing a discipline upon our economic decisionmakers, both within and outside of Government, which requires that they have better facts with which to work.

Price statistics which are accurate, precise, and available promptly are among the most important of the needed facts. General-order-of-magnitude price indexes are no longer adequate to serve decisionmakers in an economy which is dedicated to full use of our resources,

to providing jobs for every employable person who needs and wants to work, and to maximum sustainable, balanced economic growth.

We now have the kind of economy in which it is imperative that any tendency toward imbalance in one direction or another be detected and corrected quickly, if serious consequences are to be avoided. Most economic activities come into focus in the marketplace. It is there that the first evidences of imbalance often show up, in the form of price increases or decreases; shortage or oversupply.

It is becoming increasingly clear, therefore, that we must have more reliable, and more comprehensive price statistics. They also must be made available as promptly as possible, because the timing of economic policy changes has become crucial. Some changes must be initiated several months in advance, in order to be effective at the time when their influence is needed. This calls for a marked acceleration of present schedules for availability of most of the price statistics.

Now, the rest of the memorandum, Mr. Chairman, sets forth a short-range program and a long-range program for reconstruction and improvement of our price measurements. We have selected four items on which we feel progress could be made very rapidly in the short term. We regard these as, therefore, having top priority in terms of the current urgency of accurate and timely price information. These four items are as follows:

First, to improve the coverage of the weekly wholesale price indexes so as to increase their reliability; second, to develop sector or industry price indexes for a greater number of key industries. This is described as follows:

Expand the coverage of the industry price indexes 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. We now have sector indexes available for about 52 industries out of the 400. We believe that we could very rapidly expand this to about 115 important industries which would give us the basis for analyzing where price increases originate and how they are disseminated throughout the economy and what the impact on other phenomena is. In the long run, we would like to have a complete set of sector price indexes.

Thirdly, we want to initiate the collection of data on wholesale prices paid by buyers for selected products such as metals and machinery in order to insure obtaining the terms of actual transactions, which often differ significantly from list prices in periods such as the present.

As you know, Mr. Chairman, in periods of boom, there is a tendency for discounts to be removed, for terms of delivery and packaging and other supplemental aspects of transactions to be changed in favor of the seller, and the opposite happens in times of slack business. For this reason, although we attempt to get the terms of actual transactions, we know that because we are often unsuccessful in doing so, the list price information is not fully accurate for short-period changes.

The fourth item in our immediate program is to move as rapidly as possible to computerize data processing and index compilation to accelerate the issuance of the indexes.

Now, in the wholesale field, we want to rely particularly upon improving the wholesale weekly index. In the CPI field, it is not

practical to have weekly CPI indexes, so we want to rely upon computerization of the editing and the compilation of the indexes to cut a substantial amount of time off and issue them more closely to the reference date. That is the short-range program.

Then—referring to my prepared statement—we begin to set forth a long-range program for comprehensive price statistics, and I shall conclude by reading a couple of paragraphs at this point.

The statistical needs of economic decisionmakers change as the economy develops and our economic institutions evolve. In our judgment, the official price statistics have not kept pace with the changing needs, especially since World War II. A major effort is required, therefore, to bring these statistics up to date. Some of the work involved will take years to complete. The BLS staff has prepared an outline of a long-range plan for improvement and development of price statistics which I propose to summarize.

Since some rather extensive additions and important changes in approach are considered necessary in our own price statistics program, we feel it desirable to consider the problem from a general, economywide point of view. For example, we have tried to see how the proposals we have considered for improvement of BLS price data relate to price data that are available from other sources, and additional data that might be required. Also, we have made an effort to relate this plan to other systems of economic statistics; for example, the national income and gross national product accounts, the input-output compilations, the production indexes, and so forth. What we have come up with is in effect the framework for an integrated interdepartmental program.

To summarize briefly, 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 combined with appropriate weights to provide several types of general economywide price indexes.

Then we have a sort of tabular or outline presentation of the program—again, referring to my prepared statement. It does set forth the objectives, the needs served, and the major elements of our long-range proposal for a reconstruction of price statistics in the United States.

At the very end of the document is a seven-page appendix which I shall merely call your attention to. It is a technical analysis of the concept of the so-called constant welfare or constant utility type of cost-of-living index which has been discussed in professional circles to a considerable extent and will, I think, be of interest to professional economists as setting forth our view of that program.

(The prepared statement of Commissioner Ross follows:)

PREPARED STATEMENT BY DR. ARTHUR M. ROSS, COMMISSIONER OF LABOR STATISTICS

THE PRICE STATISTICS OF THE BUREAU OF LABOR STATISTICS

The Wholesale Price Index and the Consumer Price Index are exceedingly important indicators of economic behavior. They are among the key statistical series on which major decisions of economic policy are made by the Government, by business, and by labor organizations. As far as they go, they are excellent indicators of price trends. However, in their present form, in view of the growing demand for more precise and sophisticated measuring tools, they possess certain limitations which should be remedied promptly. Moreover, it is imperative that we begin now to plan for the construction, over a period of years, of a much more comprehensive system of statistics to measure price behavior in all major sectors of the economy.

The comprehensive Wholesale Price Index, based on price reports for 2,200 items, is compiled monthly. An abbreviated version, based on less than 300 items, is compiled and released weekly for use in projecting price trends from the last monthly index. We also prepare a Spot Market Index daily, covering 22 basic commodities whose prices are very sensitive to changes in market conditions.

The national Consumer Price Index, often called "the cost-of-living index" is released monthly with a press briefing because of its great interest to the general public. This index is based on 400 items representative of expenses incurred by urban wage and clerical worker consumers for family living. Similar indexes are published monthly for the five largest metropolitan areas, and quarterly for 17 other metropolitan areas with populations in 1960 of 1 million or more.

Under a special authorization, we compile and publish consumer price indexes for four cities in Alaska, semiannually. We also measure differentials in living costs, annually, among these cities and between each of them and Seattle, Washington. A quarterly index is published for Honolulu, one of the CPI sample areas, to replace the index formerly published by the State of Hawaii.

In addition to the index series which measure changes in prices from time to time, we also publish average primary market prices for many of the commodities covered in the Wholesale Price Index. At the consumer (retail) level, our regular publication of average prices is limited to foods and fuels. While the major interest is in price trends, we find that there also are many important needs for actual average price data and we go as far as we can with the resources presently available toward meeting those needs. At a later point in my testimony, I shall describe a comprehensive plan for improving the timeliness, adequacy, and reliability of our price statistics.

RECENT PRICE TRENDS

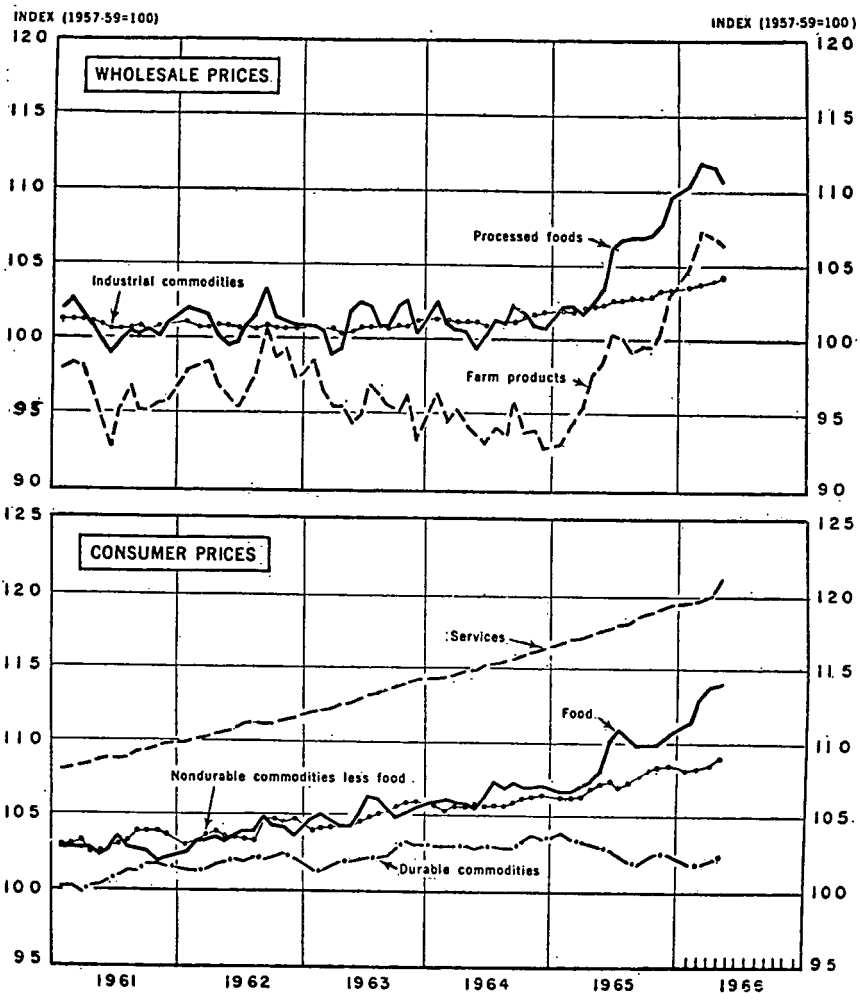
SUMMARY

The two major price indexes have provided reasonably sensitive indicators of the behavior of price levels at wholesale and retail during the present expansion in economic activity. The first half of the 1960's was a period of marked price stability. Wholesale prices remained virtually unchanged throughout the five years, and retail prices edged up an average of only 1.3 percent annually, owing primarily to a persistent advance in prices of consumer services. In early 1965, prices began to rise significantly, and the pace quickened in late 1965 and early 1966. Much of the increase in both wholesale and consumer prices came from higher farm and food prices, particularly livestock and meats. However, wholesale prices of industrial commodities responded increasingly to the accelerated business expansion, and some of the wholesale rises were reflected in higher consumer prices.

Subsequent decreases in wholesale farm and food prices held the overall Wholesale Price Index steady in March and April of 1966, in spite of a continued rise in wholesale industrial prices. At the consumer level, prices of services accelerated their rate of advance in 1965–66. (Chart 1.)

Wholesale Prices: 1960–64.—During these five years, the annual average Wholesale Price Index for all commodities fluctuated within a narrow range of less than one-half of one percent. (Chart 2). In fact, prices had begun to

Chart 1. WHOLESALE AND CONSUMER PRICES BY MAJOR SECTORS

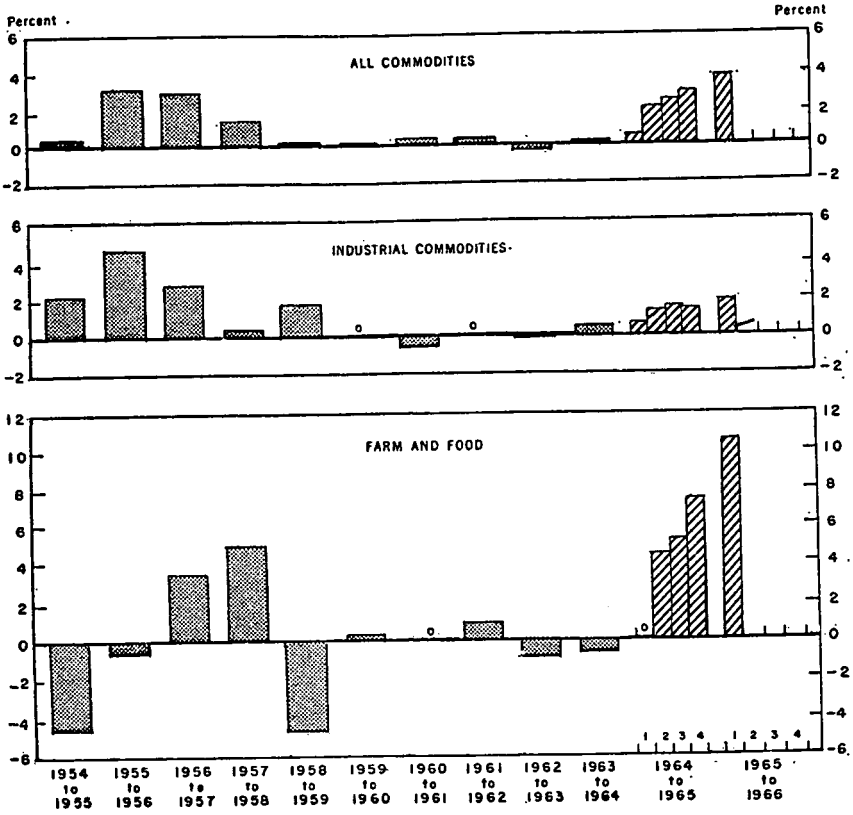


level off as early as mid-1958, after rising 8 percent during the three preceding years when the impact of the 1955–57 investment boom on industrial commodities was augmented by cyclically higher farm and food prices.

Industrial commodity prices in 1964 averaged the same as in 1960, as some edging down in the first few years was offset by increases beginning in late 1963. However, the farm-food price spread widened when prices of farm products drifted generally downward after the spring of 1962, while processed foods averaged one percent higher in 1964 than in 1960. The downward trend in farm product prices, caused largely by declining livestock values as production con-

Chart 2. YEAR-TO-YEAR CHANGES IN WHOLESALE PRICES

(Percent change in annual averages, and since 1964 in quarterly averages.)



tinued high, brought the 1964 farm products index to 94.3 (1957–59=100), the lowest annual average since 1946.

Wholesale Prices: 1965–66.—Wholesale prices began to rise markedly in the spring of 1965, and quickened their rate of advance late in the year and into early 1966. Although a large part of the 1965–66 rise came from substantial increases in prices of farm products and foods, industrial commodity prices were responding increasingly to the continued business expansion and the special needs created by the Vietnam situation. In March and April of 1966, wholesale prices leveled off as decreases in the agricultural sector were sufficient to balance the continuing uptrend in prices of industrial commodities.

Farm product prices began a cyclical upturn, rising sharply in the spring of 1965 and continuing upward through February 1966, when they averaged 14 percent above February 1965. Edging down thereafter, farm product prices

were still 9.0 percent higher this April than last. Livestock prices, particularly for hogs, were chiefly responsible for both the 1965–66 advance and the decreases since February.

Wholesale prices of processed foods have followed the pattern set by farm product prices since the spring of 1965, but the advance which had started from a higher base was not as large. Processed food prices at their February 1966 high were 9½ percent above February 1965. As is generally true for periods when farm prices rise sharply, the spread between prices of processed foods and farm products narrowed, decreasing from an 8.2 percent differential during the first quarter of 1965 to 4.7 percent during the first quarter of 1966. (Chart 1).

Although wholesale prices of industrial commodities began to rise in early 1965, the advance was moderate and somewhat spotty. The 1965 increases centered largely on raw materials. Prices of several important groups of commodities including chemicals, rubber, lumber, and paper had not fully regained, in 1965, the levels existing prior to the 1960–61 recession. In fact, only metals (particularly nonferrous), machinery, and such agriculture-based industrial products as hides and skins, tobacco, and manufactured animal feeds averaged higher in price than six years earlier.

By April 1966, however, the price picture for industrial commodities had changed substantially. Increases had become more pervasive and to a growing extent were for finished goods. Industrial commodity prices rose 1.1 percent during the first four months of 1966, compared with 1.4 percent for all of 1965. The early 1966 advance stemmed both from additional rises in industries where prices had been trending up for some time (nonferrous metals and products, steel products, nonelectrical machinery, and hides and leather) as well as from increases in industries where prices previously had been relatively stable or decreasing (lumber and wood products, pulp and paper, electrical machinery, and rubber and its products).

Consumer Prices: 1960–64.—During the first half of the current decade, consumer prices were relatively stable, edging up at the rate of 1.3 percent annually. (Chart 3). The all items Consumer Price Index did not achieve the stability shown by the wholesale index, because steadily rising prices of consumer services continued to nudge it upward.

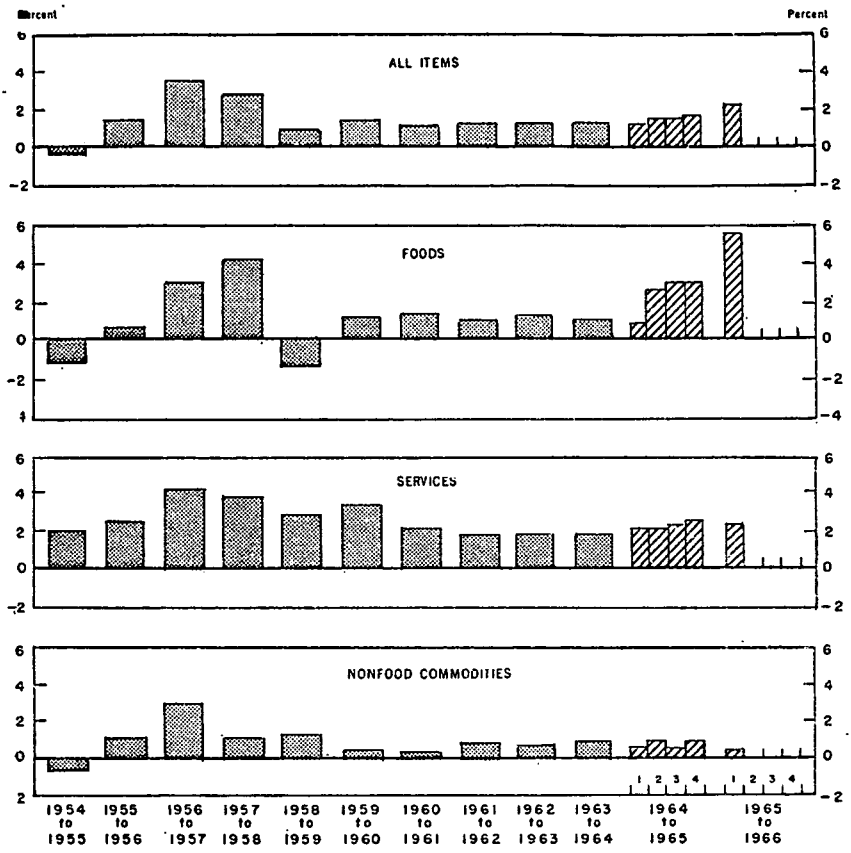
More than half of the rise in the Consumer Price Index during these five years came from higher service prices. Commodity prices—which constitute about two-thirds of the Consumer Price Index—were responsible for less than half the advance. In 1964, service prices averaged 8 percent higher than in 1960, food prices were up 5 percent, and prices of all other commodities a little more than 2½ percent.

The services covered in the Consumer Price Index include the products of diverse industries and activities which are subject to varying economic influences, such as public utilities, doctors' fees, hospital services, domestic work, movie admissions, and rents of houses and apartments. For many of them, the rate of productivity improvement is low, and labor costs form a high proportion of the total cost. Since the end of World War II, consumer service prices have increased each year and, although the rate of increase moderated between 1960 and 1965, it still averaged 2 percent annually throughout the five years.

Consumer Prices: 1965–66.—Consumer prices began to rise at a somewhat faster pace in 1965 than at any time during the preceding five years, and the rate of advance accelerated in early 1966. In the first four months of this year, consumer prices increased 1.4 percent compared with a 2.0 percent rise for all of 1965, and the average annual rate of 1.3 percent during the first half of the 1960's.

Although consumer services were still an important factor in the advance, supplying over 40 percent of the upward impetus, substantially higher food prices were responsible for almost half of the 1965 and early 1966 increase in the overall

Chart 3: YEAR-TO-YEAR CHANGES IN CONSUMER PRICES
(Percent change in annual averages, and since 1964 in quarterly averages)



retail price level. Prices of durable commodities (new and used cars, furniture, appliances, etc.) are actually down from a year ago, on the average, while prices of such nondurables as apparel, gasoline, and tobacco have risen moderately.

Consumer prices averaged 2½ percent higher during the first four months of 1966 than in the same four months of 1965, the largest over-the-year rate of gain since 1958. However, the current rate of increase, which began in the second quarter of 1965, is still far less than during the Korean emergency when, by early 1951, prices had pumped 9 percent over first-quarter 1950 levels.

Food prices, which rose 3.5 percent during 1965 and another 3.0 percent in the first quarter of 1966, leveled off in April. The largest 1965–early 1966 increase was in meat prices, particularly for pork. Although they dropped 5½ percent in April, pork prices were still 28 percent higher than a year ago. April prices for all foods in the Consumer Price Index averaged 6 percent higher than last year.

Prices of nondurable goods other than food, increasing an average of less than one percent annually between 1960 and 1965, rose 2.0 percent during 1965 and another one-half of one percent by April of 1966. Durable commodity prices, which averaged only about 2 percent higher in 1964 than in 1960, fell one percent in 1965 largely because of the reduction in Federal excise taxes. Durable prices continued down in the first quarter of 1966 but rose back to their late 1965 level in April as the excise taxes were partially restored on new cars.

Consumer service prices began to advance at an accelerated rate in 1965, rising 2.7 percent over the year and another 1½ percent in the first four months of this year. Much of the 1965–66 increases was the result of higher costs of homeownership (taxes, insurance, mortgage interest, and home maintenance and repairs), housekeeping services, professional medical fees, hospital service charges, and such items as automobile insurance, barber and beauty shop services, and movie admission charges.

One cause of rising service prices has been the generally low rate of productivity increase which causes higher costs to be passed on directly to the consumer. In addition, shortages of trained personnel and facilities have placed considerable pressure on costs and prices in service industries. Furthermore, demand for many services has grown rapidly in recent years with higher incomes, an expanding population, and institutional changes such as the wide adoption of medical insuance, which has encouraged the use of medical services.

Evaluation of the Available Price Measures

This brief analysis summarizes the insight obtained from the indexes on price developments since 1960. My understanding is that the Committee is mainly interested in an evaluation of how well and promptly the indexes reflect what has happened in the market place. This is a question to which there is no completely satisfactory answer. The indexes undoubtedly reveal the direction of major price level changes. Even in their present form, however, they could be considerably improved to provide more sensitive indicators of price movements, and they could be issued more promptly.

I understand that Dr. Raymond Bowman, in his testimony yesterday, went into some detail regarding the status of implementation of previous recommendations of this Subcommittee, the Price Statistics Review Committee, and others. It is not necessary, therefore, for me to go into those specifics, but I do want to make several proposals for substantial improvements in the BLS price statistics. I discuss immediately below the more important improvements that could be effected in the existing series, and then present a long-range program for a truly comprehensive price index system. I should note that improvements in the existing system will fit into the long-range program.

Coverage of Indexes

The item coverage of the price indexes needs to be improved. To illustrate, coverage of the Wholesale Price Index is weak in the electronics industry, because the resources available have not permitted the Bureau to devise the new pricing procedures required to keep pace with rapid developments in that field. Coverage of products in many other important industries also is inadequate to measure industry trends.

The coverage of the Consumer Price Index is deficient in certain other respects. For example, trends of living costs for the elderly are of considerable current interest, but they are largely excluded from coverage of the CPI. The Bureau's consumer expenditures surveys show that the share of total expenditures going for food and medical care is substantially larger for the elderly than for younger families. Therefore, when food prices and medical costs go up faster than prices of other things, as they have recently, the elderly are hit harder. The new "Medicare" program will change this relationship, of course, but the CPI will not measure its effects.

Timeliness of Release

Another question concerns the timeliness with which the reports on price trends are made available. In a delicately-balanced, highly-complex economy such as ours, crucial public and private decisions must be made promptly, if serious consequences are to be avoided. This means that the economic facts required for wise decision-making must be available promptly.

For some years, the monthly Wholesale Price Index, even on a preliminary basis, was not released until about four weeks after the reference date. We have succeeded recently in cutting about one week off that schedule. Similarly, the Consumer Price Index was not available until near the end of the month following the month of reference. By scheduling a great deal of overtime work, we have recently reduced that time lag by a few days, in order to provide this essential measure at the earliest possible date using present procedures.

I regard the delays in availability of the price indexes, even after these slight improvements, as still unacceptable, and I have directed the staff to develop plans for further improvements in their timeliness. One of our immediate proposals is to undertake a complete systems analysis of the price index compilation procedures, in order to make the fullest possible use of the more powerful computers now available in order to make the price indexes available more promptly.

Transaction Prices

On the question of the accuracy of the price indexes, we know that some precision is lost in the Wholesale Price Index, for example, because price quotations obtained from sellers do not always represent the prices at which actual transactions take place. At times when competition is especially keen, sellers are inclined to shade prices by granting special discounts or other more favorable terms than normally to obtain orders. Conversely, when competition lessens, sellers remove special discounts and may even, under some circumstances, add on certain premium charges. Changes of these types most often take place at the time of a turn downward or upward in the economy, when it is especially crucial from a public policy standpoint to have an accurate reflection of price movements.

The Bureau of Labor Statistics routinely requests its respondents to report all applicable discounts, and probably does get information on most of the regular discounts. The Bureau believes, however, that many of the special discounts and premium charges are missed, because sellers are reluctant to report them. Therefore, the Wholesale Price Index is not as sensitive as it should be to changes in actual transaction prices, since reliance has always been placed entirely on sellers' price quotations adjusted only for the "usual" discounts. Judging by reports in the trade press, important changes in prices have been effected by removal of discounts from list prices which have prevailed for such items as aluminum, plumbing fixtures, asphalt roofing, paper products, and cement.

For many industries, we believe that accurate price quotations can be obtained from sellers, if a field staff were available to review their price reports with them occasionally. Such a procedure would be much less difficult and costly than securing price data from buyers' invoices, which is the only alternative.

There are some important, major industries, however, where marketing practices are such that obtaining price information from buyers probably is the only sure method of getting actual transaction prices. The Bureau proposes to do the investigative work necessary to identify such industries, and then proceed to establish the collection of price data from buyers. From the limited experience that we have had with this procedure, we know that it will be costly and time-consuming. However, we agree with previous recommendations of the Price Statistics Review Committee that this type of data collection needs to be started.

The Weekly Wholesale Price Index

The Bureau has recognized for some time that the weekly Wholesale Price Index is somewhat imprecise in its projection of wholesale price trends between monthly indexes. This is because of its limited coverage and the constraints imposed by the ready availability of price quotations on a weekly basis. During the six-year period before 1965 when prices were very stable, this lack of reliability in the weekly index was not too serious. However, in the present situation, with prices moving up on a selective basis, the weekly index does an even less accurate job of projecting the monthly index. In April, for example, it indicated a small decline, whereas the monthly index actually showed an increase when it finally became available. Yet it is in precisely a situation like the present that a prompt, reliable indication of current price trends is most urgently needed.

As a first step toward meeting this need, the Bureau recommends augmentation of the coverage of the mid-month weekly index to give a better preliminary

indication of what the next full monthly index will show. The results should be made available within a week after the date to which the prices refer. They also should provide more detail than the present weekly index concerning particular sectors of the economy where prices are changing.

Need for Indexes by Industry

The present Wholesale Price Index serves many useful purposes; because of its organization by commodity groups, however, it is not as sensitive a measure of inflationary pressures as is needed. It does not lend itself readily to analysis of price changes in relation to wages, productivity, capital investment, and other economic phenomena.

These analytical shortcomings should be overcome by proceeding as rapidly as possible to complete the development of sensitive, precise price indexes for more than 400 industries which can be aggregated into appropriate sector indexes. A start has been made in this direction with funds already provided, which has allowed development of indexes for 52 industries. Further progress is urgently needed.

Sampling Error of the CPI

The Consumer Price Index is based on a complex of samples; that is, samples of urban areas, samples of retail establishments, samples of goods and services, etc. During the last comprehensive revision of the index, which competed in January 1964, it was decided to structure the samples in such a way that the sampling error could be measured. The index often changes by as little as 0.1 of one percent in a month, and the question was raised frequently whether such a change was really significant from a statistical standpoint.

Estimates of the standard error of percent changes in the CPI have now been made for 1964 and 1965. For the all items index, they are 0.03 on monthly changes, 0.05 on quarterly changes, and 0.06 on annual changes, using unrounded data. Therefore, a real change of 0.1 percent in one month probably is significant. However, because there can be changes of 0.1 in published data as the result of rounding, it is better to make the more conservative statement that a change of 0.2 is significant. Similarly, a change of 0.2 over a quarter or over a year is significant.

As would be expected, the sampling errors are larger for the separate major component groups, and especially large for such groups as personal care and recreation. However, it is the all items index that is used for most important purposes, and the sampling error for that index is within tolerable limits. A member of the Bureau's staff has prepared a technical paper on the measurement of sampling error in the CPI which can be made available to anyone who wishes to study this question in more detail. I would like to note that this work on sampling error reflects one of the most emphatic recommendations for improvement of the Consumer Price Index presented in 1961 by the Price Statistics Review Committee.

The Quality-Bias Question

In evaluating the reliability and adequacy of the major price index series one must consider more than sampling techniques, and the coverage and collection of price data. A price index number is essentially a device to measure the relative magnitude of something we call the price level. Since there is not unanimous agreement on what is meant by the price level there will inevitably be disagreements on the suitability of the index number devices for measuring it.

The major question with regard to the reliability of the existing price indexes relates to the so-called quality problem. The claim has been made frequently of late that the official indexes are biased upward because of failure to take adequate account of quality improvements, and the additional choices made available to purchasers by an expanding economy. At other times, during periods of war shortages, for example, the argument has been made that quality deterioration biased the indexes downward.

We consider the quality problem extremely important, and agree that it is necessary to improve techniques of accounting for quality changes in price indexes. However, we maintain that the quality problem is not separable from the index number problem as such. In fact, it *is* the index number problem—the problem of making price comparisons for items that are equivalent in terms of the statistical principles and concepts underlying the structure of the price index numbers. There has been too much discussion of quality change in the sense of technological improvements and new products divorced from

the constraints which govern price comparisons in index number work. We have to determine that the prices compared for the CPI are equivalent from the point of view of the consumer, and his point of view is often governed by considerations different from those involved in laboratory tests of quality. Also, our price comparisons must not be influenced by changes in tastes, or income, or environmental factors.

Furthermore, in evaluating quality we must pragmatically balance short and long run considerations, because judgments of quality differentials are not the same for the long versus the short term. The procedures used to compile the present indexes concentrate on short-term comparisons. Our price data are collected in accordance with pre-set specifications which list the important characteristics of the items priced. These procedures flag situations which require special attention in the computation of price relatives—when items change in some important respect, or when priced items disappear from the market.

Any argument that the CPI, or the WPI for that matter, is biased because of the nature of the price comparisons made as products change, ignores not only some of the theoretical constraints within which the index operates, but also the facts as to how the index mechanism operates. The claims of bias that have been made are based, in effect, on the supposition that prices of new versions of products are always compared directly with their predecessors priced for the index. If this were actually the case, there would be a presumption in a period of advancing technology that quality increases are covered by the price differentials embodied in the new prices and that the price comparisons are biased. While this may be the situation in a few instances, it does not conform to BLS procedures in general.

For some items, such as automobiles, apartment rentals, and heating equipment, we are able to make explicit adjustments for quality differentials in computing our price relatives when substitutions are necessary. For other items, a decision may be made that the substitute item is too different from the old to compare directly and that no basis exists for removing the quality differential from the price comparison. In such a situation the substitute item would be introduced by linking, that is, without affecting the level of the index.

There still remains the question of new products, and whether late introduction of them into the indexes biases the results. There are, of course, differences of opinion as to the appropriate point at which to bring new items into our samples. Too early introduction could bias the indexes downward. And, within the framework of fixed weighted indexes, new products, i.e., really new products or innovations, have to be introduced by linking. We could thus never satisfy adherents of the welfare of constant utility points of view that the greater choices available to consumers should have a direct effect on the index.

To summarize, statements made about possible upward bias in the index numbers because of product improvements ignore the realities of index number practice. Since product changes in a period of upward price trends generally involve a real price increase as well as a quality improvement, the linking procedure can mean a downward bias. From our intimate knowledge of the procedures actually followed in compiling the indexes, we consider this a greater danger than the possibility of upward bias frequently claimed by those who are less familiar with our procedures. Obviously, however, we cannot say what the net effect is. If we could quantify it, we could remove from the index any bias that might exist. And similarly to handle the new product problem in a manner that would satisfy some of our critics would require different kinds of index numbers, which however are still in the realm of abstract theory.

Until a few years ago, price indexes which measured the direction and general magnitude of price trends were adequate for most purposes. This situation has changed markedly in recent years. The change has grown out of several developments, including (1) an awareness of the full impact of the responsibilities placed upon the Government by the Employment Act, (2) a better understanding of the influence of monetary and fiscal policies on the course of the economy, (3) our balance of payments problems and (4) the increasing impact of our military commitments. Achievement and maintenance of full employment together with reasonable price stability, in the face of our foreign aid commitments (for both economic development and defense purposes) is forcing a discipline upon our economic decision-makers, both within and outside of government, which requires that they have better facts with which to work.

Price statistics which are accurate, precise, and available promptly are among the most important of the needed facts. General-order-of-magnitude price indexes are no longer adequate to serve decision-makers in an economy which

is dedicated to full use of our resources, to providing jobs for every employable person who needs and wants to work, and to maximum sustainable, balanced economic growth.

We now have the kind of economy in which it is imperative that any tendency toward imbalance in one direction or another be detected and corrected quickly, if serious consequences are to be avoided. Most economic activities come into focus in the market place. It is there that the first evidences of imbalance often show up, in the form of price increases or decreases; shortage or over-supply.

It is becoming increasingly clear, therefore, that we must have more reliable, and more comprehensive price statistics. They also must be made available as promptly as possible, because the timing of economic policy changes has become crucial. Some changes must be initiated several months in advance, in order to be effective at the time when their influence is needed. This calls for a marked acceleration of present schedules for availability of most of the price statistics.

We have drawn up a long-range program to accomplish this result, and we feel that the most urgent parts of the program should be initiated as soon as possible.

Proposed Improvements for Immediate Implementation

Because of their urgency, it is proposed to undertake the following improvements as soon as possible:

1. Augment the data base for the *weekly* Wholesale Price Index with the objective of making it a more accurate indicator of current industrial price trends.
2. Expand the coverage of the industry price indexes 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.
3. Initiate the collection of data on prices paid by buyers for selected products such as metals and machinery, in order to insure obtaining the terms of actual transactions which often differ significantly from list prices in periods such as the present.
4. Move as rapidly as possible to computerize data processing and index compilation to accelerate the issuance of the indexes.

Weekly Wholesale Price Index

The present weekly index is based almost entirely on secondary data from various trade publications and government reports. Practically no primary data collection is carried on by BLS. Representation of commodities is controlled, therefore, by the availability of data from secondary sources.

The proposal is to augment the sample of commodities represented in the mid-month weekly index, instituting direct collection of data where such action is necessary to fill gaps in secondary source data, or where secondary data are unreliable. This would provide a reliable early indicator of the monthly price change that will later be computed from the full WPI sample. Supplementation through direct reports is required in the area of industrial prices, in particular. It is expected to center on chemicals, metals, and machinery.

Industry-Sector Indexes

A small beginning has been made on the development of industry price indexes, which are crucial to insight into the source of price change, the analysis of prices in relation to wages and productivity, and for other purposes. Using currently available wholesale price data, indexes have been prepared for 52 industries (of a total of over 400) covering 19 percent of mining and manufacturing. The immediate proposal is to expand the coverage to 60 or 70 additional industries, including aircraft, electronics, plastics, and shipbuilding for which price measures of any kind are now extremely limited.

Preparation of indexes for these industries involves a considerable extension of data collection because of the existing serious inadequacy of representation of their products.

Many of the additional products to be covered are nonhomogeneous, of special design, and highly complicated. For these reasons, special pricing techniques must be developed which may involve obtaining prices of components rather than complete end products. It probably will be necessary to obtain prices from buyers rather than sellers in many cases.

Data gathered for the Wholesale Price Index will be used insofar as they are available. However, it is estimated that new prices series will have to be established for about 300 additional commodities in order to provide an adequate data-base for the 60 to 70 additional industry price indexes.

TRANSACTION PRICES

A start should be made immediately toward basing the Wholesale Price Index on actual transaction prices. The first step would be to determine, through investigation and study, those industries for which actual transaction prices cannot be obtained reliably from sellers. It is estimated, as a first approximation, that price data may have to be obtained from buyers for as many as 800 products, or about one-third of the total number included in the WPI.

Our knowledge of pricing practices in various industries leads us to believe that actual transaction prices may depart from list prices adjusted for regular discounts most often in the primary metals industries. Because of the strategic importance of these basic industries, we propose to begin by instituting collection of price information from buyers in the steel and nonferrous metals industries. We anticipate that this procedure will be established for about 300 products in the first year, with additional products remaining to be covered in subsequent years.

REDUCTION OF TIMELAG (COMPUTERIZATION)

Somewhat different solutions to the timelag problem are proposed for the two major indexes. So far as the Wholesale Price Index is concerned, the improvement of the weekly indexes, described earlier, should provide reliable information at an early date, and accomplish the desired result.

With regard to the Consumer Price Index, a different approach is necessary. It is not feasible to develop weekly indexes of consumer prices. For compelling reasons involving use of the index in wage and other contract adjustments, the issuance of a preliminary index should be avoided. The present proposal is intended to accelerate preparation of the CPI so that the index can be released by the middle of the month following the month represented by the index without sacrificing its completeness and accuracy. (It should be noted that the CPI represents the entire month, rather than a mid-month date as in the case of the WPI.)

The lag in publication largely reflects the fact that a substantial part of the editing and processing of data and compilation of the indexes still is done manually. This is because the samples of price quotations are small, except for food and rents, and the price comparisons from one period to the next require very close scrutiny. Until recently, the data processing equipment available could not perform the clerical editing required with the necessary degree of reliability. However, the advanced computers now available can handle a large part of this work satisfactorily, leaving only the more difficult and unusual problems to be brought to the attention of members of the professional staff.

It is proposed to undertake a full-scale systems analysis covering all aspects of compilation of the CPI with a view to making the maximum feasible use of modern computers for machine editing of price comparisons and for actual computation of the indexes. The analysis may also point the way toward certain other improvements in operational procedures which will reduce the time required to compile the indexes, such as providing better and more comprehensive market information to field representatives who collect the price data and giving them increased responsibility for the validity of the price comparisons.

LONG-RANGE PROGRAM FOR COMPREHENSIVE PRICE STATISTICS

The statistical needs of economic decision-makers change as the economy develops and our economic institutions evolve. In our judgment, the official price statistics have not kept pace with these changing needs, especially since World War II. A major effort is required, therefore, to bring these statistics up to date. Some of the work involved will take years to complete. The BLS staff has prepared an outline of a long-range plan for improvement and development of price statistics which I propose to summarize.

Since some rather extensive additions and important changes in approach are considered necessary in our own price statistics program, we feel it desirable to consider the problem from a general, economy-wide point of view. For example, we have tried to see how the proposals we have considered for improvement of

BLS price data relate to price data that are available from other sources, and additional data that might be required. Also, we have made an effort to relate this plan to other systems of economic statistics, for example, the national income and gross national product accounts, the input-output compilations, the production indexes, etc. What we have come up with is in effect the framework for an integrated interdepartmental program.

To summarize briefly, 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 combined with appropriate weights to provide several types of general economy-wide price indexes.

There are many other facets to this proposal, but I shall single out one for particular mention at this point because I have already commented on the problem with which it proposes to deal. There have been many suggestions for an alternative type of Consumer Price Index that would correspond to changes in the cost of living as outlined in economic theory, that is, an index that would measure the changing cost of a constant level of satisfaction. While I have considerable doubts that a true cost of living index is practicable, I recommend research on new techniques and development of alternative indexes that measure changes in the cost of living according to different concepts and procedures than the CPI. The theoretical distinctions between a constant satisfactions, or true cost-of-living index, and a consumer price index are discussed separately in an appendix.

Objectives

1. To establish the framework for a Comprehensive Price Index System for the entire economy in which price changes are systematically related to production, consumption, and financial transactions. The system would be sufficiently broad and articulated to accommodate indexes of price change for—
   a. All major, and selected minor, producing and consuming sectors of the economy.
   b. All important commodities and services, and for a sample in depth of less important items.
   c. Transactions at all important levels of production, distribution, and consumption.
   d. Transactions in foreign trade as well as in domestic exchange.
   e. Input costs of industries and sectors as well as output prices received.
   f. Transactions in financial markets as well as in commodity markets.
2. To indicate the relationships of presently compiled statistics to the proposed framework, the changes that might be desirable, and the extension of price coverage needed to complete the system.

Needs Served

1. The system would provide a broadly based, meaningful and sensitive set of price indicators to serve as a guide to Executive and Congressional officials determining—
   a. Fiscal policy.
   b. Monetary policy.
   c. Consumer or industry assistance policies.
   d. Policies affecting U.S. competitiveness in world trade and our balance of payments.
   e. Specific government programs affecting inflation or deflation.
2. By contributing to the improvement of other basic statistics it would help provide a better foundation for government, business and labor policy planning relating to balanced economic development and economic growth. For example—
   a. Estimates of changes in real national product derived in the Office of Business Economics by deflation of the Gross National Product would be greatly improved.

b. Compilation of production indexes by the Federal Reserve Board (and for census year comparisons, by the Bureau of the Census), would be accomplished more accurately.

c. Estimates of changes in productivity covering the private sector of the economy, and important industrial subsegments, would have more reliability because of the improvement in the real national product estimates and the production indexes.

d. Analysis of the elements contributing to economic growth, and projections into the future would have a firmer basis insofar as the sectoral composition is more clearly established in "real" terms (i.e., in constant prices).

3. The improved price index system would serve such private uses as providing—

a. Escalators for wage and salary contracts.

b. Escalators for long-term business contracts to maintain purchasing power.

c. Tools for market analysis and for making business decisions.

Major Elements

1. A price index system would be organized to provide comprehensive, consistent, and meaningful measures of price change for all types of economic activity within a statistical framework based on GNP, input-output, and standard industrial classification guidelines.

2. Indexes produced by other agencies, as well as those of the B.L.S., would be fitted into the master plan, although in most cases the data collection would need to be expanded to fill gaps within the nominal coverage of these statistics, and some changes in scope of structure might be necessary to conform with the overall design.

3. For some segments of the economy it would be desirable to develop and compile on a regular basis alternative sets of price indexes which will either (a) measure price change according to some different economic construct or (b) compile the price data according to a different classification principle and/or employ different systems of weights. Compiling indexes on these alternative bases and according to varying classification plans would, of course, be greatly facilitated by the use of large scale computers.

4. While emphasis would be given to overall changes in price level, the index system would be planned to show the anatomy of price change and the diffusion and interaction of effects from one sector to another.

5. Provision would be made for required adjunct statistical studies, for example, *consumer expenditure surveys* needed for the Consumer Price Index weights. Likewise, provision would be made for compilation and publication of data generated by the price index system other than price indexes themselves, for example, *average price data* for commodities (in the case of personal consumption items, separately for large metropolitan areas and regions).

The Structure of the Comprehensive Price Index System

One of the significant improvements in economic statistics in recent decades has been the increased use of standard classification systems for the organization of economic data. This has facilitated the organization of Census, production, and employment statistics in frameworks that users could readily identify and compare, and has made possible such useful analytical tools as the input-output tables and the money flows systems.

The proposed comprehensive price index system is intended to fit price data into this mold. This is not the first time such an idea has been proposed. When the Bureau of Labor Statistics conducted the Interindustry Relations Study for 1947, the wholesale price index data were organized on a makeshift basis and weighted within an input-output sector framework. These indexes were used in various input-output models and were continued by the Bureau's Division of Productivity and Technological Developments for computations of productivity change on a net output basis. More recently the BLS compiled crude indexes of the same type (but organized on an SIC basis) for use by the Bureau of the Census in comparing real levels of production for census years.

As a framework for discussion, major sectors of the comprehensive price index system can be delineated as outlined below:

1. Industrial sectors
   - *a.* Agriculture
   - *b.* Mining
   - *c.* Manufacturing
   - *d.* Services
     1. Business
     2. Personal
   - *e.* Utilities
   - *f.* Transportation
   - *g.* Distribution
2. Final demand sectors
   - *a.* Households
   - *b.* Business investment
     1. Producer durables
     2. Construction
     3. Inventory changes
   - *c.* Governments—Federal, State, Local
   - *d.* Foreign trade
3. Financial transactions
   - *a.* Land and capital assets
     1. Agricultural land
     2. Urban land
     3. Capital assets including residences
   - *b.* Household tangible wealth
   - *c.* Bonds and securities
   - *d.* Interest costs

If the Industrial and Final Demand Sectors listed above were arranged as row and column headings of a rectangular table, it would represent the outline of a truncated input-output table. This would be the framework of the new price index system. The detailed classification according to which the price indexes would be developed cannot be set forth at present. However, the objective, at least in the manufacturing area, would be to present price information corresponding to the outputs and the inputs of all important 4-digit industries. In other major areas the standard industrial classification criterion is not as critical and subdivisions would be designed to serve the needs of the government and private users of the data. For example, a major portion of total expenditures for personal services is in establishments classified within retail trade (for the SIC). Conversely, establishments classified within the services category derive a large portion of their receipts from sales of merchandise. These sectors may be defined on the basis of the activity rather than the establishment classification.

The proposed system has the advantage of being internally consistent and nonduplicative. It establishes in advance where the price data for individual products and services belong and provides logical guidelines on how they should be combined. In aggregating to the sector level, the effects of duplication of transactions, for example, resales of the same product at different stages of production or distribution, can be removed instead of being duplicated as in the weights of the present Wholesale Price Index. However, the item price information, or indexes at subclass levels could be published as well as the composite indexes that arise from aggregation to the sector level.

What is an output price to one industry is an input price to another. The system would provide for compilation of input prices or cost indexes on a sector basis as well as output price indexes. This would impose an additional burden upon the data collection process, as different prices may be paid for the same item by different industries depending upon their closeness to sources, their control of sources, and their volume of purchases. Also, for some purposes it would be necessary to take account of bookkeeping prices for within-company transfers which currently are excluded from the WPI. Tentatively, the recommendation is that these be excluded from the major system of published indexes which would be limited to prices of arms-length transactions. However, the system can be adapted to serve the needs of government agencies which require this additional dimension in price measurement.

When the system is completely developed to the point that both output and input price indexes are available for industrial sectors it will be possible to develop sector value added price indexes, i.e., indexes of changes in unit value

added. This type of index corresponds in the most meaningful sense to changes in prices of a sector's output; the output is the value added, or the gross national product originating in the sector. The more familiar indexes expressed in terms of prices of conventionally measured products of the sector are, obviously, a necessary step. For a few sectors which produce no conventionally measured products, a unit value added index will have to be calculated by dividing an index of aggregate sector value added (at current dollars) by some specially devised sector production index.

In concept the sector unit value added indexes briefly outlined above, should agree, when combined with base year value added weights, with a price index for the final demand sectors also computed with base year weights. Of course, there are many statistical and conceptual problems to be resolved in establishing sector price indexes before the system can be completed in this fashion and the price indexes from both parts of the accounts (industrial and final demand) brought into balance. It should be noted that the weights for the combination of final demand sector price indexes for purchases differ from those embodied in the well-known implicit gross national product price index, since the weights of the latter relate, in concept, to the current period.

The nature of work proposed for the Industrial and Final Demand Sectors can be outlined in some detail, since the price statistics for these sectors parallel familiar notions of production, shipments, consumption, and costs, and the sector definitions can be related to the well-known input-output and GNP accounts The work outlined under the heading "Financial Transactions" can be related to two other systems of national accounts, which, however, are not as familiar, or as firmly established. The first is the "Flow-of-Funds System" published for some years by the Federal Reserve Board. The second is the Wealth Accounts, a project still in the planning stages. These two systems of accounts are also organized by sectors.

Considerable basic research would be required to develop a complete system of price indexes for financial transactions and money flows and for measuring the value of tangible wealth. In view of the preliminary nature of the plans for the wealth accounts, it is premature to outline in detail the kinds of price data collections that would serve the needs of these accounts. At present, emphasis should be placed on changes of prices of land, capital assets, and securities and bonds, and on changes in interest rates for selected kinds of loans. These data are considered of immediate urgency in relation to the comprehensive price index system, because of the interaction of changes in prices in financial markets with prices in other spheres of economic activity. However, the planning staff for the comprehensive price statistics program should work with the various agencies most directly concerned with these statistics.

The Production or Industrial Sectors

The proposed comprehensive price index system would provide for—

1. Continuation of the present WPI for an indefinite period, i.e., until the users become thoroughly familiar with the new system of sector indexes. However, any improvements in coverage or price data collection would be incorporated into the WPI. This applies equally to the various special indexes compiled by reweighting the WPI data, e.g., indexes by stage of processing.

2. The basic WPI price data would be improved to represent actual transaction prices more realistically by (a) closer follow up of the regular monthly reports (contingent upon a larger staff, especially for field contact work, inasmuch as very few field contracts are made at present) and (b) special surveys of buyers in cases where realistic prices cannot be obtained from sellers.

3. Investigation of means of improving the weekly WPI so that more dependence can be placed on it as an indicator of trends of the monthly index.

4. Expansion of price data collection to industries within the agriculture (including forestry and fisheries), mining, and manufacturing sectors that are inadequately covered for the WPI. For some industries new pricing methods will have to be developed—present methods, for example, do not lend themselves to the pricing of custom-built machinery and equipment, aircraft, and shipbuilding.

5. Organization of the price data for the output of the agriculture, mining, and manufacturing sectors into the new design. More specifically, price indexes will be developed for—

   a. individual products.

   b. 5-digit SIC product categories (with the exception of those having little importance).

c. 4-digit industries—

Agriculture—a commodity classification rather than an industry classification would probably continue to be employed.

Mining—indexes for most of the 55 4-digit industries would be compiled.

Manufacturing—it probably would be practical to compile separate indexes for about three-fourths of the 420 4-digit industries.

d. 3-digit industries—except for agriculture, practically all the 3-digit industries would be represented by separate indexes.

e. 2-digit summary indexes, and combinations of them (e.g., all manufacturing).

As the price data are aggregated to summary sector levels, weights representing intra-sector transactions would be netted out. The precision with which this can be accomplished will depend on improvement of Census data and preparation of more detailed input-output transaction tables than are currently available.

6. Input price indexes representing changes in costs of materials, supplies and services of industries in the agriculture, mining and manufacturing sectors would be compiled using—

a. sector input data from the input-output tabulations as weights;

b. selling price data of supplying sectors insofar as they correspond to input prices;

c. specially collected data on input prices as needed for particular sectors.

Such price indexes would in effect correspond in scope to total valuation of industry production excluding factor costs. For analytical purposes it would also be possible to present comparable indexes of labor costs and to indicate the importance per unit of output of the various components of factor costs.

7. Indexes for the *services, utilities, transportation,* and *distribution* sectors would be compiled in as compatible a manner as possible with the indexes for the commodity sectors. However, in many segments of these sectors there are difficult problems of defining appropriate output units to which prices can be related. To the extent possible, decisions on these points should conform with procedures and conventions employed in the GNP and input-output accounts. Only scattered price data are available for components of these sectors; to a large extent the job of instituting a price collection system will have to start with basic planning and research.

8. Indexes representing changes in unit value added in the distribution sectors would be developed. In the earlier general discussion of the sector framework, reference was made to the problems of constructing sector price indexes representing changes in unit value added, which correspond to services performed by the sectors. For distribution, preparation of such indexes is an especially difficult problem, the nature of which is outlined briefly in the later discussion of the consumer and retail trade price indexes. Unit value indexes for wholesale trade present even more difficult problems because of the multiplicity of distribution channels and the absence of corresponding price or margin data.

9. A new sensitive market price index would be developed. One of the problems with price data is that when there are important changes in price trends, policy makers cannot wait for the normal timing of price reports. Reference was made earlier to weekly samples which can provide some insight to primary market price movements in advance of impending inflationary or deflationary developments. The present Daily Spot Market Price Index based on 22 raw or basic industrial goods is used in this way but does not solve the purpose outlined very well. Whether any measure predictive of cyclical turns can be developed is questionable but it warrants research.

Final Demand—Households (Personal Consumption)

At present, changes in prices paid in the personal expenditures sector of final demand are covered by the Consumer Price Index for urban wage and clerical workers and their families, and the Department of Agriculture index of Prices Paid by Farmers for Family Living. The first covers about 40 percent of the U.S. population; the second, an additional 8 percent.

From an operating point of view it has been often suggested that the farm index and the CPI should be constructed according to common concepts and statistical procedures and that the work of collecting the price data should be integrated. This last point has greater validity now than it might have had a decade ago in view of changes in the manner of farm living which has made

the expenditures and living costs of farmers more comparable to those of urban dwellers. This suggestion is often combined with the more ambitious proposal for a consumer price index covering the entire population, with sub-indexes representing specific population groups. The reason for such suggestions is that population groups not covered by either the CPI or the Index of Prices Paid by Farmers—retired persons, the unemployed, professional and business people, consumers in rural nonfarm areas, etc.—spend their money differently. The weights of the CPI and of the Index of Prices Paid by Farmers, and the price data employed, may not be representative of these other population groups.

The two main arguments regarding the accuracy of both the CPI and the farm index relate to the handling of quality changes and of new products, problems which were discussed earlier. Also, there is a feeling in some quarters that the emphasis of the BLS in maintaining the CPI as a "price index" is misplaced and that steps should be taken to move this index in the direction of a "constant satisfaction" or "constant welfare" oriented index. The latter is discussed more fully in an appendix.

Other factors which lead to dissatisfaction with the CPI are as follows:

1. The limitation of coverage to only a part of the U.S. population whereas the index is often used as representing movements in prices paid by consumers more generally.
2. Gaps in coverage of consumer expenditures; for example, automobile installment credit and other personal finance charges are not priced.
3. Reliance on secondary source data for some important segments of consumer expenditures; for example, home purchase cost and used cars.
4. Data collection techniques which do not keep up with changes in the market place; for example, lack of resources made it impossible for the BLS to keep up with the shift of home delivered milk distribution from a company operated basis to independent routemen.
5. Rigidities in the outlet and item samples and failure to keep specifications updated.
6. Long intervals between weight changes—the current 10-year schedule for revision is considered by many observers to be inadequate.

The proposed comprehensive price index system would provide for the development and maintenance of a system of price indexes at the retail level covering consumer prices and cost of living changes in several dimensions. In addition it would provide for measurement of price changes of items sold by retail establishments to non-household customers. The latter data are valuable in their own right as well as in terms of coverage of the retail trade sector of a comprehensive system.

A price index corresponding to the output of the Retail Trade Sector, as it fits into the general framework, would have to be based on changes in the value of services provided by this sector, i.e., the value added, in relation to changes in output of the sector. There are difficult problems of concept and statistical measurement involved in constructing the index of output required for this purpose and intensive study will be required to solve them. However, the current input-output work of the Office of Business Economics should provide a solid basis for this exploration and the expanded coverage of retail prices outlined here will furnish much of the statistics necessary. Even more difficult statistical problems will have to be faced in establishing this kind of an index for the Wholesale Trade Sector.

The proposals on consumer and retail price indexes are as follows:

1. *Consumer price indexes.*—The CPI and the Index of Prices Paid by Farmers for Family Living would be continued for the indefinite future in substantially the same way as at present, except for statistical improvements that can be made within the existing frameworks. In this connection it should be noted that practically everything that would be done to provide more comprehensive and improved price statistics for these indexes would be useful for any alternative consumer price, cost of living, or retail price indexes that might be considered. Therefore, steps to improve these indexes should be given high priority. Some of the suggested actions are as follows:

   a. Gaps in coverage would be filled and improvements would be made in basic data collection and in statistical techniques for particular components of the index where present procedures are weak. The most urgent CPI areas are housing, used cars, and automobile financing and personal credit.

   b. Procedures would be established for periodic review of outlet and reporter samples between major revisions of the index.

   c. Item and specification samples would be studied periodically so that changes in marketing practices can be given prompt attention. One desirable

change from current procedures, dependent on additional resources, would be pricing more specifications representing different quality levels for the same item.

d. Across-the-board weight revisions (as contrasted with changes in weights within expenditure classes) would be made every 5 years instead of every 10 years.

e. In the years between major weight revisions, weights within expenditure classes would be revised, as market and expenditures data show them necessary.

f. Coverage of the CPI system would be extended to the entire U.S. population. Separate indexes within this framework would be compiled for significant population segments—for example rural and urban population groups, and family type and income class groupings of consumers. It is obvious that the number of indexes to be published separately would have an impact upon the nature and size of the outlet and item pricing samples.

g. Better price comparison and improved adjustments for quality changes in the CPI would be facilitated by a sizeable expansion of the professional staff responsible for specifying and analyzing the characteristics of items priced. Areas assigned to each commodity analyst would be sufficiently specialized to enable them to keep abreast of changes in products and markets relating to their individual fields of responsibility. By maintaining frequent and close contacts with products and trade associations through a systematic schedule of field visits, information would be obtained about changes in products made or contemplated that would be useful in evaluation of quality differences. In addition, a larger field staff would permit extension of date collection periodically to obtain prices and information characteristics for cross-sections of competitive items where quality adjustment problems are prevalent.

The kinds of improvements in the CPI described above would go a long way toward meeting the criticisms of the present price index. However, there are alternative methods of computing price change for various segments of the CPI and these alternatives are considered by some economists as better suited for the measurement of price or cost-of-living changes than present techniques. The present plan is to experiment with new techniques for those areas that may possibly be handled differently than in the current CPI. Once these are developed and tested, the results can be evaluated and decisions made whether to incorporate them in the CPI, to publish such computations separately from the CPI, or to discontinue these new approaches. Some possibilities along these lines are:

a. Measuring changes in the cost of shelter on a rental equivalent basis, or alternatively on a "use cost" or "flow of services" basis.

b. Measuring the cost of large durable goods other than housing on a "use cost" or "flow of services" basis.

c. Treating substitutions forced upon consumers by changes in market offerings as cost-of-living changes. This could appropriately be done on a proportionate weighted basis taking account of the fraction of consumers who have lost their freedom of choice because of market changes.

d. Conducting annual consumer expenditure surveys which would make possible annual resampling and reweighting of items within expenditure categories to reflect any consumer substitutions arising from differential changes in prices. However, these changes would be linked into the index comparisons, not compared directly.

e. Introducing new products more promptly than at present through the annual reweighting within expenditure classes as described above. This procedure should allow new products to be introduced initially with a small weight and permit the weights to be changed each year as the new products gain acceptance.

f. Computing indexes exclusive of sales and excise taxes as well as inclusive.

2. *Retail Price Index.*—A system of retail price indexes would be developed to represent price trends of all commodities and services sold by all types of retail establishments. The weighting structure of this index would be established according to the sales composition of retail establishments. This set of indexes obviously would build upon the data collected for the CPI, but would, in addition, require an extension of data collection. Characteristics of this new index system would be as follows:

a. Price indexes would be available for commodities sold at the retail level of distribution, with separate indexes for major classes of sales and for major types of retail establishments.

b. The indexes would measure price changes for sales to business as well as to household purchasers.

c. The weighting structure would be established according to the composition of total sales of retail establishments.

d. Indexes would be computed exclusive of sales and excise taxes as well as inclusive, although the index exclusive of taxes would be the appropriate one for deflation of retail sales.

e. An index representing the change in prices of the output of the retail trade sector (of value added) would be developed; also an index representing changes in sector costs.

Final Demand—Business Investment

1. *Producers' durables.*—The proposed program would involve an expanded pricing of business equipment items which are inadequately covered in the WPI. Some intensive experimental work would be required on an inter-agency basis to develop a feasible technique.

2. *Construction.*—Except for a few indexes, such as that prepared by the Bureau of Public Roads, the available privately-compiled construction cost indexes are fixed-weighted averages of material and labor costs, with an uncertain adjustment, if any for changes in overhead and profit and changes in productivity. Alternatively they are based on estimated costs for a prototype building, but without satisfactory adjustments for changes in materials used, and in productivity. A major project is needed to develop new approaches free of the obvious defects of existing indexes.

3. *Inventory changes.*—Price indexes for inventories are needed in GNP work to transform changes in book value inventories to price levels of the period in question. The kinds of price data that would be compiled in the augmented wholesale and consumer price indexes described earlier would meet most of these needs. The major problem, then, would be to develop suitable data on markups to be added to material costs to adjust the prices to the semiprocessed or finished goods inventory price levels.

Final Demand—Government Expenditure

Except for a few limited studies on prices of standard items purchased by GSA, of research and development costs of the Department of the Army, and of costs for selected types of government construction, little has been done in this area. Given adequate resources, techniques for pricing non-military government expenditures can be developed with perhaps no more than the kinds of problems faced in pricing non-government sales. The main problem exists in the Defense segment of government expenditures. Aside from the statistical problem, it is the quality problem in another guise—the determination of a measure of output as weapons systems change. Some pragmatic approach for dealing with this problem area would have to be developed.

The discussion above relates in effect to the input side of the government sector accounts. Also needed are data on changes in taxes paid by producing and consuming sectors. For the CPI these data are compiled directly by the BLS.

Final Demand—Exports and Imports

The needs in this area are two-fold—(1) price indexes for use in deflating exports and imports, and (2) indexes to measure the competitive position of the United States in foreign vis-a-vis other countries either singly, or in groups. The first need is currently served poorly by the unit value indexes of exports and imports. There is general agreement that better indexes based on specifications are needed, but there are difficulties in pricing by specification in the always changing export and import markets. The proposed program would:

1. Develop export and import indexes on the basis of specification prices, wherever they can be collected, and relying on unit value prices and domestic prices where they may be applicable.

2. Develop an alternative system of price indexes for time-to-time price change and for calculation of changes in our competitive position using the technique experimented with by the National Bureau of Economic Research. In brief, this approach does not rely upon fixed specifications, but requires only that respondents provide pairs of comparable prices. The prices can be comparable from one period to another, or for the United States as compared with other countries. As suitable data are developed through this

approach, they could be used for the indexes described above. Independently, the paired comparisons—whether time-to-time or place-to-place—could be merged to show changes in the pricing competitiveness of the U.S. economy.

The above proposals represent an imaginative plan for a comprehensive and sensitive system of price measurement. Full achievement of the plan, as I have indicated earlier, will take many years. It is imperative, however, to start as soon as possible on some of the most urgently needed improvements.

APPENDIX

The Constant Utility Concept of Cost of Living Indexes

Some economists have proposed that instead of a Consumer Price Index with fixed commodity weights, there should be a "True Cost of Living Index" oriented to the theory of utility and indifference analyisis. This proposal is sometimes designated as a "constant satisfaction," "constant welfare," or "constant utility" index—all these terms having the same meaning.

An index derived from the theory of consumer demand, using the methods of indifference analysis, would measure the change in expenditures, or in money income required, by a consumer to maintain his previous level of living in the face of changing prices. As stated, it seems to imply an increase in income requirements, and this fits the pattern of recent years. However, there can be a negative change in income required if the consumer is to maintain (not to increase) his level of living when prices drop. In terms of indifference analysis this requires that he remain on the same indifference curve or surface.

The first obvious point about the definition given is that it refers to a single consumer. Secondly, it refers to total change in money income, comparing the aggregate expenditure by the consumer in one period with the aggregate expenditure in a second period after prices have changed. The consumer is presumed to have made any and all shifts in the distribution of his expenditures to get the most value for his money in terms of the prices of the second period. Another way of saying this is that he achieved the desired level of living, i.e. the level of the previous period, at a minimum cost by taking judicious account of the changed price relationships of the second period.

The cost of living measure described above is of the Laspeyres type; it has reference to the cost of maintaining the previous period's level of living. In a similar manner, a Paasche cost of living index could be defined in terms of a comparison of actual expenditures in the second period with the minimal cost of the level of living of the later period when valued at the earlier period's prices. Either formulation is correct; in fact, there could be any number of cost of living indexes comparing two periods, depending on which level of living was used as the reference instrument. There results would not necessarily be consistent either in magnitude or in direction of cost of living change.

There are some very important restrictions upon the circumstances under which economic theory permits such a measurement of changes in the cost of living. The environment within which the consumer operates is presumed to have remained unchanged. Thus, if the consumer has to make expenditures to cope with changes in his environment they would not be measured as part of his cost of living change. Also his tastes must remain unchanged, otherwise voluntary shifts in his style of living would affect his cost of living index. The implication is that if environment and tastes had changed, the theory would not permit the computation of a cost of living change. (Unfortunately, the persons responsible for calculating actual price index numbers cannot bypass such situations.)

The theory of constant utility price indexes is based upon the notion that a consumer can array in order of increasing or decreasing total utility all conceivable combinations of goods and services open to him. Some combinations may provide him equal satisfaction; he is then said to be indifferent to these choices. However, given a particular set of prices and a particular income, the consumer is presumed to act in a rational manner and to choose that combination which is highest on his preference scale. There may be other combinations which could give him equal satisfaction (they are on the same indifference curve or surface) but they would cost more at the given prices. Similarly, other combinations which his specified income, or budget, could purchase, would be less preferred (they would be on lower ranked indifference curves or surfaces). Thus the combination purchased is an optimum choice under the income and price stipulations.

It is important to note that the consumer is assumed to be able to rank the various combinations of goods and services open to him in an ordinal fashion. The theory does not assume that he can quantify his relative evaluations more definitively than to say that he prefers one combination to another, or is indifferent to them. The implication of this for the theoretical cost of living indexes is that they are ordinal numbers: the most that the theory would permit to be said after a consumer has adjusted to changing prices and real income levels is that his cost of living has increased, remained the same, or decreased.

The theory obviously assumes a great deal more about consumer knowledge and rationality than is actually the case. And even if such assumptions were warranted and constant utility indexes could be established for individuals there would still be the problem of establishing such an index for a population group. The theory does not carry over to a group unless one wants to make assumptions about the market behavior of an "average consumer." And if we could conceivably establish the preference maps for individuals and find their optimum expenditures at each price level, there is no way to combine these into a composite index. The premises of the theory of consumer demand do not permit the kinds of interpersonal comparisons of welfare necessary to establish the weights for such combinations, aside from the fact that the indexes are ordinal numbers and not cardinal values that lend themselves to averaging.

Despite the above remarks the theory of consumer demand and the methods of indifference analysis do have relevance to problems of measuring changes in consumer prices. It is the only theory available, and if used with a proper understanding of its limitations does provide some guidance in the operation of a consumer price index.

Despite disclaimers that the Consumer Price Index is not intended as a cost of living index, it is in fact very often used as such, the Bureau has indicated that the CPI provides a reasonable approximation to changes in the cost of living because it measures the most important element, namely changes in prices. Then how does the CPI differ from the theoretical index?

The Consumer Price Index is a measure of the changes in expenditures required as prices change—all other conditions held constant—to buy a fixed set of goods and services (the "market basket"). This set or sample is selected to be representative of all goods and services bought by consumers in the particular period from which the index weights and pricing sample were derived. Such a price index differs from the theoretical index in that the "market basket" is held fixed. Thus, a price index does not take account of the fact that consumers will rearrange their spending patterns to some extent in order to maximize the purchasing power of their incomes as prices change.

The point above is the basis for some claims that the CPI is a biased measure of price change. It corresponds to the familiar notion that a Laspeyres fixed weighted price index will be higher than a Paasche fixed weighted price index and that the true cost of living index will lie in between. Much has been said and written about this situation, but very often in an oversimplified manner. Actually the situation described is true only for measurement of price change and cost of living change with respect to the same level of living (the same indifference curve or surface). When there is a real change in income (or expenditures, or satisfaction, or welfare) simultaneously with the change in prices, the simple relationships described above between Paasche and Laspeyres price indexes and the true cost of living index do not hold. This is related to the earlier remark that there are different cost of living indexes relating two points in time, depending upon which level of living is used as the reference level.

Another factor to be considered in the above situation is that consumers respond to income changes as well as to price changes. The income effects may overshadow the price substitution effects and invalidate the easy conclusion about the inherent bias of a Laspeyres fixed weighted index as compared to a Paasche index and true cost of living index.

Since suggestions are continually being made that steps be taken to "move" the CPI in the direction of a constant utility index, the question remains as to what could be done to accomplish this in a manner relevant to the theory. Practically all of the specific suggestions that have been made correspond to the kinds of improvement or experimental projects discussed in the main body of this report. Improving the adjustments for quality changes, shifting to different kinds of transaction units for measuring price changes in housing and consumer durables, treating taxes differently, etc., would change the nature of the Consumer Price Index but would not make it a constant utility index.

These measures would not take account of the basic feature of the theoretical cost of living index approach, namely substitutions in response to price change (including substitutions of new items, subject to the constraints on tastes and environment).

Some suggestions have been made for getting out the substitution problem by econometric analysis. This warrants exploration, although it would seem to require extensive assumptions to relate results derived from total market data to the utility evaluations of individual consumers. Perhaps the most fruitful efforts to apply econometric methods to this problem would be in the further development of models of the types pioneered by Frisch and Wald, not to mention others. These would, of course, require much more extensive consumer expenditures data than is currently available through the government's current statistical program. The results of such models would be independent of the recurrent consumer price indexes.

Chairman PROXMIRE. Thank you very much, Commissioner Ross.

Mr. Commissioner, I wonder if you would be good enough to supply, at your convenience, a very succinct checklist of the benefits to be derived from better price statistics. When people ask me about the need for present and added expenditures for price statistics, I would like to have at hand a brief sort of statement of justification—what we would get for the money—just a page or two.

Mr. Ross. I would be happy to do so, Mr. Chairman.

(Material which follows was later submitted by Commissioner Ross responding to request of Chairman Proxmire:)

BENEFITS OF BETTER PRICE STATISTICS

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.

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

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.

Chairman PROXMIRE. I think it will be a good idea this morning to hear from all the witnesses and then have a general discussion. Our next witness is the Director of Agricultural Economics, U.S. Department of Agriculture, Mr. Nathan Koffsky.

Mr. Koffsky, we are glad to have you.

STATEMENT OF NATHAN M. KOFFSKY, DIRECTOR OF AGRICULTURAL ECONOMICS, U.S. DEPARTMENT OF AGRICULTURE, ACCOMPANIED BY B. R. STAUBER, CHIEF, AGRICULTURAL PRICE STATISTICS BRANCH, STATISTICAL REPORTING SERVICE

Chairman PROXMIRE. Your subject, I understand, is indexes of prices paid and received by farmers.

Mr. KOFFSKY. Yes, sir. I agree with Mr. Ross that our indexes in general are quite good. But in view of the increasing demands on them for more comprehensive coverage and accuracy, a lot more needs to be done. This is true with respect to the indexes of prices paid and received by farmers.

These indexes and the price series included have two main uses. The price series themselves are used in computing the cash receipts and the gross income from agriculture. These are the prices that go along with the quantities sold. On the production expense side, the prices paid by farmers go along with the quantities of items purchased. So these are important in determining what the farm income is and how it fits in, of course, into the national income.

The second major use is the computation of parity prices. These have bearing in terms of the minimum support levels that are established for some commodities, some bearing on administration of marketing agreements, and in general, have a very wide use in terms of assessing the position of agriculture in the economy.

Having said that, I would now like to move on to the specific ways of improving these indexes.

Chairman PROXMIRE. Before you move on, may I have a word? Yesterday Mr. Bowman indicated that this was one of the most serious problems that we have now in price statistics. I can't recall whether he stressed whether it was the prices received or the prices paid by farmers. I think it was in the prices paid.

Mr. KOFFSKY. I believe he was talking about the prices paid.

Chairman PROXMIRE. Prices paid, that is right.

At any rate, I was quite concerned about this, because this is a matter, as you say, that directly affects policy and particularly the farm program. It involves billions of dollars. I asked Mr. Bowman whether he could give me an estimate whether the price deficiency had a bias up or down—in other words, whether it exaggerated the prices farmers were paying or understated the prices the farmers were paying, or at times one way and at times another. Mr. Bowman felt that under the present circumstances, he was not in a position to say. But perhaps you might consider, either at this point or when you finish your testimony in the general discussion, if you might comment on that. I think it would be helpful to us if you would give us an idea of the best judgment you have in what direction this deficiency lies.

Mr. KOFFSKY. I would be glad to do that. Now to proceed with my statement.

Mr. Chairman, I appreciate the opportunity to appear before your subcommittee and to present our comments on the Indexes of Prices Paid and Received by Farmers computed in the U.S. Department of Agriculture. We regard the subject of price statistics as a very important part of the work of the Statistical Reporting Service. We are grateful for the interest of your committee.

I would like first to outline the major purposes which these data serve, then to summarize briefly the recommendations concerning our price work that were included in the Long Range Program Report for the SRS presented to the House Subcommittee on Agricultural Appropriations in February 1957. This will provide the setting for comment on the recommendations of the Subcommittee on Economic Statistics of the Joint Economic Committee and of the Committee on Government Price Statistics.

The series of prices designated as prices received by farmers has a number of major uses and a good many others less well known. One of the major and better known uses is in calculating cash receipts from farm marketings. These cash receipts are the biggest single item in gross income from farming, and are an essential element in measuring the income situation of American agriculture. They also are an important component of the national income accounts which play an important part in the modern analysis of the general economy. A second major use is in computing the index of prices received by farmers. This index, together with the parity index—that is, the index of prices paid by farmers including interest, taxes, and farm wage rates—is used in computing parity prices. The latter have a very important part to play in establishing minimum support prices used in various of the agricultural programs established by the Congress and administered by the Department. They also play a part in the administration of marketing agreements for a number of farm products. The prices received are likewise used in assisting the Agricultural Stabilization and Conservation Service in arriving at the loan rates to be used in individual counties in the administration of support programs. During the stringencies of World War II parity prices played an important part in determining ceiling prices for farm products. Among the less widely recognized uses of these price data are numerous types of economic analyses such as evaluation of costs and benefits in flood control programs. Data on prices paid by farmers are used in computing the parity index and in computing net income from agriculture. They, too, have a number of related and subsidiary uses.

Although we believe that the present program represents about the best balance and the maximum overall coverage that can be attained with the currently available resources, there admittedly are shortcomings in the program and in the data.

We have been mindful of the need for improving these data, and in that connection, as part of a Long-Range Program Report for the Development of the Agricultural Estimating Service presented to the Agricultural Subcommittee of the House Committee on Appropriations, we outlined some of the shortcomings and a proposal for remedying them.

We have been mindful of the need for improving these data, and I am talking about both indexes—prices received and prices paid—

and in that connection, as part of a Long-Range Program Report by the Statistical Reporting Service presented to the Agricultural Subcommittee of the House Committee on Appropriations in 1957, Mr. Chairman, we outlined some of the shortcomings and a proposal for remedying them.

Considerable progress has been made on the first phase of the Long-Range Report. During the coming fiscal year, we anticipate that the nationwide statistical system for improving the accuracy of the crop and livestock supply estimates of the Statistical Reporting Service will be essentially completed. That was the top priority in the plan. Little has been done as yet on the subsequent phases, including improvement of the price information. But we hope to move in on this part in the near future as appropriations can become available.

Mr. Chairman, I do have a copy of this Long-Range Program Report for Statistics Improvement in Agriculture, which was submitted in 1957. I would be glad to put that in the record.

Chairman PROXMIRE. I wish you would put that in the record now. Without objection, that will be put in at this point.

(Material referred to, later submitted for the record, follows:)

A PROGRAM FOR THE DEVELOPMENT OF THE AGRICULTURAL ESTIMATING SERVICE OF THE AGRICULTURAL MARKETING SERVICE, USDA

(A Preliminary Report, Prepared for the Subcommittee on Agriculture Appropriations, House Appropriations Committee, February 1957)

CONTENTS

A PROGRAM FOR THE DEVELOPMENT OF THE AGRICULTURAL ESTIMATING SERVICE OF THE AGRICULTURAL MARKETING SERVICE, USDA

I. DISCUSSION OF PROBLEM

A. Introduction

The Agricultural Estimates Division is responsible for the current collection, compilation, and analysis of a large volume of basic facts depicting in statistical form the current status of American agriculture. The information issued on a weekly, monthly, quarterly, or annual basis provides the basic facts needed by growers, dealers, handlers, processors, and all who may be concerned with any phase of the food and fiber industries in planning and carrying out programs for orderly production, processing, and distribution of farm products. The statistics are universally used and, in fact, are necessary for the establishment of agricultural policy at the local, state, and national levels. The historical series, many of which reach back for nearly a century, constitute the only continuous and comparable record of the progress of agriculture in the Nation. These forecasts and estimates of the Agricultural Estimates Division and its Crop Reporting Board will continue to provide the official records that will be cited and used to depict the relative position of agriculture in the national economy, and to measure the changes in the agricultural pattern and practices and the accomplishments of research in production and marketing.

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Statistics that a generation ago were considered of serviceable accuracy on a geographical and subject-matter basis are no longer sufficient. This has been repeatedly demonstrated since the 1930's when the Department found that available statistics were not adequate for carrying out its responsibilities in administration of the acreage allotment and marketing quotas and the Federal Crop Insurance programs. The inadequacies were accentuated more recently with th epassage of the Research and Marketing Act of 1946, the program for farm and home planning under the direction of the Extension Service, and the most recent legislation providing for the Soil Bank. Accompanying these developments has been a mounting and exacting demand from farm organizations, business concerns, and the general public for greater detail and accuracy in the agricultural facts provided. In every case where new agricultural programs have been inaugurated they have created a demand for additional agricultural statistics to guide future policy and aid in administration, and to measure the effectiveness or acomplishments of a particular program.

B. Report of the Agricultural Data Committee

About two years ago the American Farm Economic Association recognized the need for immediate action to fulfill present-day needs for basic agricultural facts. That Association, accordingly, appointed a committee which included representatives of the colleges, universities, industry, and other important users of agricultural data, to make a study of the agricultural data needs of the Nation. This Agricultural Data Committee worked closely with a committee of the National Association of Commissioners, Secretaries, and Directors of Agriculture, and the Organization and Policy Committees of the State Experiment Stations and the Agricultural Extension Services. All States joined in the study and the results of their investigations and their recommended solutions are reported in full in Exhibit A of this report. We concur generally with their conclusions and recommendations, however, their estimate of 4½ million dollars as the probable cost of the program would necessarily depend upon conditions as the program developed and upon the projects included beyond those suggested by their report.

In summary, the report of the Agricultural Data Committee outlines a broad and progressive program for the development of agricultural statistics to meet the needs as found by their study. The Committee recognized that the program in its entirety would involve a very considerable expansion of the services and require several years for accomplishment. The principal recommendations, however, may be summarized in the following main categories. The Agricultural Estimates Division was requested to provide:

1. More complete coverage of agricultural data at the county or other local level.
2. Greater accuracy and refinements at the State and national levels.
3. More frequent reports and speedier release of such reports.
4. Additional subject-matter coverage in sufficient detail to serve local needs.

The Division itself has recognized the limitations of many of its series and the inadequacy of its coverage for many items mentioned by the Agricultural Data Committee. Some of the same inadequacies were pointed out by a Subcommittee of the House Agricultural Committee in its 1952 investigation of techniques and procedures used by the Agricultural Estimates Division. The Committee made very clear its concern over the fact that the Agricultural Estimates Division of the Department was not keeping abreast of the increasing demands for more comprehensive and reliable agricultural statistics.

C. Results of research program

In 1953 the Congress appropriated funds for experimental work, the object of which was to seek out new methods for improving the estimating and forecasting work of the Crop Reporting Board. Certain basic requirements were established by the Division in setting up the program.

1. The method developed must be adapted to meeting the exacting time schedule necessary for providing a current reporting service to farmers.
2. The methods used must be adaptable to producing estimates at the State level as required by law.
3. The cost of operating the program should be as reasonable as possible commensurate with the degree of accuracy and the amount of detail required to adequately serve agriculture.

The first and probably the most difficult problem faced by the Agricultural Estimates Division is securing a truly representative sample upon which to

base the estimates. Returns from voluntary correspondents to the mail questionnaires have been and are at present the principal source of information upon which the estimates are based. Much dependence will have to be placed upon this source in the future, but the objectives and accuracy now being specified for many programs require the use of newer and improved sampling techniques that will correct or avoid the deficiencies of the present system.

A second major problem is the fact that the forecasts of crop production during the season are based very largely on the subjective appraisal of voluntary farmer crop correspondents. While the methods developed by the Crop Reporting Board for appraising the returns have been reasonably satisfactory, the demands for greater accuracy require the development of systematic ways of following the progress of the crops during the growing season by objective measurements of plant development. Particularly in seasons when crop prospects are subject to unusual or extreme weather conditions, such measurements should be helpful in predicting the probable production. First hand knowledge of the response of important yield characteristics permits a more objective means for evaluating and improving yield forecasts.

Recognizing these basic difficulties, the Division started on a series of experimental surveys in the 10 Southern States during the spring of 1954. An enumerative survey was made in June of a representative sample of some 700 agricultural areas, covering approximately 3,000 farms, in 100 counties of the 10-State area. Part-time enumerators obtained from the individual farmer a record of the crops planted, the numbers of livestock, and other factors relating to his own farm, This survey was repeated in June 1955 and again in 1956 when 13 additional States, mostly in the North Central area, were added.

To develop a basis for forecasting during the growing season, a sample of the farms covered in the June survey was selected and fields designated for objective yield determinations to be made later in the season. During 1954, 1955, and 1956, actual measurements of crops were made in these fields and the final estimates of production were obtained on those individual fields at the end of the season. The measurements during the season were then related to the final production. From this work some experimental formulas were developed that could be used during the growing season for forecasting probable outturn. The crops covered during the experimental period were corn, cotton, wheat, and soybeans.

While the experimental work on many of the problems is not complete and additional problems await study, the conclusions to date can be summarized in brief as follows:

1. The experimental program of enumeration of a representative sample of agricultural areas has demonstrated that this method is practical and can be adapted to meet the needs for operations.

2. The enumerative method can be integrated with the mail questionnaire technique and will mitigate the principal weaknesses inherent in the voluntary mail survey method.

3. The enumeration of a large sample of agricultural areas (15,000 segments of between 60,000 and 75,000 farms) will provide current estimates of the major crop acreages and of livestock items by states, regions, and for the United States.

4. The enumeration of a sample of the size visualized here would not provide reliable independent estimates of the minor or specialty crops nor of major crops or livestock numbers at the county level.

5. A sample of this size would provide reliable estimates of the change in numbers of farms, farms keeping livestock, and other types of farms. Such measures are not possible with the present methods. Current data on farm numbers constitutes one of the major deficiencies in the present service and one of the weaknesses in the present estimating methods as related to livestock and poultry numbers.

6. The collection of objective measures of plant development during the crop season on a large number of sample fields can be completed in time to be used in current monthly forecasts prior to harvest. This approach to crop forecasting is basically sound and practical once the fruit is formed. In addition, as our knowledge of crop and yield characteristics is increased so it may be expected that additional refinements or improvements will result in the future.

7. These techniques can be extended to additional crops, but considerably more study is necessary to determine the significant measurable factors and to build up a series that can be utilized for forecasting purposes.

D. Report of agricultural estimates working group

A divisional working group, consisting of well-trained statisticians from the Washington office and the field, analyzed the research program and evaluated

it in relationship to the over-all program of the Division. The group's report recommended a procedure for integrating the newer techniques into the regular operational program of the Division. The complete report of this task group is included as Exhibit C of this report. This task group recommended that the enumerative procedure be adopted as rapidly as the research results justify. It also recommended that additional emphasis be placed on monthly measurements of crop development in a representative sample of fields to be used as a basis for improving the crop forecasts during the season.

E. Proposed program

1. *Objective of this program.*—The ultimate objective of this program is to modernize the present agricultural reporting service to meet the needs of modern agriculture, and to establish a basic organization that can be readily adapted to further needs. Agriculture is a basic industry affecting the welfare of every individual and, therefore, the economy of the entire Nation. Modern industry is dependent upon reliable basic statistics for efficient operations.

2. *Policy with regard to Federal and State responsibility for county data.*—In considering the report and recommendations of the Agricultural Data Committee, which places major emphasis on the development of statistics at the county level, it seems desirable first to establish a definite policy with respect to the Department's position in developing such data. The following general policy is therefore recommended:

a. Federal responsibility:

(1) The basic law under which the agricultural estimating service of the Department is conducted requires that estimates be prepared and published, by States, to provide a national report. It is therefore a definite responsibility of the Federal Government to assume the costs necessary for that purpose.

(2) In all cases where the conduct of a national program requires the collection of data and preparation of official estimates by counties, or other local areas, the costs of providing such data should be borne by the Federal Government.

b. State responsibility: Where the county or local area estimates, or additional state data, are solely or predominantly designed to be of benefit in serving the needs within a State, the State will bear the expense of such project. In the conduct of such State projects where the Federal and State estimating and reporting programs are joined together in a cooperative service, the Federal Statistician in Charge will participate to the extent of providing over-all direction and coordination of the integrated program, wherein the statistics collected under the Federal program will be available for such further analyses as will implement the State program. The Agricultural Marketing Service stands ready to enter into a cooperative agreement with any appropriate State agency to provide statistics on commodities of local interest on a State basis. In those cases where individual States have need for detailed basic statistics on any commodity not included in the national program and that is primarily of interest to the State, they may present a project to the Department for consideration under the provisions of the Research and Marketing Act. If the project is approved and funds are available, the Department will match on a 50–50 basis the funds necessary for carrying on the project on a continuing basis.

3. *Steps for development of program:* The development of the immediate and long-time program is visualized in four principal steps. In outlining these steps we have taken into consideration the findings and recommendations of the Agricultural Data Committee of the American Farm Economic Association, the requests and recommendations made by the Advisory Committees of the Department, the requests made by the other agencies of government including Congress, and the analysis by the members of the staff of the Agricultural Estimates Division.

The first and the major step is in the nature of a capital outlay to bring the staff of the Division up to a level necessary to carry out a major addition to the program. This would cover the first two recommendations made by the Agricultural Data Committee for more local data and increased precision in state and national estimates. It would also correct many of the criticisms and effectuate many of the suggestions made by the Subcommittee of the House Agricultural Committee in its 1952 investigation of the service. This step is outlined in more detail in the next section under the heading "Project A"—"Structure for Providing Improved County, State, and National Data."

The second step would provide for the strengthening and improving the program of prices paid and prices received. The structure for carrying out this step would be integrated with the staff developed for the first step. It could, in fact, be considered as a part of the first step in that the proposed district enumerators would also carry a considerable part of the responsibility for operations of the acreage and livestock surveys. There are some gaps in the price data presently available, and there is great need for improving the sampling base and therefore the precision of the data provided. This step is outlined as Project B—"Expanded Agricultural Price Statistics."

The third step, outlined as Project C—"Speedier Release and Distribution of Reports", logically follows the first two steps in that the speedier release of information and providing interim surveys would involve more personnel for operations. The facilities for carrying out the field surveys would be necessary to provide the interim reports. The faster release of the data implies more analysis of the data in the States. If projects A and B are implemented first, the principal additional items of expense for project C would be a system of communications and possibly the expense of electronic computing facilities.

The fourth step—Project D, "Additional Data and Services Needed", provides for coordinating the efforts to obtain these additional data with the facilities developed under Projects A, B, and C. The exact methods and procedures for meeting these detailed needs can be developed more economically as the preceding projects are implemented. In the development of the over-all program it is particularly important that projects A and B be firmly established.

Section II, following, outlines in more detail the individual projects.

II. PROPOSED MAJOR PROJECTS

Project A. Structure for providing additional and improved county, State, and National data

Object.—To provide,

a. Additional and improved estimates of acreage, yield, and production of major crops and livestock numbers by species at the county, state, and national levels that are necessary for the determination of local and national agricultural policy and to meet the needs for local data in the administration of national programs.

b. Estimates of total cropland, changes in numbers of farms and farms keeping livestock, and farm employment, by States.

c. A basic organization for carrying out future steps in the long-range development of agricultural estimates by strengthening the system of voluntary reporting and providing the necessary facilities for obtaining annual interview surveys at the state and national levels, and to conduct special surveys as required from time to time for special studies or investigations provided for in other agencies of the Department.

Need for the service.—The studies of the Agricultural Data Committee have indicated a widespread need for more detailed basic statistics at the state and local levels by research workers and extension specialists in carrying out their responsibilities under the program of local farm planning and program projection at the local level. This is a national program implemented by special authorization and appropriations from Congress 2 years ago. In practically every State where this work has been undertaken the State Statistician's office has been called upon to provide detailed basic facts necessary to carry out the program. In only a few cases has the Statistician been able to provide the data requested. Various industries that are concerned with serving farmers, local banks, and farmers' cooperatives have expressed a need for statistics at the local level. The Department of Agriculture, in carrying out its responsibilities under the Acreage Allotment Program has an increasing need for more accurate state and county statistics in arriving at proper county acreage allotments. The Soil Bank Program has widened the need for county acreage and yield estimates as well as estimates of total cropland, acreage of forage crops, and changes in the number of farms. There is also a widespread need for reliable information on farm practices, the extent of mechanization, the use of fertilizer, and related data. The Agricultural Estimates Division, in carrying out its responsibility, is in need of facilities for more accurate determination of some of the basic trends, as, for example, the change in the total number of farms and farms keeping livestock. Also needed are data to provide additional and improved statistics at county, state, and national levels concerning livestock numbers by kind, age groups, etc. The present organization is entirely inadequate to meet these requirements.

Forecasts of production during the growing season are important factors affecting the market for agricultural products. These projections are also used in determining policy and may affect the level of support prices for the market year. For these reasons it is of great importance that these forecasts be based upon the best and most comprehensive information it is possible to obtain at the time forecasts are made. It is, of course, recognized that it is not possible in the foreseeable future to predict with any degree of certainty the long-range effect of weather and other natural phenomena, but it has been shown by research in the Agricultural Estimates Division that certain physical factors that are measurable during the growth of the plant are indicative of the potential production. Such measurements taken at regular intervals furnish a means of determining the basic factors affecting production and thereby establishing the basis for improving the forecasts when employed on a broad scale.

Method of procedure.—For its raw data the Division is dependent almost entirely upon the voluntary cooperation of farmers and other reporters who submit their questionnaires by mail. This is an economical method and one that has worked quite well over a period of years, but like all methods, it has some limitations. It is anticipated that this procedure would be strengthened by more intensive work on the reporting lists and supplemented with some new procedures and methods that have proven their dependability in other statistical agencies and by the research that has been carried on by the Division of Agricultural Estimates since 1954.

A sample covering some 60 to 75,000 farms, scientifically distributed to be representative of the 48 States, would be established to strengthen the basis for state and national estimates. This sample would be enumerated completely each spring to obtain acreage of crops planted and livestock numbers, and partially enumerated in the fall to obtain final acreage harvested, yields, and end-of-the-year livestock inventories. The large-scale mail inquiries presently carried on would be improved and continued as an integrated part of the enumerative surveys to add strength to the total information which would be necessary in order to arrive at more reliable estimates of crops and livestock by counties.

A series of objective crop measurements on a large sample of fields drawn to be representative of the crop in question would be carried on during the growing season and checked against final production at harvest time. These measurements would become the basis for the development of more objective forecasting formulas used in the program providing current information on production prospects.

The personnel of the Division, both technical and clerical, would need to be expanded substantially in each of the 42 field offices of the Division. Supervisory personnel would be added at the national headquarters to give over-all direction and technical assistance to the field operating staff. The added personnel would be used to develop the basis for and prepare the needed county statistics covering the major crop and livestock items. This strengthening of the basic staff would place the Division in position to implement subsequent phases of the long-time plan for the development of the services of the Agricultural Estimates Division.

Project B. Expanded agricultural price statistics

Object.—To strengthen Agricultural Price Statistics:

a. By initiating a thoroughly modernized method of collecting data on prices received and prices paid by farmers to supplement and, to some extent, replace the existing system, which is based largely upon the use of a mailed questionnaire.

b. By expanding coverage to include prices for important commodities for which price data are not available or for which existing data are inadequate.

c. By providing more timely data by eliminating delays in the present operation.

Need for the service.—The need for adequate and reliable statistics on agricultural prices is obvious since these prices provide the basic data for computing parity prices, the official Indexes of Prices Received and Prices Paid by Farmers, for evaluating farm production, for computing gross and net farm income, and for many other purposes. The present program represents about the best balance and the maximum over-all coverage that can be attained with available resources, and the data provided by this program have provided important guides to policy and programs over the years. Nevertheless, there are several fairly serious deficiencies in the program, namely:

a. The lack of general application of the modern statistical techniques of probability sampling and enumerative data collection in the field of price statistics.

b. Delay in processing quarterly prices paid data.

c Serious gaps in the commodity and service fields for which price data are available.

d. Weak spots respecting data for particular commodities.

The uses made of the data on prices received and prices paid by farmers affect so many important programs and policies that the improved techniques of probability sampling and enumerative data collection should be adopted to supplement, and in some cases to displace, the present system.

Present operations preclude the current use in the computation of the Parity Index of data collected quarterly from over half the States in the months of March, June, September, and December. Such data cannot be utilized until a month later, owing to limited data processing facilities. This delay should be eliminated by expanding the facilities for processing the available data. Several important groups of commodities are not covered by the current data collecting program. Forest products, which are a substantial source of income to farmers, should be brought into the data collection program. Prices paid for medical, dental, and hospital services, for repair and maintenance of heavy farm machinery, custom rates for combining, hay baling, corn picking, and prices paid for veterinary, recreational, and personal services are not covered by current price series, but comprise sizable expenditures and should be included in the program as soon as possible.

Information concerning farm construction and the quantities of various kinds of materials used therein is very limited and should be supplemented by additional basic data. Prices paid at mail order houses are clearly sufficiently important to be covered by the price series.

Generally speaking, neither the data for prices paid nor for prices received are adequate for meeting the many demands for data applicable to areas smaller than a State. Here again is a need for far greater intensity in the program.

Method of procedure.—The proposed plan contemplates the employment of a corps of price enumerators in each State, usually one enumerator to each price reporting district (there are generally 9 districts per State). These enumerators, operating under the guidance of the State Statistician, would make periodic contacts with dealers and merchants selected under a scientific sampling scheme to ascertain prices received by farmers and prices paid by farmers for the various commodities, and would base their reports to the fullest extent practicable upon documents of sale. Once the new program is in operation, the mechanism would be available to remedy the existing gaps in data and coverage consistent with available facilities.

Project C. Speedier release and distribution of reports

Object.—

a. To speed up transmission of data from the State offices to Washington, data processing in Washington, and distribution of reports to farmers and the general public.

b. To provide more frequent reports during critical periods on situations brought about by drouth, floods, freezes, and the like.

Needs for the service.—Farmers submit their crop reports to the State Agricultural Statistician as of the first of the month and these form the basis for the Government's crop report released in Washington on the 10th of the month. Thus, there is at least a 10-day lag between the time the farmers make their report and the release of the government crop report in Washington. This time is now required for tabulation, analysis, and preparation of the reports, and transmittal time through the mails from crop reporters to State offices, and between State offices and Washington. Frequently conditions change drastically during this 10-day period because of freezes and other severe climatic changes and the government reports under present operating procedures cannot reflect these changes.

There is also a persistent demand of long standing that the Department release crop reports so that the first of the month estimates are in the hands of users in less than 10 days' time. The complaint is that in our modern world important decisions cannot be postponed as long as 10 days while the reports are being processed.

Method of procedure.—It is proposed that certain data be transmitted to Washington from the State offices by telegraph in secret code. This could be done

before the analysis of the data is completed in the State offices. Data processing in the Washington office might be expedited by modern electronic computing devices. Tests of such equipment indicate that considerable time might be saved by the use of these machines. As further tests are still being made, no recommendation is made now for the purchase of such equipment. But experience to date indicates that a great deal of attention must be given to mechanization in the near future.

Although the Washington and State offices issue a tremendous volume of information, prompt distribution is impeded by time required to prepare, reproduce, and mail the releases.

One difficulty is the delay in getting reports mailed to the public. This frequently takes as much as 10 days. Nearby field offices receive mailed material promptly, but delays of 2 days (more when release is made late in the week) are common for more distant offices. Reduction in transmittal time to distant State offices can be accomplished only through telegraphic means. Statistical data would be telegraphed following official release in Washington.

Delays in release of information after it is received in State offices can, in most cases, be overcome only by an increase in facilities and personnel. For example, the time involved in preparing copy for reproduction in field offices could be reduced through the use of typewriters that copy from teletype tape.

Facilities made available to speed up communications between Washington and the State offices would be important in emergency situations calling for more frequent reports than those regularly scheduled. In addition, the operational machinery proposed under Project A could be employed for on-the-spot surveys. Such surveys, combined with facilities for rapid communications would enable the State Statistician to appraise special situations as they arise and permit reports to be transmitted to Washington and released to the public with a minimum of delay.

Project D.—Additional data and services needed

Object.—To provide additional data needed at county, state, and national levels for a wide range of subject matter not now provided or provided with insufficient detail, accuracy, or timeliness.

Needs for the service.—There is an ever-increasing demand for business groups, farm organizations, colleges, governmental agencies, and the general public for factual information on more items and in greater geographical and subject-matter detail. The stresses and strains of our modern complex economy require reliable data of a type not formerly considered essential. These demands occur in all aspects of the work of Agricultural Estimates Division. For example, in respect to fruits and vegetables, requests for greater scope include estimates of production by counties and smaller areas, utilization of production, estimates for small fruits and minor vegetables and most of all, a count of bearing tree numbers. The latter was given top priority by the Industry Advisory Group. For livestock and poultry additional details by kinds, weight classes, age groups, etc. are persistently requested. Special emphasis is placed on the need for data on weekly placements of nonbroiler chicks, quarterly or monthly data on sow farrowings, and cattle on feed in all States and for breeds of livestock. A multitude of detailed statistics are requested for a wide range of field crops, including seeds by varieties, stocks on and off farms, quality and utilization of production, storage facilities, and irrigated and nonirrigated acreages. The list of additional dairy products for which there is a pressing need is a long one. It includes such items as monthly estimates of production of evaporated whole milk, nonfat milk solids, per capita consumption, and an index of current month-to-month changes in sales of fluid milk products. There are numerous additional items for which repeated requests are made, such as number of farms, and number of farms producing specific crops or livestock, farm employment, by States, commodities held in cold storage for 30 days or more, and so on. Details concerning types of additional data needed are shown in Exhibit E of the Addenda to this report.

Method of procedure.—It is proposed to undertake additional work as the basic organization is developed under Propects A, B, and C. The additional personnel provided under these projects will, after the new basic procedures are established, permit readjustment of the entire program, and furthermore, some additional programs would be possible without expanded facilities. On the other hand, many of the additional services would require added facilities as, for example, the periodic inventories of fruit tree numbers, monthly employment on farms by States, varietal breakdowns on seed crops, and similar spe-

cialty crops. With the expanded organization it is believed that such surveys can be carried on much more efficiently than would be possible at the present time. To undertake any of these services without the basic organizations anticipated for carrying the first project would be much more costly than would be the case otherwise.

III. SUMMARY AND RECOMMENDATIONS

A. Summary

It appears evident:

1. That the demands of farmers, farm organizations, colleges, State and Federal government agencies, business concerns, and the general public for more factual information on more subjects in greater detail and with improved accuracy represent a real need. That the dynamic complexities of our present day production and marketing problems require data of a quality and diversity not previously considered necessary. That statistics which long were considered serviceably accurate and adequate no longer suffice.

2. That the present staff, facilities, and procedures of the Agricultural Estimates Division are not adequate for current purposes and must be modernized if they are to meet the demands of the present and the needs of the future.

3. That a skillful blending of mail and interview surveys as outlined herein is necessary to obtain the twin goals of greater coverage and improved accuracy at the county, State, and national levels. That the research work of the past 3 years indicates the soundness of the procedures recommended for improving the agricultural estimating service.

B. Recommendations

In view of the above considerations, it is recommended that steps be taken as promptly as possible to implement the proposed program of expansion and improvement of basic statistical work of the Division of Agricultural Estimates.

EXHIBIT

EXPANDED AGRICULTURAL PRICE STATISTICS PROGRAM

Immediate and Long Range Program for the Collection of Prices Received and Prices Paid by Farmers

ORIGIN AND PRESENT STATUS OF PRICE WORK

In 1867 the Department of Agriculture began collecting once a year data on prices received by farmers for a short list of commodites they sold. In 1908 the program was broadened to collect price information monthly. By 1910 it became evident that data concerning prices received for farm products did not alone provide an adequate measure of rural prosperity, and that only by collecting in addition information concerning prices farmers paid for things they bought could acceptable measurement of trends in rural prosperity be attained. Consequently in 1910 the Department began the collection of information on prices paid by farmers for a limited list of commodities used for living and production purposes.

The lists of commodities covering both prices received and prices paid have been expanded from time to time in an attempt to adapt data collection to growing needs. For commodities sold by farmers, the current program includes:

1. Monthly publication of average prices received by farmers for 63 major commodities[1], by all producing States, geographic divisions, and the U.S. Average prices for the marketing season are also published for most of these commodities.

2. Monthly publication, in season, of average prices received by farmers for 19 tobaccos, fruits, and commercial vegetables[2] which are seasonal in character, for the U.S., and/or by producing States, geographic divisions. Average prices for the marketing season are also published for these commodities.

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[1] Includes 18 vegetable crops for which only the U.S. monthly price is published. Of the 18, U.S. monthly prices for 5 vegetable crops are published only once a year.

[2] Includes 7 vegetable crops for which monthly prices are published only once a year.

3. Season or annual average prices for 112 other commodities not priced monthly or monthly in season.

These three groups account for some 194 commodities, and, except for forest products, include all important crops, livestock, and livestock products sold by farmers, and most of the minor ones. They provide the basic data on prices received by farmers used for the computation of parity prices and the official series of Index Numbers of Prices Received by Farmers, for evaluating farm production, for computing value of sales of farm products, and for many other related purposes. (See Table I for complete listing.) In addition, January 1 values per head are estimated and published for the principal species of livestock and poultry.

The list of commodities for which prices paid by farmers—that is the cost items which are used for living and production purposes—are collected currently includes representative items for most important classes of farm expenditures. In the farm family living group this includes 58 items for food and tobacco; 47 of men's, women's, and children's clothing; 40 auto, auto supply, and service items;[3] 15 items commonly used for household operation; 46 items of household furnishings; and 68 building materials used in farm house construction.[4] For production purposes the list covers 43 feed items: 5 species of kinds of feeder and replacement livestock; 20 motor supply items[3]; 52 motor vehicles (trucks, tractors, auto)[3]; 46 items of other farm machinery; 27 items of farm equipment and supplies; 62 fertilizers and lime; 54 items of building and fencing materials used in construction of service buildings and related structures[4]; and 51 seeds. Prices of about one third of this list of items are collected monthly, most others are collected quarterly, with a few collected on a semi-annual or annual basis. Basic estimates for most items are made for each State, with averages computed for regions and for the U.S. (See Appendix 2 for the complete listing.)

The general method of data collection has from the beginning consisted basically of mailed questionnaires sent to lists of persons believed to have information concerning the subjects of inquiry, supplemented by additional and more specific information wherever available. For Prices Received the basic list of reporters has centered around dealers and handlers of farm commodities and country bankers, supplemented by farmers and others in rural communities in a position to have current knowledge of prices. The number of reporters in the field of prices received by farmers now averages around 9,500 each month. These reporters do not, of course, report on all commodities, but some report on one group and some on others.

The lists of reporters were at first rather general, but in recent years have tended to become increasingly specialized. Moreover, although the mailed questionnaire to a list of price reporters continues to be the most important single source of price information, there are important additional sources, which vary widely between commodities and areas of production. For several commodities, price data of a high degree of accuracy covering a very large segment of marketings are obtained from relatively few sources. Examples include price data available from milk marketing administrators, cooperatives, or other individuals or organizations in the marketing channel, such as processing plants, who have information concerning prices received by farmers for a very substantial part of the total quantity of specific commodities marketed by farmers. In the case of certain types of tobacco, auction data provide virtually complete information on both quantities and prices. These sources are utilized to the fullest extent possible with present facilities, but establishing and maintaining them usually requires personal contact by visit or telephone. In addition, considerable valuable and nearly complete information is available for some commodities a year or more after the date to which it applies, such as for example, the reports from milk processing plants covering quantities and prices of product handled monthly during a preceding year. Such data are very useful for revising currently published data but obviously are not available in time for current reports.

Finally a small beginning has been made in sampling current transactions of beef cattle prices. This operation is limited to a fairly small sample of dealers and auctions in about a dozen States.

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[3] In all, there are 81 separate series covering automobiles and trucks (both new and used), tractors, and the supplies and services bought for their operation; 33 of these series are duplicated in the living and production count.

[4] In all, 82 building and fencing materials are priced, 35 of which are commonly used for both home construction and other farm building.

With respect to prices paid by farmers, the primary source of data consists of questionnaires sent to merchants in rural areas selling the various types of commodities bought by farmers. For example, prices paid by farmers for food are collected from grocery stores in rural areas, prices paid for clothing are obtained from clothing and dry goods stores, feed price data are obtained from feed stores, etc. There are currently about 27,500 active reporters covering major fields of farm expenditures. Independent sources of information for prices paid are considerably more limited than for prices received; however, limited personal and telephone contacts are made by field statisticians to supplement the data obtained from questionnaires.

DEFICIENCIES IN THE PRESENT PROGRAM

The present program represents about the best balance and the maximum over-all coverage that can be attained with the currently available resources. The data have provided important guides to policy and action over the years, not only for private individuals but for official agencies as well. Millions of dollars have been paid out in support price programs largely upon the basis of parity prices determined wholly by these price data. Ceiling prices during World War II and during the Korean Police Action have been guided by them. These price data have been used in calculating the value of agricultural production, receipts from sales of farm products, and in computing both gross and net farm income. Many other activities, both official and non-official, have drawn heavily upon them.

There are, nevertheless, several fairly serious deficiencies in the program, and they may be discussed conveniently under the following general headings.

1. The need for expanding the application of modern statistical techniques of probability sampling and enumerative data collecting.
2. Delay in processing quarterly prices paid data.
3. Gaps in coverage of the prices received and prices paid field.
4. Weak spots respecting data for particular commodities.

The need for expanding the application of modern statistical techniques of probability sampling and enumerative data collecting

Although the current program has provided serviceably accurate estimates over the years which have been used for the guidance of many programs, the paramount emphasis has always had to be upon economy in the collection of basic data. This as a consequence has led to emphasis upon the mail questionnaire, and to collection procedures that are not fully abreast of the most modern statistical techniques. Mail questionnaires are subject to many limitations. For example, it is virtually impossible to maintain continuity of reporting; it is frequently difficult to secure a sufficient number of reports to give statistical validity particularly for small areas; and the statistician is always engaged in a struggle against inadequate and unrepresentative samples. Mail reporting is frequently on a selective basis which may introduce bias into the sample. Furthermore, an opinion report, or one based on general rather than specific knowledge as obtained from the mailed questionnaire is less dependable as a source of basic information than a substantial sample properly selected from actual transactions. Finally, it is virtually impossible to assign valid measures of precision to data collected in the present type of program. Those difficulties are amenable in considerable degree to a system of collection based on objective probability sampling and personal inquiry to the respondent, but putting into operation an adequate sample design with personal enumeration have not been possible with currently available resources.

A far more scientific and objective type of operation would be one for the sampling of actual transactions of the sale by farmers of commodities, such as beef cattle, grain, cotton, etc., and the transactions of purchasing by farmers of autos, tractors, other types of heavy machinery, etc. A data collection program directed along this line—to the extent that it could be accomplished on a sufficient scale—would provide data of virtually unimpeachable validity. A limited program has, as already mentioned, been in operation on a small scale for several years with respect to beef cattle. Although the program has been very limited the results have been highly gratifying.

A thoroughly modernized and scientific system of price collection would involve a probability sample design for each State covering each of the some 180 commodities for which prices received by farmers are collected and of the approximately 600 commodities for which prices paid are collected. Inasmuch as

the marketing patterns and channels for the various commodities are in considerable degree separate and distinct, no single sample design would be optimum for all commodities, and it would be necessary to establish designs adapted to each commodity or commodity group.

The improvement in the quality of data that could be achieved by such a program carried out on an adequate scale and sufficient intensity would be considerable, but would be far greater for some commodities than for others. In fact, review of the current program indicated that in the case of several groups of commodities, nearly as satisfactory results could be achieved with the present program if expanded and strengthened so as to realize its full potentialities. For a majority of commodities, very substantial gains could be achieved.

Delay in processing quarterly prices paid data

For many of the commodities bought by farmers for both living and production purposes prices are collected only quarterly (March, June, September, and December) from the general and large sample of independent stores. For many years, it has been impossible to process these data in time for use in the Price Report for those months, so that there was always a delay of a month in the utilization of these data. For the intervening months the price estimates for these commodities, as used in the Parity Index, have been based on a very much smaller sample of chain stores, with an adjustment when the quarterly data become available. This meant, in practice, that the Parity Index for March, June, September, and December (the months in which data from the large sample were actually collected) was first based on the small sample, carried forward from the previous quarterly survey. Consequently, it was a not infrequent occurrence for the Index originally published in June, say, to be revised when the data from the large sample (collected in June) finally became available in July. If, as sometimes happened, the support price for a support program had to be based on the preliminary June Parity Price, it was based on an Index that was subject to almost immediate revision. This was source of considerable embarrassment, particularly when revisions were actually made the following month.

Gaps in coverage of prices received and prices paid field

Notwithstanding the rather impressive list of items for which data are collected, important gaps still exist, with respect both to commodities bought by farmers and to commodities sold by them. With respect to the field of prices for commodities sold by farmers the biggest single gap consists of forest products. These bring to farmers several millions of dollars of income annually, yet there is no consistent nor unified program for collecting prices farmers receive for commodities such as saw logs, veneer logs, stumpage, piling, poles, railroad ties, and pulpwood, which are important sources of income in many areas.

In the field of prices paid, the largest single gap in coverage is the area of medical, dental, and hospital expenditures. It is not known how heavy a drain on farm income is represented by this group of items, but in the latest revision of the Consumers' Price Index (Bureau of Labor Statistics) it was indicated that such expenses were about 4.7% of the total budget of urban wage earners and salaried clerical workers' families. Doubtless such expenses represent a comparable share of the living expenses of farm families and should accordingly be included in the Index of Prices Paid by Farmers Including, Interest, Taxes, and Wage Rates (otherwise known as the Parity Index) which is used for measuring the changes in the trend of prices paid by farmers and for computing Parity Prices. Other fields which are not adequately represented are the repair and maintenance of autos, tractors, and other heavy machinery; custom rates (machine hire) for combining, hay baling, corn picking; veterinary services; and recreational and personal services. Nor has it been possible to include in the price series used for the Parity Index prices paid at mail order houses although it is well known that these have provided an important source of supply to farmers over the years for many products.

No continuing data regarding farm construction activities are available even on an annual basis. There are no periodic reports on the number of on-farm houses built, the number of barns, dairy structures, or similar buildings, nor on the quantities of lumber, iron, steel, and other metal products used in farm construction. Details as to the quantities of pipes, fittings, pumps, and other items used by farmers, which are of tremendous interest to suppliers, are not at hand. Such data would be essential in the case of a national emergency, and are needed in peace time for use in modernizing weights for the Parity Index; for

improving estimates of net farm income; for forecasting future lumber needs and domestic timber production goals; and for rounding out the construction statistics available concerning other sections of the economy. A program collecting such data should be incorporated as part of the long-range program for strengthening the weight component segment of the field of agricultural prices.

As a means of designing an adequate sampling plan for collecting price data, it is necessary that adequate and up to date information be available concerning the relative quantities of produce farmers sell by various means, such as thru commission firms, auctions, cash buyers, brokers, cooperatives, etc. Similarly it is necessary to know the approximate quantities of these supplies which farmers buy through independent stores, chain stores, cooperatives, mail order houses, etc. Surveys are needed at regular intervals to collect and maintain reasonably current information concerning marketing channels used by farmers.

Another deficiency which is becoming increasingly critical has to do with the growing need for price data for specific local applicability. The strength of this need over the past years is indicated by the fact that indexes of prices received by farmers have been developed for about 40 States, thus providing measures of price trends that differentiate from the National trends, as evidenced by the U.S. Prices Received Index, and the situation in individual States. Extension Service workers, research workers, and various local interests, as well as official programs, require price data applicable to areas no larger than the State. The smallest unit for which official estimates are made is generally the State. In some limited areas and for a few products sold by farmers, estimates for price reporting districts (generally 9 per State) have been made, pointing the way to meeting the need for localized data. For many products bought by farmers, estimates have not been published by States, reflecting limitations imposed by small samples and great variability.

The problem involved is primarily one of increasing the size of samples and of improving the representation of production areas or type or class of production, so as to provide sufficient precision for areas smaller than States. In many areas variation between different parts of a State are significant in reflecting transportation costs, surplus-deficit relationships, quality differentials, or other differences that bear directly upon the economic welfare of farmers.

However, as is the case nationally, information on prices received by farmers tells only part of the story. Local prices received for wheat may be high, but if machinery and labor costs are also high, the farmer may be no better off than when both were lower. Accordingly, information on prices paid at the State—or better, the price reporting district or county level—is needed. Some prices paid data are published on a State basis—other data only at the regional or U.S. level. The reason again lies in problems of securing sufficiently adequate samples to have validity for the State or within State areas.

A recent survey[1] of the State Directors of Agricultural Extension work and of State Supervisors of Vocational Agriculture disclosed that data for counties or other within State areas constituted the most critical data need from their point of view. Additional data at the State level were also desired. Much of the data desired at the State and local level are already available on a National level.

This survey emphasized the fact that while national trends have significance to farmers and groups of farmers in planning their operations, corresponding information relating to their own localities would provide much additional assistance and enable them to plan, not only in the light of national trends, but on the basis of circumstances and data applicable to their own immediate situation.

For certain groups of commodities, collection of data at more frequent intervals is desirable. For example, food is the most important single group of items in the Parity Index, accounting directly for over one-sixth of the total value of all expenditures represented in the index. It is also one of the most volatile groups in terms of frequency and amount of change. Thus while farm machinery prices generally change once or twice a year, as at the beginning of the spring and fall seasons, food prices change more or less constantly. Accordingly, the accuracy and current character of the Parity Index would be improved by the collection of food prices monthly on a sufficiently large scale, instead of hav-

[1] Agricultural Data Requirements—National, State, and County. Ebling, Walter H. and Ahlgren, Henry L., Journal of Farm Economics, Vol. XXXVI, No. 5, December 1954, pp. 1226–1239.

ing to depend on the small sample of chain stores for food prices in the inter-quarterly months as is the case currently.

Again, automobiles are priced routinely twice a year—in January and July. During periods of rapid price change, however, prices may be changed by the manufacturers during the year, or the discounts or premiums allowed or charged to the buyer may change as the marketing situation shifts. To reflect these changes promptly into the Parity Index, arrangements should be made to collect prices more frequently.

Finally, current information is required concerning the expenditure pattern of farm families—i.e. the amount spent for food, clothing, household operation, feed for livestock, farm machinery, motor vehicles, etc. A survey to collect this type of information was conducted in 1955 to provide modern weights for the Parity Index.

However, expenditure patterns change as the economy develops, and unless provision is made for keeping such information current, the weights of the Index could again become obsolete. Accordingly, provision should be made for collecting current information concerning farm family expenditures from time to time, or on a rotational basis, as part of the general program of price collection.

Weak spots respecting data for particular commodities

There are deficiencies also in information collected with regard to particular commodities. For example, some apples are sold by farmers ungraded in bulk while others are sold carefully graded, washed, and packed. For the computation of income and receipts from sales, what is needed is the average price received by farmers for all these types of sales. But it is very difficult to secure information concerning the quantities sold and prices by each method of sale in order to bring these all together into a weighted average which will represent each month the average price received by farmers for all types of sales.

Again, in the case of potatoes the higher grades and larger sizes are sold primarily for table use. But others are sold for processing into either canned, frozen, or dried products ready for the housewife to use. Others are sold for feed, and still others are sold to be processed into starch. Each class of sale provides a source of income to the farmer, and the average price received for all potatoes must include accurate representation of the price received for each of these classes, weighted in its proper proportion.

The most important currently available series of prices received by farmers for milk relates to "all milk, wholesale." This is an average price which includes Grade "A" milk or milk inspected and eligible for fluid consumption, including surplus diverted to manufacture, and milk of manufacturing grade for processing into cheese, evaporated or condensed milk, or butter and creamery by-products. These two grades of milk are closely related, yet they are subject to rather different sets of forces, both economic and regulatory, which is some respects render them almost separate commodities. There is a growing need for separate prices series for the two categories of milk. Much of these basic data are available—it requires mainly the time and resources with which to complete the necessary analysis and assemble them in form for publication and utilization.

Similarly there is a growing need for prices of turkeys by type and size. A limited amount of data are already being collected, but considerable expansion is necessary before dependable series can be published.

These are merely illustrative of some of the complications involved. Nearly every commodity has its own set of special problems.

As in the case of prices received, there are various limitations and shortcomings of many individual prices paid series. For example, the feed price series is one of the most stable in the whole prices paid field. However, it has not been possible yet to secure adequate coverage of one important segment of the feed supply universe. Feed prices per 100 pounds are collected from lists of independent dealers the country over. Most of these quotations include the cost of the sack. However, in some areas substantial quantities of feed are sold to large dairies and feeders at quantity discounts in ton or larger lots, and often in bulk, on what is essentially a wholesale basis. This field tends to escape from the coverage secured by the list of feed dealers who report to the Department. Considerable investigation and exploratory work, together with continuing special inquiries and contacts would be necessary to reach this special type of situation. Since such prices tend on a whole to be somewhat lower than the usually quoted retail price, the average prices reported by independent dealers doubtless tend to be slightly above the actual average price paid by all farmers for feed, and, of course, it is the objective of the estimating program of the Department to measure the average price paid by all farmers, rather than of a selected group.

Another field of extreme difficulty is that of house furnishings. The great variety and variability of items, as well as the strong fashion element leads to changes from year to year that complicate the job of collecting data that accurately measure price changes.

Even more difficult is obtaining accurate and realistic prices paid for autos, trucks, tractors, and other farm machinery. Pricing what the farmer actually buys for each of the categories is complicated by the wide variety of optional equipment, and by the frequent change of model and standard equipment. Not less complex is the difficulty of securing accurate information concerning the discounts from list of recommended price which a cash offer engenders in a highly competitive market. This set of problems seems somewhat beyond the mail inquiry. Only a thoroughly trained, competent, and diplomatic enumerator can penetrate the natural hesitancy of dealers to divulge what they regard as their own private affairs. Yet it is absolutely essential if the Parity Index is to be guided by *real* price changes rather than by superficial indications. We can claim only limited success in this area, as facilities for personal contacts are limited.

Thus, in prices paid, as in prices received, a multitude of limitations are inherent in the program of price collection for many individual commodities. Only by considerably expanded technical and clerical assistance can these problems really be solved.

RECOMMENDATIONS

I. Longe range

1. Supplement the existing data collection program by one making use of an objective probability sample and a personal enumeration method of collection to apply to commodities not adequately covered by the existing system.

In broad terms this contemplates the employment of a corps of price enumerators in each State—probably at least one enumerator to each price reporting district (generally 9 per State). This group of enumerators would operate under the guidance of the State Statistician, making contacts with dealers and merchants to ascertain prices received by farmers and prices paid by farmers for the various commodities, and basing their reports to the fullest extent practicable upon documents of sale. The selection of merchants, stores, and other basic sources of data would be based as far as possible upon probability sample designs. For some items the enumeration would provide the primary source of data; for others, it would supplement mail questionnaires. This arrangement would make the most effective and efficient use of enumerators by conserving their time for the most difficult commodities.

2. Provide staff to permit processing all prices paid reports currently without the month's delay now involved for more than half the States. As already explained, this delay necessitates basing the Parity Index for the quarterly months of March, June, September, and December upon partial samples extrapolated from the previous quarter, with the possibility of revisions a month later when the data collected for those months have been processed.

3. Expand the subject matter content of the data collection program to the extent necessary to fill the existing gaps, both with respect to subject matter and with respect to commodity detail and geographic coverage, in both Prices Received by Farmers and Prices Paid by Farmers. As already indicated, this would include as a minimum:

A. Expand the general coverage of subject matter as follows:

(1) For prices received by farmers for commodities sold:

(a) Forest Products.

(2) For prices paid by farmers for commodities and services bought:

(a) Medical, dental, and hospital services.

(b) Repair and service charges for autos, tractors, and other heavy farm machinery.

(c) Rates for custom services such as hay baling, combining, and corn picking, and for veterinary services.

(d) Recreation and personal services.

(e) Mail order prices.

(3) Conduct a comprehensive survey at least every 5 years to determine the volume and character of farm building construction, and quantities of lumber, and metal products used thereby with provision for less extensive annual surveys to provide interim estimates.

(4) Provide for a national survey of farmer expenditures either every 5 years, or on a rotational basis, to maintain reasonably current information on this important subject.

(b) Intensify geographic coverage, detail of subject matter coverage, and frequency of collection, with emphasis on the following major areas.

(1) More detailed information concerning prices received and paid by farmers for particular grades of commodities and at various "positions" of sale. Many details which are important to a clearer understanding of current price movements tend to be more obscured by the lack of detail now available. Moreover, intensification of collection of prices by grade and position of sale, together with the corresponding information concerning quantities of each marketed would provide one of the most effective steps in improving the precision of the over-all price estimates.

(2) Intensify geographic coverage to permit valid estimates for price reporting districts or counties would serve local needs far more adequately than the present program.

(3) Collect food prices monthly from the full range of sources available; and collect auto prices with sufficient frequency to reflect promptly in the Parity Index important changes in effective prices.

(4) Compile historical price series from mail order catalogs to represent this important source of supplies to farmers. Such series should be included in the data used in compiling the Parity Index.

The data collection program outlined above is admirably suited to provide for these growing needs.

II. Short range

The short range program should be one which will point towards and develop into the long range program outlined above, and should include the following:

(1) Initiate the new objective-sampling-enumeration-program in several States, distributed geographically so as to represent the various major agricultural regions.

(2) Evaluate the results of the new program as against the old, for the various commodity fields included for both prices received and prices paid. As it is determined that the results of the new program are more accurate and more dependable than the old, the old program should be dropped. Similarly, where it is determined that the current program is giving adequate results, the application of the new program should be used only from time to time as a periodic check on quality.

(3) As rapidly as feasible the new program, tempered by experience in the pilot States, should be expanded to cover all States.

(4) Strengthen the several field offices and also the Washington office by the addition of both technical and clerical staff so that they may be prepared to provide the technical and administrative guidance that is necessary for the supervision of the enumerative staff already outlined. The functions of augmented field and Washington staff would include immediate acceleration of the processing of the quarterly prices paid data which are now handled currently in only nineteen States. This will further reduce the revisions of the Parity Index which are occasionaly necessary in the quarterly periods.

This staff should also give the increased attention required to building up lists of reporters, securing complete lists of names of dealers, and otherwise preparing the material from which a large scale probability sample could be selected. This, combined with a mail approach to the extent that the mail approach is possible would provide the most profitable utilization of time and money for the price collection program.

(5) Begin the expansion of commodity coverage, by immediately beginning to collect information concerning the prices paid by farmers for medical, dental, and hospital services. Pioneer work has already been done on this subject, and it would be possible on short notice to place it on an operating basis.

(6) As experience is gained with this program the additional gaps in the price field should be filled by rounding out the data collection program as described under the Long Range Program.

TABLE I.—*Prices received by farmers: Items priced monthly and on annual or seasonal basis, 1965*

Commodity	Monthly averages		Season or annual averages
	All months	In season	
Field and miscellaneous:			
Barley	X		X
Beans, dry edible	X		X
Broomcorn			X
Buckwheat	X		X
Corn	X		X
Cotton:			
American upland	X		X
Extra long staple:			
American Egyptian			X
Sealand	X		X
Cottonseed	X		X
Cowpeas			X
Crude pine gum			X
Flaxseed	X		X
Hay, all baled			X
Hops			X
Mungbeans			X
Oats	X		X
Peanuts	X		X
Peas, dry field	X		X
Peppermint oil			X
Popcorn			X
Potatoes	X		X
Rice	X		X
Rye	X		X
Sorghums, forage			X
Sorghums for grain	X		X
Soybeans	X		X
Spearmint oil			X
Sweetpotatoes	X		X
Tobacco:			
Burley, type 31		X	X
Cigar filler and binder, types 42-44 and 51-55			X
Cigar-wrapper, type 61			X
Cigar-wrapper, type 62			X
Dark air-cured, types 35-36		X	X
Fire-cured, types 21-24		X	X
Flue-cured, types 11-14		X	X
Maryland, type 32		X	X
Pennsylvania seedleaf, type 41			X
Perique, Louisiana			X
Puerto Rican filler, type 46			X
Sun-cured, type 37		X	X
Velvetbeans			X
Wheat	X		
Durum			X
Other spring			X
Winter			X
Fruits:			
Citrus:			
Grapefruit	X		X
Lemons	X		X
Limes	X		X
Oranges	X		X
Tangerines		X	X
Deciduous and miscellaneous:			
Apples:			
Fresh	X		X
Processing			X
Apricots:			
Fresh			X
Dried			X
Processing, excluding dried			X
Avocados			X
Berries:			
Blackberries			X
Blueberries			X
Boysenberries			X
Currants			X
Gooseberries			X
Loganberries			X
Raspberries, black			X
Raspberries, purple			X
Raspberries, red			X
Youngberries			X

TABLE I.—*Prices received by farmers: Items priced monthly and on annual or seasonal basis, 1965*—Continued

Commodity	Monthly averages		Season or annual averages
	All months	In season	
Fruits—continued			
Deciduous and miscellaneous—continued			
Cherries:			
Sour			X
Sweet			X
Cranberries			X
Dates			X
Figs:			
Fresh			X
Dried			X
Processing, excluding dried			X
Grapes:			
Raisins, dried			X
Grapes, excluding raisins dried			X
Nectarines			X
Olives:			
Crushed for oil			X
Processing, excluding crushed			X
Peaches:			
Fresh consumption		X	X
Dried			X
Processing, excluding dried:			
Clingstone			X
Freestone			X
Pears:			
Fresh		X	X
Dried			X
Processing, excluding dried			X
Persimmons			X
Pineapples			X
Plums:			
Fresh			X
Processing			X
Pomegranates			X
Prunes:			
Fresh			X
Dried			X
Processing, excluding dried			X
Strawberries:			
Fresh		X	X
Processing			X
Livestock and livestock products:			
Beef cattle	X		X
Beeswax			X
Butterfat in cream	X		X
Chickens:			
Commercial broilers	X		X
Farm chickens	X		X
Calves	X		X
Eggs	X		X
Hogs	X		X
Honey:			
Comb			X
Extracted			X
Chunk			X
Lambs	X		X
Milk cows	X		
Milk for manufacturing	X		X
Milk, retail	X		X
Milk, wholesale	X		X
Mohair			X
Sheep	X		X
Turkeys	X		X
Wool	X		X
Nuts:			
Almonds			X
Filberts			X
Pecans:			
Seedling			X
Improved			X
Walnuts			X
Tungnuts			X

TABLE I.—*Prices received by farmers: Items priced monthly and on annual or seasonal basis, 1965*—Continued

Commodity	Monthly averages		Season or annual averages
	All months	In season	
Seeds:			
Alfalfa	X		X
Redclover	X		X
Alsike clover	X		X
Sweetclover	X		X
Whiteclover			X
Ladino clover			X
Lespedeza	X		X
Timothy	X		X
Redtop			X
Orchardgrass			X
Kentucky bluegrass			X
Merion bluegrass			X
Sudangrass			X
Smooth bromegrass			X
Crested wheatgrass			X
Chewings, fescue			X
Red fescue			X
Tall fescue			X
Bentgrass			X
Austrian winter peas			X
Crimsonclover			X
Lupine			X
Hairy vetch			X
Common vetch			X
Purple vetch			X
Common ryegrass			X
Perennial ryegrass			X
Mustard			X
Rapeseed			X
Sugar crops:			
Maple sirup			X
Maple sugar			X
Sorghum sirup			X
Sugarbeets			X
Sugarcane for sugar			X
Sugarcane sirup			X
Vegetables, commercial:			
Fresh market:			
Artichokes	X		X
Asparagus		X	X
Beans, lima	X		X
Beans, snap	X		X
Beets	X		X
Broccoli	X		X
Brussels sprouts		X	X
Cabbage	X		X
Cantaloupe		X	X
Carrots	X		X
Cauliflower	X		X
Celery	X		X
Corn, sweet	X		X
Cucumbers	X		X
Eggplant	X		X
Escarole		X	X
Garlic			X
Honeyball melons		X	X
Honeydew melons		X	X
Kale		X	X
Lettuce	X		X
Onions	X		X
Peas, green	X		X
Peppers, green	X		X
Shallots		X	X
Spinach	X		X
Tomatoes	X		X
Watermelons		X	X
Processing:			
Asparagus			X
Beans, lima			X
Beans, snap			X
Beets			X
Cabbage			X
Corn, sweet			X
Cucumbers			X
Peas, green			X
Pimientos			X
Spinach			X
Tomatoes			X

THE PARITY INDEX.—*Frequency of changes from preliminary to final quarterly indexes* [1] *for the pority index and component indexes, United States, September 1954 to September 1956, by extent of change*

Indexes	Frequency of changes from preliminary to final indexes									
	Minus 10 points	Minus 8 points	Minus 5 points	Minus 3 points	Minus 2 points	Minus 1 point	Unchanged	Minus 1 point	Minus 2 points	Minus 6 points
Prices paid by farmers: Commodities and services, interest, taxes, and wage rates	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
Prices paid						1	7	1		
Family living items							9			
Food and tobacco						2	3	4		
Clothing						2	5	1	1	
Household operations						4	3	2		
Household furnishings						2	3	4		
Building, materials, house					1	2	3	2	1	
Autos and auto supplies					2	2	2	1	2	
Production items						2	4	3		
Feed							8	1		
Livestock							9			
Motor supplies							9			
Motor vehicles					1		5	2	1	
Farm machinery						2	5	2		
Farm supplies							7	2		
Building and fencing material		1	1	1	1		4			1
Fertilizer				1		3	3	2		
Seed							9			
Interest							9			
Taxes	1				1		9			
Wage rates							7			
							9			
Total changes	1	1	1	2	6	22	132	27	5	1

[1] As computed from total sample in following month.

Source: Agricultural Marketing Service.

TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Food:										
Meat:										
Round steak			X				X			
Hamburger				X				X		
Bologna			X				X			
Frankfurters				X				X		
Bacon			X				X			
Salt pork				X				X		
Fatback				X				X		
Ham			X				X			
Pork chops			X				X			
Sausage					X				X	
Fats:										
Lard			X				X			
Vegetable shortening				X				X		
Salad dressing					X				X	
Peanut butter						X				X
Margarine						X				X
Dairy products:										
Milk				X				X		
Evaporated milk					X				X	
Butter			X				X			
Cheese				X				X		
Ice cream					X				X	
Eggs			X				X			
Cereal and bakery products:										
Flour			X				X			
Bread			X				X			
Macaroni					X				X	
Wheat flakes						X				X
Soda crackers					X				X	
Cornmeal				X				X		
Corn flakes				X				X		
Rolled oats				X				X		
Rice			X				X			
Baking powder					X				X	

See footnotes at end of table.

TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*—Continued

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Food—continued										
Fish: Salmon			X				X			
Vegetables:										
Canned:										
Corn					X				X	
Peas					X				X	
Beans, dry:										
Navy (pea)				X				X		
Pinto				X				X		
Great Northern				X				X		
Lima				X				X		
Fresh:										
Potatoes			X				X			
Cabbage					X				X	
Lettuce					X				X	
Tomatoes			X				X			
Frozen:										
Corn					X				X	
Peas						X				X
Fruit:										
Fresh:										
Apples			X				X			
Bananas			X				X			
Grapefruit			X				X			
Lemons			X				X			
Oranges			X				X			
Frozen:										
Orange concentrate					X				X	
Strawberries						X				X
Sweets:										
Sugar			X				X			
Sirup					X				X	
Candy					X				X	
Beverages:										
Coffee			X				X			
Tea				X				X		
Tobacco:										
Smoking tobacco					X				X	
Cigarettes					X				X	

Apparel:										
Work clothes:										
Men's bib overalls			X				X			
Boys' waist overalls			X				X			
Men's shirts			X				X			
Men's socks			X				X			
Men's gloves			X				X			
Footwear:										
Men's work shoes			X				X			
Men's dress shoes			X				X			
Men's boots			X				X			
Boys' shoes			X				X			
Women's shoes			X				X			
Girls' shoes			X				X			
Men's overshoes:										
With buckles						X				X
Without buckles						X				X
Underwear:										
Men's undershirts			X				X			
Men's shorts			X				X			
Men's heavy union suits						X				X
Women's slips:										
Rayon			X				X			
Nylon			X				X			
Women's panties			X				X			
Dresses:										
Women's dresses:										
House			X				X			
Street:										
Cotton			X				X			
Rayon			X				X			
Girl's dresses			X				X			
Sweaters and coats:										
Boys' sweaters [2]					X				X	
Women's sweaters						X				X
Girls' coats				X				X		
Women's coats:										
Heavy, fur trim						X				X
Heavy, without fur						X				X
Lightweight				X				X		
Men's overcoats						X				X
Men's jackets:										
Leather						X				X
Wool						X				X
Suits and trousers:										
Men's suits			X				X			
Men's trousers:										
Wool			X				X			
Cotton			X				X			
Boys' suits			X				X			

See footnotes at end of table.

TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*—Continued

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Apparel—continued										
Hosiery, women's:										
Cotton			X				X			
Nylon			X				X			
Nightgowns, women's			X				X			
Shirts: Men's broadcloth			X				X			
Hats:										
Men's felt						X				X
Women's:										
Felt						X				X
Straw						X				X
Yard goods:										
Percale			X				X			
Gingham			X				X			
Muslin			X				X			
Bleached			X				X			
Unbleached			X				X			
Household operation:										
Detergents:										
Toilet soap				X				X		
Laundry detergents			X				X			
Laundry starch						X				X
Brooms						X				X
Fuel:										
Coal: [3]										
Hard					X				X	
Soft:										
Run-of-mine					X				X	
Prepared sizes					X				X	
Stove					X				X	
Slack or stoker					X				X	
Furnace oil				X				X		
Kerosene			X				X			
Wood [3]					X				X	
Services:										
Electricity [4]						X				
Telephone [4]						X				
Newspapers [5]						X				

Household furnishings:											
Electric appliances:											
Floor lamps			X				X				
Radios			X				X				
Radio-phonographs			X				X				
Television sets:											
17-inch			X				X				
21-inch			X				X				
Refrigerators:											
7 cubic feet			X				X				
8 cubic feet			X				X				
9 cubic feet			X				X				
10 cubic feet			X				X				
11 cubic feet			X				X				
Home freezers:											
12 cubic feet			X				X				
14 cubic feet			X				X				
16 cubic feet			X				X				
18 cubic feet			X				X				
Washing machines:											
Wringer type			X				X				
Automatic			X				X				
Sewing machines			X				X				
Vacuum cleaners			X				X				
Irons			X				X				
Toasters			X				X				
Stoves			X				X				
Household equipment:											
Gas ranges			X				X				
Wood or coal stoves			X				X				
Kitchen cabinets			X				X				
Fruit jars [6]					X					X	
Bedding and furniture:											
Mattresses:											
Innerspring			X				X				
All felted			X				X				
Bedsprings			X				X				
Bedsteads			X				X				
Bedroom suites			X				X				
Living-room suits			X				X				
Occasional chairs			X				X				
Dining-room suits			X				X				
Dinette sets			X				X				
Rugs:											
Axminster			X				X				
Felt-base			X				X				
Tableware:											
Dinner plates			X				X				
Water glasses			X				X				

See footnotes at end of table.

TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*—Continued

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Household furnishings—Continued										
Household textiles:										
Sheets:										
81 by 99 inches			X				X			
81 by 108 inches			X				X			
Blankets:										
Cotton						X				X
Wool						X				X
Towelling:										
Cotton			X				X			
Part linen			X				X			
Bath towels			X				X			
Curtains, kitchen			X				X			
Building material:										
Framing lumber:										
2 by 4 inches, pine:										
No. 2 and better			X				X			
Under No. 2			X				X			
2 by 4 inches, fir:										
No. 2 and better			X				X			
Under No. 2			X				X			
2 by 4 inches, Douglas-fir and hemlock:										
No. 1			X				X			
No. 2			X				X			
2 by 4 inches, white fir and larch:										
No. 1			X				X			
No. 2			X				X			
Boards:										
Rough, 1 inch:										
No. 2 and better			X				X			
Under No. 2			X				X			
No. 3			X				X			
No. 4			X				X			
Dressed, 1 inch:										
No. 2 and better			X				X			
Under No. 2			X				X			
No. 3			X				X			
No. 4			X				X			
T. & G., roofers, 1 by 6 inches			X				X			

Shiplap, pine:											
No. 2 and better			X				X				
Under No. 2			X				X				
No. 3 [7]					X					X	
No. 4 [7]					X					X	
Siding:											
Drop siding, pine:											
C and better			X				X				
Under C			X				X				
No. 2			X				X				
Drop siding, fir:											
C and better			X				X				
Under C			X				X				
D			X				X				
Rustic siding, redwood			X				X				
Bevel siding:											
Redwood			X				X				
Pine:											
C and better			X				X				
Under C			X				X				
Bevel siding (weatherboard), cedar, 6 inch:											
Clear			X				X				
B			X				X				
Flooring:											
Yellow pine, 1 by 4 inches:											
B and better			X				X				
Under B			X				X				
Fir, 1 by 4 inches, VG:											
B and better			X				X				
Under B			X				X				
C			X				X				
Oak, 25/32 by 2¼ inches:											
Select			X				X				
No. 1			X				X				
No. 2			X				X				
Roofing:											
Shingles, wood, clear			X				X				
Asphalt shingles, 3 in 1 mineral surface			X				X				
Roofing composition:											
Smooth surface			X				X				
Mineral surface			X				X				
Roofing steel, galvanized			X				X				
Asbestos, siding shingles			X				X				
Nails, 8d., common			X				X				
Millwork:											
Doors, interior, 2-feet-8-inches by 6-feet-8-inches by 1⅜ inches:											
1 panel:											
No. 1			X				X				
No. 2			X				X				
2 panel, fir			X				X				
Flush, hollow-core			X				X				
House windows			X				X				
Window sash, plain rail			X				X				
Barn sash			X				X				

See footnotes at end of table.

TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*—Continued

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Building material—Continued										
Insulating board			X				X			
Gypsum board			X				X			
Plywood, interior ¼ inch			X				X			
Brick:										
Common			X				X			
Face			X				X			
Concrete blocks			X				X			
Portland cement			X				X			
House paint			X				X			
Interior, wall paint			X				X			
Linseed oil			X				X			
Iron pipe:										
1½-inch diameter			X				X			
½-inch diameter						X				X
Wire screen, galvanized						X				X
Electric cable, indoor						X				X
Windmills, without tower						X				
Kitchen, sink, basin, single						X				
Bathtubs, enameled cast iron						X				X
Toilets, water, china						X				X
Mixing faucet, sink						X				X
Fencing material:										
Posts:										
Wood			X				X			
Steel			X				X			
Field and stock fence			X				X			
Poultry and garden (rabbit) fence			X				X			
Poultry netting 2-inch mesh			X				X			
Barbed wire, galvanized:										
3-point			X				X			
4-point			X				X			
Farm gates			X				X			
Automobiles:										
New: [3]										
Ford:										
Mainline, 6-cylinder				X						
Customline, 8-cylinder				X						
Chevrolet:										
150 series, 6-cylinder				X						
210 series, 8-cylinder				X						
Buick Special				X						

Plymouth:											
Plaza, 6-cylinder				X							
Savoy, 8-cylinder				X							
Used:											
Ford, Chevrolet, Plymouth:											
1946 or earlier					X						
1947					X						
1948					X						
1949					X						
1950					X						
1951					X						
1952					X						
1953					X						
1954					X						
1955					X						
Trucks:											
New :[8]											
Ford:											
F-100 pickup				X							
F-600 cab and chassis				X							
Chevrolet:											
Series 3104				X							
Series 6403				XXX							
International pickup				XXX							
Dodge: B-4 pickup, 108-inch W.B				X							
Used (1½ to 2 tons):											
Ford, Chevrolet:											
1946 or earlier					X						
1947					X						
1948					X						
1949					X						
1950					X						
1951					X						
1952					X						
1953					X						
1954					X						
1955					X						
Used (½-ton pickup):											
Ford, Chevrolet:											
1946 or earlier					X						
1947					X						
1948					X						
1949					X						
1950					X						
1951					X						
1952					X						
1953					X						
1954					X						
1955					X						

See footnotes at end of table.

TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*—Continued

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Tractors:										
Farm tractors, wheel-type:										
Under 20 belt			X							
20 to 29 belt			X							
30 to 39 belt			X							
40 and over			X							
Tractors, crawler-type:										
Under 25 drawbar					X					
25 to 34.9 drawbar					X					
35 to 49.9 drawbar					X					
Garden tractors:										
Under 3 engine						X				
3 engine horsepower and over						X				
Farm machinery:										
Farm wagons			X							
Gas engines					X					
Plows:										
Moldboard										
1 bottom					X					
2 bottoms					X					
3 bottoms					X					
Disk						X				
1-way disk tiller						X				
Disk harrows:										
Single					X					
Tandem					X					
Offset					X					
Spiketooth					X					
Springtooth					X					
Field cultivators						X				
Cultivators, row crop						X				
Grain drills:										
12-tube					X					
20-tube					X					
Manure spreaders					X					
Manure loaders						X				
Planters:										
Corn						X				
Cotton						X				
Listers, with planting attachment						X				

Mowers:										
5-foot						X				
7-foot						X				
Hayrakes, side delivery						X				
Forage harvesters (field choppers):										
With pickup attachment						X				
With row-crop attachment						X				
Pick-up balers, automatic tie						X				
Combines:										
Self-propelled					X					
Tractor-drawn:										
With auxiliary engine					X					
With power takeoff					X					
Forage crop blowers						X				
Cornpicker-huskers:										
1-row, tractor drum						X				
2-row						X				
Cottonpickers, spindle type						X				
Hammer mills						X				
Farm grain elevators (portable):										
Auger type						X				
Double chain						X				
Sprayers, power:										
Boom type:										
Tractor mounted					X					
Tractor-mounted power takeoff					X					
Orchard type, tractor-drawn auxiliary engine					X					
Single-milker units, stationary installation with pail					X					
Stationary milker pumping installations					X					
Cream separators:										
550-pound					X					
750-pound					X					
Farm supplies:										
Milk pails, heavy tin-plated			X				X			
Milk cans, 10-gallon			X				X			
Horse collars, leather			X				X			
Horse or mule collars, canvas			X				X			
Hoes, 7-inch blade						X				X
Pitchforks:										
3-tine						X				X
4-tine						X				X
Scythes, with snath						X				X
Hand sprayers, pressure					X				X	
Rope, manila						X				X
Binder, twine						X				X
Baler, twine					X				X	
Nail hammers, with handle					X				X	
Axes, with handle					X				X	

See footnote at end of table.

TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*—Continued

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Farm supplies—Continued										
Brooders:										
Gas burning, with canopy					X				X	
Oil burning, with canopy					X				X	
Electric, 450–550 chick capacity					X				X	
New baskets, round stave			X				X			
New hampers, 1-bushel			X				X			
New berry crates:										
Quart					X				X	
Pint				X				X		
Fruit box shook			X				X			
Lug box shook			X				X			
Vegetable crate, shook			X				X			
New potato sacks, burlap			X				X			
New bags, open mesh			X				X			
Petroleum products:										
Gasoline, regular:										
Filling station			X				X			
Tank truck			X				X			
Tractor fuel, diesel			X				X			
Motor oil			X				X			
Grease			X				X			
Motor supplies:										
Auto tires, 6.70 x 15, 4-ply			X				X			
Inner tubes, 6.70 x 15			X				X			
Truck tires, 7.50 x 20			X				X			
Storage batteries:										
45 plates per battery			X				X			
51 plates per battery			X				X			
Tractor tires, rear 11–38, 4-ply			X				X			
Spark plugs				X				X		
Tire chains				X				X		
Anti-freeze:										
Permanent-type				X				X		
Alcohol				X				X		
Motor services:										
Lubrication, all makes						X				
Ford, Chevrolet, Plymouth						X				
All other makes						X				
Adjusting brakes, all makes						X				
Ford, Chevrolet, Plymouth						X				
All other makes						X				

Relining brakes, all makes						X					
Ford, Chevrolet, Plymouth						X					
All other makes						X					
Motor tuneup, all makes						X					
Ford, Chevrolet, Plymouth						X					
All other makes						X					
Feed:											
Chick starter mash [9]	X										
Broiler growing mash	X										
Turkey growing mash	X										
Laying mash	X										
Scratch grains	X										
Mixed dairy feed:											
Under 29 percent protein	X										
14 percent protein	X										
16 percent protein	X										
18 percent protein	X										
20 percent protein	X										
24 percent protein	X										
Over 29 percent protein	X										
Mixed hog feed:											
14 to 18 percent protein	X										
Over 29 percent protein	X										
Beef cattle concenrate or supplement	X										
Bran	X										
Middlings	X										
Gray shorts	X										
Mill run	X										
Hominy feed					X						
Cornmeal	X										
Dried citrus pulp	X										
Soybean meal	X										
41 percent protein	X										
44 percent protein	X										
Cottonseed meal	X										
36 percent protein	X										
41 percent protein	X										
44 percent protein	X										
Linseed meal	X										
Corn gluten feed	X										
Meat scrap	X										
Tankage					X						
Stock salt	X										
Oyster shells					X						
Wheat	X										
Barley	X										
Oats	X										
Corn	X										
Dried beet pulp [10]	X				X						
Alfalfa meal											
Alfalfa hay, baled	X										
All other hay, baled	X										

See footnotes at end of table.

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TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*—Continued

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Seed:										
Alfalfa:										
Common		X								
Certified Grimm		X								
Certified Ranger		X								
Red clover		X								
Alsike clover		X								
Sweet clover		X								
Crimson clover: [12]										
Common [13]						X				
Reseeding [13]						X				
Timothy		X								
Korean lespedeza [12]		X								
Kobe lespedeza [12]		X								
Sericea lespedeza [12]		X								
Orchardgrass		X								
Smooth brome		X								
White (Dutch) clover		X								
Ladino clover		X								
Redtop (grass)		X								
Kentucky bluegrass		X								
Ryegrass, common		X								
Perennial ryegrass [13]						X				
Crested wheatgrass		X								
Tall fescue					X					
Austrian winter peas [13]						X				
Hairy vetch					X					
Purple vetch [13]						X				
Blue lupine [13]						X				
Sweet lupine [13]						X				
Wild winter peas [13]						X				
Sudan grass [12]		X								
German millet [14]		X								
Hungarian millet [15]						X				
Japanese millet [16]					X					
Siberian millet [17]		X								
Common and Willamette vetch [13]						X				
Amber (cane) sorgo [15]						X				
Orange (cane) sorgo [12]		X								
Atlas (cane) sorgo [15]						X				
Hegari [15]						X				
Kafir [15]						X				

Milo [15]						X					
Rape [12]		X									
Seed potatoes [12]		X									
Seed, corn:											
Hybrid [12]		X									
Open-pollinated [12]		X									
Soybeans for seed [12]		X									
Seed wheat [18]		X									
Seed oats [18]		X									
Seed barley [18]		X									
Seed rye [18]		X									
Seed potatoes (Irish) [12]		X									
Cowpeas for seed [19]		X									
Cottonseed for planting [19]		X									
Canada field peas [20]		X									
Fertilizer:											
0-20-20					X						
2-12-12					X						
3-9-6					X						
3-9-9					X						
3-12-6					X						
3-12-12					X						
4-7-5					X						
4-8-6					X						
4-8-8					X						
4-10-6					X						
4-10-7					X						
4-12-8					X						
4-12-12					X						
4-16-16					X						
5-10-5					X						
5-10-10					X						
5-10-15					X						
5-20-20					X						
6-3-6					X						
6-6-6					X						
6-8-4					X						
6-8-8					X						
6-8-12					X						
6-9-12					X						
6-10-4					X						
6-12-12					X						
6-24-12					X						
8-8-8					X						
8-12-16					X						
8-16-16					X						
8-24-8					X						
8-32-0					X						
0-10-5					X						
0-10-10					X						
0-16-8					X						

See footnotes at end of table.

TABLE II.—*Prices paid by farmers: Item coverage and frequency of estimation, Agricultural Marketing Service, 1956*—Continued

Commodity	Independent store prices						Chain store prices [1]			
	Monthly	5 months	Quarterly	3 quarters	Semi-annually	1 quarter	Monthly	9 months	6 months	3 months
Fertilizer—Continued										
0-20-0					X					
0-20-10					X					
2-12-12					X					
2-24-0					X					
5-15-0					X					
Superphosphate:										
18 percent P_2O_5					X					
20 percent P_2O_5					X					
42 percent P_2O_5					X					
45 percent P_2O_5					X					
Phosphate rock					X					
Ammonium phosphate					X					
Nitrate of soda					X					
Sulphate of ammonia					X					
Ammonium nitrate					X					
Ammonium nitrate-limestone mixture					X					
Anhydrous ammonia					X					
Muriate of potash					X					
Gypsum (land plaster)					X					
Liming material					X					
Ground limestone					X					
Burnt lime					X					
Hydrated lime					X					
Spray material:										
Arsenate of lead						X				
Calcium arsenate						X				
Paris green						X				
Rotenone dust						X				
DDT wettable, 40 to 50 percent						X				
2,4-D						X				
Feeder livestock:										
Breeders and stockers	X									
Cattle and calves	X									
Lambs	X									
Hogs	X									
Baby chicks	X									
Heavy and heavy crossbreeds	X									
Light breeds	X									
Incross breeds	X									

Turkey poults	X										
Heavy breeds:											
White	X										
Other	X										
Light breeds	X										

[1] Prices collected monthly at chainstores for 3-month periods centered on the quarters for which prices are obtained from independent stores.
[2] Prices collected in March and December quarters.
[3] Prices collected in September and December quarters.
[4] Data collected annually from farmers.
[5] Assembled annually from trade publication.
[6] Collected in June and September quarters.
[7] Collected in March and June quarters.
[8] Prices collected in January, July, and November.
[9] Prices collected each month from March through July and in November.
[10] Prices collected in January, February, August, September, October, and December.
[11] Prices collected from February through May and in September.
[12] Not collected in September.
[13] Prices collected in September only.
[14] Not collected in March and September.
[15] Prices collected in May only.
[16] Prices collected in April and May only.
[17] Not collected in April and September.
[18] Not collected in May.
[19] Not collected in May and September.
[20] Prices collected in February and April only.

Mr. KOFFSKY. The recommendations made to the House Appropriations Committee for remedying the defects of the present system were: (1) supplement the existing data collection mail survey by making use of an objective probability sample and personal enumeration for collection of data to apply to commodities not adequately covered by the existing system; (2) provide the facilities to permit processing of all prices paid reports currently without the month's delay now involved for more than half the States; (3) expand the subject matter content of the data collection program to fill existing gaps. This would include the collection of data on medical, dental, and hospital services; more information on the repair and service charges on autos, tractors and various farm machinery; rates for custom services such as hay baling, combining, cornpicking, and veterinary services, which are assuming increasing importance; and a number of other minor areas. It would also include provision for collecting information on farmer expenditures either at regular intervals or on an annual but rotational basis to provide current information in this important area for use in maintaining an up-to-date weighting pattern for the parity index.

In response also to the conference report on the Appropriation Act for the Department of Agriculture, 1962, the Service prepared "A Report on the Practicability and Feasibility of a Timber Price Reporting Service." This report was submitted to the Congress in February 1962. The Service is prepared to initiate a timber products price reporting service at any time necessary resources are made available.

And if the chairman would like, again, this is a document we can submit for the record.

Chairman PROXMIRE. Fine, you may do so.

(Material referred to, later submitted for the record, follows:)

A REPORT ON THE PRACTICABILITY AND FEASIBILITY OF A TIMBER PRICE REPORTING SERVICE

(By the Statistical Reporting Service, U.S. Department of Agriculture, February 1962)

PREFACE

This report has been prepared pursuant to Amendment No. 13 of the Section "Statement of the Managers on the Part of the House" of the Conference report on H.R. 7444, the Appropriation Act for the Department of Agriculture, 1962 (Report No. 726, 87th Congress, First Session, House of Representatives); in particular, to that part of Amendment No. 13 which reads "Salaries and expenses: * * * The increase over the House bill includes $15,000 for a special study and report on the practicability and feasibility of a timber price reporting service, including firm estimates on the costs involved and the proper method of financing the project; i.e., whether or not it should be financed from funds available to the Forest Service. * * *"

Reports on forest product prices currently being issued by government agencies in several States have been assembled, their characteristics analyzed, and their general methods of preparation reviewed.

Representatives of the Statistical Reporting Service and of the Forest Service have interviewed officials in most States where forest products are important and have conferred with representatives of the forest products industry including several sawmill operators who purchase both stumpage and logs.

This report has been prepared through the cooperation of staff members of the Statistical Reporting Service and of the Forest Service, in order that the talent and experience of both organizations might be brought to bear upon the subject.

It presents to the Congress information and conclusions regarding the feasibility and practicability of a timber products price reporting system, together with cost estimates.

CONTENTS

SUMMARY

It is feasible and practicable to conduct a useful timber price reporting service giving a range of prices for standing timber and cut products related to market or production areas.

Participation by the Federal Government in timber price reporting would strengthen the reports being issued by 18 States. These reports now show wide variation in scope, content, frequency, and quality. Federal participation also would promote uniformity and coordination of reporting, facilitate interstate and interregional comparisons, and promote more effective and more uniform pricing practices generally.

An annual cost of $300,000 is estimated as necessary to provide the minimum elements of the Federally financed portion of the program covering 37 States in which forest products are considered sufficiently important to justify the service. More complete and detailed coverage and more frequent reporting would require substantially higher costs. The Statistical Reporting Service is the logical agency within the U.S. Department of Agriculture to conduct a timber price reporting service.

Feasibility of a Timber Price Reporting Service

INTRODUCTION

Price reporting bills introduced in Congress

Bills were introduced in the 84th Congress, 1st Session (e.g. S. 2105) which would direct the Secretary of Agriculture to: (1) Establish a price reporting service for basic forest products such as standing timber, sawlogs, and pulpwood; cooperation with State and private agencies is authorized; (2) conduct and stimulate research aimed at developing standards of quality, collecting marketing information, and increasing the efficiency of marketing forest products; (3) make a study of price trends and relationships for basic forest products and within two years report to Congress his recommendations as to an appropriate

formula for the establishment of parity prices for such products. None of these bills was enacted. The provision for a study of price trends and relationships was included in the Agricultural Act of 1956 (Section 402, P.L. 540, 84th Congress). This study was completed and issued as House Document No. 195, 85th Congress (*13*).[1]

In the 84th Congress, 2nd Session, and 85th Congress more bills were introduced (e.g. S. 840) similar to those of the 84th Congress, 1st Session, except that they did not include a section directing the Secretary of Agriculture to make a study of price trends and relationships for basic forest products and to submit recommendations as to an appropriate formula for the establishment of parity prices for such products. None of these bills has been enacted. The Department of Agriculture believed these bills to be unnecessary because it already has general legislative authority to carry out the provisions of the bills.[2]

In the 86th Congress, the Select Committee on Small Business of the United States Senate, in its report on "The Small Independent Firm's Role in the Forest Products Industry" recommended, among other things "* * * that the Secretary of Agriculture correlate the present State price-reporting programs, establish a Forest Products Price Reporting Branch to his Crop Reporting Board and begin to publish, at his earliest opportunity, price and market information on forest products."

Meaning of "a timber price reporting service."

Since there has been no official definition of a timber price reporting service, it is quite natural that different interpretations have developed. (For the purpose of this report, the term "timber" includes stumpage (standing timber) and logs and other cut products.)

To some, a timber price reporting service apparently implies the publication only of regional or national estimates of prices. However, publication of such regional or national averages alone would not serve the needs of forest landowners, nor are sufficient data available concerning quantities sold for use in weighting State or local product prices into regional or national averages. Even though a price reporting service were federally sponsored, price data should pertain basically to individual States, to significant marketing areas within a given State, or to marketing areas crossing State lines.

Others apparently have interpreted a price reporting service as a device for determining or indicating the prices that buyers shall pay producers. However, no price reporting service can determine what prices should be paid in any specific transaction but can only provide a measure of what prices have been paid during some specific period in the past. Such knowledge may be used as a guide in making sales or in making administrative decisions, but it cannot properly be considered as a means of specifically determining or establishing prices for particular properties or products.

In practice, if the Federal Government should participate actively in timber price reporting, its reports would doubtless have a strong resemblance to several of the reports currently being prepared by State agencies.

The objective would be to collect, compile, and publish representative data concerning *prices paid* for timber and forest products in such detail as practicable with reasonable frequency so as to provide to both buyers and sellers a factual background as a guide to their planning and marketing. It is to be noted that there is a vital distinction between price reports and price quotations. The former are necessarily somewhat general, summarizing prices reflecting transactions that have taken place; the latter are necessarily specific, relating to particular offers specifying products, locations, and times.

Timber price reporting, if undertaken by the Statistical Reporting Service, would be administered through the State offices commonly known as the Cooperative Federal-State Crop Reporting Service. These offices are operated by the Statistical Reporting Service of the U.S. Department of Agriculture in cooperation with State agencies, usually the State Departments of Agriculture, or the State University or College of Agriculture, depending upon the particular State.

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[1] Italic numbers in parentheses refer to literature cited at the end of this report.

[2] Letter from True D. Morse, Acting Secretary, to the Honorable Harold D. Cooley, Chairman, House Committee on Agriculture, April 4, 1957.

TIMBER PRICE INFORMATION CURRENTLY AVAILABLE

Price reports issued by State agencies

Persistent needs for published prices of timber products have led officials in a number of States to prepare and publish timber price reports. Although State Agricultural Extension Services have been the most active participants in this field, a number of other agencies have cooperated in the undertaking, and, in some cases have taken the lead in collection and publication of timber products prices. Among these agencies are State Departments of Conservation, Agriculture, and Natural Resources; State Universities or Land Grant Colleges, and (in cooperation with these agencies in some cases) the offices of the Federal-State Cooperative Crop and Livestock Reporting Service.

To a considerable extent the data have been collected, analyzed, and prepared for publication as an adjunct to other primary duties and responsibilities. As a consequence direct out-of-pocket costs have been held to a minimum and in many cases cannot be specifically determined. This is particularly true of those cases in which much or all of the data are collected by Extension or service foresters as part of their routine service activities. In other cases the data are collected largely by means of mailed questionnaires with a limited number of personal calls to price reporters for the purpose of soliciting and maintaining cooperation. In some cases the burden of maintaining these reports has fallen almost entirely on one or two individuals who are heavily loaded with other responsibilities. This has curtailed or eliminated this price reporting activity in some cases.

Forest products price reports are currently being issued by 18 States (see Exhibit 1 in the Appendix). In addition, Pennsylvania issues a series of reports limited to Christmas trees. Several more States have on occasion compiled price data for inclusion in forest products marketing bulletins. There is no standardized system of reporting, each State compiling whatever detail is considered useful and obtainable with resources available. Although a report on log prices is issued weekly by one State, the other reports are issued quarterly, semiannually, or annually. In every case the reports are issued by a State agency which has prepared the report independently, or in cooperation with other State agencies or with the Statistical Reporting Service of the U.S. Department of Agriculture.

Variation in contents of State price reports

In general, most reports contain average prices or a range of prices, based on buyers' quotations rather than on actual sales data, for standing timber and sawlogs delivered at the mill, by species and geographic area. Prices for other timber products such as pulpwood, veneer logs, mine timbers, cooperage stock, poles, and piling, etc. are listed in some detail by several States but only sketchily by others.

Timber quality is one of the most important price determinants, yet none of the reports contain standing timber price information by quality grades and a majority of the reports do not list sawlog prices by grade.

Various log rules can be used in estimating the wood volume contained in a tree or log, but different log rules result in different volume estimates according to the diameter of the log. When prices are quoted on a per thousand board-foot basis, it is important to specify which log rule applies. Yet half of the reports do not do so.

Many other factors, such as degree of local competition, accessibility, total volume of sale, scaling practices, logging and road conditions, and log hauling distance may also influence prices for standing timber or timber products. The reports do not cover these factors except, in some instances, to indicate in a general way that they may affect the quoted prices.

The fact that the price reports fall short of providing specific prices is indicative of the difficulties involved. It does not, however, make the problem insoluble, or the existing reports useless. The various States appear to recognize the limitations imposed by the existing market structure and, within resources available, issue reports they consider to be most meaningful under current conditions. Moreover, prices are based on quotations rather than transaction evidence.

Several States are issuing price reports closely keyed to the existing market organization and find considerable demand for the information contained therein. The Wisconsin Forest Products Price Review for example (see Exhibit 2 in Appendix) "* * * is designed to offer practical information on the current

timber market." It is compiled semiannually with the cooperation of the wood-using industries and uses available product identification measures to advantage. The report lists standing timber and delivered product price ranges by species for sawtimber, pulpwood, box and excelsior bolts, railroad ties, posts, poles, and piling, as well as some rough lumber prices. Veneer and sawlog prices are further reported by quality grades and prices are shown for both rough and peeled pulpwood. A unifom log rule is used for sawtimber and measurement specifications and dimensions for other products are shown and prices given.

This report is based on reports from 40 to 50 major mills and around 200 smaller plants or mills. The data are collected primarily by Wisconsin State Department of Conservation foresters who are experienced and knowledgeable in the matter of both prices and marketing prices. The office of the Extension Forester participates in the price surveys and compiles the report.

The Wisconsin price report is based on 30 years' experience and represents a realistic approach to the problems encountered under current marketing practices. Useful market information that cannot be included in the price tabulations is mentioned in the text. Precautions are given on limitations of the data—for example, the report states "* * * It should be understood that timber prices are determined by a combination of factors including local market demand, distance to mills, timber accessibility, marketable volume, and timber size and quality. For this reason a quoted price range may have a wide spread between the high and low offers. These ranges can be used as guides by local timber owners and buyers in arriving at a fair price agreement."

Thus, the Wisconsin report serves not only as an example of what can be done now in the timber price reporting field, but also reveals there still are price-determining factors to be accounted for before specific pricing can be realized.

State price reports evaluated by interview

An evaluation of the usefulness of current State price reports and the data they contain was obtained through interviews with various representatives of the forest products industry and of public agencies with responsibilities to forest landowners. The majority opinion was that such reports can serve a useful purpose so long as they purport to represent not specific prices but rather general background price information.

State Extension foresters interviewed were strongly in favor of price reporting to inform timber sellers and others on forest products market conditions. Over half the current State price reports were initiated by Extension people to meet a demand they experienced from frequent contacts with forest landowners. It is recognized that there is room for improvement in many of these reports and the State Extension foresters would favor a program to accomplish this.

There was mixed opinion among those interviewed at State forestry departments on the type and content of current price reports, but most believed that forest landowners, particularly those with small tracts, needed additional price information. At present 46 States are providing technical assistance, including the marketing or harvested products, to owners of private forests and to small sawmill operators and other processors of primary forest products. This assistance is given by farm or service foresters familiar with market and price conditions within their local area. Some service foresters felt that they already had an adequate knowledge of prices to satisfy landowners' requests and that most landowners could not properly interpret and use current timber price report information. Other service foresters who now collect prices from mill operators stated that these regular contacts were beneficial both to them and to the mill operators. Moreover, they believed that periodic timber price reporting would help bring about a more stable and uniform market.

Most of the industry people interviewed said they had little need for the State price reports since they already knew what prices could be paid for stumpage or cut products in their procurement areas; also, that timber sellers could always get a price by contacting mill operators or other buyers. The difficulty of reporting specific prices was mentioned frequently and there was apprehension that price ranges or averages would be misleading where considerable price variation existed due to quality differences and other factors. The interviews disclosed little real opposition to the reports, and some buyers indicated that such reports might help by educating landowners as to the value of their timber and serve as a basis for further negotiation between buyer and seller.

State reports evaluated by survey of those receiving such reports

In addition to the interviews, a mail survey was made in which a questionnaire (see Exhibit 3 in the Appendix) was sent to about 9,200 recipients of price

reports issued by 17 States. The survey was made in cooperation with the State agencies. Six identical questions were carried in all States[1] with the explanatory letter at the top varying slightly depending upon sponsorship of the report and of the survey. Some 2,600 questionnaires were returned in time to be used and sufficiently completed to provide a basis for appraising the type of users served by existing price reports and the degree to which such reports meet the needs of recipients.

Among those returning the questionnaires there was a fairly uniform representation of the major fields of interest in prices of timber products. Question 1 read:

"Are you primarily interested in prices of timber products (stumpage, logs, and bolts) from the standpoint of:

a. An owner or seller of timber or timber products ———.
b. A buyer of timber or timber products ———.
c. An advisor of timber owners ———.
d. Other (Specify) ———————————.

A tabulation of the replies is shown below:

Classification:	*Percent*
Owner or seller	31
Buyer	29
Advisor	33
Other	7

The product or products in which there is primary interest in most cases varied according to individual circumstances. For example, a sawmill operator is primarily interested in stumpage and sawlog prices of the species he is cutting; a pole and piling operator wants information on these products; and the major concern of a walnut log buyer is veneer log prices. In general, all major, and some minor, species and products in each State would have to be reported if the majority of interests expressed are to be satisfied.

A majority of owners, buyers, advisors, and others indicated that the State price report does furnish them with information not readily available from other sources. Question 3 read as follows:

"Does the report furnish any information not readily available to you from other sources? Yes ——— No ———. If "no," on what other sources do you depend for such information?

The replies are summarized below:

[In percent]

Classification	Yes	No	Not answered
Owner or seller	87	5	8
Buyer	78	14	8
Advisor	89	7	4
Other	77	9	14

Those who responded "no" stated that direct contact with timber buyers, mill operators, loggers, or foresters was the most common source on which they depended for such information.

Many suggestions were made for additional useful timber marketing information not now shown in the price reports. The nature of the suggestions varied by States according to the type of price report being issued and completeness of coverage. The most common requests, however, were for lists of buyers, prices for products and species not now reported, and analyses of market demand and outlook. Other suggestions included reporting of stumpage prices, more current and specific prices generally, rough lumber prices, and costs of harvesting and hauling timber products. A large number of respondents stated that the present report is quite satisfactory.

A majority of respondents indicated that in their experience the price quotations published in the report reasonably represented prices actually being received by producers. Question 5 read as follows:

[1] Oregon added a question concerning the need for a weekly report, and Minnesota added two questions to get further detail for local analysis.

"In your experience do the price quotations published in the report reasonably represent prices actually being received by producers? Yes ——— No ———. If 'no', please give examples _____." The response obtained is shown in the following tabulation:

[In percent]

Classification	Yes	No	Not answered
Owner or seller	69	7	24
Buyer	74	12	14
Advisor	77	6	17
Other	46	4	50

The large proportion who did not answer this question seems to mean that many respondents did not feel qualified to reply yes or no. This applies particularly to the "other" classification which includes such people as teachers, administrators, and researchers who do not maintain regular trade contacts. Many owners or sellers make infrequent timber sales and would also have rather limited experience with current prices. A significant fact is that so many buyers, who can be considered knowledgeable on price matters, believed the price information to be representative.

Among those who checked "no" there was some tendency, as indicated by comments on the questionnaires, with regard to a given State report, toward agreement that reported prices were either higher or lower than actual sales with which they were familiar. However, for the reports considered in total there was about the same number who believed the reported prices were higher than actually received compared with those who reported them to be lower.

Comments that price ranges were too broad to be of much use indicate a need both for more specific pricing and for an understanding that current price reports are only rough guides with final sale price being dependent on buyer and seller negotiations.

A few letters were received in response to the questionnaires expressing opposition to establishing a Federal timber price reporting service, on the grounds that it is not necessary, would increase taxes, or extend "Federal bureaucracy."

Price information available from other sources

Although price quotations for cut products delivered to a loading point or plant site can be obtained at any time by contacting the particular mill dealing in products the timber owner wishes to sell, quotations from a particular mill provide no clue as to how these quotations compare with the general market. Some mills offer only verbal information; many mills, particularly the larger, more permanent type installations, issue price lists periodically. Exhibit 4 in the Appendix illustrates such a list for a mill purchasing veneer logs. Since a majority of timber owners sell stumpage rather than cut products, price delivered at the plant does not supply the price information needed by most landowners.

Price lists for stumpage are not available because of the many variables such as accessibility, topography, tree size and quality, sale volume, or cut per acre, which must be determined individually for the particular property. However, a timber owner with sufficient volume to sell can usually get a price offer from any interested mill operator, logging contractor, or other buyer. Many of the problems associated with buying and selling timber arise at this marketing point. Timber sellers generally do not know how to make an accurate determination of timber value and, unless they seek experienced and impartial advice or can arrange to get bids from several independent buyers, are not in a position to bargain effectively.

An effective timber price reporting service would provide one of the guides necessary to help place sellers of forest products on a more nearly equal bargaining basis with buyers.

Public and private foresters are another source of timber price information. Farm foresters employed by the States are well acquainted with going prices in their area and will provide general information upon request; they are usually not familiar with prices being paid outside their area, particularly for products such as veneer logs. In some States farm foresters will appraise a timber tract to determine an approximate market value. In others they can only give the

timber owner a price range. Industrial foresters are primarily concerned with prices for the products purchased by their company.

However, they will often give approximate prices on other products to a timber owner. Consulting foresters probably offer timber owners the most complete service available on forestry matters. It is their business to be fully informed on markets and prices and for a stated fee will represent and protect the interests of a timber owner in sale negotiations.

NEED FOR TIMBER PRICE REPORTING SERVICE

Reporting service supported by forest landowner advisors and others

Expressions of need for State price reports arose largely from Extension and service foresters, research workers, and others who are dealing directly with and are advising farmers and other owners of forest lands. These people have felt the need for published price data that would serve as an approximate guide to trends and levels of timber and product prices. Even though it is recognized that such price data do not provide data sufficiently current not precise for trading they do provide a convenient reference source of information not otherwise available in published form. These reports have probably had their greatest value as a means of raising the general level of knowledge of forest landowners, public officials, and students regarding the approximate value of a wide range of timber products.

Extension and service foresters say that one of the first steps toward the improvement of forestry practices on farms and other small forest holdings is to make the owner aware of the fact that he holds a resource that can be made more valuable with proper management. Periodic timber products price reports serve as one means of bringing this to the attention of the forest landowner. Opponents of such reports, on the other hand, contend that such price information tends to stimulate overcutting for the same reason that it focuses the forest landowner's attention on the value of his timber. Clearly, a continual process of education is needed to compose these conflicting forces, to the extent that they exist.

In addition to the forest landowners and those assisting and advising them there are other groups who find it convenient and useful to have published price reports which serve as guides to timber values for use in real estate appraisal for loan purposes, land condemnation for highways and utilities, and tax administration. Such persons must frequently make judgment values regarding many widely separated properties and these reports furnish rough guides to timber values that otherwise would not be as conveniently available.

Increased price and market knowledge needed by landowners

Various studies have shown that many non-industrial woodland owners, both farm and other private, are handicapped in timber sales negotiations by a lack of adequate marketing knowledge. In the Northeast (*9*) for example, a survey of 2,953 farm woodland owners found that two-thirds of the timber sales were made by owners without presale knowledge (1) of markets; (2) of the amount of timber available for sale; or, (3) that timber could be cut into various products and sold by quality grade.

A State-wide survey of more than 250 buyers of primary timber products in Kentucky (*10*) concluded that "Timber owners need to be better informed on timber markets and marketing methods" and that "Periodic timber market and price reports can provide farmers and other owners of small forest properties with current information on timber values and market locations and can aid them in more efficiently and profitably marketing forest products."

A study in South Carolina (*5*), which analyzed 382 usable sale records of tracts that had been marked for cutting by Service foresters of the South Carolina Commission of Forestry, stated: "The need to inform small timber growers of current stumpage prices and to accumulate a series of average stumpage prices could be satisfied by a price reporting service. No such service now exists in South Carolina or in any other southeastern state."

After completing a mail survey of 1,159 private owners of forest tracts under 5,000 acres in western Oregon, Adams (*1*) stated "Farmers generally lack knowledge of the amount and quality of the merchantable timber in their holdings. They have little basis for bargaining with the purchaser, either as to price or other arrangements such as cutting practices, cleanup responsibility, or protection of the residual stand. After the sale has been completed, they often cannot be sure how much timber was actually removed, whether they actually received payment for every load, or whether they received a fair price."

The fact that the survey found that 90 percent of owners replying stated they were satisfied with their timber sales would indicate a high degree of complacency by owners toward protecting their interests in sales transactions.

A study of small-forest owners in California (*4*) similarly found that "these owners knew little about their timber holdings, seldom had experience in timber sales, and played a passive role in the marketing process."

This passive attitude on the part of timber sellers and their lack of realization of the complex nature of timber sales was considered the main weakness in marketing practices. The study stated further that "In the absence of competitive bidding, negotiation with the buyer was probably the seller's most effective means of obtaining fair market price for his timber. Price determination by negotiation, accounting for one-third of all sales, involved bargaining between buyer and seller. To arrive at fair maket price, both buyer and seller should be in full possession of all facts pertinent to the sale. Thus the actual price finally agreed upon may hinge on how little or how much the woodland owner knows about the product and market."

Improvements in timber marketing will depend in part at least upon timber owners' increased knowledge and interest in forestry practices, particularly with regard to quantity determination, product specifications, and harvesting costs. Development of more uniform marketing methods for many forest products also is needed. Such improvements and developments are needed if individual landowners are to make most intelligent use of reported prices.

In discussing the question of data needed in the field of forest economics (*12*) Stoddard stated:

"To obtain a more adequate picture of primary timber production activities many types of data now collected for agriculture would suffice. * * *

"Current prices of forest products should be collected and disseminated with market reports in the same manner as other farm products in order to keep forest owners and timber producers informed of developments in supply and demand. It is recognized that stumpage prices are more difficult to obtain and present. Further study may be required before actual data can be disseminated. * * *"

Industry viewpoint toward need for price reports

Although there are exceptions, timber buyers and their organization representatives are indifferent or hostile to timber price reports. This attitude stems from the belief that such reports at best do no good, may do harm, and in all cases result in an unnecessary drain on tax funds. This buyer response in the main reflects their opinions of the usefulness of these reports for their own purchasing operations and to a lesser extent an evaluation of how they might be useful to sellers or to others who may have a need for such reports. Quite obviously such reports furnish limited information to the buyers since buyers are largely the source of the data in the first instance. Some buyers find the reports to be of some general interest for comparative purposes but their own buying experience provides them the only reliable guide to local purchase conditions. Occasionally the published reports may be used by buyers in providing to the seller an unbiased report of local prices.

On the other hand some buyers stated that the uninformed seller has demanded "top of the range" prices for timber of low quality that did not warrant top prices. Buyers also argue that such price reports may mislead timber owners into believing that a market exists at the prices reported when in fact there may be no such local market or the market has changed since data for the last report were collected. They also emphasize the inability of such reports to serve as a specific measure of price for a specific transaction. Except for the case of a few closely specified cut products, not even the staunchest supporter of price reporting would hold out the promise of such a possibility. Nevertheless, there is a rather wide application of price reports as a guide, either for specific actions or in reaching a decision with regard to specific offers to purchase.

Buyers generally show little enthusiasm but also little fear of *State sponsored* timber price reports, as distinguished from nearly unanimous apprehension concerning the Federal Government's entering the field of timber price reporting. This apprehension apparently stems from the belief that price reporting is the opening wedge to price controls. It is also argued that the Federal Government has nothing to contribute to such reports that cannot be met adequately by State government agencies if and when local demand exists for such service.

In 1956 the Forest Industries Council, policy-coordinating organization of the pulp and paper, plywood, and lumber industries, made a survey of forest prod-

ucts marketing and price reporting services in the United States (*6*). The Council position on price reporting is contained in the following quotation:

"The survey demonstrates that a sound program for establishing and improving marketing and price reporting services for forest products in each State may develop the following features as needed:

"(1) A directory or list of buyers of forest products;

"(2) A periodic review of market demand and supply, price trends, and major price changes by areas within the State;

"(3) Published material which explains good harvesting and marketing practices for woodland owners and tree farmers;

"(4) Personal advice of industry foresters, consulting foresters, farm foresters, or other public agencies;

"(5) Price reporting by a State agency if considered necessary at the State level by a marketing committee with representatives of both buyers and sellers or forest products. This feature is not necessary or even helpful to forest owners if the first four features are successful in reaching owners and operators of forest land.

"The survey finds no justification for the Federal Government to enter into price reporting of forest products or stumpage since it is evident that State and local Governments, private organizations, and forest industries are discharging their responsibilities of making current prices or market data on forest products available to those who need it. The Federal Government already has the authority to cooperate where desirable with State and private agencies and is already doing so. Expansion of Federal activities in this field is not necessary.

"At the present time, there is so much competition for wood in every form that the seller of forest products can readily get current information on stumpage prices in his areas, and in fact, can and should get several bids for his timber. There is no need for Federal price reporting as this is obviously an effort to bring in parity determination and price fixing in the forest products industries. Cooperation between State forestry departments, State extension forestry departments, and buyers and sellers of forest products will do more to improve the quality and quantity of marketing services for forest owners and operators than any proposal of Federal legislation and control in this field can ever hope to achieve."

This position was generally adhered to by industry representatives during hearings before the United States Senate Select Committee on Small Business in November, 1958 and January, 1959 (*14*). It was also expressed in a letter from Mr. W. S. Bromley, Executive Secretary, American Pulpwood Association, to B. R. Stauber, Chief, Agricultural Price Statistics Branch, Agricultural Estimates Division, Statistical Reporting Service. (See Exhibit 5 in the Appendix).

Pattern of ownership and product use indicates priorities

The total area of commercial forest land in the United States and Coastal Alaska is approximately 489 million acres. Of this area 130 million acres, or nearly 27 percent, is publicly owned; about 62 million acres, or nearly 13 percent, is owned by forest industries; 165 million acres, or nearly 34 percent is on farms, and 131 million acres, or about 27 percent, is under other private, non-industrial ownership. Of the 358 million acres of commercial forest land in private ownership, 121 million acres are held in 3.9 million ownerships of less than 100 acres in size, and 219 million acres are held in 4.5 million ownerships, of less than 500 acres in size. (See Exhibit 6 in the Appendix.)

Data on number of owners, timber volumes, and product output by States or regions provide a general outline for determining where and in what detail timber price reporting services could most effectively serve the greatest potential need. It is recognized that local interest is an additional consideration affecting decisions concerning undertaking price reporting in some States and for some timber products.

The 4.5 million private owners of commercial forest land, primarily non-industrial, represent the major group in need of a timber price reporting service. These owners are more concentrated in the East where, except for some northeastern States, each State has more than 100,000 such owners (see fig. 1, and Exhibit 7 in the Appendix) They are generally fewer in number from the Plains States westward, particularly in the central and southern Rocky Mountain area. The distribution pattern of these owners provides a very useful, although not a conclusive, guideline for determining where timber price reports could serve the needs of the greatest number of timber sellers.

The timber volume held by all private owners (7) shows the relative importance among the various States of the forest resource base (fig. 2). The distribution pattern generally follows that observed for number of owners, with the eastern States, particularly those in the South, ranking high. In the Pacific Coast States the volume of timber in private ownership is a less reliable guide to the potential usefulness of a timber price reporting service because of extensive industrial holdings. Nevertheless, in all Pacific Coast States reports on prices of forest products are being issued.

Forest stands produce a large diversity of timber products depending upon the species, size, and quality of the trees harvested. The local importance of these products varies from region to region (See Exhibit 8 in the Appendix). However, sawlogs, together with pulpwood, constitute a substantial majority of total output of timber products from roundwood in all but the Plains region. Timber products other than sawlogs and pulpwood, such as veneer or cooperage logs and bolts, posts, poles, piling, etc., are of only secondary importance in all regions, although they may be of great importance to many individual owners (7). Fuelwood is excluded from total output as shown in exhibit 8, since it is not considered industrial wood and much of it is consumed directly in plants and homes. Many posts are also cut for home use without entering the market and the relative commercial importance of post output to other timber products, particularly in the Plains region, is probably less than these data indicate. Pulpwood and sawlogs represent the bulk of total output today, but the proportional output of pulpwood has increased and that of sawlogs decreased since 1952, especially in the Northeast, Lake States, South Atlantic, and Southeast regions.

FEASIBILITY OF COLLECTING USEFUL TIMBER PRICE DATA

Differing interpretation of the term "feasibility"

The feasibility of collecting and reporting useful timber price data is a subject that may be considered from several aspects. In the first place, the fact that there are 18 States in which timber price information has been collected and published for a number of years is, in itself, evidence that the activity is feasible, at least in these States.

But there are those who raise serious questions concerning the usefulness of at least certain features of these reports and, since "feasibility" implies success in the undertaking, the basis for these questions is germane. Such questions are directed more toward reporting prices for standing timber than for cut products, although many of the objections apply to the latter as well. For example, in a study of timber marketing in Mendocino County, California (4), it was found that

"Accurate and meaningful price reporting for standing timber does not appear to be feasible under the conditions prevailing in the county. The detailed and time-consuming field interviews of this study plus an analysis of recorded timber-sale contracts did not produce data adequate for the appraisal of price levels for individual properties or for the isolation of the effects of price determining factors. A fundamental difficulty in price reporting is the lack of precise and fully defined information as to the price received by the sellers. One-third of the standing-timber sales were on a lump-sum basis, which automatically makes the significance of any data on price per thousand highly questionable. In the two-thirds of the sales on a scaled-volume basis, variations in scaling practice—often unreported and frequently unknown—substantially reduce the reliability of price data. In a number of cases the sale was based not only on cash payment for the timber but also on supplemental services such as road building, the value of which cannot be readily determined. * * *

"The quoted price for standing timber, therefore, is not a clear an indicator of the success of a sale as is true in many other areas of economic activity. Price is only one of several factors determining the actual return to the seller. Accurate determination of the volume cut also has a great effect on the gross cash income from the sale, while the condition of the residual stand and damage to roads, fences, and other improvements may often be the dominant factor in determining the net benefits received. The sellers' complaints usually centered on cutting and logging practices, slash disposal, scaling practices, and failure to provide services rather than on price."

Thus, concern about the feasibility of timber price reporting is directed largely to the question of the applicability of price quotations or reported prices directly to particular types of timber, particular stands of timber, particular products, or particular parcels of land with which a given owner, seller, or buyer may be concerned.

Problems associated with reporting specific prices

Some of the major problems associated with specific pricing are concerned with stumpage prices, cut product prices, species and intended use of product, measurement standards, and quality specifications.

Stumpage prices.—Stumpage has certain attributes which make price reporting very difficult at this stage in the marketing process. There is no common marketing point, for example, among the numerous sale transactions. Price is firmly linked with timber stands on specific locations. Prices for different sales vary with many cost factors—i.e., the degree of accessibility, road construction needs, ground cover, logging conditions, length of log haul, stand density, and many other factors associated with a particular tract—as well as with quality and value of the trees. Except where owners get assistance from a forester, very few private timber sales are made where even the most obvious price-determining factors are measured and recorded. Most buyers simply make a general estimate based on judgment and experience unless the sale is large enough to justify using appraisal techniques. Consequently, sales records are generally inadequate for compiling stumpage price reports except by very general categories.

After analyzing the feasibility of price reporting for standing timber in California, Zivnuska and Shideler (*15*) proposed as an objective "* * * the development and publishing of price data which are free of bias and sufficiently definite to be useful in making economic decisions concerning specific forest properties."

In terms of kind of data required, they specified two major criteria:

"1. There must be a low variance of prices around the mean price reported for any given commodity. Unless this range of variation around the reported price is narrow, any attempt to apply the data in making decisions for specific properties may be badly misleading. This problem is particularly acute for standing timber * * *"

"2. The reported prices must be based either on complete enumeration or on a sampling method which will provide relatively precise and unbiased estimates of average price. This appears self-evident, but the problems involved merit later discussion."

After examining quite critically the findings of several research studies they stated, among other things, "No conclusive evidence has yet been given that measurable characteristics of the timber commodity itself can be used as a basis for obtaining the needed reduction in the great variability of timber prices which exists even for particular species, areas, and markets. The analysis presented here for the relatively simple case of national forest sales in California has failed to reveal any usable relationship between ponderosa pine prices and such factors as volume of timber, proportion of pine, density of cut, and length of log haul. In work on timber price reporting to date, problems of bias due to selectivity in reporting sources and difficulties of maintaining precision in estimates through adequate sample size have received only incidental consideration."

Although not all the factors associated with variable stumpage prices can be isolated as yet, some progress is being made. An analysis of stumpage prices for southern pine sawtimber sales on National Forests in Mississippi, Louisiana, and Texas produced a regression equation accounting for 47 percent of the price variation (*8*). Factors significantly correlated with stumpage price were sale volume, cut per acre, hardwood ratio, tree volume, and wholesale lumber price for the month prior to that of the sale.

A more recent study (*2*) of southern pine sawtimber sales in South Carolina tested the relationship of 23 independent variables to stumpage price received. It was found that:

"Regression analysis showed that of the variables considered, only four were significant. These were: (1) Volume per tree, (2) distance to mill, (3) number of bids, and (4) geographic location. Together, these four variables explained 58 percent of the price variance. * * *

"This study provides a method for translating the general average price into the average price a specific tract would bring. It demonstrates that in spite of the great variability in the characteristics of pine sawtimber in South Carolina, well over half of the price variation among tracts can be explained with a few measurable variables.

"Of course, the analysis does not provide a complete explanation of price behavior. But in our daily lives, we accept many imprecise explanations because of their usefulness. And by reducing the number of factors represented in the complex process of setting a price on stumpage, we can express useful information about this process which otherwise would have to be accepted as random.

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As better ways are found for measuring potential price determinants, the explanation of stumpage prices may be further improved. In this way, we can provide better market information to timber sellers than has been available in the past."

Cut product prices.—Collecting and reporting cut product price appears less formidable than for stumpage prices. Logs and bolts cut and delivered to a loading point or mill yard can be separated and identified as individual products such as sawlogs, veneer logs, pulpwood, poles, or piling. The loading point or mill yard is a common marketing point for pricing free of such variables as accessibility, road construction, and logging conditions, that confound stumpage price determination.

Some problems remain to be solved before cut product prices can be reported precisely. Foremost is the need for uniform application of quality grades and scaling methods. So long as buyers use differing standards of grading and measuring, price reports will continue to reflect the price range created by this situation. However, marketing practices in some localities and for some products, such as pulpwood, now are sufficiently uniform to allow price reporting within a relatively narrow range.

Bruce, (*3*) reporting his experiences in making periodic price reports on cut products in the State of Washington, indicated that both mail questionnaires and personal interviews were used successfully, each under a particular set of circumstances, to collect data. He also reported.

"Another important aspect is the extent of industry support of market reporting. We have received numerous favorable comments from sawmills, landowners, loggers, and others associated with the forest industry. Probably the most concrete evidence, however, was the request from two forestry trade journals to publish the market report information regularly. These are THE TIMBERMAN and WESTERN EQUIPMENT AND TIMBER NEWS. Newspapers also have felt this type of information to be newsworthy. * * *

"The following problems have been faced in attempting to publish a periodic market report.

"1. Obtaining an adequate sample at a minimal cost. What is the minimum number of a region's mills that must be contacted in order to assure an accurate estimate of the market price?

"2. Obtaining accurate prices within the limitations of existing product standardization and scaling practices. Probably the most significant problems in market reporting today are associated with inadequacies of product definition. The methods used for measuring the quantity of delivered material, too, are an important source of price variation—yet to date the effect of certain scaling practices is undefinable in specific terms.

"3. Reporting a meaningful price. Prices *offered* are subject to variation due to bargaining and scaling practices. Prices *paid*, however, do not specify the basis for agreement between buyer and seller if certain factors not related to product quality are considered in the transaction. Which is the most meaningful? Which can be most readily obtained?

"4. Defining the number of reports necessary each year. Sawlog prices seldom change very much from month to month; hence, why not publish such prices less often than once a month? One reason is the attention and reminder value of frequent reports received by the forest landowner. These two aspects must be weighed before letting cost of publishing be the main consideration. * * *

"It cannot be said that these problems have been 'solved,' if that would imply we have the best possible answer. These are areas deserving of additional attention, and perhaps it is here where the greatest opportunities lie."

Species and product use.—Most forest stands contain a mixture of species and possible timber products. For example, hardwood forests in the Central States may be composed of several oak species, hickory, ash, elm, maple, and walnut. Products which may be cut from some or all these species are sawlogs for lumber, veener logs for face and container veneer, and logs or bolts for cooperage, handle stock, mine timbers, and ties. Southern pine stands which may contain only pine species can often be utilized for sawlogs, pulpwood bolts, poles, and piling; individual trees may serve several of these product uses.

Tree values can vary considerably by species and product. Buyers will make price offers based on the palticular product they seek. A buyer interested in veneer may quote a price double that of a tie buyer; or a buyer with a good market outlet for small poles may offer more than a pulpwood buyer for the same tract of pine timber. Some buyers will make an offer only for a portion of the

stand, such as veneer timber, while sawlog buyers, for example, may make an offer on the entire stand. The result of the diversity of species, products, and buyers' needs is that the categories by which prices can be quoted or actual sales can be classified cannot be narrowed sufficiently for direct application to the holdings of individual owners.

Measurement standards.—The estimated board-foot volume in a log or tree can vary according to the log rule used. For example, considering 12-inch logs, for each 1,000 board feet indicated by the International ¼" rule, the Scribner rule would indicate 830 board feet and the Doyle rule would indicate 670 board feet. This relation changes according to the diameter of the log, and for 28-inch logs there is relatively little difference in the yield as shown by these three log rules. A timber seller who does not understand these variations in log rules cannot interpret reported prices. Acceptance by buyers of a standard log rule for use in all timber transactions would eliminate many of the difficulties. However, tradition has established the use of certain log rules and customs developed over the years are not easily changed.

The wood volume estimated for pricing purposes in a load of logs or stand of trees will vary by the scaling practices applied; and not all buyers apply the same practices. Thus measurement of log diameter may be inside bark, or including one bark thickness, or based on either a single measure or an average of two right-angle measures. Whenever a log or tree contains defective material, crook, or sweep, a largely subjective judgment is necessary to arrive at a net volume figure. Moreover, measuring practices may be strict when demand is down, and easy when it is higher. Since price varies no less than measurement, it is apparent that specific timber prices per unit volume cannot be determined consistently for reporting purposes as long as log rules and scaling practices differ.

Quality specifications.—A well-defined measure of quality is needed for application in both stumpage and cut product sales. Many grading systems are in use today but most are difficult to apply uniformly and few have been subjected to a critical test of their validity. In Kentucky (*10*), for example, each mill operator uses his own individual grading system. These systems are seldom outlined in printed form, but are rules-of-thumb that the operator applies as he purchases timber. In West Virginia (*11*), 9 out of 10 sawmills do not use writen quality specifications when purchasing raw material.

Quality is taken into consideration to some extent nearly every time a sale is made and variation in quality accounts for much of the wide price range shown in current timber price reports. In most areas the lack of adequate specifications uniformly applied makes it impossible to correlate price paid with product quality. When these measures of quality can be identified and related to individual sales, it will be possible to narrow the range of reported prices for specific products.

Timber price reporting service is feasible

The question of feasibility of timber price reporting is not one of a clear-cut yes or no, but rather one of whether the kind of reporting that can be carried out is sufficiently useful to justify conducting it. Replies to the mail survey of State price report recipients indicate, on the whole, a belief that the reports currently being issued are serving a useful purpose.

A timber price reporting service to inform each forest landowner exactly what price *he should receive* for *his timber* is obviously not possible. Such an objective—apparently held by some—rather overstates what it is reasonable to expect for any price reporting service. Timber price reports are not intended to serve as substitutes for a competently-made timber cruise, a thorough solicitation of bids, and careful negotiation. To avoid misuse and to promote proper use of timber price reports requires a continual process of education.

However, the fact that reporting of such specific timber prices is not possible does not mean that periodic publication of general price information cannot serve useful purposes. *In fact, the very circumstances that render precise price reporting difficult are the ones that impede the small forest landowner in judging the value of his products.* Accordingly, *they are the circumstances that argue persuasively for the publication of the best information that can be collected.*

Information on timber prices is just as important to forest landowners as any other kind of marketing information pertaining to buyer location, product specifications, or selling practices, and should not be underestimated. Most timber price reports currently being issued are in an early stage of development

and can do no more than reflect the prevailing market structure. Users should accept them as sources of general price information with full recognition that prices for particular stumpage or cut products depend upon more or less unique circumstance and can only be determined through bargaining. Such reports can help foresters keep up to date on approximate prices and price differences among timber products, can aid county agents and other non-foresters in dealing with price inquiries, and can contribute toward the development of a more systematic and orderly setting for marketing operations for the benefit of both buyers and sellers.

Our review leads us to conclude that it is feasible and practicable to conduct a useful timber price reporting services, although the range within which it is possible to report prices would in many cases exceed the limits considered desirable by some users. The circumstances which make it difficult or impossible to quote specific prices are precisely those which present problems to the small forest owner and which create the need for providing information as accurately as is possible.

A PROGRAM FOR TIMBER PRICE REPORTING

A timber price reporting program should embrace not only the mechanics of collecting, compiling, and issuing reports but a strengthening of research to develop increasingly useful price information.

Federal price reporting efforts should begin by considering the need for, and the facilities necessary for improving the programs already being conducted. A Federal program could furnish technical statistical assistance in some States, the means for more complete utilization of basic sources of data, improved sampling methods, exploration of more complete product coverage, more detailed reporting by area, and continuing research into better pricing techniques and procedures.

Consideration should, in other words, first be given to strengthening the programs already in existence, rather than to superseding or replacing them. Emphasis would be upon helping all States move up to the level of the best reporting practice as heretofore conducted. Programs of price reporting should be extended to other States or areas where the need exists. Continual efforts would be made through reasearch, interstate consultation, and conferences to improve the quality and usefulness of reports generally.

A Federal program also should seek to promote better integration of programs between States in situations where a natural marketing area is divided by State lines. Promotion of uniform reports for such areas in terms of commodities and timing seems to hold promise for increased usefulness to forest landowners.

Factors to consider in preparing timber price reports

There are a number of important elements associated with timber price reporting, such as data sources, actual sales evidence vs. quoted prices, price range and average, market areas, sampling universe, frequency of reporting, and general marketing information which must be considered in the collection, compilation, and issuance of useful timber price reports.

Sources for both stumpage and cut product prices will necessarily consist primarily of buyers such as mill operators and logging contractors. These men make frequent purchases, are thoroughly familiar with timber products, and could readily supply price information for the products they buy. Stumpage price data would be less specific than that for cut products. Forest landowners who market their timber with the assistance of State farm or service foresters are another possible source of stumpage prices. This source may be helpful in those States in which a sufficiently large number of sales are made to provide an adequate sample.

Transaction evidence of such factors as actual sale volume, quality, accessibility, and price received per unit volume would be more desirable than general price quotations as a base for report compilation. However, such information would be difficult to obtain for stumpage prices. Many sales are made on a lump-sum basis and unit prices by species or grade would be unavailable. Except for some sales made through professional foresters, most sales records do not contain the detail needed for collecting price data according to such variables. Transaction evidence for cut products is potentially available from industry sources. However, many small mills do not maintain records adequate for that purpose and there is some question as to whether mills which do maintain records would generally open their books to the person collecting the price data. Therefore, price quotations (with the inherent possibilities of some biases and inaccuracies) represent the only generally accessible source of basic data.

The question of reporting price ranges or averages points up the basic difficulties of compiling specific price information. Because of large variations in the physical composition of timber products and a lack of uniform application of existing standards of measurement, price quotations generally show considerable variability or range. The decision whether to use range or average or both would probably best be made for each product and reporting area.

Reporting of prices by market areas is analogous to reporting by species, product, or quality grades. Natural groupings occur where price differences are not large. For example, pulpwood prices may be fairly uniform over an entire State and sawlog prices may vary from one local market area to another but be relatively uniform within a market area. As with the determination of price ranges and averages, market areas for reporting purposes should be designated on the basis of prevailing local conditions.

Most States have a list of forest product buyers which can serve as a universe for sampling purposes. If no such list exists, an industry survey would need to be made. After classifying buyers into respective product manufacturing groups such as sawmills, veneer mills, pulp mills, and cooperage plants, proper sampling techniques can be applied to give adequate coverage for price reporting purposes. Since buyers are the most accessible and knowledgeable source of price information, sampling of sellers would rarely be feasible. Moreover, the majority of sellers do not sell timber frequently and the universe of sellers would change substantially from year to year.

Since stumpage and cut products are being bought and sold every day there is always someone who needs current price information. However, prices for some products often change very little over periods as long as several months. In some areas contracts are made in the spring and fall and prices remain fixed during the interval. Therefore, although weekly or monthly reporting may present advantages in specific circumstances, it appears that semiannual, or at most quarterly, reports are more nearly in the range of general practicality.

There is need for general marketing information in addition to price information. Many forest landowners are not familiar with timber marketing procedures, and, if they are to make intelligent use of reported prices, will require some explanation of what the prices mean and how they can be applied to their situation. Some information on current market activity for the various products, how to locate buyers, and where to obtain marketing assistance would also be useful. The information can be brief and some of it could be carried in every report.

Minimum requirements of a timber price report

A useful timber price report should include, as a minimum, consideration of the following essential points:

1. *Product coverage.*—Stumpage and cut product prices for all major species and products should be reported. Expansion to include minor species and products would depend upon local importance and interest within each State.

2. *Frequency of reports.*—In some States, where the need has been demonstrated, quarterly reports appear desirable. In other States semiannual reports appear the most reasonable compromise between needs of users and cost of program, although the way should always be open for increased frequency as the need is demonstrated.

3. *Data collection.*—Collection of information from primary sources by personal contact is desirable to maintain control of the sample, continuity of reporting, and adequate detail concerning prices and related pertinent characteristics of products and of the market. However, under favorable circumstances mail questionnaires can be used as a supplemental collection method.

4. *Interpretative and market information.*—Reports should include such interpretative and explanatory information as may be appropriate to promote effective use of the price data.

5. *States of primary concern.*—In most States the volume of timber sales is large enough to indicate the desirability of a timber price report. The important exceptions are the Plains States (except East Texas) and the Rocky Mountain States (except Northern Idaho and Western Montana). The need for timber price reporting in these States is considerably less urgent than in the States of relatively greater production. Available material indicates that timber price reporting in 37 States, some of which may be combined for reporting purposes, would serve a majority of the forest owners and would include the important marketing areas.

In general it is considered neither practical nor a constructive use of federal funds to extend a timber price reporting service into areas in which sales are

relatively few or the value of sales is small. Data from the 1959 Census of Agriculture provide the most recently available timber products sales data for each State and county. These data provide a minimum indication of both relative and actual importance of timber products sales, inasmuch as sales from tracts defined as farms by the Census comprise only part of small timber holdings. Lacking detailed local area data relating to all sales of timber products, the 1959 Census of Agriculture has been used as a guide to indicate those States in which price reporting would be practical. As a general rule, in reaching a suggested list of States in which timber price reporting service would be justifiable, States were omitted for which the 1959 Census reported fewer than 100 farms selling timber products or sales of timber products of less than a million dollars. The only exception is Rhode Island which should probably be included in combination with adjoining areas of Connecticut or Massachusetts.

Although this classification was used for preliminary planning purposes and for evaluating the magnitude of a program this would not preclude including some States with less than a million dollars in sales or fewer than 100 sellers if sufficient local interest in timber price reporting should become manifest. Likewise, there may be some States that exceed these minimum requirements in which local interest would not warrant price reporting. Considering value of sales, the number of sellers, the density of sales, and the forest resources of the area, the following States are those in which a timber price reporting service appears justified.

Alabama
Arkansas
California
Connecticut
Delaware
Florida
Georgia
Idaho
Illinois
Indiana
Iowa
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
New Hampshire
New Jersey
New York
North Carolina
Ohio
Oregon
Pennsylvania
Rhode Island
South Carolina
Tennessee
Texas
Vermont
Virginia
Washington
West Virginia
Wisconsin

6. *Cooperation of interested agencies.*—Cooperation between the statistical reporting agency, service foresters, extension foresters, and others who know local conditions is highly desirable.

The statistical agency would provide the leadership in operations, sampling techniques, collection of data, and publication. At all stages, however, service and extension foresters can provide counsel as to products important in an area and delineation of marketing areas. They can promote the cooperation of mills, sellers, and other in providing data to the statistical agency. In some areas it may be found expedient and practicable for service and Extension foresters to make the necessary contacts to collect part of the data. The particular form which cooperation can take, and the specific arrangements pertaining thereto, all depend to a large extent upon local conditions.

In a number of States, Christmas trees are among the products included in the price reporting service. However, in most areas the Christmas tree operation has become highly intensified, with specialized needs as to information and timing. In Pennsylvania a series of reports was developed to meet these needs, with price data as only one element in the reporting service. For purposes of this report, Christmas tree pricing is not considered as part of a "timber price reporting service," although such a service might—under appropriate circumstances—include price data on Christmas trees as well as on other products. Major areas of production of Christmas trees would be represented if there were price reports for Northern New England, New York, Pennsylvania, Ohio, the Lake States, and several Far West States. Two price reports, one in October and one in November would provide reports during the months of major marketing activity.

Research needed to develop better price reporting techniques

The objective of a timber price reporting service is to collect, compile, and publish representative prices based on actual sales data for products identified and measured on a clearly specified basis. As noted earlier, many obstacles exist that prevent early fulfillment of this objective. A research program specif-

ically designed to overcome these difficulties is needed, if the full benefits of a price reporting service are to be realized. In the meantime, such price reporting as is conducted must necessarily be subject to the limitations discussed elsewhere in this report.

The most pressing need is for a well-defined quality measure for application in both stumpage and cut product sales. Also, most forest landowners want stumpage price information, yet such prices can be compiled only in terms of broad ranges. The reporting of more meaningful stumpage prices for all species, products, and combinations within a forest stand offered for sale will require an expansion of research in this area. Additional research to improve timber price reporting is also desirable in many other areas.

Irrespective of the question of establishing a timber price reporting service, provision should be made for a research program to clarify these and many other aspects related to sales of stumpage and cut products. Responsiblity for this research rests with the U.S. Forest Service and forest research organizations within the respective States.

Federal participation offers opportunitics for improved timber price reports

Historically there has been full cooperation on the part of both Federal and State agencies in program operation directed towards the needs of Federal, State, and local interests. It is in such a setting that Federal participation would strengthen the resources available for timber price reporting. This implies that the Federal agency would invite full advice and assistance from whatever Federal, State, or private organizations are available and willing to assist, and working in a constructive and cooperative relationship in States where programs are already under way. In all cases the reports would be designed primarily for the use of State and local interests. In addition the Federal interest would be directed toward developing and promoting improved survey and statistical standards and, as appropriate, developing such features of the reports as would facilitate easy and accurate comparison of data from State to State and measurement of trends and other significant price movements.

Essentially, participation by the Federal Government in a program along the lines discussed above would provide the opportunity for:

1. Strengthening of the resources available for timber product price reporting in the States in which programs are under way.
2. Accelerating the introduction of timber price reporting into additional States.
3. Promoting improved statistical techniques and procedures. These would include strengthening the sample data upon which the report is based and working toward price reporting in terms of uniform or specified measurements of volume and of grade.
4. Promoting uniformity and coordination of reporting over market areas including parts of two or more States.
5. Providing data to facilitate interstate and interregional comparisons.
6. Making progress through research toward increased effectiveness of timber price reports.
7. Contributing to the development of more uniform pricing and marketing practices through coordinating the pricing program with the work of service foresters, Extension foresters, and research workers, and through consultation with industry representatives.
8. Developing more effective and more uniform price reporting practices through periodic conferences of the various leaders of the price reporting program in several States. Such conferences would afford an opportunity to exchange information as to developments in all regions and thus promote the development of reports of maximum usefulness.

METHODS OF FINANCING

Financial support for a timber products price reporting service could be provided by the Federal Government, by State governments, or by buyers and sellers of timber products. At present there is no indication that forest product buyers and sellers will provide financial support for the type of price reporting herein discussed.

State administered funds provide the financial support for existing timber product price reporting activities. Matching funds made available under the Agricultural Marketing Act of 1946 are providing most of the financial support for timber product price reports currently being prepared in several States. In

other cases the reports are prepared by the Extension Service or other state agency, using funds available for marketing assistance programs. In several States, as already noted, the Statistical Reporting Service of the USDA provides some nominal assistance, mostly in the way of facilities and technical statistical assistance. Inquiries made to State officials concerned with forest products marketing reveal an interest in this type of activity, but there is no indication of material expansion of forest product price reporting based on State appropriations for that purpose.

Federal appropriation to the Department of Agriculture for use on a continuing basis would provide the means for the central direction and coordination desirable for establishing and maintaining a "timber price reporting service."

Within the Department of Agriculture both the Forest Service and the Statistical Reporting Service have contributions to make in the field of timber products price reporting. There are others also engaged in extending marketing assistance to forest owners such as State service foresters, Extension foresters, and the Soil Conservation Service woodland conservationists. Manifestly the problems of forest products marketing are numerous and varied, and involve State, local, and Federal agencies.

As the Department visualizes a "timber price reporting service" however, this would be essentially a fact gathering operation, directed toward collecting through a sound statistical program information concerning prices of the more important products sold by forest owners, and publishing such information from time to time as a means of assisting both buyers and sellers to be better informed concerning prices and values than might be the case in the absence of such a service. Within the U. S. Department of Agriculture such a function clearly falls in the province of the Statistical Reporting Service.

At this point attention is invited to that portion of the Committee's directive reading "* * * and the proper method of financing the project; i.e. whether or not it should be financed from funds available to the Forest Service." In view of the allocation of functions as outlined above, it is believed that if it is the desire of the Congress that a timber price reporting service be established in the Department of Agriculture, the necessary appropriations should be made to the Statistical Reporting Service, and that appropriations for such supporting programs of research or education as are desired should be made available to the Forest Service, Extension Service, or other agency.

The State offices of the Statistical Reporting Service, generally known as Cooperative Federal-State Crop Reporting offices, are organized and operated in a manner designed to serve the needs of Federal, State, and local interests. In most States there is formal cooperation with one or more State agencies. In both technical and administrative problems there is continuing close cooperation between the agencies at various governmental levels as well as with industry groups. The Federal contribution to the program is geared basically to the information for a given State needed for a coordinated system of reports covering the United States and meeting needs at the national level. The State contribution to the program is geared to the additional or more detailed information (commodity or area wise) desired by the State that cannot be collected with Federal resources.

A timber price reporting service could be administered by the Statistical Reporting Service in a somewhat analogous cooperative manner, working through these same offices. A basic minimum program would be conducted at the level provided by the Federal contribution. States wishing to do so could provide for more detailed or more frequent reports, and with more areal breakdown.

It is suggested that minimum elements of the federally financed portion of a program (which could be expanded as needed by State contributions) would consist of a system of reports including essentially the following:

1. Prices of stumpage by major species and principal marketing or producing areas within the State.
2. Prices of principal cut products by important species and marketing or producing areas within the State.
3. Interpretative and explanatory information—such as that related to marketing practices, evident trends, and notations concerning the current market—to assist users in making more effective use of the statistical material.
4. Data collection primarily by personal enumeration, with mail questionnaire supplementation.
5. Reports to be issued semiannually.
6. Reports based on transaction evidence to the extent possible with dependence where necessary placed upon more generalized information supplied

by buyers and sellers concerning prices being paid (or received) during the reporting interval.

The annual cost of a price reporting service embodying these elements under present cost conditions covering the 37 States in which forest products are considered sufficiently important to justify the service is estimated at $300,000. More complete and detailed coverage and more frequent reporting would require substantially higher costs. During the first two years a substantial part of expenditures would be for development activities, but it is expected that by the end of the second year a price reporting program could be activated in all States where forest products are of sufficient importance to justify a program.

This cost estimate does not include price reporting for Christmas trees. The estimated annual cost of a program for Christmas trees of two reports per year (one in October and one in November) in the important States is $27,000.

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Exhibit 1

State Forest Products Price Reports

California:

University of California Agricultural Extension Service, California State Division of Forestry, and California Small Woodland Council, cooperating. *Markets for Woodlands Products in California.* (Annual. Quotes prices

for young growth stumpage and products such as logs and bolts, poles and piling, fence posts, pulp chips, redwood burls, tanoak bark, cascara bark, and sword ferns.)

Idaho:

University of Idaho Extension Forestry Office.
Idaho Woodland Market Summary. (Annual. Quotes prices for stumpage and products such as logs and bolts, lumber, railway crossties, and Christmas trees.)

Illinois:

Illinois Department of Agriculture, U.S. Department of Agriculture, and Illinois Technical Forestry Association, cooperating.
Timber prices. (*Semiannual.* Quotes prices for stumpage and products such as sawlogs, veneer logs, cooperage logs, and pulpwood.)

Indiana:

Purdue University Agricultural Extension Service and U.S. Department of Agriculture, cooperating.
Notes on Forestry and Wood-use. (Semiannual. Quotes prices for products such as sawlogs, veneer logs, pulpwood, and piling.)

Kansas:

Kansas State University Extension Service.
Timber Marketing in Eastern Kansas. (Semiannual. Contains information on the different timber product markets in Kansas along with some stumpage and log price information.

Kentucky:

Kentucky Department of Conservation and University of Kentucky, cooperating.
Kentucky's Growing Gold. (Quarterly. Quotes prices semiannually for stumpage and products such as sawlogs, veneer logs, and pulpwood.)

Louisiana:

Louisiana Department of Agriculture and Immigration and U.S. Department of Agriculture, cooperating.
Louisiana Timber Products. (Quarterly. Quotes prices for stumpage and products such as sawlogs, poles, and pulpwood.)

Minnesota:

Iron Range Resources and Rehabilitation Commission.
Minnesota Forest Products Marketing and Pricing Review. (Semiannually. Quotes prices for such products as sawlogs, poles, and pulpwood. This report is limited to the Iron Range area of Minnesota.)

Missouri:

Missouri Extension Service and School of Forestry, University of Missouri.
Missouri Forestry and Forest Industries. (Quarterly. Timber prices are reported in May and November issues. Quotes prices for stumpage and cut products such as sawlogs and veneer logs.)

Montana:

Montana State College Cooperative Extension Service.
Woodland Market Report. (Annual. Quotes stumpage prices for sawtimber and miscellaneous forest products.)

New Hampshire:

New Hampshire University Cooperative Extension Service and State Forestry and Recreation Commission, cooperating.
Forest Market Report. (Annual. Quotes prices for stumpage and products such as logs, and bolts, lumber, poles, piling, fuelwood, posts, and Christmas trees.)

New York:

New York State Conservation Department, Division of Lands and Forests.
Forest Practice Doings. (Semiannual. Contains general news for the various forest districts in New York along with some stumpage and log and bolt price information.)

Ohio:

Ohio Department of Agriculture, U.S. Department of Agriculture and Ohio Department of Natural Resources, Division of Forestry, cooperating.

Ohio Timber Prices. (Quarterly. Quotes stumpage, log and bolt prices for selected species, products, and grades of products for three regions in the State.)

Oregon:

Oregon State University Extension Service.

Farm Forest Products Market Report. (Weekly. Quotes delivered saw log and veneer log prices by species and quality grades for several localities. Occasionally reports prices for such products as poles, piling, maple burls, sword fern, and short pulpwood.)

Vermont:

Vermont Extension Service, University of Vermont.

Forestry Work Tools. (Quarterly. Quotes prices of delivered logs and bolts for various species and products in several marketing areas.)

Washington:

U.S. Department of Agriculture, State Agricultural Extension Service, State Department of Natural Resources, and Forestry Department of Washington State University, cooperating.

Forest Products Price Report. (Quarterly. Quotes prices for delivered logs and other products in Western Washington Districts.)

Washington State University, Department of Forestry & Range Management.

Farm Woodland Products Market Report. (Monthly. Quotes prices for stumpage and delivered logs in Eastern and Central Washington.)

West Virginia:

West Virginia Department of Agriculture, U.S. Department of Agriculture, West Virginia Conservation Commission, and West Virginia University, cooperating.

West Virginia Forest Products Market Information. (Quarterly. Quotes sawlog and stumpage prices for specified hardwood species.)

Wisconsin:

Wisconsin University Extension Forestry Office and Wisconsin Conservation Department, cooperating.

Wisconsin Forest Products Review. (Semiannual. Quotes prices for stumpage, delivered logs and bolts, lumber, railway crossties, piling, poles, and posts.)

EXHIBIT 2

[From the Wisconsin Crop and Livestock Reporter]

WISCONSIN FOREST PRODUCTS PRICE REVIEW, JULY 1961

(By T. A. Peterson)

This semi-annual forest products price report was compiled by the Extension Forestry Office of the College of Agriculture with the cooperation of the Wisconsin Conservation Department and the Wisconsin wood-using industries.

The forest products price review is designed to offer practical information on the current timber market. Each marketable form of timber is listed according to a statewide price range. It should be understood that timber prices are determined by a combination of factors including local market demand, distance to mills, timber accessibility, marketable volume, and timber size and quality. For this reason a quoted price range may have a wide spread between the high and low offers. These ranges can be used as guides by local timber owners and buyers in arriving at a fair price agreement.

The price ranges may or may not reflect the variable industry practice of awarding a premium over the mill base price for long-haul contracts. In addition, pulp mills may offer the delivered mill price or up to $1.50 less per cord f.o.b., depending upon species and location. Sawlog trucking rates average $15.00 per thousand board feet within a 60-mile range of the mill.

CURRENT MARKET TRENDS

The forest products market picture is definitely off from a year ago. A noticeable slump is evident in most areas regardless of the product. Both producers and buyers report the demand situation is low—and one which will last until fall. Prices are expected to remain steady, but some lower offerings are likely. An upswing in the national economy will definitely bolster the Wisconsin timber market picture. However, most producers and wood users seem prepared to sweat out a hot summer before this welcomed trend occurs.

Although stumpage prices appear firm, the low demand for wood has resulted in light bidding on most timber sale areas. As usual, high quality timber is most readily sold even during the period of a depressed market.

Veneer log buyers in the east and northeast expect a steady price and demand for the premium grades during the summer months. Elsewhere in Wisconsin, however, mills have stopped buying until mid-summer or fall.

In general, sawmill operators expect the poor demand for most logs to continue through the summer months. The price structure for logs should hold steady. Isolated reports of a good hardwood market, especially for oak and maple, keep the statewide picture somewhat hopeful. Some mills and operators report that a much larger volume of logs is being offered at the present time than the market can readily absorb. Unsold logs remaining in the woods or the deck do not increase in value! Standing trees can increase in value while the local market is temporarily depressed. Timber owners and log producers would be well advised to contact their prospective markets before felling and bucking trees into logs. This suggestion will also be worth noting next fall and winter.

The pulpwood market is tight due to a poor demand. One mill reports an expected 10 percent lower production compared with a year ago. Excess inventories have resulted in fewer pulpwood contracts let. This is evident in the few bid sales sold this spring on public forest lands. Reports around the state indicate over-cutting in the woods without contract has resulted in an excessive supply of cut material in the woods. Most mills are buying only a limited amount of contracted wood to maintain a full, but reduced, inventory. There is a very restricted demand for pine and hemlock in central Wisconsin. Only peeled balsam fir and spruce can be marketed there. Lower prices can be expected for most pulpwood species with the prevailing market.

The boxbolt market is reported good to poor. Generally the prices are expected to hold firm. Some mills in the northwest and northeast optimistically expect a steady demand will continue, while others are experiencing a lowering trend.

Sawtimber prices

[Ranges per thousand board feet—Scribner]

Species	Stumpage (standing tree)	Veneer and sawlogs (delivered at mill)				
		Grade No. 1		Grade No. 2	Grade No. 3	Woodsrun
		Veneer mills	Sawmills			
Ash	$12-	$65–$100	$50- $75	$20- $40	$15- $25	$30- $45
Aspen	-$20	40- 60	30- 60	20- 40	15- 30	25- 50
Basswood	12- 50	70- 105	50- 95	30- 50	15- 30	30- 60
Beech		50- 90	30- 50	20- 25	10- 15	30-
Birch, white	20- 40	75- 165	50- 90	20- 50	15- 25	30- 60
Birch, yellow	25- 60	150- 250	80- 125	40- 60	20- 25	45- 85
Butternut		60- 80	60- 100	30- 70	- 25	30- 50
Cedar, white						35- 45
Cherry, black	- 60	70-	60- 100	30- 70	15- 25	30- 65
Cottonwood		50-	30- 40	20-	15-	25- 40
Elm, rock	10- 25		40- 60	25- 35	15- 20	30- 40
Elm, soft	10- 25	35- 65	40- 60	25- 30	15- 20	25- 40
Hardwoods, mixed	15- 35					
Hardwoods, swamp	12- 30					
Hemlock	10- 35					35- 50
Maple, hard	15- 50	90- 150	70- 115	40- 70	15- 25	35- 65
Maple, soft	15- 50	55- 90	50- 90	30- 45	15- 25	35- 55
Oak, red	15- 40	75- 115	50- 80	30- 50	15- 25	30- 65
Oak, white	15- 40		50- 80	30- 50	15- 25	30- 65
Pine, jack						35- 40
Pine, red	25- 50		50- 75	30- 50	15- 30	45- 60
Pine, white	25- 50	90- 100	50- 75	30- 50	15- 30	45- 60
Spruce						40- 50
Walnut		175- 700	125- 175	75- 100	40- 50	75- 100

Pulpwood prices

[Per 4′ x 4′ x 100″ cord]

Species	Stumpage per cord (standing tree)	Price delivered at mill	
		Rough	Peeled
Aspen	$1.50–$2.50	$11.00–$15.00	$19.00–$20.50
Balsam fir	3.00– 6.00	20.00– 23.50	27.50– 28.50
Basswood	2.00– 3.00	11.00–	
Birch, white	1.50– 2.50	13.00– 15.00	21.00–
Hardwoods, mixed	1.00– 2.50	12.00– 15.50	–21.00
Hemlock	3.00– 5.00	18.50– 19.50	23.50–
Oak		15.00–	16.50–
Pine	4.00– 7.00	17.00– 19.00	22.50–
Spruce	6.00– 10.00	26.00– 28.50	–33.50
Tamarack			24.00–

NOTE.—F.O.B. car prices average $1.00 to $1.50 less per cord.

Box and excelsior bolt price

[Delivered to mill]

Species	Stumpage per cord (standing tree)	Price per rough cord		
		4′ x 8′ x 40–44″	4′ x 8′ x 50–57″	4′ x 4′ x 96–100″
Aspen	$1.50–$2.05		$11.00–$13.00	$12.00–$18.00
Basswood	2.00– 3.00	$12.00–$13.00	13.00–	15.00– 20.00
Birch, white	1.50– 2.50	–16.00	14.00–	14.00– 16.00
Mixed hardwoods	1.00– 2.50			14.00– 16.00
Oak, red			–16.00	
Pine, jack	4.00– 7.00			20.00– 22.00
Pine, red and white	4.00– 7.00			20.00– 25.00

NOTE.—Charcoal wood (mixed hardwood): 4′ x 8′ x 50″ cords, $8.00 per cord. White and bur oak cooperage: 24″ heading stock, 30–50¢ per chord foot; 39″ stave stock, 70–85¢ per chord foot.

Lumber prices

[At mill per thousand board feet]

Species	Green or air dry	Species	Green or air dry
Aspen	$50.00–$70.00	Maple, soft	$70.00–$110.00
Black cherry	50.00– 80.00	Oak, red	55.00– 100.00
Elm	40.00– 65.00	Pine, jack	55.00– 85.00
Hardwood, mixed	50.00– 80.00	Pine, red (Norway)	65.00– 100.00
Hemlock	70.00– 90.00	Pine, white	70.00– 125.00
Maple, hard	75.00–125.00		

NOTE.—Prices for rough, No. 3A and better lumber produced by mill operators for local consumption or remanufacture by volume buyers. Many mills also report lumber sales based on grade rather than mill run. No appreciable differences between green and air dry lumber range as reported. Dressed dry lumber somewhat higher.

No tie market is expected by mill operators before fall. This is the general picture for the entire Lake States area. Compared with a year ago, present production and demand is very poor. Tie logs are not being purchased at the present time. Many operators are sawing their present log supply into ties and lumber, and are expected to halt production until fall. Some tie mills have temporarily shifted to sawing popple.

The lumber market is rather variable. Hardwood markets have remained steady. This is particularly true for well seasoned material such as hard maple and aspen. Oak is reported in good demand by some southern Wisconsin producers, but the reverse for certain operators in the northwest. Lower grades are hard to sell, however No. 1 Common is moving better than a year ago according to reports from the southwest. Demand is expected to pick up by fall.

The cedar post market is steady. Reports indicate purchases have been suspended until next winter. Current prices are expected to hold firm. Not much change is expected for poles and piling.

Stave mill operations in southern Wisconsin also report a depressed market. Perhaps this market situation underscores the general trend which currently prevails for forest products as a result of the national economic slump. Some pickup is expected within the year. Present stumpage prices are off as much as one-third compared with a year ago.

FOREST PRODUCTS MARKETING

For the past thirty years the College of Agriculture, in cooperation with the Wisconsin Conservation Department and woodusing industries, has compiled forest products price reports to acquaint both timber buyer and seller with existing market trends. Frequent criticism has been cited about the wide price ranges existing in the state-wide reports for many listed products or stumpage. During the first ten years of the price report, the state was divided into four areas in an attempt to report more localized prices—Northern Wisconsin, Wisconsin-Chippewa Valleys, Fox-Wolf Valleys, and Southern Wisconsin. Very little variation existed among prices from the arbitrarily chosen regions, and subsequent reports were therefore based on single state-wide ranges.

Data submitted for this report were analyzed according to the five state management areas of the Wisconsin Conservation Department. This was done to reevaluate the practice of reporting state-wide price ranges in view of the constructive criticism raised. Again the areas were arbitrarily chosen and do not necessarily represent the best breakdown for marketing various forest products. The resultant price ranges for each individual area were found to show as wide a spread as the state-wide ranges. In some cases, the quotations reflect a species concentration in a definite region, such as those for black walnut. This type of trend however does not provide an adequate basis for an area breakdown in price reporting.

Railroad tie prices

Species	Tie size	Dimensions	Mill prices received for sawed ties
Hardwoods (oak, hard maple, beech, birch, elm, and ash)	1	6″ x 6″ x 8′	$1.10–$1.35
	2	6″ x 7″ x 8′	1.45– 1.75
	3	6″ x 8″ x 8′	1.80– 2.20
	4	7″ x 8″ x 8′	2.45– 2.75
	5	7″ x 9″ x 8′	2.75– 3.00
	Serviceable rejects.		.60–

Railroad tie log prices [1]

[Delivered at mill]

Species	Stumpage price (per 8′6″ log in standing tree)	Log diameter (small end of 8′6″ log inside of bark)	Price per 8′6″ log
Hardwoods (oak, hard maple, beech, birch, elm and ash)	$0.40–$0.70	8″– 9″	$0.75–$1.00
		10″–11″	.90– 1.75
		12″–13″	.90– 1.90
		14″–15″	.90– 2.75
		16″–18″	1.50– 3.25
		19″–20″	1.80– 3.75
		21″–22″	2.70– 4.00

[1] Price quotes were also based on Scribner log scale at $35 to $40 per thousand board feet.

White cedar post prices

[Delivered to yard]

Stumpage per piece in standing tree	Post size	Price per post	
		Unpeeled	Peeled
3 to 5 cents for 7-foot posts	2″ x 7′	$0.09–$0.15	$0.14–$0.15
	3″ x 7′	.12– .13	.17– .18
	4″ x 7′	.20– .21	.25– .26
	5″ x 7′	.23–	.28–
	6″ x 7′	.26– .30	.31– .35
	7″ x 7′	.30–	.35–
	2″ x 8′	.11–	.16–
	3″ x 8′	.13–	.18–
	4″ x 8′	.23–	.28–
	5″ x 8′	.28– .30	.36– .37
	6″ x 8′	.30– .36	.38– .43
	4″ x 10′	.37–	.46–
	5″ x 10′	.44– .47	.54– .56
	6″ x 10′	.45– .49	.55– .58
	4″ x 12′	.50–	.62–
	5″ x 12′	.55– .62	.67– .74
	4″ x 14′	.55–	.69–
	5″ x 14′	.60– .70	.74– .84

Pole prices

[Per pole at delivery point]

Pole length in feet	Jack pins	White cedar		
		Top diameter—inches		
		4	5	6
16	$1.00	$0.65	$0.85	$0.95
20	1.40	1.25	1.50	2.45
22	1.50			
25	1.60		2.75	3.20
30	3.00			
35	3.75			
40	6.00			
45	11.00			

NOTE.—White cedar poles 15 to 25 cents higher when peeled.

Piling prices

[Per piling at delivery point]

Length (feet)	Pine and hardwoods	Length (feet)	Pine and hardwoods
20	$4.00	40	$12.80
25	4.50	45	16.20
30	6.00	50	20.00
35	8.40		

Until further study proves otherwise, timber prices are determined by a combination of factors including local market demand, distance to mills, timber accessibility, marketable volume, and timber size and quality. That a wide range of price offerings exists for stumpage or cut products—even within a relatively small region—emphasizes the fact that timber owners and operators should analyze the markets carefully before cutting trees.

Marketing service is available from Wisconsin Conservation Department District Foresters who work in each county of the state. These foresters can be contacted directly or local county agencies, such as the County Agricultural Extension Office, can refer landowners to these foresters if assistance is desired. No charge is made for the forestry service.

Woodusing industries of the state also provide helpful assistance. Many of these mills publish specification and price lists of their raw material needs. Cut products of various forms, sizes, and grades might be utilized depending upon the product made. Timber owners and operators should be aware of the common mill practice of purchase through written contract.

Woodusing industry lists have been compiled and periodically revised for each county by the Extension Forestry Office and the Conservation Department. A 'primary' directory lists mills using cut products as raw material. A 'secondary' directory lists mills using lumber or veneer for the fabrication of a finished product. These marketing aids are available from either the Extension Forestry Office at the College of Agriculture or from the Wisconsin Conservation Department, Madison 2.

EXHIBIT 3

U.S. DEPARTMENT OF AGRICULTURE,
STATISTICAL REPORTING SERVICE,
Columbus, Ohio, November 16, 1961.

DEAR SIR: At the direction of the Congress of the United States the Department of Agriculture is preparing a statement to the Congress concerning the "practicability and feasibility of a timber reporting service."

You have been receiving a copy of a report of this general type prepared in this State, a recent issue of which is enclosed. It would be very helpful and greatly appreciated if you will answer the questions below concerning the report you have been receiving.

Kindly return the completed questionnaire in the enclosed envelope which requires no stamp.

Sincerely yours,

J. R. KENDALL,
Agricultural Statistician, in Charge.

1. Are you primarily interested in prices of timber products (stumpage, logs, and bolts) from the standpoint of:
   a. An owner or seller of timber or timber products ———.
   b. A buyer of timber or timber products ———.
   c. An advisor of timber owners ———.
   d. Other (specify)_____.
2. Please indicate the product or products in which you are primarily interested:
   a. Stumpage: Species_____.
   b. Cut products:
      Name_____
      Species_____
3. Does the report furnish any information not readily available to you from other sources? Yes No .
   If "no", on what other sources do you depend for such information?_____.
4. Please indicate what type of timber marketing information, if any, that is not now shown in the report would be useful to you. _____.
5. In your experience do the price quotations published in the report reasonably represent prices actually being received by producers? Yes No .
   If "No", please give examples_____.
6. Other comments or suggestions_____.

_____

_____

_____

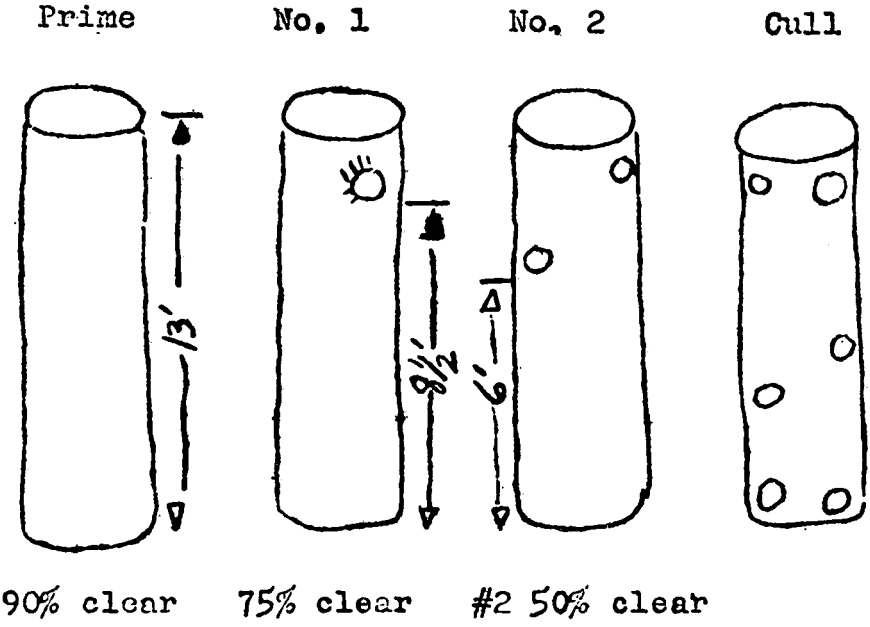
Name_____, City_____, State_____.

EXHIBIT 4

NEWTON BOX & BASKET CO., NEWTON, ILL.

Log prices effective Oct. 1, 1958

Species	Diameter	Prime logs	No. 1 logs	No. 2 logs
Cottonwood	16–20	50.00	40.00	30.00
	20–32	60.00	50.00	40.00
Gum, maple, and birch	16–20	45.00	40.00	25.00
	20–32	55.00	50.00	35.00
Elm, hackberry, black gum, and sycamore	16–20	45.00	35.00	15.00
	20–32	50.00	40.00	25.00



Prime: Practically (90 percent) surface clear on three visible faces. (A face is any one-quarter of the surface of a log.) Must be 16 inches or more in diameter inside bark at the small end.

No. 1: At least three-fourths (75 percent) of the log length on the three visible faces must be surface clear in one section.

No. 2: At least one-half (50 percent) of the log length must be surface clear on the three visible faces.

NOTES

1. Please try to cut for 8½ and 13' logs.
2. Shakes and hollow logs are considered extra defects.
3. Catfaces are considered defects. Same as open limb growth.
4. Worms not considered defects.
5. Under 16" diameter not considered veneer logs.
6. 32" diameter and up to be considered oversize and will be decreased in price.

EXHIBIT 5

AMERICAN PULPWOOD ASSOCIATION,
New York, N.Y., December 18, 1961.

Mr. B. R. STAUBER,
Chief, Agricultural Price Statistics Branch, Statistical Reporting Service, U.S. Department of Agriculture, Washington, D.C.

DEAR MR. STAUBER: We certainly appreciated the opportunity afforded Mr. Weir, Mr. Hammerle and me to meet with you, Mr. Peterson of your office and Mr. Josephson of the U.S. Forest Service to discuss our industry's views with respect to a Timber Price Reporting Service, at your office on December 12th. During our conversation, I promised to send you a statement outlining the position of the American Pulpwood Association on Timber Price Reporting. It is as follows:

1. *Price reporting in general.*—Information is presently available and reporting would add little if anything of value. Price and market information are not the sole possession of buyers of forest products but are the common stock in trade knowledge to both buyers and sellers. Sales are made under firm contracts before cutting and stipulate the price to be paid. Strongly competitive markets enable the seller to pick and choose his buyers. Speculators, without firms contracts, must of course take their chances but they are the exception and not the rule. Price reporting, unless qualified to the extreme variations in accessibility, quality and use, may result in loss of sales to the owner or over-cutting and liquidation of forest assets.

2. State administration.—If both buyers and sellers of forest products feel that a price reporting service is required, this service should be initiated at the local or state level. It should be established with the guidance of an advisory committee which includes both buyers and sellers of forest products. A prerequisite to such a service are the following features of a marketing program within the State: (a) a *Directory* or list of buyers of forest products; (b) a *Periodic Review* of market demand and supply, price trends, and major price changes; (c) *Marketing Bulletins* or leaflets on good harvesting and marketing practices prepared and distributed for woodland owners and tree farmers.

3. *Federal administration.*—Legislation for Federal Government administration or indirect control of timber price reporting should be opposed on the following grounds:

Legislation is unnecessary: Timber price reporting is unnecessary because the Secretary of Agriculture already has the authority to carry on this activity in the Organic Act of the Department of Agriculture of 1862, in the Research and Marketing Act of 1946, and in the McSweeney-McNary Forest Research Act of 1928. The Department of Agriculture issued stumpage and log prices annually from 1928 to 1948, when they were discounted for lack of any demonstrated need.

A duplication: A Federal price reporting system will only duplicate the many services already performed by state agencies, wood-using industries, and many other sources.

State or private responsibility: Prices of forest products, including forest stumpage, have local application only. Little interstate commerce is involved in the sale of primary forest products, and no interstate commerce is involved in stumpage sales. This in itself points to price reporting being a State or private responsibility.

Costly: It is estimated that enactment of this legislation will cost the Federal Government at least $500,000 a year, and at the same time be costly for farmers, woodland owners, and wood-using industries to complete the forms required while receiving no immediate or long-term benefits not now available.

Parity price calculations unwise: Calculation and use of parity prices for forest products, which may be one of the objectives of the proposal, will only tend eventually to create the same problems of over-production, overcutting and surpluses as they have for agricultural crops. Congress has already recognized that there is a difference between "forest products" which can be left standing on the stump a year or more longer, and "farm products" which must be harvested, sold or stored for future use when ripe.

While in your office we left with you copies of the booklet entitled "Marketing Information Available To Forest Owners." You will note that it has 230 references to sources of information on pricing and marketing services. We also left a copy of the reprint entitled "A Marketing Information Primer For Woodlot

Owners." It gives the names and addresses of sources of information on marketing forest products in every state. These publications outline in detail more background material that leads us to the conclusions and policies we express to you on timber price reporting.

Again, let me say we appreciated the opportunity to confer with you on this subject.

Very truly yours,

W. S. BROMLEY,
Executive Secretary.

EXHIBIT 6

Privately owned commercial forest land: Number of owners and acreage owned, by size of holding and section, United States and coastal Alsaka, 1953

ALL SECTIONS

Size of holding (acres)	Owners	Area	Proportion of commercial forest area	Average size of holding
	Number	*Thousand acres*	*Percent*	*Acres*
Less than 100 [1]	3,875,093	121,023	24.8	31
100 to 499	586,467	97,882	20.0	167
500 to 4,999	46,326	46,378	9.5	1,001
Total	4,507,886	265,283	54.3	59
5,000 to 49,999 [2]	2,330	34,669	7.1	14,879
50,000 and over [2]	283	58,317	11.9	206,067
Total	4,510,499	358,269	73.3	79

NORTH

Less than 100 [1]	2,316,089	69,338	14.2	30
100 to 499	224,935	37,608	7.7	167
500 to 4,999	12,259	10,214	2.1	833
Total	2,553,283	117,160	24.0	46
5,000 to 49,999 [2]	563	8,279	1.7	14,705
50,000 and over [2]	75	16,176	3.3	215,680
Total	2,553,921	141,615	29.0	55

SOUTH

Less than 100 [1]	1,476,478	48,315	9.9	33
100 to 499	322,414	52,449	10.7	163
500 to 4,999	26,605	27,428	5.6	1,031
Total	1,825,497	128,192	26.2	70
5,000 to 49,999 [2]	1,367	20,140	4.1	14,733
50,000 and over [2]	156	28,277	5.8	181,263
Total	1,827,020	176,609	36.1	97

WEST AND COASTAL ALASKA

Less than 100 [1]	82,526	3,370	0.7	41
100 to 499	39,118	7,825	1.6	200
500 to 4,999	7,462	8,736	1.8	1,171
Total [3]	129,106	19,931	4.1	154
5,000 to 49,999 [2]	409	6,400	1.3	15,648
50,000 and over [2]	62	13,714	2.8	221,194
Total	129,577	40,045	8.2	310

[1] Number of owners shown for holdings of 3 to 99 acres in the East and 10 to 99 acres in the West.
[2] Owners in a given size class on a sectional basis do not add to national totals because holdings of a given owner located in different regions were combined in determining number of owners on a national basis.
[3] Includes 286 owners in coastal Alaska.

Source: "Timber Resources for America's Future," U.S. Forest Service, Forest Resource Rept. No. 14, p. 293, January 1958.

EXHIBIT 7

Privately owned commercial forest land: Number of owners and acreage owned, by type of owner and by States, 1953

State	All private holdings		Farm		Forest industries		Other private	
	Thousand acres	*Owners*	*Thousand acres*	*Owners*	*Thousand acres*	*Owners*	*Thousand acres*	*Owners*
Alabama	19,790	169,821	8,114	131,057	3,138	1,522	8,538	37,242
Arizona	125	458	46	287	2	8	77	163
Arkansas	16,382	160,957	6,733	123,184	4,118	760	5,531	37,013
California	8,053	10,464	1,586	2,675	3,389	385	3,078	7,404
Colorado	1,613	4,333	994	2,168			619	2,165
Connecticut	1,818	45,719	526	11,096	3	108	1,289	34,515
Delaware	435	7,576	217	6,543	124	173	94	860
Florida	19,268	93,583	8,905	52,821	4,369	581	5,994	40,181
Georgia	22,287	196,665	15,854	172,314	4,246	1,434	2,187	22,917
Idaho	2,967	10,831	1,166	4,669	1,180	18	621	6,144
Illinois	3,712	131,101	3,050	116,467	10	633	652	14,001
Indiana	3,762	126,190	2,878	108,319	9	184	875	17,687
Iowa	2,463	34,738	2,321	31,078			142	3,660
Kansas	1,663	57,514	1,160	56,962			503	552
Kentucky	10,721	243,488	4,903	207,916	308	1,329	5,510	34,243
Louisiana	15,051	111,654	3,160	58,088	4,281	406	7,610	53,160
Maine	16,419	77,479	2,232	30,401	6,617	580	7,570	46,498
Maryland	2,683	39,544	1,169	29,695	57	4	1,457	9,845
Massachusetts	2,860	29,758	740	8,697	259	134	1,861	20,927
Michigan	12,462	174,422	3,877	126,642	1,447	208	7,138	47,572
Minnesota	7,940	140,562	4,881	101,298	578	375	2,481	38,889
Mississippi	14,722	133,394	6,958	100,712	2,602	594	5,162	32,088
Missouri	13,447	201,025	8,498	168,435	460	608	4,489	31,982
Montana	4,857	14,536	2,360	4,930	1,086	4	1,411	9,602
Nebraska	1,419	53,831	820	53,831			599	(1)
Nevada	77	180	11	40	13	11	53	129
New Hampshire	4,000	49,373	1,039	15,397	771	752	2,190	33,224
New Jersey	1,729	27,150	320	11,837	(2)	(2)	1,409	15,313
New Mexico	1,733	2,037	1,355	1,789	136	8	242	240
New York	11,107	254,942	3,473	167,731	1,172	1,196	6,462	86,015
North Carolina	17,393	267,056	13,590	222,110	2,584	1,959	1,219	42,987
North Dakota	255	8,500	182	8,500			73	(1)
Ohio	5,099	149,529	3,047	134,406	30	287	2,022	14,83
Oklahoma	5,548	82,033	2,240	52,154	944	15	2,364	29,864
Oregon	9,768	36,253	3,458	22,835	4,733	1,236	1,577	12,182
Pennsylvania	11,879	301,604	3,424	229,620	442	1,271	8,013	70,713
Rhode Island	404	12,330	79	2,846			325	9,484
South Carolina	10,975	116,215	7,530	103,438	1,696	732	1,749	12,045
South Dakota	596	17,963	523	17,786	6		67	177
Tennessee	11,129	185,133	6,126	160,174	1,088	302	3,915	24,657
Texas	11,536	119,707	3,125	81,389	3,123	2,629	5,288	35,689
Utah	392	748	343	551	5	6	44	191
Vermont	3,416	39,912	1,522	25,833	528	473	1,366	13,606
Virginia	13,768	211,187	8,848	149,316	1,334	1,271	3,586	60,600
Washington	9,806	47,667	1,886	22,574	4,147	743	3,773	24,350
West Virginia	8,878	133,571	3,197	97,906	270	282	5,411	35,383
Wisconsin	11,431	176,906	6,426	143,389	1,014	229	3,991	33,288
Wyoming	412	802	325	596	(2)	(2)	87	206
Coastal Alaska	19	286					19	286

[1] Number of owners not estimated because of insufficient sampling.
[2] Included with other private to avoid possible disclosure of individual ownership.

Source: "Timber Resources for America's Future," U.S. Forest Service, Forest Resource Rept. No. 14, pp. 508–509, January 1958.

EXHIBIT 8

Timber products as percentage of total output from roundwood, by region of origin, 1952 [1]

Region	Total output (excluding fuelwood)	Sawlogs	Pulpwood	Veneer logs and bolts	Cooperage logs and bolts
	Million cubic feet	*Percent*	*Percent*	*Percent*	*Percent*
New England	445	52	2	3	1
Middle Atlantic	418	62	20	2	(2)
Lake States	392	40	44	3	(2)
Central	270	66	3	3	6
South Atlantic	1,099	64	24	4	(2)
Southeast	1,867	56	31	3	2
West Gulf	896	58	25	3	1
Plains	34	25	2	3	----
Rocky Mountain	394	88	5	(2)	----
Pacific Coast	3,265	81	9	7	(2)

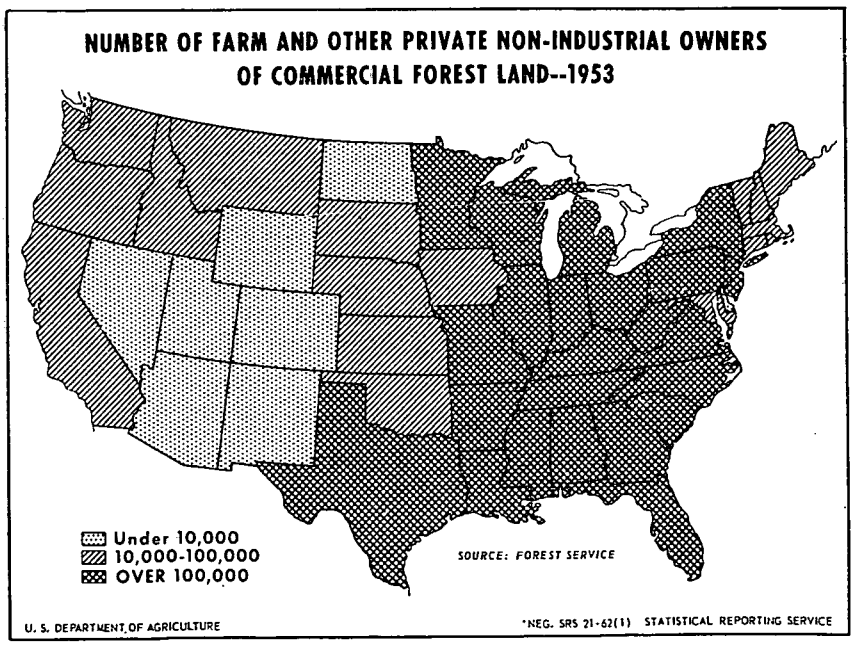
Region	Posts	Poles	Piling	Hewn ties	Mine timbers	Other products[3]
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
New England	1	(2)	(2)	----	----	(2)
Middle Atlantic	4	(2)	1	----	8	2
Lake States	5	(2)	(2)	----	2	5
Central	11	(2)	(2)	(2)	7	3
South Atlantic	2	1	(2)	(2)	1	3
Southeast	2	2	(2)	2	(2)	1
West Gulf	3	3	1	4	(2)	2
Plains	69	(2)	----	----	----	1
Rocky Mountain	1	3	(2)	----	2	1
Pacific Coast	(2)	(2)	(2)	(2)	(2)	2

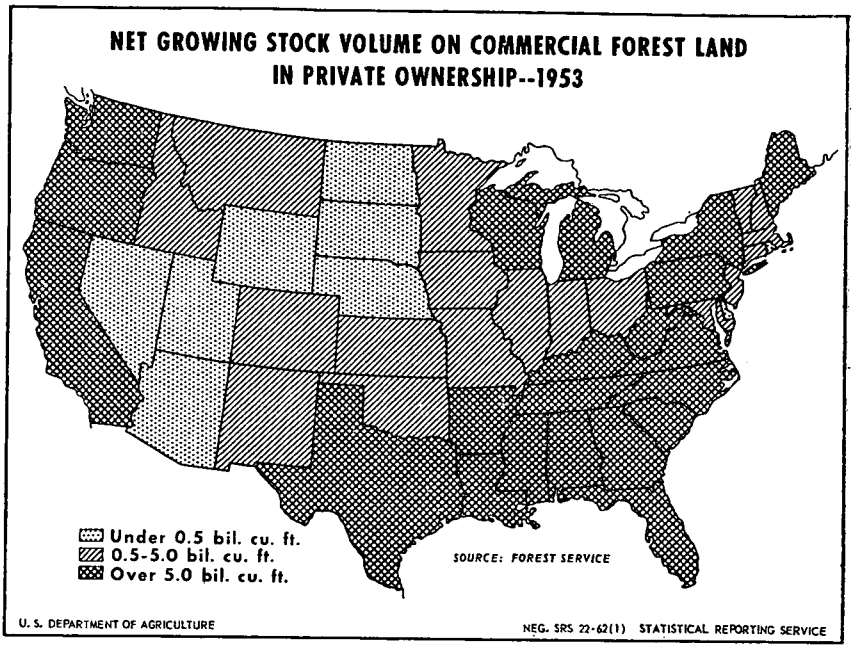
[1] Output from roundwood is according to regions where the logs, bolts, and other round timbers cut for various products originated, and not necessarily where they were processed into lumber, veneer, pulp, or other manufactured products or used in round form as poles, piling, posts, etc.

[2] Less than 0.5 percent.

[3] Includes box and shingle bolts, excelsior bolts, turnery, dimension and handle stock, chemical wood, and bolts for other such miscellaneous products.

Source: U.S. Forest Service.





Mr. KOFFSKY. So much for the recommendations which we made as part of the long-range program. Turning now to the specific recommendations of the subcommittee and the Government Price Committee, it will be apparent that the thinking of our Service and that of your subcommittee and the Government Price Statistics Committee are in most major respects quite parallel. Let me comment fairly briefly, first, upon the recommendations of the subcommittee itself; secondly, upon the general recommendations of the Government Price Committee.

The recommendations of the Joint Economic Subcommittee on Economic Statistics, as presented in its report [1] dated July 21, 1961, are first, "The basis for continuing improvement of our price statistics lies in a modest but continuing provision for research in the agencies."

With this we concur heartily, and in accordance with that belief have been allocating a small sum of money each year for research in the general area of price statistics. This is not adequate to cover the whole range of questions that need research, but it is a start, and is about all we can allot from our existing budget. We have been concentrating upon the application of probability enumerative sampling to the collection of prices received by farmers and prices paid by farmers, and in automating the summarization procedures for these data.

The second recommendation of the subcommittee was—

Description of the procedures used in constructing each index should be published after every major index revision.

[1] "Government Price Statistics," report of the Subcommittee on Economic Statistics, July 1961.

This has been our practice. In the case of both the 1950 and the 1959 price revision we published a fairly comprehensive semitechnical description of our procedures.

The third recommendation of the subcommittee was—

> Comprehensive weight revisions should be made on a regular schedule at least once every 10 years for each major index.

This recommendation is one which we enthusiastically endorse and about which we are deeply concerned. The last major revision of the Index of Prices Paid by Farmers Including Interest, Taxes, and Farm Wage Rates was published in January 1959, with weight data based on the year 1955. The Index of Prices Received was revised at the same time, with weight data based on the years 1953–57. To revise the Parity Index requires the collection of comprehensive information concerning the pattern of expenditures of farmers. This is included in the next phase of the long-range plan.

The next recommendation of the subcommittee relating to the work of the Statistical Reporting Service was—

> For the Indexes of Prices Paid and 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 items used in production.

My first comment in response to this item relates to the matter of specifications. Our system presently is based on voluntary mailed-in responses. Even so, we have used specifications in our pricing program for many years, and we carefully review all our questionnaires at least once every 2 years, and many of them every year, to see whether we can improve the specifications describing the item to be priced. There are, however, limits to the extent to which detailed specifications can be effective in a voluntary mail survey. Several of the questionnaires cover something like 40 or more items. It is impossible to expect the correspondent to read and comply with detailed specifications on such a questionnaire. If the questionnaire is too formidable and becomes difficult to fill in, the percentage of returns will decline disastrously.

But where there is rapid change in the items purchased by farmers, we do use more detailed specifications. In the case of farm tractors, we have for many years classified them by wheel versus caterpillar type, subdivided into horsepower groups, by make and model. A few years ago we added a type-of-fuel classification, gasoline, diesel fuel, and LP gas. Combines are classed as self-propelled, tractor-drawn with auxiliary engine, and tractordrawn with power takeoff, with each class subdivided into the principal widths of swath. For commodity groups with strong regional differences—such as fertilizer, farm machinery—questionnaires are regionalized into appropriate State groups so as to fit the questions to the area.

Over the years we have made a number of changes in regard to commodities bought by farmers, and always in the direction of more detailed specifications, but with the limitations imposed by a mail inquiry always in mind. We have, therefore, considering the differences among commodities, had to make a reasonable compromise between what might be theoretically desirable and what is practicable in an operation that must, because of cost considerations, be conducted largely on a mail basis.

The subcommittee refers to the suggestion of the review committee that use be made of direct enumeration. Let me emphasize our concurrence in the advantages of using enumerative collection procedures, particularly in connection with a probability sample of respondents. It was clearly reflected in long range plan.

The next suggestion was to use price data collected by the Bureau of Labor Statistics for similarly specified items where practicable. The facts of the matter are that this is not for the most part practicable, largely because the Bureau of Labor Statistics concentrates its data collection in the larger cities and has relatively few cities included in the rural areas where farmers do most of their buying. The Statistical Reporting Service, which is concerned with prices paid by farmers, concentrates its efforts in the rural field.

The last point has to do with the need for expanding coverage of the indexes for medical services in the family living sector and for certain production items. The latter include things such as veterinary services; custom rates for combining, hay baling, and cornpicking; repair and maintenance of automobiles, tractors, and other heavy machinery; and farm construction activities including structures and equipment used in irrigation. The recommendations in the long range plan include provision for collecting such data.

One of the major recommendations of the review committee had to do with the base period for indexes of prices received and paid by farmers; namely the statutory prescriptions of the obsolete base 1910–14 and the inappropriate use of interest and tax per acre which are not prices, should be considered. The recommendation itself recognizes the statutory prescription of the base period. The Department submitted a report to the Congress on January 31, 1957—Possible Methods of Improving the Parity Formula—Document No. 18, 85th Congress, 1st session—which recommended at that time a shift in base period to the 10 years January 1947–December 1956. No action was taken thereon. Moreover, the inclusion of interest and taxes per acre is also prescribed by statute. 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.

This concludes the statement. We will be glad to respond to any questions the subcommittee may have.

If you like, Mr. Chairman, I will talk a little bit about potential bias, or would you prefer that I wait until this is all complete?

Chairman PROXMIRE. Well, why not talk about that at the moment, because you had a short statement. Then we shall go to Mr. Teper.

Mr. KOFFSKY. All right.

We really do not know what the quality bias, for example, might be in this index. I think that in general, when you are dealing with average prices received and paid, on the paid side, particularly, you may very well, in times when low-priced items are disappearing—and this would happen mostly during a price-control situation—that you might have a bias that begins to move the index up some.

On the other hand, I do note that in this index, we are missing a considerable item in the lack of medical service rates, for example, which have trended upward, according to the Bureau of Labor Statistics indexes, more rapidly than the commodities. In this in-

stance, I would suspect this is a dampening situation with respect to the index of prices paid by farmers, not having that item represented in the index.

Chairman PROXMIRE. In that sense, it tends to understate?

Mr. KOFFSKY. In that sense, it tends to understate.

Now, what the sum total of these forces might be, I really do not know. We will not know until we get some data collected on the medical service rate; and at that time, with some increasing attention to specifications, we shall be better able to judge.

I want to make one more note, Mr. Chairman. If you will look at your own committee publication, "Economic Indicators," and look at where we are in April 1966 in comparison with the 1957–59 base, the family living index of the prices paid by farmers is very close, indeed, to the commodities index of the Consumer Price Index. This, I think, indicates that such biases as may exist in the prices paid index are possibly not much different for the prices paid index than for the BLS Consumer Price Index.

Chairman PROXMIRE. You are talking about the fact that the family living indexes for prices paid by farmers on April 15 was 110 and for consumer prices in April, it was 112.5.

Mr. KOFFSKY. No; I am talking about the commodities part of the Consumer Price Index.

Chairman PROXMIRE. 108.8.

Mr. KOFFSKY. Yes, roughly 109 and 110. There is not much difference.

Chairman PROXMIRE. I do not want to detain the panel too long in this specific area, but as long as you have started on this at my suggestion, what Mr. Bowman said, as I understand it, was something like this: He was disturbed about several things, among them that the Department of Agriculture has not submitted a request to the Bureau of the Budget for securing prices paid for medical, dental, and hospital services, which he felt should be included in the cost-of-living index. He was saying do you think this is one of the reasons why the prices that the farmer pays may be understated?

He also said that the indexes do not follow specification procedures.

Mr. KOFFSKY. Yes. Let me say, Mr. Chairman, that in 1957, when we submitted a report to the Appropriations Committee on the things we needed to do to improve agricultural statistics, the one item that was most important to us and also in the view of the committee, was the improvement of the system to obtain better data on crop acreage, yields, production, livestock numbers, and marketings, because these are statistics that really involve farmers' income directly. Whether we have accurate information about what is being marketed determines the prices the farmer gets, in many instances. This was then taken to be the first thing that the Department of Agriculture needed to do; supply more accurate estimates on what is the production of major commodities and what are the marketings. This has been the guidelines under which we have proceeded for the last 5 years.

Now, I am saying, this coming year, we expect that system to be complete. We now will turn our attention to the question of improving the price statistics. That now has the top priority.

This will require substantial appropriations to begin to move our data system from the mail inquiry to the probability enumerative sur-

vey that we now envisage for the future. But again, being in process of completing the first priority we are now moving the improvement of prices into that top level.

In this connection, we are going to need a fairly substantial survey of farmers' expenditures. We have brought this question up several times with the Bureau of the Budget. There have been occasions when we felt that this would be the time to get some preliminary information ahead of the major scheduling of price improvements. We do feel that this would be a top priority in our next request.

Chairman PROXMIRE. Thank you very much. I will return to this later on.

Mr. Teper is the director of research for the International Ladies' Garment Workers Union.

I understand you are going to speak on utilization of price indexes in private and public price decisions. Would you proceed, Mr. Teper?

TESTIMONY OF LAZARE TEPER, DIRECTOR OF RESEARCH, INTERNATIONAL LADIES' GARMENT WORKERS UNION

Mr. TEPER. It is rather interesting to note that the price data from 1946 to 1965 show that the wholesale price index went up by about 55 percent, that commodity component of the Consumer Price Index moved up by 53.3 percent, and the index of prices paid by farmers for family living gained 51.5 percent. The long-term advance was within a range of 2 percent in terms of all these three indexes.

Of course, over a shorter period of time, price movements are not always similar. If you will look at table 1, in my prepared statement, you will find year-to-year changes in the four key indexes. Both the CPI and its commodity component are shown because the latter index seems more comparable to the wholesale price index and to the index of prices paid by farmers for family living—the latter has an underrepresentation of services in its makeup. The indexes do not always move the same way except in periods of major price upward movement. If one were to compare price index changes with the indexes of output per man-hour or of compensation per man-hour, one would discover that there is no direct relationship in the pattern of their movements.

The key thing about price indexes is that when prices advance, they spur on, aside from a concern about inflationary pressures, renewed inquiry about the relative accuracy of the various price indexes on which both public and private groups have to rely for policy formulation and policy implementation. The Joint Economic Committee and its Subcommittee on Economic Statistics deserve general commendation for providing a forum for such discussions as well as for their work on behalf of an improved system of statistical intelligence in this and other fields.

Five years ago, the Stigler committee made a number of recommendations, some sound, some highly controversial. Since that time, the number of major changes made in the field of price statistics were in connection with the revision of the CPI. Wisely, the Bureau of Labor Statistics rejected the recommendation of the Stigler committee that the index be transformed into one that would measure prices of a constant level of utility or satisfaction. The Stigler committee,

of course, never made clear precisely what they meant and never spelled out how such measurement could really be carried out. While a cost-of-utility index is advocated by some economic theoreticians, others, equally competent, argue that no such index can ever be defined in terms of a specific level of prices and that it is not even possible to define the outer limits within which such measure would fall. Actually, the theory underlying such indexes presupposes that one would live in a totally static environment. In such an environment consumers themselves could not change—familywise, agewise, incomewise, or otherwise. They must remain immune to changes in habits, taste, or environment. They cannot be influenced by advertising or salesmanship. Even the goods and services from which they select items for their consumption must remain immutable.

Obviously, those conditions do not have a counterpart in the real world. They do not provide a basis for the construction of a meaningful measure of utility costs.

What the Bureau of Labor Statistics did try to do historically is to measure price changes by defining the cost of a specified basket of goods and services in a reference period, goods purchased by a defined portion of our urban population, and thereafter measuring the changes in its price. This approach is sound in that such a measure does satisfy the postulates of measurement in scientific use. Such index, because it is not affected, at least between revisions, by shifts in consumer buying stemming from differential price movements or by positive and negative changes in consumer ability to spend, does provide the best deflator for consumer incomes, or, more specifically, for the incomes of the groups to which it applies.

Of course, you have a logical break in the continuity of price indexes whenever there is a revision of weights. That is unavoidable and can be minimized by a variety of techniques or if such changes are made during periods of comparative price stability.

Several of the recent revisions of the CPI lead toward improvement of the index. For example, income limitation for index families was abandoned. Coverage of the index was extended to single workers living alone. Interestingly, when the two series were combined on a revised basis—one for families of two or more persons and the other which was inclusive of single workers living alone—both series yielded identical values over the 11 months' period during which they were compiled. In the case of major components of the two series, there was an occasional deviation of one-tenth of a point, but this difference was wiped out in the following month. This suggests that index applicable to families only or the index inclusive of single workers are equally good measures of price changes for either group.

In formulating the revised program for the CPI, BLS relied to a greater degree on probability sampling, as was recommended to it, in order to get better representation of the current distribution of the Nation's urban population, of the places where shopping is done, as well as of the goods and services purchased. It also relied on replicated sampling, which permitted the Bureau to calculate the range of possible sampling error. The preliminary data which were published so far and which Commissioner Ross mentions in his statement showed that the indexes are pretty reliable insofar as sampling errors are concerned. Of course sampling errors do not tell the full story.

There are other sources of possible error. Sometimes it seems to me that the use of computers tends to magnify some errors because of lack of close personal examination of individual returns and due to greater reliance on mechanical means to correct for error.

There are, of course, errors inherent in the precision of the measuring process itself. That does not make the statistical inquiry any less valuable. One must, however, approach all data with a sense of appropriate sophistication and with full knowledge of the virtues and limitations of the particular compilation.

There are, of course, other problems which must be faced by a sophisticated user of CPI. For example, between major revisions, the index makes no allowance for population shifts from one area to another or within a given urban area. However, population mobility does affect the national average of prices paid by consumers for a specific item or group of items as a result of the difference in prices in various parts of the country or in different outlets.

There is also a problem created when, in the course of utilizing a probability design to select metropolitan areas and cities where pricing is to be conducted, the list is changed after each revision. Data for individual communities and individual urban metropolitan areas, are utilized locally, either in collective bargaining or for many other municipal purposes. It is thus highly desirable to stabilize the list of cities for which CPI is collected and published in order to maintain continuity of local indexes, even if data for each city were not to be used in the compilation of the national index. We are increasingly concerned with local and regional problems, and that makes the need for the maintenance of local indexes ever so great.

There was also a major innovation in the revised CPI in dealing with the whole concept of a fixed market basket. Previously, expenditure weights were allocated in the reference period to individual items in the sample of goods and services. Currently, the Bureau utilizes stratification of all expenditures in the 50-odd classes each of which consists of goods and services more or less designed to satisfy similar needs. It is thus planned to keep such weighting diagram constant in terms of the relative weights of such expenditure classes, in the reference period. In pricing data for each expenditure class, the Bureau proposes to select samples which will not necessarily remain immutable between major index revisions. This will permit BLS to introduce new products or new services into the index when older items go off the market and when the need for substitution exists.

This technique does raise, however, other problems. For example, during the Second World War, we found that some manufacturers had previously produced identical goods, a whole line of goods which were identical in every respect except the brand, and that such goods were sold at widely different prices. When the General Maximum Price Regulation came into effect, what these manufacturers have done is to discontinue their cheaper lines, their cheaper brands. If a new sample of goods, were selected then and these higher-priced goods were to enter the index basket, such action would have introduced a downward bias in the index. I hasten to say that the staff of the Bureau, under normal circumstances, would treat this substitution as a price increase. One must be conscious, however, of the fact that the selec-

tion of new samples may introduce biases into the index which have not been foreseen or are not thought about, if such substitutions are done in a mechanical fashion.

Of course, adjustment for quality changes is an ever-present problem in compiling price indices. One cannot minimize its importance. Efforts, have been made by BLS to cope with the problem. I fully agree with Mr. C. Ashley Wright, the economist of Standard Oil Co. of New Jersey, who summed up the issue posed by quality changes in a paper he gave before the American Statistical Association 2 years ago. Said he:

> It seems fair to say that there exists no substantial scientific basis for the commonly held view that the index is biased upward. Social scientists who express this view may well be propagating a myth in a thoroughly unscientific fashion.

There is no doubt that adjustments for quality changes are not perfect. But it is not always realized by persons outside the Bureau that whatever bias is introduced in the price indexes as a result of quality change can effect the index in either direction, either up or down. Thus, many biases tend to cancel out each other.

There does exist, of course, a popular fallacy that all product changes are for the better. This, of course, is not so. Many improved drugs were found to have unforeseen but undesirable side effects. Speedier cars increase the risk of accident and injury. Increased complexity of mechanical gadgets invite higher operating and maintenance costs, greater breakage and increased repair costs. Shorter hospital stays may call for longer periods of outside convalescence. Nor are higher priced goods necessarily superior in quality to their cheaper counterpart. Thus, until the recent ban by the Food and Drug Administration, few people realized that antibiotic throat lozenges sold at premium prices were inferior to the older varieties—while they did not kill germs as advertised, they did make them more resistant to antibiotics and were prone to induce allergies among consumers.

Similar examples are, of course, abundant.

Except for periods of emergency or when some items disappear from the market and thereby create special problems, the likelihood is that technicians in the Bureau of Labor Statistics, under normal circumstances, do a fair job in adjusting prices for quality change. Of course, the program should be under continued study. Research is continued in the Bureau, but its speed depends in good part on the availability of funds.

On balance, the revised CPI is an improved product. Whatever its imperfections—unavoidable in most index compilations—they are outweighed by its virtues as a basically adequate measure of prices paid by urban wage and salary workers. Additional improvements can, of course, be made with the progress of the art and if more staff and funds for research and price collection are available. Continued maintenance work is also needed to prevent the deterioration of the index. I list some of the things which need to be done in this field. Relatively little, as I said in my prepared statement was done outside CPI.

WPI, the Wholesale Price Index, continues to be compiled as heretofore, with price quotations obtained from respondents by mail. As already noted by Commissioner Ross, reporters do not always report

all discounts from their list prices. These short-term distortions in the index may make it at times a bit less sensitive to current price changes. Collection of actual transaction prices, of course, is a massive and costly operation. On the other hand, it conceivable that ways may be found to secure better cooperation from respondents and to get more accurate responses from them. Experimental research is called for in this area.

Many problems in the WPI field are, of course, similar to those of the Consumer Price Index. Here, too, there is a need to deal with the problems of quality change. Maintenance problems are also the same.

In the final analysis, the success or failure of the Bureau in this field again lies in the area of resource availability.

The Bureau, of course, as noted by Commissioner Ross, has been broadening its activity in wholesale price statistics by tabulating data by industry. All of these indexes so far are output price indexes. Input price indexes cannot be compiled due to the lack of availability of data input-output tables in sufficient detail necessary for this work. And, of course, there is a great need for additional price quotations.

The Wholesale Price Index, of course, is not a proper measure of prices paid by governments or of export and import commodity prices. The only information available in the export-import field are the so-called unit value indexes compiled by the Department of Commerce. These series are really not price indexes, in that they reflect both changes in the relative importance of different items shipped in foreign trade as well as changes in their prices. There is a great need for export-import price series for the evaluation of the competitive position of domestic industry. Experimental work in this area is going on. Whether or not such statistics will be compiled in the near future is a matter of conjecture.

Of course, as was pointed out, much less has been accomplished in compiling, modernizing, the index of prices paid by farmers for family living. Aside from failure to include medical, dental, and hospital services which were alluded to by Mr. Koffsky, mail collection from voluntary reporters does not permit use of specification pricing. It creates difficulties in maintaining continuity of respondents and suffers from nonresponse, which my study of some years back showed occasionally to be as high as 90 percent in some commodities. I do not know what the current ratios of nonresponse are.

Chairman PROXMIRE. At this point, Mr. Koffsky, would you indicate what, in your best judgment the response is, or the nonresponse?

Mr. KOFFSKY. Could I call on Mr. B. Ralph Stauber, who lives and works with these indexes on a day-to-day basis?

Chairman PROXMIRE. Surely. Mr. Stauber?

Would you state your title for the record, please?

Mr. STAUBER. I am Chief of the Agricultural Price Statistics Branch.

The percentage response varies considerably, depending upon the list, as Dr. Teper has indicated, and it also depends upon what you might call how intensively the list is maintained and nonrespondents weeded out. A good list will return 40 to 50 percent response. Some other lists are down as low as 10 percent, so that there is considerable variation. Dr. Teper is entirely correct in mentioning the difficulties of operating on a mail questionnaire inquiry basis.

Chairman PROXMIRE. Very good. Thank you very much, sir.

Mr. TEPER. Of course, as the Department of Agriculture and its Statistical Reporting Service recognize in their publication, the present procedures cause difficulties in controlling response errors. One never can tell how well the questions are understood by respondents and how accurate the response may be. It is highly desirable for the Department of Agriculture to change the compilation of its index of prices paid by farmers for family living—that is the only one that I considered—and have it compiled on a similar basis to the Consumer Price Index. In other words, coverage needs to be improved, specification pricing should be introduced, and data should be collected by trained interviewers, rather than by mail, in most instances.

Price statistics are an important tool in the arsenal of our statistical intelligence. Together with other data, they enable the Government and private citizens to examine and evaluate economic developments and formulate appropriate policies. Of course, price indexes do not tell a complete story. For a proper evaluation, one has to look frequently behind the facade of a statistical series to secure appropriate insights and understanding of economic behavior. This may call not only for the examination of changes exhibited by the subgroups of specific indexes, but may also require a look-and-see into the nonstatistical aspects of the problem for proper interpretation. For example, we have recently witnessed a somewhat accelerated price movement. Some of the factors that account for it seem temporary in character, or else were caused by conditions outside the United States, such as changes in prices of some raw material—copper, to give one example.

Some of the recent upward movement of WPI and CPI can be accounted for by advances in the prices of food and other farm products, both direct and indirect advances. In view of the current expectation of a drop in the prices received by farmers for the balance of the year, this development is likely to offset some of the other price increases that have taken place. The slowdown in tempo of economic activity noticeable in April indicators is also prone to exert moderating influences on further price advances.

Thank you.

(The prepared statement of Mr. Teper follows:)

PREPARED STATEMENT OF LAZARE TEPER, DIRECTOR OF RESEARCH, INTERNATIONAL LADIES' GARMENT WORKERS' UNION (AFL–CIO)[1]

UTILIZATION OF PRICE INDEXES IN PRIVATE AND PUBLIC POLICY DECISIONS

Between 1946 and 1965, the Wholesale Price Index (WPI) advanced by 55.1 percent, while the Consumer Price Index (CPI) moved up by 61.6 percent and its commodity component by 53.3 percent. Index of prices paid by farmers for family living (FLCI) gained 51.5 percent. The faster pace of CPI advance is accounted for by its service component which rose by 87.9 percent, a much faster pace than its commodity component. The rising cost of services apparently affected FLCI to a lesser degree, most likely due to the underrepresentation of services in the makeup of that index. Except for the CPI, the long-term movement of the WPI, the commodity component of CPI, and the FLCI was within a range of about 2 percent over a 19-year period, a small deviation indeed.

Over shorter periods, price movements were not always similar, either in direction or degree of change. As can readily be seen from table 1, in the periods

[1] The views expressed in this paper are those of the author in his individual capacity. They do not necessarily reflect the opinions of the International Ladies' Garment Workers' Union.

of major postwar price advances, all four series registered gains, though a varying degree. In the years immediately following the war and in the period around Korean hostilities, WPI moved at a faster pace than the other series. During 1955–1958 period, on the other hand, WPI sometimes lagged behind. At other times, movements were diverse, with some indexes registering gains while others declined. In the most recent period, WPI once again led the parade.

Price advances usually spur on, in addition to a concern about inflationary pressures, renewed inquiry about the relative accuracy of the various price indexes on which both public and private groups have to rely for policy formulation and policy implementation. The Joint Economic Committee and its Subcommitee on Economic Statistics deserve general commendation for providing a forum for such discussions as well as for their work on behalf of an improved system of statistical intelligence in this and other fields.

TABLE 1.—*Year-to-year percent changes in the Wholesale Price Index, Consumer Price Index and its commodity component, and the index of prices paid by farmers for family living, 1946–66*

Period	Wholesale Price Index	Consumer Price Index		Index of prices paid by farmers [1]
		All items	Commodities	
1946–47	+22.8	+14.4	+20.2	+17.3
1947–48	+8.3	+7.7	+7.2	+5.9
1948–49	−5.0	−1.0	−2.6	−3.2
1949–50	+4.0	+1.0	+.6	+1.2
1950–51	+11.4	+8.0	+9.0	+8.9
1951–52	−2.8	+2.2	+1.3	+1.1
1952–53	−1.4	+.8	−.3	−.7
1953–54	+.2	+.4	−.9	+.4
1954–55	+.3	−.3	−1.0	
1955–56	+3.2	+1.5	+1.0	+1.5
1056–57	+2.9	+3.5	+3.1	+2.9
1957–58	+1.4	+2.8	+2.3	+1.8
1958–59	+.2	+.8	+.1	+.3
1959–60	+.1	+1.6	+.8	+.7
1960–61	−.4	+1.1	+.6	+.3
1961–62	+.3	+1.2	+.9	+1.4
1962–63	−.3	+1.2	+.9	+1.0
1963–64	+.2	+1.3	+1.1	+.7
1964–65	+2.0	+1.7	+1.1	+2.0
January–April 1964—January–April 1965	+.7	+1.2	+.8	+1.3
January–April 1965—January–April 1966	+3.9	+2.5	+2.4	+3.0

[1] Prices paid for family living.

The last full-scale review of Federal price statistics by the Subcommittee on Economic Statistics took place in 1961 after the Price Statistics Review Committee, chaired by Professor George J. Stigler, completed its study. The hearings highlighted the many aspects of the Stigler Committee's recommendations—some sound, some controversial—and the subcommittee's report of July 21, 1961 provided a useful evaluation and gave guidance for future activity in the price field within the Federal Government.

Five years have passed since then. The major changes occurring since then in the field of price statistics were in connection with the revision of the CPI. Wisely, the Bureau of Labor Statistics rejected the recommendation of the Stigler Committee that the index be transformed into one that would measure prices of a "constant level of utility" or "satisfaction". The Stigler Committee, of course, never made clear precisely what they meant and never spelled out how such measurement could really be carried out. While a cost-of-utility index is advocated by some economic theoreticians, others, equally competent, argue that no such index can ever be defined in terms of a specific level of prices and that it is not even possible to define the outer limits within which such measure would fall. Even the theoretical framework of a cost-of-utility index is such as to make it valueless in real life. To be valid, a cost-of-utility or satisfaction measure must be priced in an environment that is totally static. Consumers themselves cannot change family-wise, age-wise, income-wise, or otherwise. They must be immune to changes in habits, taste, or their environment. They cannot be influenced by advertising or salesmanship. Even the goods and services from which they can select items for their consumption must remain immutable. No

new item must enter the market place. Advocates of a cost-of-utility index cannot reconcile the theoretical postulation with actuality. They are therefore incapable of providing a model for the construction of a meaningful measure.

Historically, the Bureau of Labor Statistics has sought to measure changes in the 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 reference period. The index is thus a measure of price changes, and of price changes only, at least between major revisions in its weights. The aim of CPI, as stated by Sidney A. Jaffe of the Office of Prices and Living Conditions of the Bureau of Labor Statistics, "is to measure the shifts in the purchasing power of the consumer's dollar, or alternatively of his cost-of-living, insofar as this is affected by price change, with all other factors than price held constant." [2] This is sound. To measure movement of prices the index should not be affected by the shifts in consumer buying stemming from differential movements in the prices of substitutable commodities or because of the positive or negative changes in the consumer ability to spend. To put it in other words, measurement of pure price changes should only be influenced by the behavior of prices and not by changes in consumption patterns. The fixed-weight index, such as CPI, which provides an objective yardstick for measuring price effects, at least between major revisions in the index weights,[3] is a proper measure for the deflation of incomes because its weights are not correlated, either positively or negatively, with income changes.

In the course of recent revisions, the Bureau of Labor Statistics made numerous changes in the construction of the index. Some of these call for a brief comment.

Weights for the revised CPI were developed on the basis of the 1960–1961 consumer expenditure surveys, and the revised index was linked with the older series as of December 1963. Income limitation for index families was abandoned and coverage of the index was extended to single workers living alone.[4] Both the new and the old national indexes were published through June 1964 and the revised index exclusive of single workers was issued through November 1964. The two revised CPI national series, inclusive and exclusive of single workers, proved to be identical during the period of their compilation while their major subgroups showed an occasional deviation by one decimal point which would disappear the following month. This experiment clearly suggests that the data are equally adaptable as a deflator for all urban workers and salaried employees as well as those who are family members.

The behavior of the old index as compared with the revised one is also of interest. Even though in one month the two series differed by 2 decimal points, the data did not suggest a systematic bias. Differences in the behavior of the several subgroups were more pronounced, but it is difficult to ascribe them to a systematic bias in most cases. An attempt was made by this writer to evaluate the impact of the new weighting structure on the CPI level. Accordingly a crude recalculation of the March 1966 national CPI was made using old index weights for the regularly published component series. The resultant figure was 112.2 as compared with the published figure of 112.0, a relatively minor discrepancy that might have been caused by rounding or the failure to use unpublished original data. Parenthetically, this discrepancy is no greater than the maximum difference between the revised and the old CPI in the first half of 1964.

In formulating the program for CPI revision, the Bureau of Labor Statistics relied to a greater degree on probability sampling in selecting the metropolitan areas and smaller cities where expenditure surveys were to be conducted and where prices were to be obtained, in choosing outlets where goods and services were to be be priced (with the proper representation of shopping areas both in central cities and in suburbia), and in selecting items to be priced. The aim

[2] Sidney A. Jaffe, The Statistical and Conceptual Structure of the Consumer Price Index as Revised (mimeographed), March 9, 1964, p. 1.

[3] Periodic revisions in index weights are unavoidable as a practical matter due to major changes in consumption patterns and available goods and services. Whenever such revisions do occur, a discontinuity is unavoidably introduced into the index which affects its long-term consistency. No ways have been found to avoid them. This is a good reason why weight revisions should be resorted to sparsely, probably not more frequently than once in a decade.

[4] A family was considered in calculating CPI weights if 50 percent or more of its total income during the survey year came from wages or salaries and if at least one family member worked for at least 37 weeks in that year. Previously, index families were defined on the basis of the occupation of the head of the household. The current practice was deemed desirable because some families now have more than a single earner, and some are headed by a non-working family member.

was to get a better representation of the current distribution of the nation's urban population, of places where shopping is done, as well as of goods and services purchased. The use of replicated sampling, recommended by the Stigler Committee, permits the Bureau to set up independent matched samples of outlets and items and to compute the possible range of sampling error in the index.[5] The number of outlets where prices were to be obtained was also enlarged, as well as the number of items to be priced and the number of quotations to be secured for many of them. However, probability sampling could not be carried out in actual practice in every case due to the lack of needed detail about retail establishments and consumer spending. And yet, one can confidently expect that the resultant index in many ways is an improvement over the previous effort.

It may well be noted at this point that the first report on the experience with replicated sampling indicates that "a change of .1 or more in the U.S. all-items CPI (either from one month to the next or over a quarter) is significant at the 5 percent level." Mr. Wilkerson cautions however that "since a change of .1 in the published index can result from a much smaller actual change in the unrounded figures, it is necessary to make the more conservative statement that a change of .2 in the published CPI appears to be significant but that a change of .1 may not be."[6] I understand that a report on the more recent computations of sampling error in the CPI is now in preparation.

The user of the CPI, or for that matter the user of the results of any other public or private statistical inquiry, must always be conscious of the fact that sampling errors do not tell the full story. There are other sources of possible errors, including those of respondents and interviewers, those arising in the course of data processing, or errors inherent in the precision with which the measurement process can be defined and carried on. The presence of such errors does not render statistical inquiries any less valuable. The user, however, must approach all data with a sense of appropriate sophistication and with full knowledge of the virtues and limitations of the particular compilation.

A sophisticated user of CPI also has to be conscious of other problems. The national CPI is computed from data collected in the several urban areas weighted by their population in the reference period. Thus between major revisions, the index makes no allowance for population shifts from one area to another or within a given urban area. However, population mobility does affect the national average of prices paid by consumers for a specific item or group of items as a result of the difference in prices in various parts of the country or in different outlets.[7] There are, of course, many practical problems which make it difficult to introduce population shifts in the index between major revisions.

The uncritical use of probability design in selecting metropolitan areas and cities for inclusion in the CPI unwittingly creates another problem. As a result of periodic revisions, the list of cities for which CPI was published was changed in 1940, then again in 1953 and now in 1964, as a result of the sampling revisions in the index. However, city indexes do have important uses. Aside from portraying local price movements which may differ from those shown by the national CPI, they are relied upon in many local labor-management negotiations and are used for many municipal purposes. Experience has shown that it is highly desirable that the list of cities for which CPI is published maintain continuity, even if the data for a given community are not used in the compilation of the national figures.

A major innovation, introduced in the revised CPI, dealt with a modified approach to the implementation of the concept of a fixed market basket.[8] Previously, expenditure weights had been allocated in the reference period to individual items in the sample of goods and services. Under the revised practice,

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[5] Computation of sampling error from replicated samples actually does not depend on the use of a probability model in the original sample selections.

[6] Marvin Wilkerson, "Measurement of Sampling Error in the Consumer Price Index: First Results," in American Statistical Association 1964 Proceedings of the Business and Economic Statistics Section, p. 224.

[7] The problem was acute during the second world war when workers needed in defense plants flocked to communities where prices rose at a much faster pace than elsewhere in the nation.

[8] The Bureau continues to rely on specification pricing, as heretofore. However, in an effort to obtain a more representative picture of retail stores and of the various items in the index, it authorized its field representatives to obtain price quotations on articles nearest to the one called for by specifications when the latter are not obtainable. These alternate specifications are expected to be followed in the future to assure the continuity of the series. This procedure, hopefully, will provide an improved measure of price changes.

the Bureau stratified consumer expenditures into 52 separate classes, each of which consisted of goods or services designed to fill a specific human requirement (such as all meats, furniture, women's apparel, recreational services, public transportation, etc.). The weighting diagram of the revised index was then expressed in terms of the relative weights of each of these expenditure classes and is scheduled to remain unchanged until the next major revision. In turn, each expenditure class is to be represented by a sample of items, but such samples will not necessarily remain unchanged between revisions. The market basket is thus defined as a sample representative of all consumer spending in the reference period rather than of the specific items which defined the level and pattern of living in such a period.

This technique would permit the Bureau to price a new sample of items to represent a specific expenditure class whenever significant changes take place in the market place, and link it with the older sample representing the same expenditure class without affecting the index level since the weight of the expenditure class will not be affected by such substitution. This method facilitates introduction of new products or new services into the index when older items go off the market and the need for substitution exists. It raises, however, other problems. Prior to the second world war, for example, some manufacturers produced identical goods under several brand names which were distributed at widely different prices; the cheaper lines were discontinued following the introduction of the General Maximum Price Regulation. Should such a situation reoccur, and substitution of the more expensive brand becomes necessary in an expenditure class, the use of linking would unavoidably introduce a downward bias in the CPI. The staff of the Bureau of Labor Statistics is conscious of this problem and under normal circumstances would treat this substitution as a price increase. It is important, however, to bear in mind that a bias could be introduced should new sample substitutions be handled in a mechanistic fashion.

Adjustment of price indexes for quality changes is an ever present problem which probably generates more debate about price indexes than any other issue. One cannot, of course, minimize its importance, but at the same time one cannot refrain from noting the mass of uninformed comment on the alleged bias in the CPI (and also in other price indexes) due to alleged failure to take account of quality improvements. A prominent business economist, C. Ashley Wright of the Standard Oil Company (N.J.), sums up the issue succinctly: "It seems fair to say that there exists no substantial scientific basis for the commonly held view that the index is biased upward. Social scientists who express this view may well be propagating a myth in a thoroughly unscientific fashion."[9] But even the Council of Economic Advisers shares this common prejudice. Their 1965 report states categorically: "None of our price indexes can reflect all of the improvement that occurs in the quality of goods, nor can an index make allowance for the rise in the value of the dollar that comes from the development of new products."[10]

It is, of course, true that really new items are not introduced in the CPI except at the time of major revisions. But it is also true that there are relatively few true innovations that enter the market in significant quantities during a decade. Most novelty consists of modification of existing items, and these changes are accounted for in the index. The Bureau of Labor Statistics is fully aware of the problem and is using techniques for coping with quality changes either through linking or by adjusting prices for quality differences—in an attempt to eliminate their impact on the index.[11]

Adjustments for quality changes are complex and far from perfect. It is not always realized by persons outside the Bureau that whatever bias is introduced in the price indexes as a result of quality change can affect the index either up or down; thus biases tend to cancel out each other. There does exist a popular fallacy that all product changes are for the better. This, of course, is not so.

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[9] C. Ashley Wright, "Quality Changes and the Consumer Price Index", in American Statistical Association, supra, p. 231.

[10] Economic Report of the President, January 1965, p. 54. The Council also observed the GNP deflator fails to take account of increased efficiences in government, most construction and some services in computing their "prices" and that these and other nonmeasurable improvements make it doubtful whether the purchasing power of the dollar changed perceptibly between 1961 and 1964. The Council refrained, however, from carrying the argument to its logical conclusion: that if their statement about price movements was correct, then productivity gains were understated during this period.

[11] See, for example, Ethel D. Hoover, "The CPI and Problem of Quality Change", in Monthly Labor Review, November 1961, pp. 1175 ff.

Many improved drugs were found to have unforeseen but undesirable side effects. Speedier cars increase the risk of accident and injury. Increased complexity of mechanical gadgets invites higher operating and maintenance costs, greater breakage and increased repair costs. Shorter hospital stay may call for longer periods of outside convalescence. Nor are higher priced goods necessarily superior in quality than their cheaper counterpart. Thus until the recent ban by the Food and Drug Administration, few people realized that antibiotic throat lozenges sold at premium prices were inferior to the older varieties—while they did not kill germs as advertised, they did make them more resistant to antibiotics and were prone to induce allergies among consumers.[12] Similar examples are abundant.

Except for periods of emergency when some items disappear from the market and thereby create special problems, the likelihood is that technicians in the Bureau of Labor Statistics, under normal circumstances, can do a fair job in adjusting prices for quality change. One tends to accept the summation made by C. Ashley Wright:[13]

"One section of expert opinion in the Bureau holds that if a bias exists it is so small as to be negligible; another equally respectable opinion is that a small bias probably exists but that it is downward, contrary to the opinion which is now favored. These views are based on a detailed knowledge of the day-to-day operations of the Bureau, including the character and the extent of adjustments which are made for substitution and quality changes. In the absence of substantial empirical studies in this field, they deserve more respect than the almost unsupported opinion of economists and statisticians without access to such knowledge and information."

The Bureau of Labor Statistics continues, of course, to study the problems related to quality change. Research is continuing but the speed with which it can proceed depends in good part on the funds available for this work.

On balance, the revised CPI is an improved product. Whatever its imperfections—unavoidable in most index compilations—they are outweighed by its virtues as a basically adequate measure of prices paid by urban wage and salary workers.[14] Additional improvements can, of course, be made with the progress of the art and if more staff and funds for research and price collection are available. Continued maintenance work is also needed to prevent the deterioration of the index.

Let me list some additional areas where work needs to be done:

1. Pricing techniques must be developed for consumer credit, automobile financing, and settlement charges on home purchases.
2. Medical care samples in a number of cities are outdated and need revision.
3. Pricing of home purchases, now limited to those financed by FHA-guaranteed mortgages, should be extended to home purchases otherwise financed.
4. Improvements in pricing of rentals are needed to assure that dwellings of identical specification be priced rather than identical dwellings as is done currently (since identical dwellings are affected by gradual obsolescence, the current practice introduces a downward bias in the rent component of the CPI). Techniques for refurbishing the sample of rental units also need development to permit replacement of housing that disappears from the market.
5. Improved techniques need to be developed for pricing restaurant meals and other food consumption away from home.
6. Pricing of milk delivered to consumer homes needs improved coverage in some cities.
7. Techniques need to be developed for the inclusion of life insurance service costs within the scope of the CPI.
8. Specification pricing needs a more thorough continued review than at the present time, in view of the extra latitude granted to field personnel in accepting modified specifications.

Some work in these and other fields is carried on by the Bureau of Labor Statistics. However, the Bureau is hampered in the price field by insufficient resources.

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[12] Interview with Dr. James L. Goddard, Commissioner of Food and Drugs, U.S. News and World Report, May 16, 1966, p. 78.

[13] Wright, supra, p. 321. A recent study by Phillip Cagan seems to agree with this conclusion by suggesting, though tentatively, that "the CPI is not biased upward and may even overcorrect for quality improvements in automobiles" (his "Measuring Quality Changes and the Purchasing Power of Money. An Explanatory Study of Automobiles", in National Banking Review, December 1965, p. 231).

[14] Actually CPI is a more accurate deflator of disposable wage and salary income since the "price" of government services represented by income taxes is not encompassed in its makeup.

Relatively little change has taken place in the price statistics field outside of CPI.

WPI continues to be compiled, as heretofore, with price quotations obtained from respondents by mail.[15] While the Bureau requests the sellers of goods to provide actual prices charged their customers, inclusive of all discounts from list prices, in a number of cases this is not done and the Bureau is supplied only with list prices. Thus, when list prices and transaction prices tend to diverge, WPI may not be as sensitive to the actual price changes as might be desirable. To what extent this occurs is really not known. As noted earlier, over a long period of time WPI movement corresponded fairly closely to that of the CPI commodity component and of FLPI. Collection of transaction prices in the wholesale field is, of course, a massive and costly operation. It is conceivable that ways may be found to secure better cooperation from respondents. Experimental research programs may also be attempted to determine how significant are divergent movements between list and transaction prices and to what degree they affect the movement of WPI as a whole as well as of its various components.

Many problems encountered in the compilation of WPI are quite similar to those of the CPI. Here too, there is a need to deal with the problem of quality change. Maintenance problems to assure continued representativeness of the series are similar to those of the CPI, coupled with an additional need of getting reporters to send in their price quotations more promptly.

WPI is an important tool used in economic and marketing analyses, for forecasting purposes, and for escalation of industrial purchase and sales contracts. Due to the character of its compilation, however, WPI is suitable for some needs and not for others.

To broaden the usefulness of the series, the Bureau recently published its first tabulations of wholesale output price statistics for 50 selected 4-digit SIC industries.[16] The data was made available in the form of annual averages from 1957 on and it is expected that the publication of monthly series will begin shortly. The basic data for these tabulations was provided by price quotations secured for WPI needs. The limited scope of the existing tabulations was caused by the lack of sufficient information for the representation of both primary and secondary product prices for all industries. Even in the case of those industries where tabulations were made, a certain amount of imputation was needed to carry out the task.

This is an important beginning and should prove useful for the comparison of price movements of the different industries, for deflation of the value of their shipments, and many other purposes. While it was hoped that the Bureau of Labor Statistics would also compile input price indexes, this apparently is not feasible at the moment due to lack of sufficiently detailed information in the existing input-output tabulations.

WPI, of course, is not a proper measure of prices paid by governments or of export and import prices. The only information available in the export-import field are the so-called unit value indexes compiled by the Department of Commerce. These series are really not price indexes—they reflect both changes in the relative importance of different items shipped in foreign trade as well as changes in their prices. There is a great need for export-import price series for the evaluation of the competitive position of domestic industry. Experimental work is going on in the National Bureau of Economic Research[17] and the Bureau of Labor Statistics. However, federal activity in this field is hampered by lack of appropriations.

Little has been accomplished to date in modernizing FLPI. As noted earlier, this series suffers from under-coverage of services. It fails to include in its coverage medical, dental, and hospital services. Data continue to be gathered by mail from voluntary reporters. This collection method does not permit the use of specification pricing, and is subject to difficulties in maintaining continuity of respondents and from nonresponse. Response errors can be significant in such inquiries for there is no way to assure that questions asked are properly understood or that the answers given are accurate. The nature of the collection

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[15] Work is going on currently to reclassify the various commodities to provide additional detail.

[16] Bennett R. Ross, Industry and Sector Price Indexes, Monthly Labor Review, August 1965, pp. 974 ff.

[17] A preliminary report on the results of a pilot study of such prices has been published by the National Bureau of Economic Research (see Irving B. Kravis, Robert E. Lipsey and Philip J. Bourque, Measuring International Price Competitiveness: A Preliminary Report, 1965).

process thus requires extensive editing and estimation in field offices of the Statistical Reporting Service of the Department of Agriculture as well as in Washington.

It is highly desirable for FLPI to be compiled on a similar basis to CPI. The coverage of the index needs to be improved. Specification pricing should be introduced and data should be collected from respondents by trained interviewers.

Price statistics are an important tool in the arsenal of our statistical intelligence. Together with other data, they enable the government and private citizens to examine and evaluate economic developments and formulate appropriate policies. Of course, price indexes do not tell a complete story. For a proper evaluation one has to look frequently behind the facade of a statistical series to secure appropriate insights and understanding of economic behavior. This may call not only for the examination of the changes exhibited by the subgroups of specific indexes, but may also require a look-and-see into the nonstatistical aspects of the problem for proper interpretation.

For example, we have recently witnessed a somewhat accelerated price movement. Some of the factors that account for it seem temporary in character or else were caused by conditions abroad. Some of the upward movement of WPI and CPI can be accounted for by advances in the prices of food and other farm products both direct & indirect advances. In view of the current expectation of a drop in the prices received by farmers for the balance of the year, this development is likely to offset some of the other price increases that have taken place. The slowdown in the tempo of economic activity noticeable in April indicators is also prone to exert moderating influences on further price advances.

Chairman PROXMIRE. Thank you very much, Dr. Teper.

Commissioner Ross and gentlemen, if you would also like to comment on this, one of the concerns, as you said, of this committee with the price statistics is the effect of the price statistics on economic policymaking. It strikes me that if the economic policymaking is going to be effective, one of the most useful contributions that could be made would be to get, if you can get them, reliable leading indicators, the kind of thing that you have with your 22 sensitive commodities, which presumably tends to lead the Consumer Price Index. I am wondering if, in your judgment, in this particular area, there is an opportunity for us to make a substantial improvement in order to get the kind of statistics that would be helpful to us if we should decide to follow a policy of either modifying taxes, spending policies, monetary policies, and so on.

Mr. Ross. I think that could be answered in two ways, Mr. Chairman. First, we think that if we have industry price indexes for a larger number of sectors, we will be able to improve our knowledge of how impulses are transmitted from one part of the economy to another and where they are typically generated.

Secondly, we think——

Chairman PROXMIRE. You feel that that is necessary to give us a fuller understanding?

Mr. Ross. Yes.

Chairman PROXMIRE. We have some appreciation of it now, do we not?

Mr. Ross. Of course, we know some things now. As you mentioned, Mr. Chairman, we have the so-called sensitive commodities. We know a little bit about the relationship between wholesale and retail prices in the food area, where there appears to be a lead-and-lag relationship. That is less clear in some of the other types of commodities.

I was going to say, in addition to the value of sector indexes for these purposes, we think there should be more research on price movements. We have in our budget for this year a small item which the House Committee on Appropriations has endorsed for research on price movements.

Chairman PROXMIRE. How much is that? How much money is involved?

Mr. Ross. I think it is around $100,000, but that might be too high.

May I ask Mr. Chase, Assistant Commissioner for Prices, to answer that question?

Chairman PROXMIRE. Certainly.

Mr. CHASE. $77,000.

Mr. Ross. Perhaps Mr. Chase might want to say a word also about this question of lead indicators.

Chairman PROXMIRE. Mr. Chase, would you like to supplement what Mr. Ross has said?

Mr. CHASE. The index of sensitive commodity prices needs to be improved substantially. Many of the commodities that are now included, at one time were included because they were good indicators of activity in the economy, or change of direction in the economy. But this list has not been reexamined, and as a result of our larger dependence on imports of certain products, there are many additional products that would give us a better indication of what is happening to costs of production as far as raw materials are concerned.

Chairman PROXMIRE. Have you plotted any correlation to indicate the usefulness of this sensitive commodity group so we could know over, say, the last 10 years, the last 5 years or so, the degree to which this has been an accurate indicator?

Mr. CHASE. We have not developed a published report on this. Our economic analysts watch it constantly to give them a lead as to what they may expect in the broader based price indexes.

Chairman PROXMIRE. Because it seems to me if you could plot this and indicate the degree of reliability, and so forth, this is the kind of thing that would be most useful to members of this committee and members of other committees in Congress that have such an enormous impact on our economy. Of course, all we have is the warning here. It may be that we would have to disregard it if the reliability were not very substantial.

Mr. Teper, do you want to get into this?

Mr. Ross. Mr. Chairman, before Mr. Teper gets into this, may I say that it would take a little time, but the Bureau would be glad to put some of our people to work analyzing the experience, let us say since 1960, and indicating to what extent the various price measurements such as a sensitive group or other possible lead indicators have been reliable predictors. This would take a little time, but we would be glad to supply it for the committee when it is completed.

Chairman PROXMIRE. It would be very useful to everybody.

Mr. Ross. Fine.

Chairman PROXMIRE. Mr. Teper, you wanted to comment.

Mr. TEPER. I fully agree, of course, that the lead indicator ought to be improved. But I also want to suggest that it basically is not a price indicator in the broad sense of the word. It is a highly specialized measure of certain sensitive prices. If you were to study its long-term movement, you would discover that the current level of this indicator is lower today than it was in 1950 or 1951. It is a useful trigger device, but it is not useful, I believe, as a long-term measure. If one were to correlate the long-term movements of this series with some other data, one could get some spurious results.

But certainly the sensitive price index is a useful device for the evaluation of the current scene, to see what is happening and what might happen.

Chairman PROXMIRE. Well, would you not agree, however, that it is possible that if we can revise these sensitive commodities, as Mr. Chase and Mr. Ross have suggested we should revise them, and get a greater number, get more appropriate ones, eliminate those that seem to be obsolete, and then, over a period of time, try to go back perhaps and determine the extent to which this gives us a useful lead, that we might possibly come up with something that would be helpful to us?

Mr. TEPER. I think experimentation is desirable at all times. But I also remember when Wilfred I. King developed an index for forecasting stock market prices in 1929 on the basis of historical experience. He was so confident just before the crash that we were entering an era of unbounded prosperity. One ought to exert a certain amount of caution. But by all means, let's experiment.

Chairman PROXMIRE. Well, yes; but now we are talking about such an entirely different thing. Obviously, if you could predict the stock market, you could have all the money in the world in a relatively short time. That is quite different from the kind of thing Mr. Ross quite carefully pointed out, that we want to find out the relationship in these sectors between price levels at different times. Obviously, your raw material price is going to have some relationship on the price at any later point in time of your final product, and if you put in the other ingredients that go into the final price along the way, inasmuch as the final price arrives at a later period of development, it takes some time for the cost to be reflected. Now, it may be that there is a very imperfect relationship between the cost and the price. We have often seen that for various reasons. But there may also be a connection that may be useful, much more than these stock market predictions or race horse predictions, where you have an element of gambling and not such a logical sequential development as you would have in this price area.

Did you want to make any further remarks, Mr. Chase, regarding Mr. Teper's statement?

Mr. CHASE. I think one of the main values of this particular measure of price changes would be to at least indicate possible turns in the economy, that is, that it has turned up or down. You cannot be sure immediately that it is calling a turn, but over a short period of time, it may indicate that something has turned one way or the other.

Chairman PROXMIRE. Would not this also be true, that perhaps at the present time, the wholesale index might be a somewhat better indicator than the sensitive commodity and that the wholesale indicator also, I presume, can be improved and plotted and some notion of its reliability determined?

Mr. Ross. Yes. One part of a short range program which I mentioned very briefly is to improve the coverage of the weekly wholesale index so as to make it a better predictor of the monthly index during that month. That, of course, would give us a better fix, maybe 3 or 4 weeks ahead of what we would otherwise have.

Chairman PROXMIRE. I think that could be very helpful.

Thank you very much, Mr. Chase.

I would like to ask you gentlemen if you would care to give us your ideas on the following to the extent that you wish to comment. I

have heard that the increase in the cost of living indicated by the Consumer Price Index in April could be, at least most of it, accounted for by the anti-inflationary measures which we have taken to try to keep prices down, including the increase in excise taxes, including the increase in the social security tax, including the greater withholding tax programs. I do not know whether that would enter in or not—I presume it would—including, certainly, the increase in interest rates. Could you give me an idea of the extent to which this is an accurate evaluation and if this tells us much about economic policy? Perhaps standby credit controls or the use of credit controls, which would not enter directly into inflation might be indicated as a better anti-inflationary measure on this score.

Mr. Ross. Well, the reimposition of the excise tax on automobiles and telephones accounts for one-tenth of the four-tenths of a percent—I am talking now not index points, but percentages—one-tenth out of the four-tenths——

Chairman PROXMIRE. You mean one-fourth of the increase——

Mr. Ross. Yes; for the month of April.

The increased withholding of income taxes does not affect——

Chairman PROXMIRE. Until May.

Mr. Ross. It does not affect the CPI at all. It is not a price of a good or a service.

Chairman PROXMIRE. I see.

Mr. TEPER. The logical presumption is that Government renders no service to the person who pays taxes.

Chairman PROXMIRE. Well, that is about right.

Mr. TEPER. I disagree.

Chairman PROXMIRE. I disagree, too, but that is an assumption.

Mr. Ross. Let it not be said that I would not also disagree. In any case, we do not have a price index for the services rendered by the Government, so that the income tax is not part of the CPI.

Chairman PROXMIRE. Presumably, especially with new economics, you can have a price index in which you could reduce taxes at the same time as prices are increased, and vice versa.

Mr. Ross. To answer your question, certainly monetary policy has caused mortgage interest rates to rise and the increase on mortgage interest rates amounted to about one-eighth of a percentage point on new mortgages during April.

I do not recollect what the weight of that item is or what total effect it had on the index, but it did contribute to the rise in the housing sector of our CPI. So between the——

Chairman PROXMIRE. That is just housing. But in addition to that, the tight money situation has certainly affected the cost of many, many, many things, particularly installment credit. That is a little hard to trace, I know. Perhaps the cost of automobiles that are bought on time. That is again hard to trace. The cost of small loans which so many Americans necessarily have to borrow. There is some question as to how much, but the studies I have seen indicate that there was a significant and definite effect.

Mr. Ross. Yes. Mr. Chase could perhaps tell us to what extent these different types of credit are covered by the CPI. Would you care to have him do that?

Chairman PROXMIRE. Yes, indeed, I think that would be very helpful. It is a very important area.

Mr. CHASE. Actually, in April, as Mr. Ross has said, the reimposition of the excise taxes accounted for about one-tenth out of the four-tenths increase. Increases in State and local taxes, also accounted for an additional about one-tenth of 1 percent.

We do not have a very good method of estimating the effect of increases in interest rates on houses and consumer credit and so forth. But our best guess would be that that also accounted for an additional about one-tenth. So that the index would have gone up not more than about one-tenth, except for these factors which you have mentioned, Mr. Chairman.

Mr. TEPER. But actually, is it not the fact that consumer credit costs, automobile financing costs, and settlement charges on home purchases are not presently priced directly for the CPI, even though you people think they should be?

Mr. CHASE. It is not priced directly. It is one of the items for which we have not been able to develop satisfactory pricing techniques so far. It is represented by imputation in the index.

Chairman PROXMIRE. Adequately or inadequately?

Mr. CHASE. Inadequately.

Chairman PROXMIRE. Not sufficiently?

Mr. CHASE. That is right.

Chairman PROXMIRE. But you are working on this and you think there is a prospect that it can be better represented? Or is this something that will also take a greater appropriation?

Mr. CHASE. Additional funds are needed to complete this job; yes, sir.

Chairman PROXMIRE. Thank you, Mr. Chase.

How much will this long-term program that you suggested, Mr. Ross, cost? What is the price tag on it?

Mr. Ross. The long-term program, of course, would take, even with unlimited funds, would take some time to develop. It must be done in a certain sequence. Some work must be completed before other work is begun. We believe that we could make a good beginning at it with an additional appropriation of about $2 million. We think to actually develop and install the long-term program would eventually require an increase of about $12 or $13 million in the base. That is my recollection.

Chairman PROXMIRE. $12 or $13 millon, you say?

Mr. Ross. Increase.

Chairman PROXMIRE. But as far as price statistics are concerned——

Mr. Ross. Yes.

Chairman PROXMIRE. $2 million?

Mr. Ross. No, sir. $2 million we could put to work right away.

Chairman PROXMIRE. I understand. Two million dollars for this year, perhaps, 1 year?

Mr. Ross. Yes.

Chairman PROXMIRE. And over a period of time, it would be——

Mr. Ross. Yes; we think it would take 4 or 5 years to go through the sequence of steps to complete this program. At the end of that period, we would need a base about $13 million higher than the present base for price statistics.

Chairman PROXMIRE. What would this include? Would it include the prices paid by farmers, for example?

Mr. Ross. No; I am referring to the BLS program. It would include—well, let me read you what we call the major elements in the program. First a price index system would be organized to provide comprehensive and meaningful measures of price changes for all types of economic activity and the statistical framework would be based on GNP, input-output, and the standard industrial classification guidelines.

Second, the indexes produced by other agencies such as Agriculture, as well as our own, would be fitted into the master plan, although in most cases, it would be necessary to work with the other agencies to have them fill in the gaps within their own coverage.

Third, while emphasis would be given to overall changes in price level, the index system would be planned to show the anatomy of price change and the diffusion and interaction of effects from one sector to another.

That is the point I made about the uses that could be made of sector price indexes.

Next, provision would be made for adjunct statistical studies; for example, consumer expenditures studies needed for the CPI weights. We think that there should be a major review of consumer expenditures patterns every 5 years intead of every 10 years, for example.

Likewise, provision would be made for publishing data other than the price indexes themselves; for example, average price data for some commodities—well, these are the broad concepts.

Senator PROXMIRE. As I understand it, it would cost $2 million more in the first year. Eventually it would cost a total over time of $13 or $14 million, or would you get to a point where you would be spending $13 or $14 million more each year?

Mr. Ross. We get to a point each year where the base would be raised by $12 or $13 million.

Chairman PROXMIRE. This is the program that Mr. Bowman, I think, discussed yesterday also, because I made the same statement, around $2 million to begin with, a program that was enthusiastically supported by Mr. Fabricant and Mr. Backman, the two economists who were also present.

Mr. Ross. I am sorry I have not had a chance to read their testimony, but I think Mr. Bowman and I were speaking generally about the same thing.

Chairman PROXMIRE. I think Mr. Fabricant was talking about some other things. He had a number of things he wanted and I asked him to indicate priorities.

Is this what you have in mind, Mr. Teper?

Mr. TEPER. I think the first priority ought to be devoted to the maintenance of existing indexes. CPI has a number of areas which require improvement and where something has to be done to prevent deterioration; for example, in the rent sample. I cannot put a price tag on the thing, obviously.

Chairman PROXMIRE. I am simply asking for priority.

Mr. TEPER. I would put the priority on doing the maintenance work to preserve the good quality of the index, both of the CPI and the WPI, for that measure. That is priority No. 1.

There are things in Commissioner Ross's program with which I would disagree. I do not think you need a quinquennial revision. I think you can introduce biases in the indexes by too frequent a re-

vision of the base period weights. Again, experimental work here may be needed on a small scale to determine whether what I say is or is not so. But I do not think I would advise spending that money.

I fully agree that one needs to broaden the program of price statistics. Our national indicators of economic accounts suffer in many ways. Whether you need to undertake the program in exactly the scope you have outlined for long-range purposes, again I cannot say for the moment. I have not examined it in detail. But there is definitely room for additional expenditure, for additional work to improve national deflators. I have already mentioned the import-export field, where we are not doing very much except for unit value figures compiled by Commerce Department. Obviously, there is an area where something needs to be done.

We need to get indexes of prices paid by the Government for goods it purchases. We do not have any such indexes.

So there are a number of areas where work needs to be done. Of course, Agriculture is willing also to spend some money if they are given the funds.

Mr. KOFFSKY. Yes, Mr. Chairman. Maybe just to make the record complete——

Chairman PROXMIRE. I wanted to ask you specifically about some of these things. Why do you not go ahead right now?

Mr. KOFFSKY. I would say our present plans involve about $1,300,000 for a survey of expenditures to update our weighting pattern. Here I think it is important to recognize that when weighting patterns stay for any considerable length of time, you do introduce an upward bias. These indexes are essentially Laspeyres indexes with a fixed market basket of goods and the indexes tend to creep up over time on that account.

Secondly, to move on to a probability enumerative sampling system would involve an additional cost of about $2 million a year for the Department of Agriculture.

Chairman PROXMIRE. Thank you. I want to come to some specific questions in regard to the cost of some of the proposals you have made a little bit later on.

Yesterday, Mr. Ross, all three of the witnesses said that they agreed with your notion that the price statistics are good. Mr. Bowman is the only one who said so; I think the other two seemed to imply it. But all three indicated that we have fallen disappointingly short of meeting the Stigler recommendations and we should move faster than we did. Mr. Fabricant was the most incisive in that kind of criticism.

Would you agree that this is true?

Mr. Ross. Yes, I would basically agree. I hope that our present long-range proposal will be studied carefully by these experts, because I would be interested to have their opinion as to whether this program will meet the need. I think it is quite impressive. One reason, I think it should be said in defense of the Bureau, for the slow progress in meeting or carrying out the recommendations of the Stigler committee is that there is never a good time to get budget for price statistics. Either prices are not rising, and in that case nobody is very interested, or else prices are rising, which always coincides with the need for rigid economy. So we have yet to find a good logical time.

But we feel that it is so important now for Government policy and for private business planning that we ought to make a breakthrough and present this or take the position that it is good economy to spend more money for price statistics.

Chairman PROXMIRE. Well, I am enthusiastically in favor of that. I think that just as an army is only as good as its intelligence, so economic policy is only as good as the statistics on which it is based. We are spending such a fantastic amount of money, not only this Government but private industry and States and so forth, based on the statistics derived by the Federal Government, that a relatively modest investment, even a very substantial increase, provided it would improve the quality of the decisions made, would just pay for itself many, many times over. I think there is no question about it. I think we have to make this case over and over again, however. I think we have to do as much as we can to indicate the specific way in which this can achieve economy.

I refer to the study made by Kermit Gordon when he was Director of the Budget, showing the productivity of various Government departments. It was done on a pilot basis in several different departments. It showed a spectacular improvement in productivity and efficiency in those departments in which computers were installed; particularly in the Treasury Department, Internal Revenue Service, and various other areas.

I wonder if the installation of computers in this price area could enable us to not only secure better information more promptly and to get a better analysis of what we need, but also do the job for less money?

Mr. Ross. Well, I think the general experience with ADP is that you do not actually end up spending less money, but you get a lot more per dollar for what you do spend. I think it would be unlikely that the computerization of the BLS work would reduce our budget. I think, though——

Chairman PROXMIRE. I would not expect that, either.

Mr. Ross. But I think we would get a good deal more mileage.

Chairman PROXMIRE. Actually, it has not reduced the budget of the Internal Revenue Service, but the Internal Revenue Service is so enormously burdened. As I understand it—it was just incredible to me—there are five times or six times as many employees of the Internal Revenue Service in 1966 as in 1930, but they were doing four times as much work per employee in terms of returns processed. This is in part because computers have so enormously assisted them to handle the returns available.

So your department undoubtedly is going to do a whale of a lot more work as time goes on.

Mr. Ross. Let me say a little about that. I am sure we would get a lot more mileage per dollar of appropriation if we made proper and judicial use of computers. I agree with Mr. Teper that you do not want to let the computer run away with your program.

Up to now we have made the greatest use of the computer in our manpower statistics. That covers, of course, unemployment, employment, establishment figures of one type or another. We have not yet gone so far, either in the whole field of prices or the whole field of compensation. It is a major part of our program wherever pos-

sible to make maximum use of the computer. It not only permits you to do more work per dollar or per employee, but it also greatly increases the possibilities of analysis. If you get your information on the computer so that you have compatible information for production and prices and employment and other quantities, you can just do a great deal more of the sort of thing you were mentioning earlier, finding out what causes what and if one thing happens, what is likely to follow. So that we think the computer is a very promising analytical tool as well as a way of getting more statistics per dollar.

Chairman PROXMIRE. Do you have any kind of options or alternatives for this program you suggested that would bring in more computers or anything of that kind?

Mr. Ross. Well, we have a computer.

Chairman PROXMIRE. Do you have anybody working on trying to determine the extent to which computers can be used, the ways in which they might conceivably be brought into a greater extent?

Mr. Ross. Oh, yes, both in the Bureau and in the Labor Department as a whole. We have excellent people in the Bureau and in the Secretary's Office who are specialists in computer applications, computer possibilities. This is also a field where it makes good sense to get help of a consultative nature from the outside. There is a plan, for example, for a Department-wide study, in which we will participate, of the whole Department, the entire Labor Department's requirements for computer work, both for administrative uses and for analytical uses.

Chairman PROXMIRE. It seems to me this is an area in which we are very likely to be left behind, it is exploding so rapidly. I understand if the aircraft industry proceeded as rapidly as the computer industry, interplanetary space travel would have followed Kitty Hawk by about 10 years. They just have almost a geometric progression.

Mr. Ross. Yes.

Chairman PROXMIRE. I have noticed that so many of the people in the field are very young people, in their 20's or 30's, making remarkable contributions. The fact that the payoff can be seen by the great increase in private industry, where there has to be a clear payoff or they would not make the investment.

Mr. Ross. I might add they are not only very young, but very costly to hire.

Yes; it is moving very rapidly. In fact, we are now talking about the third generation of computers. The computer technology is moving so quickly that it is a bad risk to buy a computer unless you are awfully sure of yourself. It is really better economy to rent them. We have had discussions with the GAO about that. I think the experience does show that renting computers is more prudent.

The computer languages are changing rapidly and one has to make sure that he is using for his computer program FORTRAN or COBOL or whatever the language is that is going to be or shows the greatest possibility of becoming standard.

Eventually, of course, one will want to be able to communicate between one computer system and another, and for that purpose, it is important to have compatible languages, or symbols, in which the computer is programed.

Chairman PROXMIRE. Can computers talk to each other?

Mr. Ross. Yes.

Senator PROXMIRE. You want to make sure they speak the same language, not one speaking English and one French?

Mr. Ross. That is right.

Eventually, I think it is very clear that computers will be able to talk to each other long distance. In fact, I have seen IBM literature showing how that is done. You can have a little console in your office and you will tell your computer to ask the question of another computer, or your little console will ask the question of a master computer, which might be many miles away. This is now so standard that it is part of the regular commercial literature of the computer industry.

I know the Government is now considering what its long-range statistical program should be. Should there be one big computer installation into which all the tapes from the collecting agencies are fed? Maybe that will not be necessary, because each agency computer will be able to communicate directly with all the other computers, without necessarily putting them all in one building. It is moving very rapidly.

Chairman PROXMIRE. I am delighted it is moving rapidly, because I know it is much harder in many ways to get action, especially when you have to make a big investment. Maybe renting is one of the answers. With a tight budget, it is hard to get into this field the way I think we should.

Mr. Ross. In some parts, the Government is way ahead of the others. I think the military services and NASA are way ahead of the civilian agencies.

Chairman PROXMIRE. Did I understand you to make the modest statement that we can tell from the Consumer Price Index the direction in which prices are moving, but we cannot be quite as sure about the precise measure? For instance, would you feel that the CPI is inadequate, not comprehensive enough, to give us a really reliable picture of the increase, if the increase over a period of 3 or 4 years is 5 or 6 or 7 percent, that we should not feel that this is a good measure?

Mr. Ross. I did not mean to be that modest. I meant to say that it is a reasonably good approximation and it is good enough, certainly, for the traditional uses; for example, the escalation of collective bargaining wage rates and the other traditional uses that have been made of the CPI. Over a period of 3 or 4 years, it is probably more accurate than it is in any given year, because I think some of the problems such as quality biases will cancel themselves out.

Chairman PROXMIRE. You would agree with Mr. Teper on that?

Mr. Ross. Yes; I think on the point of quality, there are probably four different problems, and over a long period of time they tend to cancel themselves out more than they would in 1 year. There is first the gradual long-range improvement of quality of commodities which we——

Chairman PROXMIRE. Even that is pretty questionable.

Mr. Ross. Well, I would think that in the long run, if you put durable and nondurable consumer goods together, there is probably a general improvement of quality; more than is reflected by those quality adjustments which you are able to make, for example, in the case of automobiles, heating equipment, and some other commodities.

Second, there is the disappearance of low-end items in a period like the present, or any period——

Chairman PROXMIRE. Disappearance of what?

Mr. Ross. Low-end price items.

Chairman PROXMIRE. You mean the cheaper——

Mr. Ross. Well, Mr. Teper mentioned a case where a manufacturer might put out a radio under three different brands and have three different prices. If things get tight enough——

Chairman PROXMIRE. It seems to me that is an inverse effect.

Mr. Ross. Yes.

Chairman PROXMIRE. In other words, that tends to have a quality reduction factor.

Mr. Ross. Yes.

Mr. TEPER. That is if the Bureau does not catch it.

Mr. Ross. Yes.

Mr. TEPER. But I think they really do——

Mr. Ross. But it would not be a price increase.

Mr. TEPER. No, no, if you have a substitution of an identical item at a higher price, with identical specifications except for the brand name, I am sure the specialists in the Bureau would treat that as a price increase. They may not always catch it.

Actually, and this is where I may disagree with you, Arthur, over a short period of time, normally, you do not have too many quality changes. They are much more significant over longer periods of time. I am not dealing, of course, with a period of abnormality. If you had a war which taxed all our resources and you are forced to have price controls and limitations on the use of raw materials and controlled production of civilian goods—under those circumstances, you may face major quality debasement in the economy over a comparatively very short time and under such conditions the indexes may not be able to provide as good a measure as might be desired. Thus we may have to face similar problems as during the Second World War, when one had to evaluate the impact of quality deterioration on the index in qualitative terms and do so on the basis of nonqualitative information. But under normal circumstances, over short periods of time, I do not think you have many quality changes that would affect index accuracy.

Mr. Ross. It is complex, because I would think, for example, in a year like the present, which is not an all-out war, we are nevertheless having deterioration in the quality of many services. At least our wives tell us that there is a deterioration in the quality of service from laundry or drycleaning houses or the kind of service you get in some restaurants, or the nursing care of some of the hospitals and rest homes. I think with the airplanes being as crowded as they are——

Chairman PROXMIRE. This is so subjective, you know. I have noticed with my wife, who is, of course, the greatest woman in the world, that whenever prices go up in the market, she really burns up and she comments on it; she cannot tell me enough about it. But if the prices go down, she does not notice it, never says a word. The price may be at the same point after a year and I hear all the complaints about how prices have gone up. But not a word ever when prices diminish.

Mr. Ross. Well, women are ungrateful that way.

But my point to Mr. Teper was that I suppose in 3 or 4 years, these things will straighten out. If it is true that hospital or airline or restaurant service is deteriorating, presumably it will recover from any deviations this year.

I think that women are much more conscious of food price increases than anything else. That is because they shop for food daily and they are much more aware, I think, of changes than they are of something which is only bought every year or every 2 years. The style factor is not so important in the case of food as it is in apparel or automobiles or some other goods.

I get the impression that if you have, say, a two-tenths increase in the CPI made up entirely of food, there will be a greater volume of complaints received by Members of Congress and the President and so on than a two-tenths increase made up of other things.

Chairman PROXMIRE. I think that is right.

Mr. Koffsky, did I understand you to say $1.4 million was your estimate of the cost of the improvement that you thought was necessary and desirable for a modest improvement in price statistics which you have referred to, and the weight revision for your indexes, especially with relation to parity?

Mr. KOFFSKY. I would say, Mr. Chairman, we figure about $1.3 million would be needed for the expenditure survey that would develop new up-to-date weights.

Chairman PROXMIRE. That was the last one I said. Expenditure survey. That would not be related to parity as much as prices paid by farmers.

Mr. KOFFSKY. It would indicate the relative weights of items to be included in the prices paid by farmers index.

Chairman PROXMIRE. The first two I mentioned would be something in addition?

Mr. KOFFSKY. The other $2 million would be an increase to move our system from the mail survey to the probability enumeration system. The $1.3 million would cover the survey and run over 2 years perhaps.

Chairman PROXMIRE. It would not be anything that you would have continuing?

Mr. KOFFSKY. That is right. The other would require a continuing appropriation increase of about $2 million to move on to this enumerative probability sampling.

Chairman PROXMIRE. Now, on your weight review for prices paid, you say you had the last one in 1959?

Mr. KOFFSKY. 1955. It was introduced in the index in January 1959.

Chairman PROXMIRE. And how often have you had those over the years?

Mr. KOFFSKY. Well, that one came about 10 years, I think, after the previous revision, and now we have not had any revision since January 1959. It is time for a new survey.

Chairman PROXMIRE. And I would assume that in view of the dramatic changes in farming in the last 10 years, in terms of the size of the farm, the number of farms, the nature of the farming in so many ways, that this could have a rather spectacular effect on——

Mr. KOFFSKY. It could. It is difficult to speculate where it would all come out at the end, including questions of quality change, specifications, or the question of what would happen if medical service rates are included. There are so many other items that are involved here that one really needs to go out and do this survey and start the price collection in order to really know whether we are measuring accurately now or not.

Chairman PROXMIRE. Of course, farmers tend to resist this somewhat, because they feel if you take base parity and the relationship between farm income—maybe I am wrong in what we are talking about now—relationship between farm income and nonfarm income, almost any time since the Korean War or since World War II, you get a situation which is most unfavorable to farmers. 1910 to 1914 was the year in which the income was more favorable.

Do we ever put this on a comparability of income basis, considering the farmers investment and so forth?

Mr. KOFFSKY. We do have two sets of measurements, prices are one side of this. Prices do not indicate how much was sold or how much of items used in production was purchased. We do have a comprehensive set of income data which do take into account how much the farmer sells, because prices in themselves will not tell you how much gets sold in the domestic market or how much gets sold in the foreign markets, and how much he purchases. So that when we move on to the question of income parity, this is a different comparison completely and a more comprehensive comparison in terms of assessing the farm situation in the economy.

Chairman PROXMIRE. Do you have to have greater statistics than we have available to determine income parity?

Mr. KOFFSKY. We have a fairly comprehensive set of income statistics which we publish on a regular basis. On this whole question of income parity, Mr. Chairman, in the Food and Agriculture Act of 1965, the Department was directed to make a study of income parity for agriculture and its adaptation to the family farm and report by the end of June of this year. That study is in process and will be submitted on time.

Chairman PROXMIRE. We will be looking forward to that. It will be very helpful.

Mr. Teper, you have been associated with a labor organization, a very fine one, certainly one of the most eminent and progressive in the country. Will you give me your views on the wage-price guideposts, and the relationship of the adequacy of price statistics at the present time to this problem?

I am not asking for your philosophy on the guideposts. I know this is a highly controversial issue. What I am asking is the extent to which present price statistics make this a satisfactory and valid measure or if not, what we can do to improve price statistics to contribute in this area?

Mr. TEPER. The guideposts are defective in two ways. One is the assumption that one can deal with the wage settlement process by putting forth a single digit, whatever that digit may be. We know out of World War II experience and the Korean experience, that when we had to have wage and price controls that the War Labor Board and the Wage Stabilization Board had to develop a whole host of tech-

niques to cope with the wage problem, because it is a complex problem. You have to recognize the nature of the problem, you have to recognize that inequities arise and need corrections, you have to recognize that in some areas, one has to adjust for substandards of living, et cetera, et cetera. You are familiar with those policies and I do not need to review them.

The major secondary deficiency is that guidelines assume no change in the price level, and therefore only seek to correct for productivity change and do not seek to correct the purchasing power of the hourly wage or whatever standard of wage payments you may wish to correct for changes in prices.

Chairman PROXMIRE. I pointed that out in a dissent on a Joint Economic Committee report, and also on the floor. But it seems to me that that particular element can be met by having a cost-of-living escalation feature in the wage guideposts themselves. In other words, if you assume for the moment, although I am sure you might contend it was not accurate, that the 3.2 productivity increase was correct, then you would make an adjustment perhaps every quarter in this to adjust to the increase in the cost of living. In the first quarter, we had a 1.5-percent increase in the cost of living; add that to the 3.2 and say the settlement should be at a 4.7 level, and you could adjust it up or down.

Mr. TEPER. I would like to submit, at this time, a table which I prepared before this hearing. It is based on the data collected by the Bureau of Labor Statistics and shows the figures on output per man-hour, compensation per man-hour and unit labor costs except that unit labor costs are treated from the income-recipient's point of view and are therefore described as compensation per unit of output. These are BLS figures which Commissioner Ross submitted to the Joint Economic Committee when he testified this year at the hearings on the President's Economic Report. His figures on compensation per man-hour and compensation per unit of output data were, however, deflated by CPI to permit a realistic comparison with productivity changes.

An interesting thing emerged. As you can see from this table in most years, real compensation per man-hour increased by less than the corresponding increase in the output per man-hour. Thus even in the absence of guidelines, we did not have excessive real wage changes in this country since 1947. Only occasionally, in isolated years, we find that real compensation per man-hour was advancing faster than the increase in productivity for that same year. Over the entire period 1947 to 1965, productivity went up by 81 percent, whereas real compensation per man-hour went up by only 73 percent. Between 1961 and 1965, output per man-hour rose by over 15 percent, but compensation per man-hour in real terms went up by only 12 percent. This suggests that maybe the guidelines were not as necessary or significant in the current situation as one might have been otherwise led to believe.

If you compare changes in compensation per man-hour with changes in WPI or CPI, you will not always find a direct relationship in the respective changes portrayed by these series. For that matter, as some analyses made by the BLS suggest that in the most recent year, 1964 to 1965, that while unit labor costs rose, as is shown in the table I gave you, 0.9 percent, nonlabor costs—profits, interest charges, allowances

for depreciation, and taxes—increased by three and a fraction times as much. The major pressure on prices did not come from the wage sector but from other sectors of our economy.

To conclude: if you deal with real wages inclusive of all fringes and compare these with productivity changes, you will find that typically compensation was not out of line with productivity.

(The table referred to follows:)

Indexes of output per man-hour, compensation on per man-hour, and compensation per unit of output, private economy, 1947–65

[1957–59=100]

	Output per man-hour	Compensation per man-hour		Compensation per unit of output	
		Actual	Real	Actual	Real
Year:					
1957	69.2	54.5	70.1	78.8	101.3
1948	72.1	59.3	50.8	82.2	98.1
1949	74.4	60.3	72.7	81.0	97.6
1950	80.6	64.5	77.0	80.0	95.5
1951	82.9	70.9	78.3	85.5	94.5
1952	84.5	75.3	81.4	89.1	96.3
1953	88.0	80.1	85.9	91.0	97.6
1954	90.0	82.5	88.1	91.7	98.0
1955	94.0	85.1	91.2	90.5	97.0
1956	94.1	90.0	95.0	95.6	101.0
1957	96.9	95.8	97.8	98.9	100.9
1958	99.7	99.7	99.0	100.1	99.4
1959	103.4	140.4	102.9	101.0	99.5
1960	105.1	108.5	105.2	103.2	100.1
1961	108.7	112.5	108.0	103.5	99.3
1962	113.7	117.5	111.5	103.3	98.0
1963	117.7	122.1	114.4	103.7	97.2
1964	121.9	128.3	118.7	105.3	97.4
1965	125.3	133.2	121.2	106.2	96.6
Percent change:					
1947 to 1948	+4.2	+8.8	+1.0	+4.3	−3.2
1948 to 1949	+3.2	+1.7	+2.7	−1.5	−.5
1949 to 1950	+8.3	+7.0	+5.9	−1.2	−2.2
1950 to 1951	+2.9	+9.9	+1.7	+6.9	−1.1
1951 to 1952	+1.9	+6.2	+4.0	+4.2	+1.9
1952 to 1953	+4.1	+6.4	+5.5	+2.1	+1.3
1953 to 1954	+2.3	+3.0	+2.6	+.8	+.4
1954 to 1955	+4.4	+3.2	+3.5	−1.3	−1.0
1955 to 1956	+.1	+5.8	+4.2	+5.6	+4.1
1956 to 1957	+3.0	+6.4	+2.9	+3.5	−.1
1957 to 1958	+2.9	+4.1	+1.2	+1.2	−1.5
1958 to 1959	+3.7	+4.7	+3.9	+.9	+.1
1959 to 1960	+1.6	+3.9	+2.2	+2.2	+.6
1960 to 1961	+3.4	+3.7	+2.7	+.3	−.8
1961 to 1962	+4.6	+4.4	+3.2	−.2	−1.3
1962 to 1963	+3.5	+3.9	+2.6	+.4	−.8
1963 to 1964	+3.6	+5.1	+3.8	+1.5	+.2
1964 to 1965	+2.8	+3.8	+2.1	+.9	−.8

NOTE.—Data on compensation includes wage and salary payments plus supplementary payments (including employer contributions to pension funds) and estimated wages, salaries, and supplemental payment portion of incomes from self-employment.

Chairman PROXMIRE. I think that is absolutely right. But I think this is an instrument that can be very helpful to us. We do live in an economy in which prices, as you and I know, many prices are not set on the basis of competition or on supply and demand. They are set on an administered basis. The steel industry increases its prices when it is operating at 70 percent of capacity or even less.

It would seem to me that the concept of trying to limit a price increase, as President Kennedy tried to do and as President Johnson tried to do, is one that can be very useful to do for us, limiting it depending upon whether or not the industry happens to be a productive

industry of average productivity or less than average. Less than average productivity can increase its prices—you know the argument here.

At any rate, to throw away this notion, which I think has served the Nation pretty well from 1962 to 1965, it kept price increases at a level of about half what they were in the preceding 5 years, from 1961 to 1965. Just to throw it aside, it seems to me, would not be as satisfactory as trying to bring in elements that would make it more just.

Mr. TEPER. I agree with you that persuasion and the weight of public opinion are very important factors, both in pricemaking decisions as well as in labor management negotiations. I am merely suggesting that the imposition of a digit, whatever that digit is, is not a sound basis of approach to the handling of wage adjustments, certainly when viewed in isolation of all others factors, including continued price increases. Thus, when the Council of Economic Advisers first advanced the notion of guidelines, there were no numbers assigned limiting the wage bargain. There was a general urging of caution, and I think I am not against that.

Now, when it comes to——

Chairman PROXMIRE. Unless you have some numbers, unless you have some guideposts, unless you have something specific, the caution does not really mean much, does it?

Mr. TEPER. The guideposts are based on data on output per man-hour. These are compiled by using the available price indexes to deflate the value of the output of private economy. Now a publication of a number, such as 3.2, does not assure a given group of employees that they will necessarily get a 3.2 percent adjustment. Many do not get as much. For that matter, in the most recent period, the wages of the unorganized sector of the economy moved up faster than the wages of the organized sector of the economy. Mr. Ross could verify that statement, I believe. One has to deal with complex issues. But when a limiting number is brought into play, then even an employer who can afford to pay more—and who should pay more for many good and sound reasons of public policy—seeks refuge in the guidelines to deny adjustments that otherwise could be made. Thus it does not simplify labor relations and help labor peace.

Chairman PROXMIRE. Well, I would hope that especially people with your background and representing the organization that you do would help us in determining how we can have effective action in this area, using the great office of the President and using the responsiveness of both business and labor to public opinion, and do it in a way that is as equitable and fair as possible.

I only bring this up now because I had thought that maybe one element that you might consider is the reliability and accuracy of the price statistics. But you feel that this would not be a factor?

Mr. TEPER. I do not feel that this is the main factor. I think price statistics, certainly those that we use in wage adjustment, the Consumer Price Index, have been fairly accurate. The Council of Economic Advisers, as indicated in the 1965 report, thought that price statistics overstate the increase. They did not carry their logic to the end, as I note in my statement. If the index overstated price increases, then the implicit deflator of the gross national product and of private output also overstated price increases. In those circumstances, the

rise in productivity would be understated. The Council, while criticizing the price indexes, did not make an allowance in productivity increases and in the guidelines.

The two things are interrelated. But I think that the price indexes are pretty good. I believe that responsible labor policy ought to be followed and that organizations such as the one I am connected with do follow responsible labor policies. I would not say I would agree with everything everybody else might do or even some things that might be done within my own organization, but on the whole, labor is following policies that are sound. I do not think any labor organization ever adopted publicly or privately, the attitude expressed by Mr. Wilson of General Motors a few years ago.

Chairman PROXMIRE. I just have two quick questions for Mr. Ross. One is, what proportion of total population is included in the coverage of the CPI?

Mr. Ross. Well, it includes the wage earners and clerical workers in metropolitan communities. It does not include the farm population. It does not include professionals or executives. It includes about 40 percent of the total population.

Now, of course, the other 60 percent do consume largely the same items as those covered, but in perhaps somewhat different weights. So it is the weighting that is affected by the 40 percent.

Chairman PROXMIRE. It would not include retired persons?

Mr. Ross. No.

Chairman PROXMIRE. Would an index, say, for retired persons or rural nonfarm families differ in any significant degree from the CPI as it is now constructed?

Mr. Ross. It might, depending upon the relative price movements of things which are used more heavily by the retired persons. For example, if retired persons spend a larger proportion of their resources for medical care, then an index for them would be rising more rapidly because our indexes of hospital charges and medical fees are rising more rapidly than the total index.

We feel that a retired couple on a very modest income might spend a larger proportion for food. Now, in the last year, as you know, a high proportion of the total price increase has represented food, although that has leveled off recently. Any group, be it the poor or the elderly, which spends more than the normal 22 percent of their income on food would, of course, be more affected by that increase.

My point is that food has a weight of 22 percent in our present index and there are some population groups which spend more than 22 percent on food.

Chairman PROXMIRE. I had thought that Secretary of Agriculture Freeman had indicated that the typical American family spends 17 or 18 percent of its income on food.

Mr. Ross. This includes both food at home and restaurant meals.

Mr. KOFFSKY. Also the 18 percent relates to the disposable income, Mr. Chairman, not the total expenditures of the family.

Chairman PROXMIRE. I see. So the amount that is saved would be another element in addition?

Mr. KOFFSKY. That is right.

Chairman PROXMIRE. That would allow for the full difference. I see.

I have before me "Obligations for Principal Current Statistical Programs by Broad Subject Areas," the Budget. I see, for example, the demography and social statistics for Departments of Agriculture, Commerce and HEW, National Science Foundation, Office of Economic Opportunity, $18.3 million in 1965; 24.9 in 1966; 34.7 in 1967. But price and price indexes, Department of Agriculture, Commerce and Labor, 5.7 in 1965; 5.7 in 1966; 5.9 in 1967. That indicates that you are not asking for any more money, a really significant amount, in the coming year.

Mr. Ross. We have held down the price of the price statistics perhaps at the expense of quality. I think that resources for price statistics must be made available if we are to do the job in the same way as they were made available more liberally for unemployment and employment statistics beginning 5 or 6 years ago. At that time, the principal domestic concern of the country was unemployment if you go back, say, to the beginning of the Kennedy administration. And in the intervening years, we have been given the resources to do a great deal, and I think very helpfully in the measurement and analysis of employment and unemployment. Right now, the principal domestic concern of the country is the price question, and I think it will be necessary to put commensurate emphasis or priority on price statistics if we are to do the same kind of job there that we have been able to do in the manpower field.

Chairman PROXMIRE. That means that this can be and will be revised, a supplemental request?

Mr. Ross. Yes, we would plan not only this year but over this period of 5 years, or at least we would hope to have a substantially rising base for price statistics so as to do the job properly.

Chairman PROXMIRE. Well, thank you very, very much, gentlemen. It has been a most enlightening day for us and I very much appreciate it.

Tomorrow, the subcommittee will have its final session in this area, with Prof. Irving Kravis, Wharton School of Finance on "New Measures of International Competitiveness," and Prof. Richard Ruggles, professor of economics at Yale University, on "Domestic Price Statistics—Reliability as History and Usefulness for Policy."

The committee will stand in recess until 10 o'clock tomorrow morning.

(Whereupon, at 12:10 p.m., the subcommittee recessed, to reconvene Thursday, May 26, 1966, at 10 a.m.)

GOVERNMENT PRICE STATISTICS

THURSDAY, MAY 26 1966

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

The subcommittee met, pursuant to recess, at 10 a.m., in room S–407, the Capitol, Hon. William Proxmire (chairman of the subcommittee), presiding.

Present: Senator Proxmire.

Also present: James W. Knowles, executive director; William H. Moore, senior economist; George R. Iden, economist; Donald A. Webster, minority economist; and Hamilton D. Gewehr, administrative clerk.

Chairman PROXMIRE. The Subcommittee on Statistics of the Joint Economic Committee will come to order.

Our witnesses this morning are Prof. Irving B. Kravis of the Wharton School of Finance, University of Pennsylvania, who will speak on "New Measures of International Competitiveness," and Prof. Richard Ruggles of Yale University, speaking on "Domestic Price Statistics—Reliability as History and Usefulness for Policy."

Our first witness is Mr. Kravis.

Mr. Kravis, you go right ahead in your own manner. If you would like to read your statement, that is fine. If you would like to summarize it, the entire statement will be printed in the record.

STATEMENT OF IRVING B. KRAVIS, PROFESSOR OF ECONOMICS, WHARTON SCHOOL OF FINANCE, UNIVERSITY OF PENNSYLVANIA

Mr. KRAVIS. Well, Mr. Chairman, I will take advantage of your invitation to summarize the statement and to put the whole of it into the record.

Price indexes are needed for a number of policy purposes. The one with which the study I am reporting on today is concerned is the measurement of prices in order to determine what is happening to the competitiveness of an industrial economy in international trade. This, of course, is relevant to the balance-of-payments problem in the United States, which has been with us for the past 6 or 8 years.

Usually, when people try to determine what is happening to the price level of the United States in order to ascertain to what extent the U.S. balance-of-payments problem is due to changes in relative prices, they look at two broad types of price measures. The first is

the index of wholesale prices. They try to determine to what extent this index has risen in the United States relative to comparable indexes in other major industrial countries. The other major measure of price change to which they look is the unit value index. This is an index that is obtained by taking the values of exports in each minor trade classification, or rather in a selection of trade classifications, and dividing those export values by the quantities that are reported as having been exported. In this way, there is an average value or a unit value obtained and the index of export unit values attempts to summarize the behavior of these unit values. Those who seek to analyze changes in the balance of trade in terms of price changes sometimes, therefore, compare the behavior of the American export unit value index relative to the export unit value index of other countries.

Both of these measures, the wholesale price indexes and the export unit value indexes, are deficient for the purpose of assessing what has happened to price competitiveness.

The Wholesale Price Index is deficient in the first place because it measures domestic prices, and export prices may differ from domestic prices very significantly. In Europe and even more in Japan, there may be sharp shortrun deviations between the movements of export prices and the movements of domestic prices, and differential pricing between the domestic market and the foreign market is far from unusual in the American economy. Thus, if you want to know what is really happening to your export price level vis-a-vis that of other countries, you have to get export prices and you cannot infer what is happening simply by looking at indexes which measure domestic prices alone.

In general, the work we have done so far suggests that the other countries are much more flexible——

Chairman PROXMIRE. May I ask at that point, are the export prices generally lower, or can't you generalize?

Mr. KRAVIS. It depends on the conditions that the country is facing. For example, if the steel market is tight and steel is scarce, it is very possible that the Europeans may sell steel abroad at higher prices than they sell it at home. At home, they are under pressures from their governments to avoid price increases so as to minimize inflation, whereas abroad, they are not under the same pressure. In the case of a slackening of demand, a country like Belgium or Luxembourg, most of whose steel industry depends upon foreign sales, when demand slackens, steel producers just cut export prices in order to stay in business

The American industry, on the other hand, has this vast market at home and the foreign market is only—and was, even in the past—of relatively small importance.

Chairman PROXMIRE. But no studies have been made to indicate the relationship between the export prices and the domestic prices so that you can give us a generalization as to their relative position?

Mr. KRAVIS. I do not know of any specific study directed to that particular point. There is some evidence that one could collect about differences between domestic prices of steel and export prices of steel in European publications.

Well, that is just one reason that the Wholesale Price Index does not do the job. The other reason is that the relative importance of

different commodities in each Wholesale Price Index depends upon the particular country and its economic structure. For example, perhaps copper is very important in the weighting pattern of the German wholesale price index and relatively unimportant in the American Wholesale Price Index. Now, if there is an equal increase in the price of copper in both countries and no other prices change, then the German wholesale price index will rise vis-a-vis the U.S. Wholesale Price Index and people looking at the wholesale price measures would conclude that American price competitiveness has deteriorated where, in fact, nothing at all would have happened.

Now, with respect to the unit value indexes, these, too, have their deficiencies. A major one is that no matter how detailed the trade classifications are, it is impossible to make them detailed enough so that the quality and product mix within each classification remains constant. For example, the most detailed classification relating to copper plates and sheets includes nickel-plated sheets and plates. Now, ordinarily, when market conditions are relatively stable, the mix of copper and nickel-plated sheets in American exports may not change very much. But when the market gets tight or very slack, things begin to happen. Maybe the content of that trade classification shifts so that the proportion of nickel-plated copper increases or decreases and, therefore, there will be a change in unit value, which does not reflect a price change but a change in the production mix. The use of unit values, therefore, as a measure of price, will be misleading.

The other thing that is wrong with the unit value indexes is that each one, generally, is weighted by the exports of its own country, so that if you have a commodity which increases in price and its exports decline, it gets a smaller weight in the unit value index. And if it increases enough, it is no longer exported and we do not count that in the unit value index at all. It disappears completely. So we do not allow the price of that particular commodity to be reflected in this measure which is used to determine the relative competitiveness of the United States.

Well, in the work we have been doing at the National Bureau of Economic Research in the last few years, we have tried to take the deficiencies of the wholesale price and unit value indexes as the starting point for the formulation of measures that would be more appropriate to determine the price competitiveness of the United States or any industrial country in trade and manufactured goods. We have done several things.

First of all, we have gone out and gotten actual export prices instead of domestic prices. We have gotten them from both buyers and sellers. Secondly, we have used not the weights of the United States or some other particular country, but world trade weights. We have said, in effect, that the market for which a variegated industrial economy like that of the United States or Great Britain or Germany is competing, is this whole bundle of goods that moves in international trade and that the price of any one of these things that moves in international trade is relevant to the American competitive position. Even if we are importing something now and the American price of that thing rises, that is a deterioration of our competitive position, because if the price rises at home, it means we will import more. If the price falls at home, it means we are likely to import less. Therefore, we have used world trade weights to weight up the prices of the various things traded by the United States and other nations of the world.

The purpose of our study was methodological; it was financed by the National Science Foundation in part. We wanted to try to see whether a suitable measure for judging the price competitiveness of an economy could be developed. With this in mind we took the area for testing the whole range of metal products and things made of metal including machinery and transportation equipment. If we could devise indexes that would cover these complicated things, we would have established that such a job could be done. We took as our reference period 1953 through 1964. We do not intend to produce these indexes after 1964 and, therefore, if they are deemed valuable, they will have to be carried on by someone else.

I have in the tables in my prepared statement summarized our results. In the first table, I show the time-to-change in iron and steel, nonferrous metals and office machinery for successive periods that were included in our study. That is, we used 1953–57, and each year beginning with 1961 as our reference dates. I put below our indexes the measures usually employed to determine what has happened to prices in the United States for purposes of world trade; that is, the Wholesale Price Index and the export unit value index.

I want to say that neither the Bureau of Labor or Statistics or the Department of Commerce has produced these numbers which we refer to here as the Wholesale Price Index or the export unit value index. The Wholesale Price Index is based on a combination of BLS series using world trade weights. Therefore, we are minimizing the difference between this index and our own, that is, we are trying to set up a rigorous test case by saying to what extent you could manipulate wholesale prices that are already collected to get at this business of what is happening to the competitiveness of the United States without doing a special study. As you can see, in a large number of cases, the movement of the Wholesale Price Index and our index of international prices is very similar. However, in general, these are cases in which prices were relatively stable. Where prices are on the move, as between 1953 and 1957 or between 1963 and 1964, the differences are larger.

I have also included the export unit value index in these tables. Again, this is not an official series of the Department of Commerce, but rather, it takes series that the Department of Commerce does use in computing the official index and recombines those series with the weights we use for our indexes.

You can see, for example, in the case of office machinery, the export unit value index between 1963 and 1964 rose by 7 percent, whereas our index falls by 4 percent.

Now, we also have put together in the last table what we call an index of price competitiveness; that is, if we take the movement of the foreign price index over time and we divide it by the movement of the U.S. index over time, we can see in a single summary series of figures how foreign prices are moving relative to U.S. prices.

For example—referring to the end of my prepared statement—you can see that the ratio of United Kingdom to United States prices was 5 percent higher in 1964 than it was in 1962. So this series enables you to tell what has happended to the price competitiveness of the United States in these various categories.

We believe that this method of measuring price competitiveness is a feasible one, and we believe it is most appropriate to the analysis of

balance of payments problems. We hope very much that a Government agency will carry this work forward.

(The prepared statement of Mr. Kravis follows:)

PREPARED STATEMENT BY IRVING B. KRAVIS, NATIONAL BUREAU OF ECONOMIC RESEARCH AND THE UNIVERSITY OF PENNSYLVANIA

NEW MEASURES OF INTERNATIONAL PRICE COMPETITIVENESS

Within the past 6 or 8 years the balance of payments has come to the fore as a new constraint on U.S. policies designed to pursue full employment and other domestic objectives. One key variable in interpreting and explaining the changes that occur in the balance of payments, particularly in the part of the balance dealing with trade flows, is the relative movement of prices in the U.S. and in other trading countries. Prices are not, of course, the only factor bringing about shifts in trade flows. Differences in capacity utilization at home and abroad, changes in trade policies, and shifts in the balance of technological leadership are among the other important factors in the situation. Few would deny, however, that many of these influences assert themselves through price shifts or that relative prices are important in producing and explaining changes in trade balances.

For the past few years we at the National Bureau of Economic Research, financed in part by grants from the National Science Foundation, have been engaged in developing new ways to measure the changes in relative prices that are important in explaining trade flows.[1]

The need for new measures

Now it may be wondered why this should require a special project. Can we not simply compare the movement of say the Wholesale Price Index of the U.S. with the wholesale price indexes of other trading countries? There are two main reasons why such comparisons may be misleading. First, the indexes of the various countries differ widely in coverage, weighting, and method of construction. An illustration may bring out the implications of these differences. Let us imagine that some product group, say copper, accounted for a large fraction of the weights of say the German wholesale price index and only small fraction of the weights in the U.S. index. An equal rise in the price of copper products in the two countries would not really change the competitive position of the two countries very much if at all. It would, however, cause the German wholesale price index to rise more than that of the U.S. and thus give a misleading impression of an improvement in U.S. price competitiveness.

The second reason that comparisons of price movements cannot be based on wholesale prices is that export prices, which are of course the ones that are relevant to international competition, may diverge from domestic prices, which are used in the wholesale price indexes, for considerable periods. Both in iron and steel products and in nonferrous metals, for example, European export prices have been much more sensitive to changes in world supply and demand conditions than European domestic prices. Price differentiation between the home and foreign market seems to be less pervasive among American firms but it is not rare. Thus the wholesale price indexes do not tell us what is happening to relative *export* prices.

But some may think that in arguing against international comparisons of price trends based on wholesale prices we have set up a straw man. The best existing series for making such comparisons for balance of payments purposes, they may say, are the export units value series for the several countries. These too are, however, deficient for measuring changes in international price competiveness. In the first place, these indexes, which are derived from the average values of exports within detailed export classifications, are subject to the same objection made against wholesale price indexes with respect to differences in weights. Each country's index is weighted according to the composition of its own export trade; we are therefore unable to say whether an apparent change in price relationships between two countries results from differences in price movements or from differences in the weighting of identical price movements. What is worse, commodities which encounter severe foreign competition tend to

[1] Our project is described in I. Kravis, R. Lipsey, and P. Bourque, *Measuring International Price Competitiveness: A Preliminary Report,* Occasional Paper No. 94, National Bureau of Economic Research 1965.

disappear from a country's exports and hence from its index or at least to undergo a diminuation of their weights.

However the greatest drawback of unit value indexes is that they are affected by changes in the quality or type of exports and thus cannot be reliable measures of price. Since the trade classifications from which the unit values are calculated must in their aggregate cover every item of trade, they cannot be narrowly specified unless their number is increased far beyond any practical limit. The result is that a change in unit value may be due either to a price change or to a shift in product mix. For example, between 1957 and 1961 unit values for the 14 categories of steel pipe and tube used in computing the official unit value index increased by an average of 19 percent. The wholesale prices of tubular goods remained the same between these dates and NBER data on export prices declined by two percent. What seems to have happened was that European shortages following the Suez crisis lead in 1957 to the purchase from U.S. suppliers of large quantities of cheaper grades of pipe, especially for Venezuela and Canada, not ordinarily bought in the U.S. By 1961 the U.S. was again confined in its exports to smaller, more specialized and more expensive types of pipe. Because of this shift in the mix of products, unit values rose sharply even though there was no actual price increase.

The nature of the new measures

The deficiencies of wholesale price and unit values indexes suggest a number of specifications for a more appropriate price index for 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.) Our new price indexes for internationally traded goods, which we shall refer to as international price indexes, are designed to meet these requirements.

The basic point of departure for these indexes is that the universe of price considered relevant to an evaluation of price competitiveness is not limited to export and import prices. For an industrial country that produces the whole gamut of manufactures, such as the U.S., and U.K., Germany, or Japan, the relevant universe consists of prices of all those manufactured goods that enter world trade. For example, changes in the U.S. prices of all of these goods—whether they are imported, exported, or even produced but not imported or exported—affect the U.S. competitive position. If the U.S. price of a good neither imported nor exported rises sufficiently relative to foreign prices, the U.S. will begin to import the good; if the relative price falls enough, the product will be exported. This last class of goods might be small under free trade, but it may be substantial in a world of tariff and other trade barriers.

The selection of this universe of prices also leads to the choice of a weighting system based on the relative importance of commodities in world trade. In actual practice we have taken exports of the countries belonging to the Organization for Economic Cooperation and Development (OECD) as a convenient and suitable approximation to world trade weights.[2] The weights are based on 1963 data, including intra-OECD trade.

The new measures are made up of three interrelated sets of index numbers.

1. *International price indexes.*—These are time-to-time indexes for each country. They are derived by applying 1963 world trade weights to each country's export prices (or to its domestic prices where exports of a particular category are nil or negligible). They measure the change in each country's prices of the bundle of goods that was exported by the industrial countries as a whole.

2. *The index of price competitiveness.*—The significant aspect of the behavior of international price indexes is how they move relative to one another. Did the U.K. price index rise by more or less than that of the U.S. in a given period—and by how much more or less? Such comparisons of price movements can be presented systematically simply by dividing the international price index for one country by the corresponding index for another country. We call the resulting index an *index of price competitiveness.* In combining two international price indexes to produce an index of price competitiveness we follow the practice of placing the foreign country's index in the numerator and the U.S. index in the denominator. A rise in the index of U.S. price competitiveness therefore indi-

[2] The OECD countries, which include 18 European countries, the U.S., Canada and Japan, accounted for well over 80 percent of world exports of metals, metal products, transportation equipment and machinery.

cates that foreign prices of international goods have risen relative to U.S. prices and that U.S. price competitiveness has thus improved while that of the foreign country has declined.

3. *Comparisons of price levels.*—The time-to-time price movement measured by the international price indexes are not the only source from which the index of price competitiveness can be computed. It can also be derived from a different set of data—country-to-country comparisons of price levels of internationally traded goods at a given moment in time.[3] Changes over time in these place-to-place indexes measure, in the same manner as do the comparisons of time series indexes, changes in price competitiveness.

Some preliminary results

The final report of our study will include metal products, transport equipment, and machinery. The years covered by the study are 1953, 1957 and each year from 1961 to 1964 inclusive. In addition to the U.S., the study is concerned primarily with the United Kingdom, the European Economic Community (EEC or Common market), and Japan. Some early results for iron and steel, nonferrous metals, and office machinery are given in the accompanying tables.

In the first table our international price indexes for the U.S. are compared with wholesale and unit value indexes. These comparisons tend to reduce the differences that would really be found because all three sets of indexes have been computed with the use of world trade weights.[4] In general the figures suggest that wholesale price indexes and export unit value series provide better approximations to changes in prices of international goods when prices are relatively stable as between 1961 and 1963 than when prices are changing substantially as between 1953 and 1957 and 1963 and 1964. Even for a product group like nonferrous metals, for which unit value series might be expected to provide good measures, there is a considerable discrepancy between the 1963–64 price change shown by the NBER index and that suggested by the unit value series. The differences between the NBER indexes and the others tend to be larger for office machinery than for iron and steel and for nonferrous metals.

NBER indexes of international prices have been prepared also for the U.K., Germany and the European Common Market. They are presented for iron and steel, nonferrous metals and offce machinery in Table 2. Comparisons of the relative movements of these indexes are presented systematically in the form of indexes of price competitiveness in Table 3. These indexes are obtained simply by dividing the international price index for each foreign country and area by the corresponding index for the U.S. A rise in the index of price competitiveness indicates that foreign prices have risen relative to U.S. prices and that U.S. price competitiveness has improved. The index for each product group refers to a wide variety of goods and price competitiveness sometimes changes differently for different components. But since our purpose here is merely to illustrate the new measures we are developing we shall not attempt to go into this underlying detail.

The indexes of price competitiveness reveal an improvement in the competitive position of the U.S. in iron and steel and nonferrous metals in 1964 as compared in any of the three preceding years whereas the position in office machinery is slightly worse than in 1962 but not very different from that of other recent years. If we relied solely on wholesale prices, we would have concluded that U.S. price competitiveness in iron and steel has not improved at all vis a vis the U.K. In nonferrous metals, the wholesale price indexes would exaggerate our recent improvement with respect to the U.K. and understate it with respect to Germany.

We believe that indexes of the type we are developing are the ones that are relevant for the analysis of international trade flows and that our study demonstrates that it is feasible to gather the necessary data to compute them. The

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[3] Such country-to-country relatives measure the level of a country's price competitiveness and should explain, to some degree, the current pattern of trade in individual categories of products.

[4] The differences between the NBER and wholesale price indexes are attributable to the use in the former of export rather than domestic prices and of actual transactions rather than list prices, and to more adequate coverage from the standpoint of international trade. The differences betwen the NBER and export unit value indexes are due to differences between prices and unit values, discussed above, and to the more adequate coverage of the NBER series. The wholesale price and export unit value indexes are based on component series taken from U.S. BLS and U.S. Department of Commerce data, but it should be stressed that neither agency is responsible for the way in which we have used its data and that the Commerce Department publishes its unit value indexes only in a much more aggregative form.

methods we have developed make it possible to measure changes in price competitiveness for sophisticated manufactured goods where ordinary index techniques are inadequate. We believe that our method of data collection, which I have not tried to describe here, offer substantial economies over the usual procedures. Our study was primarily methodological in purpose and we will not continue the series past our last date of reference, the year 1964. We are hoping that a government agency will carry on the new indexes from that point.

TABLE 1.—*Comparisons of NBER international price indexes with wholesale price indexes and export unit values indexes; steel, nonferrous metals, and office machinery; United States*

	1957–53	1961–57	1962–61	1963–62	1964–63	1964–61
Iron and steel:[1]						
NBER international price index	116	101	99	99	105	103
Wholesale price index	127	102	100	99	101	100
Export unit value index	126	105	101	98	----------	----------
Nonferrous metals:[2]						
NBER International price index	104	100	99	100	108	107
Wholesale price index	113	106	97	98	105	100
Export unit value index	122	90	101	98	102	101
Office machinery:[3]						
NBER international price index	109	103	97	96	96	89
Wholesale price index	113	102	99	101	100	100
Export unit value index	107	120	105	92	107	104

[1] Includes commodities in Division 67 of Standard International Trade Classification, Revised (SITC)
[2] Division 68 of SITC.
[3] Group 714 of SITC.

NOTE.—All indexes weighted by 1963 exports of OECD countries.

TABLE 2.—*International price indexes*

[1962 for each country=100]

	1953	1957	1961	1962	1963	1964
Iron and Steel:						
United States	86	100	101	100	98	103
United Kingdom	96	108	103	100	98	109
European Economic Community	96	117	105	100	98	110
Nonferrous Metals:						
United States	97	101	101	100	100	108
United Kingdom	97	102	101	100	102	115
Germany	102	106	101	100	99	116
European Economic Community	102	103	101	100	101	117
Office Machinery:						
United States	91	100	103	100	96	92
United Kingdom	90	96	100	100	93	89
Germany	107	97	100	100	94	90
European Economic Community	108	98	100	100	94	90

TABLE 3.—*Indexes of price competitiveness of the United States*

[1962=100]

	1953	1957	1961	1962	1963	1964
Based on NBER International Price Indexes:						
Iron and Steel:						
Relative to United Kingdom	117	112	103	100	99	105
Relative to European Economic Community	111	116	103	100	99	106
Nonferrous Metals:						
Relative to United Kingdom	100	101	100	100	102	107
Relative to Germany	106	105	100	100	99	108
Relative to European Economic Community	105	102	100	100	101	109
Office Machinery:						
Relative to United Kingdom	97	97	97	100	97	97
Relative to Germany	116	97	97	100	98	97
Relative to European Economic Community	118	98	97	100	98	97
Based on Wholesale Price Indexes:						
Iron and Steel:						
Relative to United Kingdom	----------	101	96	100	101	100
Nonferrous Metal:						
Relative to United Kingdom	97	97	99	100	102	110
Relative to Germany	118	101	100	100	101	104

Chairman PROXMIRE. Is there any additional cost, Mr. Kravis, in your judgment, to this new system as compared with the other system? If so, how much?

Mr. KRAVIS. Yes, because it requires special data collection. It also really requires international cooperation, because, you see, our index alone is not very helpful unless we have the indexes for foreign countries as well.

Now, as a private research agency, we have found a great deal of interest in foreign countries in the work we are doing. Indeed, we got the official data of the German Statistical Office—that is, the detailed data—underlying their export price indexes and their import price indexes. We did not have any data to offer them in exchange. So I have no doubt an official agency of the U.S. Government would find it easy to arrange for such international cooperation.

Chairman PROXMIRE. So you do not see any obstacle in the way of international cooperation, not only with Germany but with other countries?

Mr. KRAVIS. That is right. Our own contacts make it seem likely that at least the United Kingdom and Canada would be interested in this, and probably other countries as well.

Chairman PROXMIRE. There has been a lot of talk about the possibility of opening up trade with some of the Eastern European countries. Do you think we could get that kind of cooperation there?

Mr. KRAVIS. I do not know that it would be very meaningful, because their prices are not determined by market forces. They would establish prices for international trade purposes according to the convenience of the moment.

Chairman PROXMIRE. How about the cost of data collection? What does that amount to? Can you give us any idea what you think it might be?

Mr. KRAVIS. Well, I would hesitate to say. You see, we did this on a pilot basis. We are satisfied that our samples have been large enough to give us accurate results—indeed, in every one of these three commodity cases, we have circulated these indexes to the industry in-

volved; that is, in iron and steel and nonferrous metals and office machinery—and we have had people from the industry, men who are engaged in international trade in these industries, tell us that they think that these figures reflect their own experience. But a Government agency, I think, might not be satisfied with the size samples we have used. I think that they would have to spend more money. We will have spent about $200,000 over a 3- or 4-year period to put these indexes together. I would think that a government agency might have to spend that much in a single year to do the comprehensive job on manufactures.

Chairman PROXMIRE. I do not mean to put too much stress on this, but we have found in our discussions with people from the Budget Bureau and from the Bureau of Labor Statistics and so forth that they run into some difficulty with the Appropriations Committee and some difficulty themselves with a tight budget and getting more funds for statistical programs. So we have to consider that and consider what we could do with as limited an amount as possible.

Mr. KRAVIS. Yes.

Chairman PROXMIRE. Is it possible that this would enable us to economize elsewhere if we substituted this? Is there some other data collection that would not be necessary?

Mr. KRAVIS. I doubt that, Mr. Chairman. The export unit value index and import unit value index that we presently have are run on a shoestring. That is, the resources going into them are very, very small.

There is one technique that we used here to stretch our resources that I think has not been used before. Usually, in the preparation of index numbers, the agency collecting prices makes up a list of specifications. It goes around and finds business firms who can give it the prices of goods that conform to those specifications.

Well, we know that we had a very tiny sum for a job this size, and we devised a much more efficient method of getting price information. We went to a firm and we said, we are interested in microphones and we want to compare price movement of microphones over time. Instead of saying, we want to price only a particular specification of microphone, that is, exactly this one, and walking around until we found somebody that made or brought that particular kind of microphone, we invited each respondent to pick the specification, whatever specification a microphone for which he had prices over time, and to tell us, about the prices of that.

Now, we also made country-to-country price comparisons at the same time. The reason we did that was that in some areas like office machinery or technical machinery, or electrical generating equipment, it is very hard to follow the movement of prices over time because the same machine is not built in two successive years. So what we did for categories like that was to collect the price comparisons from the bid data that came in from different countries for this equipment in each year. So that we might have a series of bids for say electrical generating equipment, from companies in the United States, England and Germany, say in 1964, and another series of bids in the same commodity classification in 1963, although the 1963 bids were for different equipment from those of 1964. But if we knew what the United Kingdom to United States price ratio was in those bids for 1963 and we also

knew what the United Kingdom to United States price ratio was for the bids in 1964, it is obvious that we could infer what happened to the relative price position of the two countries. This is another way to deal with the problem of data collection in this area.

But, you know, you do not get good data for nothing. It is those who are responsible for the policies of the United States who have to decide whether it is important enough to have measures of relative price change that can be used for balance-of-payments analysis.

Chairman PROXMIRE. Just what would you say would be the policies that would be directly affected by these new statistics, this new information? Would you say, for example, that trade, tariff policies, tariff negotiations, that this might be affected? Would this have an effect, conceivably, on wage policy? Would it affect monetary policy, tax policy?

Mr. KRAVIS. I think that it would affect the whole background of monetary and fiscal policy.

Chairman PROXMIRE. Not wage or tariff policy much?

Mr. KRAVIS. Well, to the extent that wage policy is a part of the package of monetary and fiscal policies that you consider when you are worried about inflation, why, wage policy also.

Chairman PROXMIRE. I was also thinking in terms of the use or the emphasis on wage-price guidelines which I think has been a factor of great importance. Whether it is fair or just is another question. But I think it has had a significant effect in many areas.

Mr. KRAVIS. Yes. Well, many people have used the balance-of-payments argument as an argument for clamping down, you know, holding a tighter rein.

Chairman PROXMIRE. Yes.

Mr. KRAVIS. This would be the most relevant price measure to that argument; that is, this would tell you, as other statistics do not tell you, whether the price position of the United States had moved unfavorably to it or not. So that if you think the balance-of-payments constraint is relevant to all these policies—monetary and fiscal policies, wage guidelines and so on—if you think the balance-of-payments constraint is relevant, then these are the measures you ought to use to affect how urgent you think the position is.

Chairman PROXMIRE. Is it possible that we now, under our present statistics, have a misconception, that we have such a misconception that whereas our competitive position may be improving with respect to our principal trading partners, that actually, in some years, or some months or some significant period, it has been deteriorating?

Mr. KRAVIS. That is possible.

Chairman PROXMIRE. Do you find this is likely? I notice that there is a reasonable parallel here.

Mr. KRAVIS. Yes. I do not like to go too far into our substantive findings, because until we send these little product reports on each commodity area out to the industry——

Chairman PROXMIRE. If you want to wait on that. Then also, I wonder if there is any halfway measure, if we can go part way on this at first? We have had a number of excellent recommendations, and I think the arguments are extremely strong for improving our price statistics, however, all of them would cost something. Last year, as you know, the House Appropriations Committee turned down a re-

quest for a relatively modest increase to improve price statistics. If we hit them with all of this at once, it is going to be much more difficult. So that I wondered if there is any way we can move part way toward this goal?

Mr. KRAVIS. Well, yes. You see we have started on a scale. We have had some conversations with Government officials. One way we are pushed immediately is they want to know what our price competitiveness is, not just in general, but in particular markets of the world. They want to know how our prices compare, for example, with German prices or United Kingdom prices in Brazil or in South America or in Australia. Now, you know, to do that is really a very big project, because you have to take account of differences in transportation costs, and also, of some degree of geographical price discrimination. There are also differences in tariffs that apply to the United States in other countries.

So I think the way we have done it really is about as close to the heart of the matter as we could come. As I say, we did not start with large resources. Our purpose was to demonstrate the thing, and there are very few frills that we added to this package.

Chairman PROXMIRE. Shifting just finally, before we go on with Mr. Ruggles into another area, would this additional data be useful in other respects then in measuring the international competitiveness? Would it tell us something about the competitiveness of various industries within the country? Would it put us in a position where perhaps we could check our productivity a little more clearly and understand how we can arrive at a better measure of productivity, for wage-price guidelines and for other purposes?

Mr. KRAVIS. No, I do not think it would help with respect to productivity. It would help, however, in understanding our position with respect to tariff measures, I think. Because one of the products of it would be that we would know for each commodity category, like iron and steel, what the level of our export prices is compared to the level of export prices in the United Kingdom or some other country.

For example, in, say, textile machinery, we estimate that United Kingdom prices of textile machinery, quality being even, were in 1964 about 10 percent less than that of the United States. Now, again, if you think this is a fact that our tariff negotiators ought to have in mind, then this information is useful. If you think it is irrelevant, then it will not help. But this is the kind of information that this work would produce.

Chairman PROXMIRE. You are one of the three authors of this Measuring International Price Competitiveness Preliminary Report?

Mr. KRAVIS. Yes.

Chairman PROXMIRE. It is an excellent report. It seems concise. I believe it would be appropriate to place the report in the record, because I think it is enlightening and helpful and well documented. It is so ordered.

(The report referred to follows:)

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MEASURING INTERNATIONAL PRICE COMPETITIVENESS

A Preliminary Report

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Elizabeth Durbin contributed to every phase of the project from the early discussions of price collection methods through the analysis of the results, and Jocelyn Coburn was responsible for much of the statistical work on Section III. Beatrice Grabiner, as the secretary of the study, brought order and efficiency to our extensive data collection and correspondence. The paper was prepared for press by James F. McRee, Jr., and H. Irving Forman drew the chart.

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I

AIMS AND METHODS

INTRODUCTION

This preliminary report on the National Bureau's International Price Comparison Study presents a description of our aims and methods, together with some tentative results for iron and steel products. These will serve to illustrate our procedures and the types of information we seek rather than to set forth any firm conclusions, even for this particular group of products.

The overall purpose of the International Price Comparison Study is to develop improved methods for measuring changes in the price competitiveness of a variegated industrial economy in world trade in manufactured goods. An effort is made to apply these methods to trade in machinery, transport equipment, and other metal manufactures for the period 1953-64.

The main features of the methods employed are (1) actual prices or price offers are used rather than unit values derived from trade statistics; (2) world trade weights are employed rather than the trade weights of the United States or some other single country; (3) country-to-country price relations for different points in time are used to aid in the establishment of intertemporal movements in price competitiveness; and (4) price collection in terms of detailed preselected specifications is abandoned in favor of the collection of pairs of prices for specifications of the respondents' own choosing, each pair providing either a time-to-time or country-to-country price relative.

We hope that the outcome of this investigation will encourage government and international agencies to pursue the measurement of international price relations on a more comprehensive basis. Such measurements would add to our understanding of trade patterns and of changes in the balance of payments of industrial coun-

tries. Existing data cannot be relied upon to provide a satisfactory basis for gauging changes in world price relations.

THE NEED FOR A NEW MEASURE

The study was partly inspired by the balance-of-payments difficulties experienced by the United States in recent years. One explanation of these problems has been that the competitiveness of the United States economy has declined; that there has been a tendency for the United States to "price itself out of world markets."

While there has been disagreement over the causes of U.S. balance-of-payments deficits, few would deny that relative price movements should be examined whenever balance-of-payment problems are analyzed. Two measures of price change are usually drawn upon for the assessment of price competitiveness—foreign trade unit value indexes from customs data, and wholesale and consumer price indexes for the domestic economy.

The unit values are values per unit of quantity within detailed export or import classifications. However, since the classifications must in total cover every item of trade, they cannot be narrowly specified unless their number is increased far beyond any practical limit. As a result of the lack of close specification, there is never any certainty that a change in unit value represents a change in price; the unit value of a trade classification can change, even though all prices are constant, if there is a shift from one quality or type of item to another.

A few years ago, for example, foreign pressures to increase local production of components led to the reporting in export declarations of motor vehicles which contained smaller and smaller fractions of a complete car—some as little as 15 to 20 per cent by value.[1] The unit value series thus was biased downward from the standpoint of providing a measure of price movements. This problem is not too serious for many crude or agricultural commodities, but exact specification is extremely important for finished manufactures, which have accounted for more than half of the value of

[1] Cf. *The Price Statistics of the Federal Government*, New York, National Bureau of Economic Research, 1961, pp. 82–83. The Stigler Committee, which compiled this report, was established by the National Bureau of Economic Research at the request of the United States Bureau of the Budget.

United States exports for several decades and, in the last few years, one-third of imports.

The existing export and import unit value indexes suffer not only from the ambiguity of many of these unit value series but also from the fact that for many manufactured products quantities are not reported at all and unit values are therefore simply unavailable.[2] These faults, moreover, affect the corresponding quantity indexes, imparting a bias opposite to that which may characterize the unit value series.[3]

Even if the unit value indexes accurately reflected the price movements of actual exports and imports, they would still have drawbacks as indicators of price competitiveness in international trade. One disadvantage is that the weights differ from one country to another, owing to the differing composition of export trade; therefore it is not possible to say whether an apparent change in price relations results from differences in price movements or from differences in the weighting of identical price movements. Second, commodities which encounter severe foreign competition tend to disappear from a country's exports or, in the case of an index with changing weights, to undergo a lowering of their weights. Even if constant weights are used in the index of export unit values (or export prices), the worse the competitive position of a country in a commodity, the lower the weight of that commodity in that country's index.

Commodities produced domestically but not exported are omitted from export price indexes. Yet, as is pointed out below, these may have an important bearing on competitive strength. A fall in the domestic price for them might herald their entrance into a country's exports, or might enable them to replace foreign products previously imported.

These deficiencies have often brought balance-of-payments ana-

[2] In recent years from 23 to 35 per cent of finished manufactured imports and from 20 to 25 per cent of finished manufactured exports were covered in unit value index calculations. Department of Commerce, *Overseas Business Reports*, OBR 64–43, May 1964, p. 2.

[3] For a fuller discussion of unit value indexes, see Robert E. Lipsey, *Price and Quantity Trends in the Foreign Trade of the United States*, Princeton University Press for NBER, 1963, Chapter 4.

lysts to turn to comparisons of the movements of domestic prices—both wholesale and consumer. Other things equal, the consumer price indexes are less relevant to international competition than the wholesale price indexes; they include service items,[4] few of which can be traded, and refer to the retail level of distribution.

Both types of indexes are usually constructed from prices for carefully specified commodities and are comparatively free of the problems of inadequate specification that raise doubt regarding unit value indexes. However, they suffer from a different set of deficiencies in respect to international comparisons of price competitiveness. The indexes of different countries vary widely in coverage, method of construction, and weighting, and reported prices include many list or other published figures which may not reflect transactions prices.[5] Most important of all, export prices may diverge from domestic prices for considerable periods. Several apparent examples of variance among steel prices appear in Table 2, below. Other cases, covering a wider variety of industries, can be found even in the published data for Germany and Japan.[6] Nor can the direction of the differential movements of export and domestic prices be inferred simply from domestic economic conditions. A booming domestic economy may in some circumstances lead a domestic industry to raise its home prices at times when keen international competition may constrain it from increasing export prices. In other circumstances, especially where export trade is marginal, export prices may rise as home prices are kept constant or limited to smaller increases. Transportation costs; government interventions, such as tariffs and rebates on exports; and general

[4] Services account for over one-third of the expenditure weights in the Bureau of Labor Statistics Consumer Price Index, for example. See U.S. Bureau of the Census, *Statistical Abstract of the U.S. 1964*, Washington, 1964, p. 358. Indexes of consumer commodity prices (excluding services) are available for the U.S. and for some, but not all, other countries.

[5] *Price Statistics of the Federal Government*, pp. 69–71, 373–458.

[6] For Germany, see *National Institute Economic Review*, February 1964, p. 48. As regards Japan, see, for example, the differences between "wire rod of ordinary steel" and "wire rod of ordinary steel (for export)," between "sheets" and "sheets (for export)," and similar differences for "medium steel plates," "heavy thick steel plates," and "tin plates" in the Japanese wholesale price data. See Bank of Japan, *Wholesale Price Index Annual*.

market imperfections also make it possible for home prices to move differently from export prices.

Of course, if export unit value indexes were consistently in agreement with the wholesale price indexes, we could set aside these objections as valid in principle but of little quantitative significance. However, the two sets of data sometimes diverge just at the times when it is most important to know what is happening to relative prices. For example, between 1959 and 1961, the U.S. wholesale price index, reweighted to reflect the composition of exports, fell slightly, while the total export unit value index rose by 3 per cent. Within manufactures the reweighted wholesale price index fell by 0.2 per cent, while the export unit value index for finished manufactures increased by 5 per cent and that for finished manufactures and semimanufactures rose by 4 per cent.[7]

NEW PRICE INDEXES FOR INTERNATIONALLY TRADED GOODS

The deficiencies of the indexes we have been considering suggest a number of specifications for a more appropriate price index for 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.) Our new price indexes for internationally traded goods, which we shall refer to as *international price indexes,* are designed to meet these requirements.

The basic point of departure for these indexes is that the universe of prices considered relevant to an evaluation of price competitiveness is not limited to export and import prices. For an industrial country that produces the whole gamut of manufactures, such as the U.S., the U.K., Germany, or Japan, the relevant universe consists of prices of all those manufactured goods that enter world trade. For example, changes in the U.S. prices of *all* of these goods—

[7] Hal B. Lary, *Problems of the United States as World Trader and Banker,* New York, NBER, 1963, pp. 62–63.

whether they are imported, exported, or even produced but not imported or exported—affect the U.S. competitive position. If the U.S. price of a good neither imported nor exported rises sufficiently relative to foreign prices, the U.S. will begin to import the good; if the relative price falls enough, the product will be exported. This last class of goods might be small under free trade, but it may be substantial in a world of tariff and other trade barriers.

The selection of this universe of prices also leads to the choice of a weighting system based on the relative importance of commodities in world trade.

It might be argued that the logic underlying the use of world trade weights leads ultimately to the use of world production or consumption as weights. After all, the potential market for the producers of a given good in a given country is not merely the volume of that good which is internationally traded, but includes all those markets currently being supplied by domestic producers. However, the use of world production or consumption weights as a guide to price competitiveness has its drawbacks. Chief among these is that the relative importance of goods is often substantially different in world trade and in world production. Some goods—because they are in universal demand, homogeneous, valuable in relation to their bulk or available only from one or a few sources—move more extensively in world trade than others. If, as a practical matter, we expect these differences in the "tradability" of goods to change only slowly, world trade weights will yield a more sensitive and more reliable indicator of price competitiveness in international trade than world consumption or production. Another way of putting nearly the same thing is to say that the elasticities of substitution tend to be higher, as between different country sources of supply, for goods already traded internationally than for goods not traded.

On a more practical level, it may be pointed out that at present there are no world consumption or production data sufficiently detailed for weighting fairly narrow commodity groups. Accordingly, the weights for our new indexes have been derived from world trade data. In principle, a price is included in the index for each country for every manufactured good that enters world trade—an

export price if the country exports the good, a domestic price if it does not. Such an international price index will enable us to trace changes in the price competitiveness of a given country through comparisons with similar indexes for the other major industrial countries.

We use the term *index of price competitiveness* to describe the index of change in a country's prices relative to those of its competitors. The index can be derived in two different ways.

One is by dividing the international price index for one country (computed with world trade weights) by the corresponding index for another country. Dividing the U.K. international price index by that of the U.S., for example, yields an index of relative price competitiveness for the two countries. A rise in this index indicates that U.K. prices have risen relative to U.S. prices and, therefore, that U.S. price competitiveness has improved while that of the U.K. has declined.[8]

The other method uses a country-to-country comparison of price levels of internationally traded goods at a given moment in time.[9] Changes over time in these place-to-place indexes measure, in the same manner as the comparison of time series indexes, changes in price competitiveness, and the index of price competitiveness may be derived by dividing the country-to-country international price relative for one year by the corresponding figure for the preceding year. If, for each individual specification on which we had place-to-place comparisons, we also had a set of time-to-time comparisons covering the same countries and years, the place-to-place and time-to-time data would yield identical indexes of price competitiveness.[10] In practice, of course, the data do not match perfectly. How-

[8] In examining the tables in Section III, the reader should bear in mind that we have consistently placed the U.S. in the denominator in all calculations of the index of price competitiveness. A rise in the index therefore always indicates an improvement in price competitiveness for the U.S. relative to the country in the numerator.

[9] Such country-to-country relatives measure the level of a country's price competitiveness and should explain, to some degree, the current pattern of trade in individual categories of products.

[10] If we are comparing two countries, A and B, in two years, 0 and 1, the place-to-place comparisons for a single commodity can be described as

$$\frac{P_{B0}}{P_{A0}} \text{ and } \frac{P_{B1}}{P_{A1}}$$

ever, as we approach adequate coverage in both types of comparison, the two indexes of price competitiveness should converge.

For reasons that will be elaborated, only the first approach is feasible in some product areas and only the second in others. In addition, each provides some information not given by the other. The temporal changes in the country-to-country price relatives do not tell to what degree the observed changes are attributable to price movements in one country or the other. The differential movements in the time-to-time indexes, on the other hand, tell us nothing about the absolute spread of prices between the two countries. Knowledge about absolute price differences may lead to further insights into nonprice aspects of competition, such as financing, servicing, and the like. Both approaches are being followed in the International Price Comparison Study.

For some commodities, only time-to-time data can be obtained. One such case is that in which two countries produce machines which compete with each other but differ greatly in design or other characteristics. For other commodity groups—notably those sold on a "turn-key" basis (i.e., installed and ready to operate), such as large electrical generating equipment and communications systems—it is easier to obtain place-to-place than time-to-time price comparisons. Time-to-time price comparisons for such intricate, large, custom-made equipment are difficult because the specifications vary from one job to another.

In other indexes, this problem is often met by pricing major components of the equipment rather than the finished product itself. While the same technique can be used for our indexes relating to internationally traded goods, an index of price competi-

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and the time comparisons as

$$\frac{P_{B1}}{P_{B0}} \text{ and } \frac{P_{A1}}{P_{A0}}$$

The measure of the change in price competitiveness from place-to-place data is then

$$\frac{P_{B1}}{P_{A1}} \Big/ \frac{P_{B0}}{P_{A0}}$$

and from time-to-time data

$$\frac{P_{B1}}{P_{B0}} \Big/ \frac{P_{A1}}{P_{A0}}$$

Thus the two forms of the index of price competitiveness are identical. They can also be shown to be identical for groups of commodities.

tiveness can be computed directly owing to the circumstances under which this kind of equipment is purchased. Heavy electrical installations and communications systems are sometimes purchased by public authorities under a system of bidding in which both domestic and foreign bids are made public at the time the award is announced. These bids, and similar bids received by private entities, when they can be obtained, provide a good basis for direct price comparisons between firms in different countries.

It is our plan to compare, wherever possible, measures of change in competitiveness derived by one of these methods with measures derived from the other. This comparison will be significant as a test, of course, only in groups where the two types of data were derived from different sources.

Our place-to-place comparisons and indexes of price competitiveness are, in a way, parallel to the absolute and relative versions of the purchasing power parity concept. However, we have not sought to achieve a measure suitable for the calculation of equilibrium exchange rates, and our system of weighting (world trade weights) does not correspond with those usually discussed in connection with purchasing power parities.[11]

THE SUBSTANTIVE SCOPE OF THE STUDY

In view of the lack of any centrally collected and publicly available body of price data for internationally traded goods, it was necessary to start with a program of data collection. Ways had to be found to fit this potentially formidable task into the resources available for the study. One means of reducing the volume of field work was to limit the commodity coverage. Since the study was largely methodological in objective, it was thought desirable to put the proposed approach to the most rigorous test by including products that were likely to offer the greatest difficulty for the purpose at hand. Thus it was decided to study machinery and transport equipment. In order to cover relatively homogeneous products as well as custom-designed products, we included the whole range of manu-

[11] See "The Interpretation of the Index of Price Competitiveness" in Section II. For a recent discussion of purchasing power parity theory, see Bela Balassa, "The Purchasing Power Parity Doctrine," *Journal of Political Economy*, December 1964, pp. 584–596.

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factured metal products, beginning with pig iron and its nonferrous equivalents.

The precise commodity coverage of the study may be set out in terms of the Standard International Trade Classification,[12] which has been used as a framework for organizing the data collection and constructing the index numbers:

Division		*Weight*
67	Iron and steel	13.2
68	Nonferrous metals	6.3
69	Manufactures of metals, n.e.s.	5.5
71	Machinery, other than electric	32.3
72	Electrical machinery	12.9
73	Transport equipment	23.0
Selected items from Section 8		6.7
Total		100.0

These products accounted for 48 per cent of total exports by the main industrial countries[13] in 1962, 46 per cent of total United States exports, and 64 and 68 per cent of the exports of products other than food and raw materials of the industrial countries and the United States, respectively. The final report of the study is expected to include indexes for all the two-digit SITC divisions included above, many of the three-digit groups contained in them, and possibly some of the more important four-digit subgroups.

An important technical feature of the study is the decision to abandon the usual practice of organizing the price collection effort around a set of product specifications selected in advance. In the area of machinery, which is the most important in our study, it would have been impossible in most commodity groups to select any specifications applicable to all or even to most sellers. Each firm buys or sells products with slightly different specifications, and it would not be sensible, even if much greater price collection re-

[12] United Nations, *Standard International Trade Classification, Revised,* Statistical Papers, Series M, No. 34, New York, 1961.

[13] EEC, EFTA, United States, Canada, and Japan. These countries accounted for 82 per cent of 1962 world exports in SITC Section 7, Divisions 67 and 68 (less Group 681), and Groups 691–695, 698, and 812 (UN, *Monthly Bulletin of Statistics,* March and April 1964), and we have taken them as providing a suitable approximation to world trade weights.

sources were available, to discard genuine information because it did not refer to a particular set of predetermined specifications.

Our solution to this problem was to place the burden of determining comparability on the respondent, asking him to select the most important items in each group about which he had knowledge and to provide comparable quotations either over time or between exporting countries. Ideally, we would wish to have both place-to-place and time-to-time comparisons for each individual commodity for all countries and all years. In practice, however, such complete comparisons are rarely possible. Even with a relatively simple commodity such as nails, we might find that a company bought one type of nail in 1953 and can compare U.S. and German prices for it, but bought a different type in 1957 and can compare the U.S. and German prices only for that type. A comparison of the U.S. and Japan might be possible only for a third type, and time-to-time price changes might be available only for a fourth. As was mentioned earlier, any unit of information is useful to us provided that it compares, for a precisely specified commodity, at least two countries' prices at one date or one country's prices for at least two dates. In addition, we required sufficient specification to make possible the assignment of each price relative to the appropriate four-digit SITC category.

The dates of reference for price quotations are mid-years 1953, 1957, and 1961 through 1964. It would have been preferable to construct the indexes for a longer period of time and for each year within the period; however, even these six years of data proved to be too much for many business firms, and it was felt that keeping the length of the period down and omitting some of the intervening years would improve the chances for getting the necessary cooperation.

The price index of internationally traded goods will be prepared not only for the U.S. but also for the U.K. and the European Economic Community. An effort will also be made to prepare such indexes for Germany, France, and Japan and possibly, in particular commodity groups, for some other countries. The weights used in the study are based on 1962 exports of industrial countries.[14] That

[14] See previous footnote.

year was chosen because it was the only one for which exports of the major industrial countries by the present four-digit Standard International Trade Classification (SITC) were available.

Although most of the results of the study will be based on this set of weights, it is expected that indexes using conventional export weights will also be calculated. These are important for the deflation of the value of exports and imports. For these indexes, as well as for indexes of price competitiveness, the collection of actual export and import prices should bring an improvement in quality. The whole set of comparative prices and price changes we collect can be weighted by the pattern of the export trade of the United States or any other country. We hope also to be able to experiment with some other weighting patterns.

SOURCES OF PRICE DATA

The comparative prices used in the study are being gathered from a variety of sources. Approximately 250 American companies that buy or sell in international markets were asked to supply information, and over 60 per cent actually furnished data. Almost all the companies were visited at least once by one of the authors, and many more often. Follow-up inquiries were often necessary to clarify the nature of the price data or to gather additional information necessary to assign an item to its proper four-digit SITC category. The amount of information provided by individual companies varied from as little as one price relative to literally hundreds. Respondents were assured that the information they provided would be kept confidential.

U.S. sellers of machinery and metal products were asked to provide their own export prices for our reference dates and to compare these prices with those charged by foreign subsidiaries, licensees, or competitors for identical or equivalent products. Companies involved in international markets through their purchasing activities were asked to compare offers from the U.S. and foreign countries for specific items of equipment or metals, and also to trace the prices of purchased machinery and metal products over a period of years.

Another source of prices was the U.S. government. Most of these data consist of formal bids by U.S. and foreign firms to supply the

government's needs for electrical equipment, aluminum and steel products, scientific equipment, and so on. They were collected, with a great deal of help from the Bureau of Labor Statistics, from government-owned utilities, the military services, and other federal agencies.

The third major body of data is from foreign sources. Arrangements were made with several foreign research institutions for the collection of data in their own countries on U.S. and foreign prices. In countries where machinery and metal products are major exports, information was sought from both sellers and buyers, while in the less developed countries the emphasis was necessarily on purchase prices. Some purchasing countries have provided quite comprehensive data; others are represented in our data collection by much smaller numbers of returns, but at least some data will be included for purchases by each of about forty countries.

Other data have been collected in small quantities from state and local governments in the United States.

NATURE OF THE PRICE DATA

The study has involved the combination of a great many types of data, all of which reflect, in some way, the competitive position of the United States and the other major industrial countries. As has been mentioned, a large proportion of the data arises from formal competitive bidding. The documents recording such bidding usually provide elaborate specifications in terms of physical characteristics or performance (particularly in the case of machinery), notations of any deviations from advertised specifications, and the prices quoted by each bidder. For certain kinds of equipment there are frequently evaluations of quality differences in monetary terms, ending in an explanation of the basis for the final choice by the purchaser.

Other forms of purchase-price comparison include collections of price data or even price indexes maintained by large international firms which purchase throughout the world, particularly for their international operations. Some of these firms follow the prices of fifty to a hundred items in the main producing countries for their own internal use. Other firms collect price comparisons in the course

of more sporadic buying activity, such as is involved in the building of a factory abroad for the firm's own use or in the role of a consultant or adviser to a foreign firm.

The price for a country used in this analysis in any specific comparison, particularly in formal competitive bidding, is the lowest offered by a firm in that country for material meeting the buyer's specifications. Among the specifications have been requirements as to reliability of supplying firm, quality of the product, and the ability of the firm to supply the whole order or succession of orders required. Our main reason for discarding higher bids was that only the low bids were of interest to the purchaser for his decision whether to buy in that country; furthermore, it was felt that higher bids were often not serious attempts to obtain the order. Purchasers were also asked to provide time series data even where they could not compare U.S. and foreign prices, since many of them regularly bought particular items here or abroad for use in foreign countries.

The fact that several different types of data are available for at least some products provides opportunities for checking both absolute level and trends of prices supplied by companies. Sellers' reports of their prices can be compared with purchasers' reports and with bidding data. Using such comparisons, we hope, for example, to be able to detect at least the more serious divergences between list prices and transactions prices.

In order to focus on competitiveness as a feature of a country's own economy and to abstract from shifts in markets and differences in transport costs, we have collected prices f.a.s. port of export wherever possible.[15] Some data can only be secured on an f.o.b. factory basis, which we have considered acceptable, and other information is available only c.i.f. destination.[16] In the last case—fortunately infrequent—we have estimated tariff and international freight costs in order to adjust the prices to an f.a.s. basis.

Where the same f.a.s. price is charged by an exporter for every market, that price is the one we collect. Where different f.a.s. prices

[15] The alternative would have been to measure competitiveness in each different market of the world.

[16] f.a.s. = free alongside ship, including export packing and inland freight; f.o.b. = free on board; c.i.f. = cost, insurance, and freight.

are charged for shipments to different markets, our problems of measurement become more complicated. If it were possible, it might be best to treat each product at each destination as an individual commodity and to compare prices separately. In fact, we attempt in such cases to make the comparisons for a few of the chief markets and omit the less important ones.

In the case of an article that is produced but not exported by a given country, we have taken the f.o.b. domestic price. All of the major countries of concern in this study had some production in every three-digit SITC category within our scope.

Many other problems of definition or choice among different prices arise in the process of calculating these price indexes. Some of these will be taken up in Section III, where the indexes for iron and steel are discussed. Others, peculiar to the more complex products contained in other groups, will be discussed in the final report on the study.

II

PRICES AS AN ELEMENT IN INTERNATIONAL COMPETITIVENESS

Prices are not the only possible focus for a study of international competitiveness. One could go farther back in the chain of causation toward costs, or beyond that to the factors affecting costs. On the other hand, one could concentrate on more direct manifestations of competitiveness, such as changes in a country's share of world exports, which are, to some extent, a consequence of price movements.

Moreover, the significance of price differences or relative price movements is not unambiguous, as will be seen later, and different measures of price show quite different relationships among countries. Before coming to these questions, however, we must consider a prior one; that is, whether genuine and significant differences in prices and price movements can logically be expected. Is it not true that international competition equalizes prices of goods from different sources?

SCOPE FOR INTERNATIONAL DIFFERENCES IN PRICES

One explanation for observed differences in export prices, already alluded to, is the existence of transport costs. These costs imply differences in f.a.s. prices even where prices at given destinations are equal.

Of more interest are price differences in final markets brought about by governmental or private measures that fragment markets or isolate particular ones. Tied grants and loans, tariffs and quotas, and market sharing arrangements are among the factors that can have this effect. Some of the price differences that are observed reflect the fact that the price is part of a package which includes

speed of delivery, credit terms, ease of order, or quality of after-sale service, in which the nonprice elements offset, for some, but not necessarily all buyers, the apparent price difference. The importance of these nonprice factors varies from one line of trade to another, but they undoubtedly have a substantial influence upon international competition.

Other price differences represent disequilibrium situations in which some purchasers, particularly of complex products such as machinery, take a considerable time to respond to price differences. Even if a continuation of the price difference would eventually find the higher-priced seller with no customers, there may be a long interval in which sales are being made at both high and low prices. Lack of knowledge, uncertainty regarding the reliability of a supplier or the length of time he will remain in the market, reluctance to give up a satisfactory relationship with a supplier, commitment to one type of machine because of previous purchases, stocks of spare parts, and official or private "buy-domestic" policies may all act to prolong the adjustment.

Another reason for the appearance of price differences in our data is that we include information on certain offer prices—i.e., the lowest price offered by each country other than the one actually making the sale. Thus some of the prices do not represent transactions but explain instead why transactions have not taken place. This is true of those data which consist of comparisons made by companies and governments before they decide where to purchase. All offers other than the one accepted are potential, but not actual, prices.

Many of the factors mentioned above also make possible divergent price *movements* among different national sources of supply. If transportation costs are important, for example, a rise in one country's f.a.s. price relative to that of other suppliers may cause the country to lose its more distant markets for a product while it retains the closer ones, reducing the geographical range of its sales but not eliminating them completely. Thus the investigator will be able to observe the relative rise in the f.a.s. price, as he could not if the export trade vanished completely.

Differentiation in products such as machinery plays a role similar

to that of transport costs in making differences in price movements visible to the investigator. When there is such differentiation, an increase in the f.a.s. price of a machine may reduce its sales in a particular area and narrow the machine's range of uses but will not drive it completely from the market.

MARKET SHARES AS A MEASURE OF COMPETITIVENESS

The change in a country's share in world exports has been one of the most frequently used empirical counterparts of competitiveness.[17] Both the concept of competitiveness and the share measure can be applied to total exports or to specific products or markets.

The share of a given country in total exports might rise or fall for a variety of reasons. One group of factors consists of shifts in demand: a country's export share might grow because importers' tastes shifted toward its products, because its exports benefited from high income elasticities of demand in importing countries, or because its traditional markets were enjoying a period of particularly rapid economic growth. On the supply side are changes in productivity, monetary and fiscal policies which affect the level of prices and economic activity, governmental subsidies for exports, and many others both internal and external to the firm and industry.[18] These influences often operate through prices, and price changes thus are often a proximate cause of changes in market shares.

It is with the price aspect of competitiveness that we are primarily concerned. Our purpose is to construct the measure of relative price change that would, in combination with the other relevant variables (many of which have been mentioned above), best account for changes in the flow of trade. For this purpose it would be desirable

[17] See, for example, International Monetary Fund, *1964 Annual Report,* pp. 123–130, and Anne Romanis, "Relative Growth of Exports of Manufactures of the United States and Other Industrial Countries," International Monetary Fund, *Staff Papers,* May 1961. See also the article "Fast and Slow-Growing Products in World Trade," *National Institute Economic Review,* August 1963, and the other studies mentioned there. For a note on a study under way, see NBER, *44th Annual Report,* June 1964, pp. 42–43, 131–135.

[18] In all these cases, it is the change in one exporting country relative to its competitors that is important.

to measure price competitiveness in such a way as to incorporate only influences from the supply side, and to eliminate all influences from the demand side. Since our index of price competitiveness is a relative price index, it is conceivable that changes on the demand side might cause a country's price competitiveness to appear to decline, although in fact the over-all competitiveness of the country has increased. This would occur if there were a shift in world demand in favor of a particular variety of good produced by that country, resulting in a rise in its price relative to the prices of similar goods in other countries. It is possible to imagine, for example, a rise in demand for one country's type of computer relative to another country's which could lead to an apparent decline in competitiveness if the supply price increased. The more narrowly commodities and commodity groups are defined, the less important this phenomenon will be, but we cannot hope to eliminate it altogether.

In most cases, however, we may assume that shifts in world demand would affect the prices of the favored good in approximately the same way in different countries, leaving the index of price competitiveness unchanged. In a comparison between conventional export price indexes a country specializing in the favored good would appear to have lost in competitiveness, because the product rising in price is heavily weighted in that country's index. That would not be the case in our indexes because we use a single set of weights for all countries. This procedure, we believe, removes much of the influence of demand factors from our index of price competitiveness.[19]

Changes in supply conditions may be manifested in changes in nonprice elements of competition as well as in prices. The nonprice factors are particularly important in nonstandard products such as machinery and transport equipment, and it cannot be assumed that changes in these elements of competition are necessarily parallel to price movements. Theoretically, the value of many of these factors

[19] Of course, a shift in world demand in favor of a particular good produced by a given country may have indirect effects on our index, since the rise in demand for one commodity may tighten supply conditions and thus reduce the country's price competitiveness in other goods.

can be translated into monetary terms and incorporated into the price of the product, but we have not been able to make such calculations.

The only nonprice factor for which we have been able to collect any systematic data is delivery time. We have obtained information from purchasers of a wide variety of commodities about delivery times, and we hope to be able to produce indexes of delivery delays for at least some commodity groups for imports from the major industrial countries. In addition, we shall try to call attention to nonprice factors where they are of special importance, even though we cannot quantify them.

PRICES AND COSTS AS ALTERNATIVE APPROACHES TO COMPETITIVENESS

Although there is little doubt that much can be learned from comparisons of prices and price movements, it has been suggested that costs are a better focus for the study of international competition than prices.[20]

To what extent will cost conditions be reflected in relative prices and price changes? In general, the higher the elasticity of substitution between one country's products and another's—the more completely buyers shift from one to the other in response to small relative price changes—the more likely it is that changes in competitiveness will be observable only in quantity shifts and not in price movements. For example, all countries' prices for certain standard raw materials move together, and in these cases a loss of competitiveness by a given country appears as a decline in the margin of price over costs. The result, sooner or later, is likely to be a fall in the country's export share without any unfavorable development appearing in relative prices. High supply elasticities contribute to the same result.

This type of identical price change is much less likely to occur in manufactures, however, since substitutability is less perfect. Here, actual prices rather than costs may be more relevant to an explanation of historical shifts in trade patterns. Furthermore, prices have two decisive advantages over costs from the viewpoint of this study:

[20] See, for example, Robert M. Stern, "British and American Productivity and Comparative Costs in International Trade," *Oxford Economic Papers*, October 1962. See also Robert M. Stern and Elliot Zupnick, "The Theory and Measurement of Elasticity of Substitution in International Trade," *Kyklos*, 1962, Fasc. 3.

(1) The concept of price, although not without its prickly aspects, is generally more objective and less likely to vary from one reporter to another. (2) It is easier to obtain information about prices than about costs, not only because many sellers are more willing to provide price than cost information but also because price information can be supplied by buyers. Moreover, cost data can be built up only for whole plants, companies, or groups of commodities rather than for precisely specified individual commodities. International cost comparisons for individual products would be distorted by the diversity of methods of allocation of costs in different firms and countries.

THE INTERPRETATION OF THE INDEX OF PRICE COMPETITIVENESS

It is evident from what has been said that the relation between price competitiveness and changes in a country's market share or in its trade balance cannot be expected to be simple and unvarying. Even if all the nonprice factors were constant, there might be margins within which relative prices could change with little or no immediate impact upon the trade position. For example, there might be a rise in the U.S. price of a domestically produced good that is exported by some countries but not by the U.S. The measure of price competitiveness adopted in this study, which involves weighting each price change by the importance of the commodity in world trade rather than by its importance in the particular country's exports, would show an unfavorable movement, although the relative position in world markets of the goods actually exported by the U.S. might not have changed at all. In a sense, the index would show the true situation; the competitiveness of the U.S. would have declined in the sense that the rise in the price of the good places it farther away from the export threshold and closer to the import threshold than it was before. For the moment the margins of safety provided by differences in costs, transportation charges, and market imperfections may mean that the price rise does not affect the trade balance. Sooner or later, however, persistent movements in the index of price competitiveness are bound to be reflected in the trade statistics.

Finally, it must be remembered that a decline in competitiveness,

either in the price sense or in some other dimension, does not necessarily call for remedial action. There is no unique share of world markets that represents the ideal share for a given country, and not every decline in a country's export share or rise in its import share should be cause for alarm or concern. Some declines in export shares for particular commodities are always occurring in every country as, in the course of economic development, comparative advantage moves from one type of production to another. Even for nations as a whole, declines in export shares are sometimes desirable. If the underdeveloped countries are to gain relative to the developed ones in per capita and national income, they might be expected to gain in exports as well.[21]

As another example, a country which formerly concentrated on a single product might lose its share of world exports if it reduced both import and export needs by diversifying its economy. A country which is beginning to reduce its rate of foreign investment and to repatriate income from past investments may well find that its export share is declining and its import share rising. The country may not, in a sense, be worse off; it is enjoying the fruits of its past frugality. Nevertheless, its competitiveness in the world economy has declined; the country's entrepreneurs find it more difficult to meet foreign competition. In this case, however, the changes would represent the normal consequence of the shift in the country's over-all relations with the rest of the world rather than an alarming development calling for corrective measures. A decline in competitiveness is thus a warning signal only under circumstances which require a country to maintain or improve its trade balance.

[21] However, if grant aid and other capital flows to underdeveloped countries expand more rapidly than world exports, the share of these countries in world exports will fall.

III

IRON AND STEEL PRODUCTS: PRELIMINARY RESULTS

INTRODUCTION

The preliminary indexes for iron and steel products (SITC Division 67) presented here illustrate the type of information collected in the International Price Comparison Study and some of the questions we seek to answer with these data. The findings from our indexes are compared with some of the impressions that can be drawn from previously available information.

We describe these indexes as preliminary for two reasons. The first is that much of the information to be used in the final report has not yet been collected or, if collected, not yet classified and incorporated into the indexes. Data for 1964 are still sparse, but by the end of the study 1963 and 1964 should be as well covered as the best of the earlier years. A second reason for treating these indexes as first approximations is that much experimental work remains to be done with the data—for example, in deciding on the proper degree of stratification to use for classifying commodities and in testing and comparing different sources and types of price information.

The sources of our iron and steel price quotations are diverse. From one foreign steel-importing country we have received purchase price comparisons, both place-to-place and time-to-time, covering almost every four-digit SITC subgroup within division 67. From sources in two important exporting countries we have obtained time series on these countries' export prices for a wide variety of products and, in one case, series on competitors' export prices as well. More than a dozen large U.S. companies supplied

price comparisons from their own experience. These were mainly purchase prices or price offers from the chief exporting countries for steel to be used in installations outside the United States and, for the most part, outside Europe as well. The company data included both place-to-place and time-to-time comparisons, particularly the former.

Another source of place-to-place comparisons consists of formal bidding to specification. Scattered bids for contracts in seven countries outside the United States and Europe are included in the data used so far, and more such reports are expected. In addition, several bids from U.S. and foreign steel companies on contracts for U.S. government agencies are included here, and a much larger number of these will be available for the final estimates.

The commodity coverage of the indexes presented in the following pages corresponds to that of Division 67, Iron & Steel, in the *Standard International Trade Classification, Revised.* The groups within this division and the weights assigned to each (on the basis of industrial countries' exports in 1962) are as follows:

	Group	*Weight*
671	Pig iron, ferro-alloys, etc.	4.67
672	Ingots and other primary forms	6.76
673	Bars, rods, angles, shapes, and sections	23.54
674	Universals, plates, and sheets	34.66
675	Hoop and strip	4.88
676	Rails and railway track construction material	2.45
677	Wire	4.01
678	Tubes, pipes, and fittings	17.92
679	Castings and forgings, unworked	1.11
		100.00

The number of sources and number of price relatives used in our index-number computations for each of these groups may be found in Tables A-1, A-2, and A-3 at the end of this paper.

THE MAIN RESULTS

The main results up to this point for iron and steel products as a whole are summarized in Table 1 and Chart 1. The first three rows of figures (A) in the table and the first panel of the chart show international price indexes for the U.S., the U.K., and the European Common Market countries; the same indexes, in the form of year-

TABLE 1

Indexes of International Prices and Price Competitiveness, Iron and Steel, SITC Division 67

(NBER data)

	1953	1957	1961	1962	1963	1964
A. PRICE INDEXES (1962 AVERAGE FOR EACH COUNTRY = 100)						
U.S.	86	100	101	100	98	103
U.K.	96	108	103	100	98	109
EEC	96	117	105	100	98	110
B. INDEXES OF PRICE COMPETITIVENESS OF U.S. (1962 = 100)						
Relative to U.K.	117	112	103	100	99	105
Relative to EEC	111	116	103	100	99	106
C. PRICE LEVELS (U.S. AVERAGE FOR EACH YEAR = 100)						
U.S.	100	100	100	100	100	100
U.K.	94	91	84	81	81	85
EEC	89	92	82	80	79	85
D. PRICE LEVELS (U.S. AVERAGE FOR 1962 = 100)						
U.S.	86	100	101	100	98	103
U.K.	81	91	85	81	79	88
EEC	76	93	83	80	78	87

NOTES. Minor inconsistencies among parts B, C, and D are due to rounding. Part A differs from the others because it is derived wholly from time-to-time data.

Part A. The international price indexes are aggregated from four-digit and, occasionally, five-digit SITC classifications, using world trade weights. Within these classifications, most of the indexes are arithmetic means of equally weighted time-to-time price relatives. An exception to this method was the U.S. 1964/1963 index. The sample was very small and gave undue weight to one source which showed somewhat atypical price changes. To offset this influence, the index was roughly reweighted by the number of observations from each source in earlier years for which the data were more complete.

Part B. These are the aggregate of indexes of price competitiveness for four-digit SITC subgroups, calculated from either place-to-place or time-to-time data. In each subgroup the choice between the two types of data was made on the basis of several factors, including the number of sources and observations and the consistency of the price relations and price changes among the observations. The number of sources and observations for each three-digit SITC group is given in Tables A-1 and A-2.

In principle, the index of price competitiveness of the U.S. represents the ratio of the international price index of a foreign country to that of the U.S. (see Section I of this paper). Thus, for example, a rise in the U.S. index of price competitiveness relative to the U.K. indicates that U.K. prices have risen relative to U.S. prices.

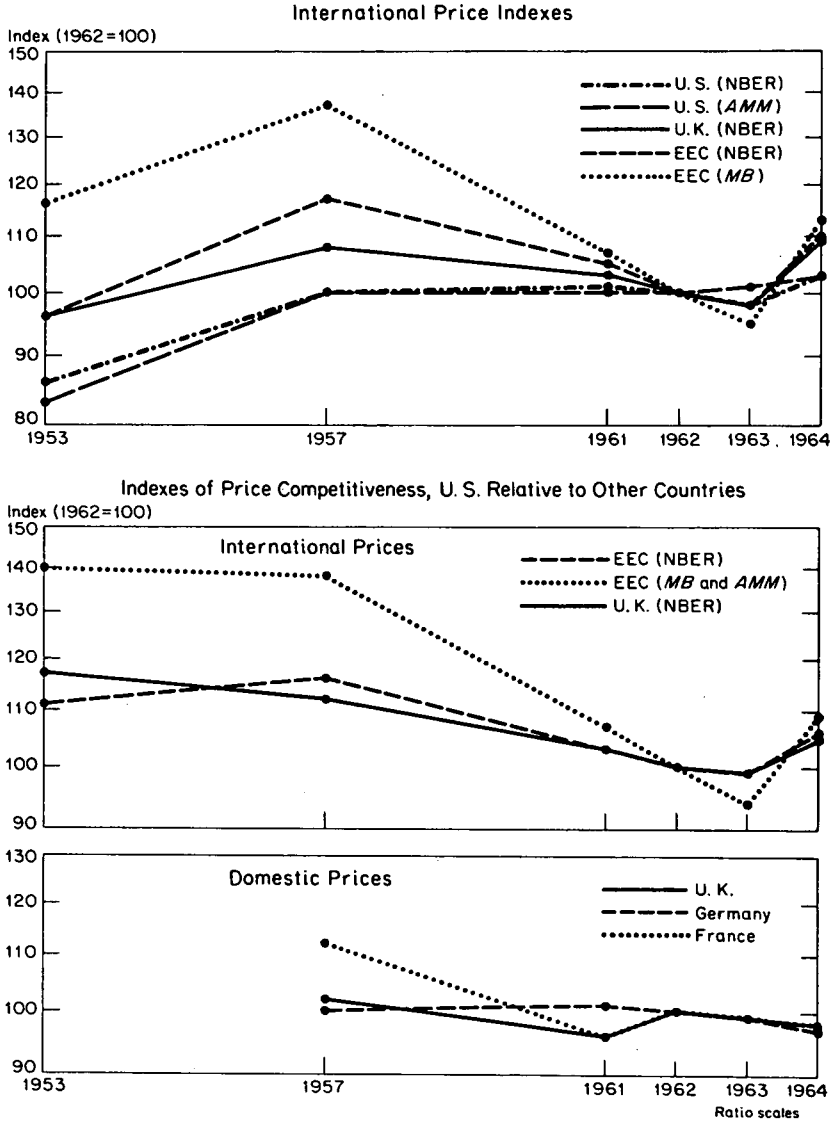
Part C. The 1962 price levels are the aggregate of place-to-place indexes for that year. For other years, the price levels were not calculated from the place-to-place relatives but were, instead, derived from the indexes of price competitiveness (Part B of this table). Since the indexes of price competitiveness measure changes in the place-to-place ratios, they imply, given one year's ratio as a starting point, place-to-place indexes for the other years.

Part D. Derived from part C of this table and the U.S. international price index in part A.

64-576 O—66——15

CHART 1

Iron and Steel, SITC Division 67, Indexes of International and Domestic Prices and Price Competitiveness



Source: Footnotes to Tables 1 and 2.

to-year changes, appear as the first set in Table 2. In each period, with one exception, price movements in the three areas were in the same direction, rising in 1953–57 and 1963–64 and falling between 1961 and 1963. The exception to unanimity of direction was between 1957 and 1961, when U.K. and EEC prices fell substantially from their Suez crisis levels and U.S. prices were comparatively stable.

In general, U.K. and particularly EEC prices fluctuated more sharply than U.S. prices. They fell substantially between 1957 and 1962, while U.S. prices were virtually stable, and rose more than U.S. prices from 1963 to 1964. Some evidence not yet incorporated in the indexes suggests that we may have understated the fall in international prices between 1957 and 1961, particularly for the EEC countries, and that the differences among the areas were probably greater than those shown in Table 1. Such differences in price behavior have been commented on in the past.[22]

The second set of figures in Tables 1 and 2 and the second panel in the chart show the indexes of price competitiveness described in Section I of this paper. Those in Table 1 describe U.S. price competitiveness relative to the U.K. and EEC in each year compared to the competitive position in 1962, and those in Table 2 show year-to-year changes in price competitiveness. For example, the figure of 105 for the 1964 index relative to the U.K. in Table 1 indicates that U.K. prices of internationally traded goods rose by 5 per cent relative to U.S. prices between 1962 and 1964,[23] or that the ratio of the U.K. price level of internationally traded goods to the U.S. level was 5 per cent higher in 1964 than in 1962.

U.S. price competitiveness vis-à-vis the U.K. declined in every period shown here between 1953 and 1962 or 1963. Relative to the

[22] The OEEC Iron and Steel Committee reported in 1960 that "there is a fundamental difference in the export price policy pursued by producers in the various exporting areas . . . producers in the E.C.S.C. and Japan . . . seem to adopt a much more flexible policy . . . to try to expand their share of the export market by making price sacrifices. . . . This policy is in marked contrast to that followed in the United States, and, it would seem, in the United Kingdom, where the steel industries seem less disposed to offer heavy cuts in prices to overseas consumers. . . ." *The Iron and Steel Industry in Europe*, Paris, May 1960, p. 97.

[23] Strictly speaking, that the U.K. price index for 1964 was 105 per cent of the U.S. price index (1962 = 100 for both indexes). As was pointed out earlier, we have placed U.S. prices in the denominator in all these calculations.

EEC, U.S. price competitiveness deteriorated rapidly after 1957. There was little change between 1962 and 1963, but in 1964 the direction was reversed and the U.S. improved its competitive position relative to both areas. These last estimates are very tentative and may err in the direction of underestimating the improvement in the competitive position of the U.S.

As already noted, the indexes of price competitiveness may be computed from either time-to-time international price indexes or place-to-place international price comparisons. The indexes in Tables 1 and 2 are not based on either method exclusively. For each four-digit SITC subgroup for each period, a decision was made as to whether the time-to-time data or the place-to-place data would yield the most reliable index of price competitiveness. These separate four-digit indexes of price competitiveness were then aggregated into the three-digit group indexes and then into the indexes for all of division 67.

The time-to-time indexes were more frequently used because the four-digit place-to-place indexes tended to move erratically, owing to several factors. For one thing, the place-to-place price ratios were characterized by wider dispersion than the time-to-time ratios, and the place-to-place price relations often varied among commodities within four-digit subgroups. Therefore, changes in the commodity composition of the samples within four-digit subgroups produced spurious movements from one year to the next in the place-to-place ratios. The solution to this problem is a finer classification of commodities within the four-digit subgroups to eliminate these unintended shifts.

The differences in the resulting indexes of U.S. price competitiveness for pairs of years produced by these alternative methods are as follows:

	1961/1957	1962/1961	1963/1962
Relative to U.K.			
NBER index (Table 2)	92	97	99
Time-to-time data only	94	98	99
Place-to-place data only	86	95	105
Relative to EEC			
NBER index (Table 2)	88	97	99
Time-to-time data only	92	97	100
Place-to-place data only	82	98	107

The third bank of figures (C) in Table 1 gives estimates, calculated from the indexes of price competitiveness, of U.K. and EEC international price levels for each year relative to that of the U.S. Both were lower than the U.S. price level in every year shown. The gap between U.S. and foreign prices was greatest in 1962 and 1963, when both U.K. and EEC prices were about 20 per cent lower. Our tentative estimates for 1964 indicate that the gap has narrowed to 15 per cent. The U.S. position was more favorable in 1953 and 1957, when European prices were about 10 per cent lower than those of the U.S. For iron and steel products in general, U.K. and EEC international price levels have been closer to each other than to the U.S. level, with the U.K. prices usually slightly above EEC except in 1957.

The last set of figures (D) compares each international price level to that of the U.S. in 1962. The most recent European price levels appear from these calculations to be similar to those of the U.S. in 1953, and even the highest levels of European prices (in 1957) are below the lowest reached by the U.S. after the initial year.

COMPARISONS WITH PUBLISHED EXPORT PRICES

Other sources of export price information are leading trade journals, notably the *Metal Bulletin,* published in London, and the *American Metal Market.* The former, in particular, is widely cited for its information on steel prices.[24]

Coverage of U.K. export prices in these sources appears to be too limited for the computation of indexes, but we have been able to compute fairly broad indexes for EEC iron and steel exports (from the *Metal Bulletin*) and for U.S. exports (from the *American Metal Market*). These indexes appear in Table 2.

From 1953 through 1963, the NBER international price indexes for the United States follow very closely those computed from published export prices. The discrepancies, although small, are almost all in one direction, and therefore cumulate through the period, with the NBER indexes declining slowly but regularly with respect to those from *American Metal Market* data. Then, in 1963–64, there is a reversal: the NBER indexes rise substantially, and the indexes computed from published prices rise only slightly. The dif-

[24] See, for example, *The Iron and Steel Industry in Europe,* p. 177.

TABLE 2

Year-to-Year Comparisons of International and Domestic Prices and Price Competitiveness, Iron and Steel, SITC Division 67

	1957/1953	1961/1957	1962/1961	1963/1962	1964/1963
A. NBER DATA					
International Price Indexes					
U.S.	116	101	99	99	105
U.K.	113	95	97	97	112
EEC	122	89	96	98	113
Indexes of U.S. Price Competitiveness					
Relative to U.K.	96	92	97	99	106
Relative to EEC	104	88	97	99	107
B. PUBLISHED EXPORT PRICE DATA					
International Price Indexes					
U.S.-*American Metal Market*	121	101	100	101	102
EEC-*Metal Bulletin*	118	78	93	95	118
Index of U.S. Price Competitiveness					
Relative to EEC	98	77	94	95	116
C. UNIT VALUE DATA					
U.S. Export Unit Value Index	126	105	101	98	
D. DOMESTIC PRICE DATA					
Domestic Price Indexes					
U.S.-BLS	127	102	100	99	101
U.S.-Iron and Steel Board		104	100	101	102
U.K.-Iron and Steel Board		97	104	100	100
Germany-Iron and Steel Board		105	99	100	100
France-Iron and Steel Board		89	104	100	100
Index of U.S. Price Competitiveness (Iron and Steel Board)					
Relative to U.K.		94	104	99	99
Relative to Germany		102	99	99	98
Relative to France		85	105	99	98

NOTES

Part A. See Notes to Table 1.

Part B. *American Metal Market* prices for each year were taken from the issue closest to July 1. They appear to be posted prices, and there is no indication that any deviation of market from posted prices would be recorded. No prices are listed for Groups 671, 672, and 679. Data for Group 678 are given only at the end of the period.

Metal Bulletin price data, also collected from issues closest to July 1, purport to represent actual market conditions rather than posted prices. There are, unfortunately, very few items listed, and only four of the three-digit SITC groups in Division 67 are covered at all. These groups do, however, account for two-thirds of the value of trade in Division 67. The chief group omitted is SITC 678, tubes, pipes, and fittings.

Part C. This index is a reweighting of the series composing the Department of Commerce export unit value indexes by the 1962 world trade weights used for this study. No attempt was made to widen the coverage of the official unit value indexes, and the few departures from the Department of Commerce list were forced by our use of some four-year links instead of one-year links and by the use of a single base year instead of shifting bases. (The Department of Com-

ference is sufficient to restore approximately the 1961 relation between the NBER index and the index based on *American Metal Market* prices.

It is conceivable, given the thinness of the data on which the NBER indexes for 1963–64 are based, that this sudden reversal is only a sampling aberration. Further data collection should eventually settle this question. However, another possibility is worth considering. The index based on the list prices published in the trade journals may understate the flexibility of American prices.

There is considerable evidence that the U.S. price index based on published prices moved more sluggishly than actual prices. One point is that the decline in the NBER indexes relative to published prices in 1961–62 and 1962–63—suggesting some shading of prices by American companies in reaction to European and Japanese competition—was quite pervasive among the four-digit SITC groups and was apparent in data from a number of sources. A revealing fact about the published U.S. prices is that reinforcing bars, a product subject to intense foreign competition, drop out of the index after 1961, when published prices were withdrawn by U.S. companies. Thus the international price index from published export prices does not reflect the subsequent behavior of this price, one indication of which is the fact that the BLS reported

Notes to Table 2 (Concluded)

merce sometimes changes the composition of its index to provide the best year-to-year link).

Approximately thirty unit value series are incorporated into this index; about half of them are semimanufactures and half are finished manufactures. The major gaps, from the point of view of the world trade weights, are ingots (SITC 672) and wire rods (SITC 673.1).

Part D. Among the domestic price indexes the one computed from BLS series is by far the most complete, with fifty-six specifications including at least two in every three-digit group. The U.K. Iron and Steel Board prices are confined to the first five three-digit groups in Division 67. These account for almost three-quarters of the trade in 67, but exclude the more highly manufactured products.

We combined the published prices into unweighted indexes for four-digit SITC subgroups and aggregated these into three-digit groups and the total index for SITC 67, using the world trade weights described earlier.

The numbers of observations for indexes of published export and domestic prices are given in Table A-3.

These indexes of price competitiveness, unlike the NBER indexes above, were derived from the price indexes.

a fall of 4 per cent from 1961 to 1962 and a further 11 per cent from 1962 to 1963 in the domestic price of reinforcing bars.[25]

If the reason suggested here for the discrepancies in 1961–63 is correct, namely, that list prices failed to reflect some shading of actual U.S. export prices to meet foreign competition, the shift in 1963–64 is a logical one. The rise in U.S. list prices between 1963 and 1964 may have been accompanied by a curtailment of discounting from list prices, with the consequence that actual export price offers rose by more than the increase in list prices.

The relation between NBER and *Metal Bulletin* prices for EEC exports was in the opposite direction; it is the published prices in this case that show the more violent fluctuations. In particular, the published price indexes fell sharply between 1957 and 1961, but they fell more than the NBER indexes in 1961–62 and 1962–63 also, and then rose more in 1963–64. It is possible that the index derived from *Metal Bulletin* prices is more volatile than EEC export prices in general because of the small number of commodities covered. These tended to be the ones most important in trade and include several, such as wire rods and concrete reinforcing bars, that have been subject to particularly severe international competition. Products of alloy steels or those incorporating other special features, not as standardized as those in the *Metal Bulletin* list, or those playing a less important role in international competition, may have undergone less violent price fluctuations. The NBER price collection, taken in large part from the purchase experience of private companies, includes more of such items.

For the most part, the index of U.S. price competitiveness relative to the EEC based on published data gives a magnified version of the fluctuations shown in the NBER index. The declines are larger in each of the periods from 1957 through 1963, and the increase is larger from 1963 to 1964. However, the index from published data shows not only larger fluctuations than the NBER index but also a much greater deterioration in the U.S. competitive position vis-à-vis the EEC countries over the whole span of years: 23

[25] U.S. Bureau of Labor Statistics, *Wholesale Prices and Price Indexes*, various issues.

per cent instead of the NBER estimate of 4 per cent since 1953, and 21 per cent instead of 9 per cent since 1957.

COMPARISONS WITH EXPORT UNIT VALUES

The third section of Table 2 gives an index derived from U.S. export unit values, constructed, as far as possible, from those commodities used by the Department of Commerce in its official export unit value index (for which no separate iron and steel component is published). No effort was made to widen the coverage of the official index or to pass judgment on the quality of the individual unit value series used. The main alteration in the unit value data was the reweighting by world trade weights for a single year in place of the Commerce Department's shifting U.S. export weights. However, some minor changes in commodity composition were necessary because of our use of four-year time spans for two of the periods.

The largest difference between the unit value and NBER indexes is in 1953 to 1957, when the unit value index rose by ten points more (as did the domestic price index); the index from published export prices was midway between the two. In 1957–61 the unit value index increased by more than any of the other three, but in the following two years, when prices were relatively stable, the differences were small.

Steel products present fewer problems for the construction of unit value indexes than most other kinds of manufactured goods. Physical-quantity data are given in the trade statistics, and the degree of commodity detail is substantial: over 100 separate commodity numbers are available in Schedule B (the U.S. export trade commodity classification) for products in SITC Division 67. Furthermore, steel products are comparatively homogeneous.

COMPARISONS WITH DOMESTIC PRICES

Since changes in international competitiveness are often inferred from movements of domestic prices, we show, in the lowest panels of Table 2 and Chart 1 some computations on this basis. From 1953 to 1957, U.S. domestic prices increased more rapidly than did the

NBER international price indexes. Between 1957 and 1963, the two indexes moved quite similarly, and from 1963 to 1964 the international price index rose relative to domestic prices. As might be expected, European international prices diverged more frequently and by greater amounts from domestic prices, falling relatively in most cases in each of the periods between 1957 and 1963, and then rising by 10 per cent or more relative to domestic prices in both the U.K. and EEC countries in 1963–64.

It is clear that quite different conclusions regarding the last seven years' developments could be drawn from the domestic price data. Between 1957 and 1962, they suggest a much smaller decline in U.S. price competitiveness than is described by the NBER indexes, and between 1961 and 1962 they show an improvement while the NBER indexes show a worsening of the U.S. competitive position. In 1963–64 the comparisons based on domestic prices indicate a deterioration in the U.S. position and the NBER series suggest a turn toward improvement.

RESULTS FOR THREE GROUPS OF IRON AND STEEL PRODUCTS

Tables 3 and 4 show international and domestic price indexes and indexes of price competitiveness for the three most important components of iron and steel products: SITC Group 673, bars and shapes; SITC Group 674, plates and sheets; and SITC Group 678, tubes and pipes. Together these account for about three-quarters of total world trade in iron and steel products. The indexes are shown only through 1963 because the sample is too small for 1964.

The results for all iron and steel products are, on the whole, mirrored in the main components shown here. For example, the U.S. international price indexes all show price increases in 1953–57 and declines in 1961–62, and the total range in the other two periods is only four or five percentage points.

In order to test the effect of some more elaborate commodity weighting schemes contemplated for later stages of the study, an experiment was performed on the EEC international price index for SITC Group 673, in which the problem of shifting weights within four-digit subgroups was a serious one. The composition

TABLE 3

Year-to-Year Comparisons of International Prices and Price Competitiveness, SITC Groups 673, 674, and 678 (NBER and other data)

			1957/1953	1961/1957	1962/1961	1963/1962
INTERNATIONAL PRICE INDEXES						
NBER data	U.S.	673	117	102	99	95
		674	113	102	99	100
		678	121	98	98	99
	U.K.	673	116	100	94	98
		674	105	89	97	94
		678	120	97	102	100
	EEC	673	126	91	91	98
		674	125	85	96	95
		678	115	87	98	100
Published data	U.S.	673	125	102	100	100
		674	117	100	99	101
	EEC	673	129	80	84	99
		674	109	74	100	92
Export Unit Values	U.S.	673	128	102	101	102
		674	120	100	101	96
		678	130	119	101	96
INDEXES OF U.S. PRICE COMPETITIVENESS						
NBER data	Relative to U.K.	673	100	98	95	104
		674	93	87	97	94
		678	91	92	96	102
	Relative to EEC	673	108	89	92	103
		674	109	84	98	95
		678	95	89	100	102
Published data	Relative to EEC	673	103	79	84	99
		674	94	74	101	91

NOTE: See notes to Tables 1 and 2 for descriptions of indexes.

of each subgroup was stabilized at the weighting pattern of the year in which data were most plentiful, so as to eliminate the effects of increasing proportions of certain types of data. The result of this procedure was to reduce the 1961/1957 index from 91, as published in Table 3, to 88, somewhat closer to the index based on published prices.

It was suggested earlier that part of the difference between our

TABLE 4
Year-to-Year Comparisons of Domestic Prices, SITC Groups 673, 674, and 678

		1957/1953	1961/1957	1962/1961	1963/1962
U.S.					
BLS Data					
	673	131	104	99	98
	674	124	104	100	101
	678	132	100	100	99
Iron and Steel Board Data					
	673		104	100	100
	674		104	100	102
U.K.					
Iron and Steel Board Data					
	673		99	103	100
	674		96	106	100
Germany					
Iron and Steel Board Data					
	673		109	100	100
	674		103	99	100
France					
Iron and Steel Board Data					
	673		94	107	100
	674		85	103	100

NOTE: See notes to Table 2 for descriptions of indexes.

indexes for EEC international prices and those derived from published prices was that the latter were too volatile because the number of commodities was small and the index therefore not representative. The fact that differences between NBER and published price indexes for four-digit groups or individual commodities are smaller than those in the total indexes of Table 2 confirms our impression that part of the difference between the NBER and published indexes arises from the selection of commodities in the latter.

Comparisons of the unit value and NBER price indexes for the more detailed components show wider differences and more frequent cases of movements in opposite directions. The unit values for tubular goods exhibit particularly erratic behavior. Between 1957 and 1961, for example, they increased by 19 per cent, while the NBER index declined by 2 per cent and the wholesale price index showed no change. This cannot be explained as a vagary of the unit value series for one or a few commodities, since it is based on fourteen relatives, of which twelve showed increases of more than 11 per cent. It seems likely that the tightness of supplies in

Europe following the Suez crisis led to the purchase from American suppliers in 1957 of large quantities of cheaper pipe, especially for Venezuela and Canada, not ordinarily bought in the U.S. By 1961 the U.S. was again exporting smaller, more specialized, and therefore more expensive pipe. Because the system of pipe classification in U.S. trade statistics omits some critical price factors, such as diameter, the unit value index is vulnerable to this kind of error.

Comparison of the NBER indexes with domestic prices for individual groups confirms the conclusion that domestic price movements are an untrustworthy guide to changes in international price relations. For example, in 1961–62 they show stable or increasing prices, while many other indications point to international price declines, particularly in Group 673.

CONCLUSION

As already noted, additional work remains to be done in the iron and steel group. In addition to improving coverage for 1963 and 1964, we plan to experiment with finer commodity subdivisions, to compare price relations reported by different classes of respondents, to attempt to produce separate indexes for France and Germany, and to include Japan.

It is possible that further investigation of individual published price observations will lead to the conclusion that some of them should be incorporated in our price indexes. Consideration will also be given to supplementing our data with selected export and import unit value series, and we will at least attempt to see what light our data throw on the reliability of these customs data.

We are satisfied, however, that the methods developed in the International Price Comparison Study represent a feasible approach to the measurement of international price competitiveness, at least for the relatively homogeneous types of products included in the iron and steel division. We believe it is a superior approach in principle and that the other sources of information about price competitiveness explored in this paper—published export prices and domestic prices—cannot be relied upon to serve the same purpose. The next major step in our study is to show that the methods can be applied in the area where a more severe test has to be met—the highly differentiated products of the machinery groups.

TABLE A-1

Number of Sources and Observations, NBER Time-to-Time Indexes by 3-Digit SITC Groups

SITC Class	1957/1953		1961/1957		1962/1961		1963/1962		1964/1963	
	Sources	Obser.	Sources	Obser.	Sources	Obser.	Sources	Obser.	Sources	Obser.
					U.S.					
671	2	4	2	5	2	5	2	5	2	5
672	1	3	1	4	1	4	1	4	1	4
673	1	6	3	19	3	19	3	17	2	14
674	3	20	5	21	6	22	6	17	5	15
675	3	6	3	6	3	6	3	6	3	6
676	1	1	1	1	1	1	1	1	1	1
677	1	1	1	3	2	6	2	6	1	3
678	4	25	6	34	7	106	6	103	2	7
67	9	66	11	93	14	169	13	159	9	55
					U.K.					
671	1	2	2	3	2	3	2	3	2	3
672	1	1	1	1	1	1	1	1	1	1
673	1	4	2	10	4	19	4	16	3	15
674	3	10	4	15	6	30	5	23	3	8
675	3	5	3	6	3	6	3	6	3	6
676	-	-	-	-	-	-	-	-	-	-
677	1	2	1	3	2	5	2	5	1	3
678	2	3	2	7	3	98	2	96	1	1
67	5	27	7	45	9	162	8	150	6	37
					EEC					
671	1	4	2	6	2	6	2	6	2	6
672	1	3	1	5	2	6	2	6	2	6
673	3	10	5	17	5	24	5	22	4	20
674	2	5	6	23	5	29	5	18	4	11
675	2	5	3	6	5	9	5	8	5	8
676	2	2	2	3	2	3	2	3	2	2
677	2	6	2	6	5	12	4	12	4	9
678	3	10	3	19	5	63	4	68	3	12
67	4	45	8	85	11	151	10	143	9	74

TABLE A-2

Number of Sources and Observations, NBER Place-to-Place Indexes, by 3-Digit SITC Groups

SITC Class	1953		1957		1961		1962		1963		1964	
	Sources	Obser.	Sources	Obser.	Sources	Obser.	Sources	Obser.	Sources	Obser.	Sources	Obser.
						U.K./U.S.						
671	1	2	1	2	1	2	1	2	1	2	1	2
672	1	1	1	1	1	1	1	1	1	1	1	1
673	1	1	2	8	7	48	6	31	4	46	2	12
674	1	4	2	15	4	35	6	66	6	36	2	5
675	3	5	3	6	3	6	3	6	3	6	3	6
676	-	-	-	-	1	14	2	8	1	7	-	-
677	1	1	2	6	2	5	2	4	2	6	-	-
678	1	21	3	21	6	206	10	188	7	144	2	15
67	4	35	5	59	13	317	16	306	12	248	8	41
						EEC/U.S.						
671	1	2	2	5	3	8	3	8	2	5	2	5
672	1	3	1	5	1	5	1	5	1	5	1	5
673	-	-	3	8	3	28	3	22	3	8	-	-
674	1	1	4	32	4	48	5	63	3	38	3	9
675	1	4	2	5	2	7	4	8	3	6	3	7
676	1	1	1	2	1	2	1	2	1	2	1	1
677	-	-	2	11	3	10	3	8	2	11	4	7
678	2	34	2	46	5	178	9	272	6	147	4	29
67	2	45	5	114	13	286	18	388	14	222	11	63

TABLE A-3

Number of Observations, Published International and Domestic Price Data, Time-to-Time Indexes, by 3-Digit SITC Groups

						U.K. Iron and Steel Board			
	57/53	61/57	62/61	63/62	64/63	61/57	62/61	63/62	64/63
	U.S.-BLS					U.S. and U.K.			
671			8			2	2	2	2
672			4			3	3	3	3
673			13			16	16	16	16
674			9			10	15	15	12
675			3			3	3	3	3
676			3			-	-	-	-
677			2			-	-	-	-
678			11			-	-	-	-
679			3			-	-	-	-
67			56			34	39	39	36
	U.S.-American Metal Market					GERMANY			
671	-	-	-	-	-	1	1	1	1
672	-	-	-	-	-	3	3	3	3
673	18	19	11	18	19	16	16	16	16
674	18	18	13	22	18	10	15	14	11
675	4	7	5	8	1	3	3	3	3
676	4	4	6	6	6	-	-	-	-
677	3	3	3	3	3	-	-	-	-
678	-	-	-	8	8	-	-	-	-
679	-	-	-	-	-	-	-	-	-
67	47	51	38	65	55	33	38	37	34
	EEC-Metal Bulletin					FRANCE			
671	-	-	-	-	-	2	2	2	2
672	-	-	-	-	-	3	3	3	3
673	3	4	7	8	7	16	16	16	16
674	4	6	6	5	5	10	15	15	12
675	1	1	1	1	1	3	3	3	3
676	-	-	-	-	-	-	-	-	-
677	3	3	3	3	3	-	-	-	-
678	-	-	-	-	-	-	-	-	-
679	-	-	-	-	-	-	-	-	-
67	11	14	17	17	16	34	39	39	36

Senator PROXMIRE. I hope you can stay with us, Mr. Kravis, because I hope we can get a discussion back and forth here.

Our next witness is Prof. Richard Ruggles of Yale University. Mr. Ruggles will talk on "Domestic Price Statistics—Reliability as History and Usefulness for Economic Policy."

STATEMENT OF RICHARD RUGGLES, PROFESSOR OF ECONOMICS, YALE UNIVERSITY

Mr. RUGGLES. Thank you very much. I would like to start out discussing the general usefulness and historical nature of these indexes.

Price indexes are one of the major tools of the economist and a basic economic indicator for the policymaker, not only as indexes to show the extent to which the dollar has been devalued and the cost of living increased, but also because they underlie two other basic economic indicators: the measurement of output and the measurement of productivity change. The question I wish to examine today is whether price indexes perform their function adequately by giving a reliable picture of what has occurred in the past and how the interpretation of past price index behavior should affect future economic policy decisions.

As long run historical indicators, price indexes continue to be woefully inadequate. Price change can be measured unambiguously only by observing the same commodity at two points of time. Strictly speaking, if a commodity changes in any of its specifications, no price change can be calculated. Similarly, if a new product comes on the market, its price cannot be taken into account since it had no counterpart in the previous period. In an economy where changes in products and the development of new products were relatively minor, these factors might not seriously interfere with the calculation of indexes of price change. But to say that we are today in the American economy producing substantially the same items we produced in say, 1929, is some distance from the truth. In almost every line of production—food processing, textiles, chemicals, electronics, appliances, building construction, space exploration, and military equipment, for example—spectacular improvements in products and totally new products are continually being introduced.

If we use for our historical price indicators only the measured change in prices of those commodities which existed in the previous period and whose specifications have not changed, when in fact large parts of our resources are being channeled into the creation of new technologies and new products, and into changing the nature of old products, the result may be highly misleading. The price changes we can measure are not either a random or a representative sample of what is happening to prices throughout the economy; observed price changes reflect that stagnant portion of the economy where technological improvements and productivity changes are least important. This sample is then used as a yardstick for the economy as a whole. Because the price indexes are incapable of taking into account the most important elements of technological change, they necessarily overstate the price rise and seriously understate the real output change which has taken place.

For an economic system where the process of development is the result of the introduction of new products which gradually supplant

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older products, the use of conventional price measurements will provide a very distorted picture indeed. In fact, if all progress came about in this manner and there were no productivity changes occurring in the making of existing products, the price measurement would reflect only the change in factor costs in the system and thus be purely a reflection of the change in input prices. The corresponding output index would of course not be a true index of output, but would also reflect merely the quantity of inputs. It is well recognized that there is obsolescence in both producers' and consumers' durable goods. Even the depreciation guide set by the Government for tax purposes recognizes that many goods become obsolete before they physically wear out. But obsolescence is in fact merely a reflection that improved products are appearing on the market, thus lowering the economic value of existing products. If a product becomes obsolete over a 10-year period even if it is not worn out, this suggests strongly that on average the quality improvement in economic terms may be as high as 10 percent a year. Even if the period of obsolescence is as long as 40 years, this would infer a 2½-percent per quality improvement factor. For services, the concept of obsolescence is not as obvious, since comparability between previously produced services and existing services is all but impossible. Some reflection will indicate, however, that in many areas services may have improved. Thus, in the area of medical care, the diagnosis and treatment of some diseases may today be far more efficient than they were 40 years ago, and it is not incorrect to say that many of the medical techniques of the past can now be considered obsolete. By neglecting the most important facets of technological change, new products and product improvement, the price indexes are in many ways assuming their own answer. They assume that the economy is largely static and unchanging, except for the prices charged by the factors of production. It is not surprising then that this is the answer which is reflected in their highly constrained observations.

For the shorter run, however, data on relative price movements of different parts of the economy and year-to-year differences in price behavior do provide a wealth of information about the economic system, if correctly analyzed. But even for short-run analysis one cannot rely on any total price index as a basis for economic policy decisions. All prices do not behave alike, and there are systematic differences in behavior among various groups of prices. An aggregate price index, since it is only one figure, cannot throw any light on these differences in behavior, yet they are directly relevant to an understanding of the past and to the development of policy for the future. For the development of such policy we need to have some appreciation of the forces which impinge upon different groups of prices, and an understanding of how the price system can be expected to behave with the growth of the economic system.

Unfortunately, the misinterpretation and consequent misuse of aggregate price indexes as a direct reflection of the level of excess demand in the economy has resulted in unwise economic policy. Since some of the components of the price index (services in particular) continue to rise on a secular basis, there has been a widespread impression that the economic system is always pressing upon capacity, and that every effort must be made to slow it down, to hold it in check.

Such a view has led to a slower rate of growth, and higher unemployment, than would be desirable, and substantial underutilization of capacity. The economy has fallen far short of its true potential, and we live in terror of a bogey which may not really exist.

Factors influencing price indexes

To understand the major factors influencing the movement of price indexes, it is useful to consider three sectors of the economy which, although highly interrelated, have rather different characteristics with respect to price behavior. These are the service sector, agriculture, and manufacturing. Almost all economic activity can be classified broadly under one of these headings, so that their combined behavior will determine the behavior of the aggregate price index.

One of the most striking characteristics of our price system over the past 150 years has been rising wages and salaries, so that people, through a rise in their money income, participate directly in the increased productivity of the system as a whole. In the United States, where people are free to enter any occupation they wish, the wage or salary rate is one of the major devices used to attract people into specific jobs. New industries which are making high profits pay high wages and salaries in order to attract workers. Older industries wishing to retain their labor must compete in the labor market, and raise their wages accordingly. In declining industries wages rarely fall; rather it is the jobs themselves which disappear. The people who do remain employed are generally paid the going rate. Except under widespread conditions of extreme duress, it is psychologically and institutionally difficult to lower a man's wage or salary. Thus, due to the constant appearance of new industries, increased productivity, and increased profits for the economy as a whole, wage and salary rates show a secular rise.

This increase in wages and salaries is not only an increase in income; it is also an increase in the cost of labor. In those sectors of the economy where labor is the primary input—i.e., the service industries—prices will rise directly with the increase in wages and salaries. This, as we all know, has been reflected in the cost of such things as education, medical care, Government services, urban transportation, domestic servants, and so forth. In computing the price index for most of these sectors it is assumed that productivity does not change, since there is no way to measure it. Thus, any increase in wages and salaries paid must result in an increase in the price index for these services. During the last 10 years the price index for consumer services has in fact risen by more than 20 percent, due to the continued rise of wages and salaries. To obtain stability of prices in this sector, therefore, it would be necessary also to require constancy of wages and salaries.

An example may make this clearer. One of the components in the cost of living index that has shown the greatest rise is medical care. The price index of medical care has risen by about 35 percent over the last 10 years, while the index for consumer prices as a whole rose by only half this percent. For the most part, these rising medical costs reflect increases in the wages and salaries of those engaged in the medical profession. The patient, however, is concerned not only with how much he has to pay, but also with the quality of the service he receives in return. For many areas of medical care, the patient would prefer to pay today's prices and get today's quality of medical care,

rather than that available 10 or 15 years ago. There are exceptions, of course. A broken arm could be set as well 10 years ago as it can today. But for the more important types of medical services, the increased effectiveness may more than offset the rise in costs, so that in real terms prices for this sector may have fallen. Unfortunately there is little that the statistician can do to measure this kind of change.

A second important characteristic of our price system is the role of agriculture and farm prices. The amazing growth of productivity of the farm sector has enabled the United States to reduce the number of people employed in agriculture today to half of what it was 50 years ago, and at the same time to double agricultural output. This is an achievement which is without parallel in the annals of economic development. But it is essentially a long-run process, involving such factors as the mobility of the population, the use of fertilizers, the creation of hybrids, and the development of farm machinery. In the short run, agricultural output is affected mainly by the weather, and agricultural prices are affected by the relation between the level of demand and the available supply. If demand in the economy as a whole expands faster than agricultural output, agricultural prices will rise. For example, with the expansion of demand caused by the Korean War agricultural prices rose by more than 20 percent in less than 2 years. If the increase in agricultural output matches the increase in demand, prices will remain stable. If demand in the economy moves forward more slowly than the increase in agricultural output, agricultural prices will decline; it was this situation which led to the development of the system of price supports in order to prevent undue hardship to the farmer. Because the demand for agricultural products is relatively inelastic, even a slight change in the available supply may cause prices either to rise sharply or to fall to levels where the absolute amount which a farmer receives for his crop declines. It is regrettably true that in the short run, in a free market, the more farmers produce the lower their total income is likely to be.

Agricultural prices were virtually stable or declining during the period from the end of the Korean war until last year. Within the last year, however, there has been a sharp rise in agricultural prices, and these coupled with the price increases in services has convinced many economists that a demand inflation is imminent.

The final sector which must be considered is manufacturing. It is probably true that when most people think of prices they generally have in mind the price behavior of commodities which are produced by the manufacturing sector. The manufacturing sector is of course subject to many of the forces I have already mentioned. It must pay the going wages and salaries in order to hire labor, and many producers purchase agricultural products to use as raw materials. It does not follow, however, that the prices of manufactured goods are merely a reflection of wages and agricultural prices. Within manufacturing, the use of new technology and the substitution of machines for labor have resulted in continual cost reductions, so that in spite of increases in wage rates and raw material prices, productivity gains have in many periods been more than sufficient to lead to a reduction in costs per unit of output. Unlike the service industries, some of the increase in

productivity in manufacturing industries can be measured, insofar as it relates to improved production methods for the same products. As a result, the price index for consumer durables has fallen, despite the fact that it does not take into account the improved quality of the goods which are produced or the introduction of new products. In real terms which would include the quality improvement, prices have probably fallen rather substantially in this sector of the economy.

It should be noted, however, that productivity increases most rapidly in the manufacturing sector when the economy is growing most rapidly. In part this is due to the fact that firms are able to spread their fixed costs over a larger number of units and utilize their capacity more efficiently. But this is not the only factor. Generally speaking, periods of high output are also periods of high profit, so that producers find it possible and profitable to make new investments which provide them with more efficient plant and equipment, leading to still further increases in productivity. There is little statistical evidence that the manufacturing sector as a whole runs into higher costs as it expands output. What evidence does exist suggests quite the opposite: that the gains in productivity come to an end only when output begins to slacken, demand grows flaccid, and investment drops. It is an interesting question as to whether a period of continued labor shortage would result in an eventual decline in productivity, or whether instead it would encourage producers to use labor more efficiently and introduce labor-saving devices and automation at a faster rate. This topic might well bear investigation.

The behavior of price indexes

Given this thumbnail sketch of the role of wages and salaries, agricultural prices, and prices of manufactured goods in price indexes, it is possible to develop some conclusions concerning the behavior of these indexes in both the long run and the short run. It should be emphasized that the behavior of price indexes is not the same thing as the behavior of prices, for the reasons discussed above. Since price indexes are what we have direct evidence on, it is necessary to ask how the price indexes can be expected to behave, and what this behavior infers about the operation of the economic system.

In the long run, price indexes for the American economy can be expected to rise. The increases in wages and salaries which take place over time will be directly reflected in the price indexes of services. In agriculture we cannot expect to see any offsetting price decline; for reasons of equity, the Government considers that it is unfair to let agricultural prices drop significantly, and for the farmer thus to be forced to accept a lower standard of living as the result of the increased productivity of agriculture. In manufacturing, price indexes will continue to be measured by those commodities which remain substantially the same from period to period. These commodities will generally be ones which are made with the same materials and employ approximately the same techniques of production, and will include, of course, the most stagnant items produced. Items where technological change is the greatest will be omitted. Only the technological change which is involved in producing the same goods more efficiently will be taken into account. In the past even this type of technological change has been sufficient to keep price indexes for manufactured goods from rising significantly but this may or may not be true in the future. To

the extent that new products become more important, however, the price index for this sector becomes more and more meaningless.

Even aside from the increase in conventional price indexes for different sectors of the economy, continued economic growth has other price implications. The value of land in cities and in desirable spots in the country, at the seashore and in the mountains will rise as the population grows and people have more income. The prices of rare books, art objects, stamp collections, and anything else which is in scarce supply will also be bid up. To stabilize prices of such goods would require not only that money income be held constant, but also that real income not be allowed to rise. Anyone looking to the future, therefore, must, if we accept our present economic system, realize that prices as measured by price indexes will show a continuous rise.

The effect of changes in the cost of living on equity

Price indexes not only fail to take technological change into account, but they also fail to reflect changes in the cost of living. Even if price indexes were valid measures of the actual price changes taking place in the economy, they would still not be satisfactory as general measures of the cost of living. A true index of the cost of living should measure how changes in both prices and the availability of specific goods affect an individual's budget. In some instances the price change (taking into account quality improvement) would be quite different from the cost of living change. For example, it has already been noted that despite the rise in the cost of medical care, the improvement in the quality of medical services has been such that in real terms the value received per dollar of expenditure in this area may have risen. From the point of view of the individual receiving medical care, however, budgetary cost will still rise. In the year 1966, the patient does not have the option of asking for the level of medical services available in 1929. The increased cost of medical services may be more than worthwhile, but if a visit to the doctor costs $10 today when it cost $3.30 years ago, individuals may be forced to pay more out of their budgets for medical care. In many other areas of the economy, also, an individual may be forced to spend more, so that his cost of living has gone up even though he receives additional benefits. Thus if a bus ride increases from 15 to 25 cents, the cost of living for the person using the bus will increase from 15 to 25 cents for transportation, even though the new buses may be air conditioned, quieter, more comfortable, and more frequent.

It is well recognized that a continuous rise in the cost of living causes substantial inequities to individuals living on fixed incomes or on accumulated savings. This is, of course, the major reason why price stability is considered to be an important objective of economic policy. Individuals who have invested their savings in insurance, Government bonds, or savings banks have found on retirement that the value of these assets has eroded to the point where they are no longer the bulwark for their old age that they expected. Similarly, pension plans which when initiated seemed generous may 20 or 30 years later, under changed economic conditions, seen pitifully small. The market value of goods included in the Consumer Price Index, furthermore, does not reflect the market basket purchased by the fixed income groups. Retired people living on fixed incomes are less likely to purchase items such as consumer durables which may fall in price, but instead their

expenditures are more likely to be for such things as rent, property taxes, urban transportation, medical care, and other personal services, all of which have risen faster than the average of consumer prices. As already suggested, the fact that the quality of goods and services has improved does not necessarily make the increase in the cost of living for a retired individual any less real. In general, I would expect that the cost of living for the retired population has risen very much faster than the Consumer Price Index. It seems unfortunate indeed that at the same time the rest of the economy is enjoying prosperity, growth, and increases in income, this group may face an outlook of continuous retrenchment brought about by relatively fixed income and an ever-rising cost of living.

The problem of stopping the rise in the price indexes

For many, the solution to this problem seems simple. If the price indexes rise, this is taken to be an indication that there is too much money chasing too few goods, and that if the Government will stop spending, or tax increases will be put into effect, or banks will restrict credit for investment, the balloon can be punctured and the economy deflated to its proper level. Basically this doctrine comes down to the statement that there is too much spending taking place, and if consumers, Government, and investors can be persuaded to reduce their spending, prices will not rise. In order to evaluate the validity of this proposition, we must examine exactly how such a price reduction might be expected to be brought about, in the light of the discussion earlier of wages, agriculture, and manufacturing.

In recent years, it has been popular to assume that the rate of wage increase which will take place is directly dependent upon the level of unemployment. Under this doctrine, when an economy approaches too near the full employment level the wage rate will start to rise precipitously. There is assumed to be some equilibrium level of unemployment which will lead to a wage increase just equal to the productivity gains being realized in the economy, thus insuring price stability. A related but somewhat different approach to wage determination alternatively suggests that it is the climate of expansion, large profits, and increasing output which emboldens labor to ask for larger and larger increases, and that it is necessary to change the economic climate, increasing the amount of unemployment and reducing profits, in order to make labor more hesitant about asking for wage increases and management firmer in resisting them. This theory of wage determination does not depend upon the level of unemployment but rather upon the direction of change. Under such a theory, only deteriorating conditions can hold wages in check, and any recovery may generate excessive increases in wages. A considerable amount of research has been done on the question of wage determination, both in the United States and for European countries, but the results have not led to any clear conclusion. Since World War II some of the periods with greatest wage increases have been those periods when unemployment levels were highest.

On the other hand, the dramatic reduction in the level of unemployment in recent years has been accompanied by smaller than average wage increases. Furthermore, the periods marked by recessions have in most cases had little effect upon the rate of wage increase. On the basis of present evidence, one could not expect that reasonable reduc-

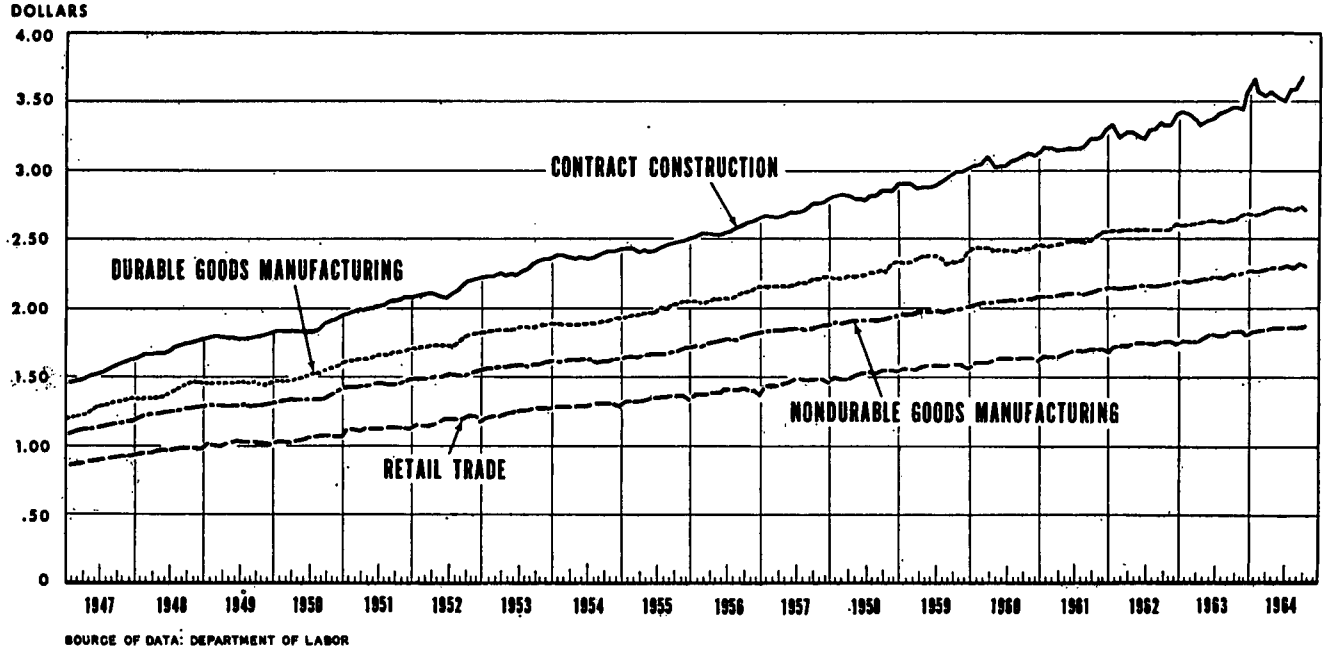
tions in investment, curtailment of expenditure on the part of the Government, or increase in taxes would have any significant effect on the next round of wage increases. This general conclusion is borne out by an examination of the change in average hourly earnings which has occurred since World War II. Chart I below, which is taken from the 1964 Supplement to Economic Indicators, shows that average hourly earnings in areas other than contract construction have not been highly sensitive to either recessions or booms.

In agriculture, the situation is different but it is equally unclear that a reduction in total demand is called for. During the last year the rise of about 13 percent in the prices of farm products has had a sharp impact on both the Wholesale Price Index and the Consumer Price Index. Looking within agriculture, one finds that meat animals rose over one-third in price, due mainly to increased money income in the economy and stepped up military purchases. In recent weeks, however, the Council of Economic Advisers has pointed out that agricultural production increases are already underway or in prospect for both livestock and crops, and these increases point to some decline in farm prices as larger supplies move to market. According to this analysis, the index of prices received by farmers has apparently passed its peak. If this is the case, it would be foolish to reduce the level of spending in the economy in order to curtail the demand for agricultural products, only to have the increasing supply pile up again in the form of Government agricultural surpluses. To the extent that military purchases of agricultural goods are a major factor and may in the future become more important, some form of price control in this sector might be preferable to trying to reduce domestic demand for food by cutting back the level of all other economic activity and employment.

In manufacturing, a dampening of demand will not in all probability result in the reduction of prices. Recent softening in demand in the automobile industry, for example, has merely resulted in cutbacks in output and employment. In fact, if manufacturing output begins to level off, the rate of productivity change will also level off, as it has always done during other periods of output stability. Under such circumstances, as has been pointed out above, wages can be expected to continue to increase, and the increase in wages will be translated into higher unit costs. It is quite possible that the result would be increases in manufacturing prices due to rising costs, just as in the period from 1956 to 1958. The expansion of output over the last 5 years, with its consequent reduction in unemployment and high level of investment, has suggested to some observers that we must be pressing on capacity in the manufacturing sector. If capacity were in fact a fixed and invariant limit, such would of course be the case. But the high level of investment itself breeds new capacity at a high rate. If output falters now, capacity will race ahead of utilization. Once it is obvious that output is not going to continue to expand, producers will cut back investment, and we will once more be faced with the familiar leveling off and decline in investment which was so characteristic of the 1950's, and which thus far we have managed to avoid in the 1960's.

Average Hourly Earnings in Selected Industries, 1947–64

(Monthly data for production workers or nonsupervisory employees)



Taking all three price sectors into consideration, therefore, there is no reason to believe that a deliberately planned recession will now slow down the secular rise of the price indexes any more than did the recessions of the 1950's.

Fixed income versus unemployment: equity considerations

As has already been indicated, a rise in the cost of living involves a loss in welfare by individuals who have fixed incomes, savings, and pensions. In a similar way even a mild recession will result in a loss in welfare for those individuals who are laid off and become unemployed. In order to appraise the importance of these effects, it will be useful to examine the number of people who may be directly affected by increases in the cost of living and/or a recession.

Currently there are approximately 18 million people in the United States who are of age 65 or over; approximately 14 million of these are no longer in the labor force and are living on their past savings, pensions, and social security. Studies of the income distribution of this group have shown, furthermore, that over two-thirds of them have a total income of less than $3,000 per year, and one-third of them less than $2,000.

In terms of those who suffer from unemployment, we are accustomed to thinking that only the particular people who are unemployed at one moment of time are affected by the problem of unemployment. The fact that we have managed to reduce the level of unemployment from almost 7 percent of the labor force to less than 4 percent has made many people feel that the problem is no longer one of major consequence, and that the remaining unemployed are either a hard core of unemployables or people who are merely changing jobs and happen to be unemployed for a few weeks. The manpower data, however, present a substantially different picture. During 1964, for example, when unemployment averaged 3.8 million, over 14 million people were in fact unemployed and looking for work at some period during the year. For most of these people, the period of unemployment meant a substantial reduction in their annual income. For each family involved, the reduction in money income is considerably greater than the loss which would be caused by the erosion of price increases. Even if a man is out of work only 5 or 6 weeks, this would mean a loss of 10 percent or more of his annual income. Unemployment often hits the same people several times within a year, and they are often people who are in the lowest income groups. On average, in fact, the income of the people who are unemployed is more than one-third lower than it would have been if they had been fully employed. Unemployment compensation makes up for only 20 percent of the average loss in income incurred through unemployment. From an equity point of view, of course, such unemployment compensation is very important, since the family responsibilities of the unemployed and their lack of other sources of income may make their position very difficult indeed in the short run.

Thus although, as I pointed out earlier, I do not personally believe that there is a trade-off between the rise in the price index and the level of unemployment, those who do hold such a belief would do well to consider the equity problems involved in this trade-off. If it is necessary to increase the level of unemployment by any significant degree to achieve stability in the price index, the number of people who are

adversely affected may be larger, and the damage done to their way of life may be much greater, than would result from permitting the price increase to take place. The equity problem becomes even more difficult when there is no real assurance that dampening economic activity will prevent the secular price increase. Under such circumstances it seems very unwise to make what is in real terms a substantial sacrifice and obtain nothing for it.

So far, I have discussed the question of equity almost entirely in terms of the two specific groups who are most hurt by a price rise or unemployment. In actual practice, however, there are many other costs and benefits to be considered. A reduction in spending and cutback in output means that the economy produces less, profits are less, investment for the future is less, and the real income of those who are unemployed is less. It is important that we view things in their proper perspective, and take those actions which will make the best real use of our resources.

Other possible solutions

If we reject slowing the economy down as an effective method of bringing prices into line, what other solutions are possible? One question which we should consider more carefully than we have in the past is whether we might not compensate for the inequities caused by rising prices, much in the same way we have compensated for some of the inequities caused by unemployment.

First, special attention should be given to measuring more carefully the actual changes in the cost of living of fixed income groups over time. As already indicated, our present Consumer Price Index is not constructed for this purpose, and is not adequate for it. Such a cost-of-living index would take into account the types of goods and services actually consumed by retired people, and instead of using specification prices would take into account the actual outlays required to maintain a given standard of living.

Once such a cost-of-living index was constructed, the problem of compensating for the rise in living costs could be attacked directly. Social security payments might be tied to such an index, to insure that they do not lag behind the increase in the cost of living and thus erode away. Provision could also be made for a safe form of asset which could be held by lower income groups whose members may not have the experience and knowledge to invest wisely in the stock market, real estate, or other business ventures. At the present time, many people lean heavily on savings accounts and Government bonds to provide them with a stock of assests for their old age. But in the past, increases in the cost of living have meant that individuals who hold their financial assets in this form have lost a significant part of their equity and arrived at their old age with considerably less financial security than they had reason to expect. Although the amount of financial assets normally accumulated by lower and middle income families is not large, these financial assets are very important to the individuals involved. In order to avoid having the affluent take advantage of a measure designed to protect those in modest circumstances, the same device could be used for these financial assets as is currently used for the insurance of bank deposits: a limit could be placed on the absolute amount involved. The Government could sell bonds whose value and rate of return would be tied to the cost of

living, with a limit of $10,000 for any one individual. Such a limit would cover the total assets (excluding homes) owned at the present time by more than three-quarters of all retired people in the country.

A similar type of bond could be provided for insurance companies and private pension plans to use as a basis for the provision of cost-of-living payments for insurance and retirement pensions. Here again, maximum levels of insurance and pensions could be specified.

It is interesting to note that wages and farm prices have already been linked to price indexes, even though they are readily adjusted upward without such a linkage. From the point of view of the economy as a whole, cost-of-living bonds and cost-of-living pensions would be much less inflationary than cost-of-living wage contracts and farm parity prices, because they would not raise the costs of production of the economy. They would, of course, add to purchasing power; that is their purpose. If excess demand should develop, it would be proper to attack this by taxing those sectors of the economy which were receiving the benefits of the price rise in terms of capital gains caused by rising values and increased income levels due to prosperity. It is no contradiction to say that the economy should simultaneously try to use all the resources at its command, correct the inequities caused by either unemployment or cost-of-living changes, and levy taxes in as equitable a manner as possible in the amount necessary to achieve these objectives. This approach is far better than trying to make the economy discipline itself by chastising both workers and employers through unemployment and low profits, or by controlling them with wage and price controls.

From the point of view of the price behavior of the economy, there is a second major question which requires careful reexamination. This question involves the problem of whether the Government can successfully legislate minimum wage levels as a device for raising income levels without causing adverse price behavior. Currently a proposal is before the Congress to raise the minimum wage from $1.25 to $1.40 next year, and to $1.60 the year after. Such a wage increase would be inflationary, not because it would provide additional purchasing power, but rather because it would raise the costs of production and thus prices both in the industries directly affected and in other industries where increases in the minimum wage will be looked upon as a guide. It is quite possible, as we have seen both in the United States and other countries, for increasing wage costs to raise prices in spite of the existence of unemployment and excess capacity. Those who believe that prices rise solely because there is too much money chasing too few goods have not studied the historical record either in the United States or in other countries. Most price rises originate from the cost side, and in the process can well fail to develop the purchasing power which is required even to maintain previous levels of output.

What is the solution, then, to this dilemma? If $1.25 an hour is considered to be below the poverty line, the Government should recognize this directly and make allowance for it in the tax system. It is far better to handle the problem of low income directly through a negative income tax than it is to set an artificial minimum wage level. For this reason, therefore, I would strongly urge that the minimum wage not be raised. To raise it poses a real threat to the future price stability of the economy.

Chairman PROXMIRE. Do you say that, Professor Ruggles, on the basis of the many analyses of what has happened the many times we have raised the minimum wage level in the past?

Mr. RUGGLES I have raised it merely on the basis of what has happened in Latin America.

Chairman PROXMIRE. We have had it in this country as you know for many years.

Mr. RUGGLES. In this country, I maintain we have not raised the minimum wage sufficiently in the past to make that much difference. If you raise it from $1.25 to $1.26, it is obviously not going to do any damage. But if you raise it by as much as being proposed, this is considerably above the wage guidelines. If other industries relate their wage increases to the change in the minimum level, it can do damage.

Chairman PROXMIRE. But the bill that is in the House now is the most modest percentage increase that I can recall we have had. We had one, as I recall, from—what was it originally, 25 cents or 40 cents?

Mr. KNOWLES. Forty cents.

Chairman PROXMIRE. From 40 cents to 75 cents, which was almost a hundred percent increase, 75 to 100, which is a one-third increase. From $1 to $1.15, then to $1.25, which was a little more modest increase, 15 percent or 20 percent.

Now, it goes from $1.25 to $1.40 and then to $1.60. It seems to me, in relation to what has happened in the past, the present proposal is rather modest.

Mr. RUGGLES. I think that is a fair statement, yes. Put it this way: I do not expect the system to go to pot with this increase, partly because of its coverage and where it applies in the economy. I think, however, if we do look at the experience of Latin America, all the wage increases there tend to be increases in the minimum wage. The rest of the economy immediately takes this as an indicator of how other wages should go. There you may get in a year an increase of 40 to 50 percent.

Chairman PROXMIRE. Is it not true that in general, we have done this and the increase that is pending in the House would do the same thing—that is, the increase in the general wage level seems to pull up the increase in the minimum wage level, rather than vice versa?

Mr. RUGGLES. That is right.

Chairman PROXMIRE. So in that sense, it would be somewhat less inflationary.

Mr. RUGGLES. I think this is true. Put it this way—so long as the true minimum wage is substantially above the legal one, then obviously, the legal one will not have any effect. But to the extent that the legal minimum is significant for a large part of the economy, then I think we would be in danger of raising costs.

Chairman PROXMIRE. So even under the extended coverage of the minimum wage, so many of the very young people and others who work would be exempt, because their jobs can be covered.

Mr. RUGGLES. Correct. I think this is important to the price stability of economy. In other words, the smaller the part of the population covered and the less this is a true rise above existing practices, then obviously, the less important the minimum wage is.

Chairman PROXMIRE. And also, unlike Latin America, this country is blessed with an abundance of capital and a rapidly developing tech-

nological system to the extent that people getting minimum wages are doing repetitive, simple tasks that can be performed by a machine. This provides an incentive for moving into technological areas so the productivity may be increased and the inflationary effect minimized.

Mr. RUGGLES. Correct. I agree, I think, with that analysis. Is the prospect of longrun price stability as bleak as might be suggested in view of the foregoing discussion? There can be little doubt, I think, that for certain kinds of prices, increases are inevitable over time, as long as we have increases in money income, economic growth, and population increase. Land and other scarce resources will be bid up in the future, just as they have been ever since Manhattan was bought for $24. Relatively speaking, man's labor will also become more valuable relative to commodities as he is able to produce more. Therefore, anyone wishing to use human services directly must inevitably pay the higher prices involved. On the other side, we will, of course, have the tremendous increases in productivity, new technology, and new products emerging from an economy which is ever growing. Under such circumstances, aggregate price indexes are not really meaningful statistical measurement. Given our present methods of measurement, the rise in the aggregate price index is inevitable, but its significance remains highly doubtful.

In conclusion, I would like to summarize the major points I have made.

(1) Neither the Wholesale Price Index nor the Consumer Price Index correctly reflects the actual price behavior of the economy, since they do not take into account technological improvements and the introduction of new products. The amount of price increase is grossly overstated, and as a consequence the record of real output change is very much understated.

(2) The Consumer Price Index is not a suitable instrument for measuring the change in the cost of living of those individuals who are forced to live on fixed incomes and accumulated savings. Paradoxically the rise in cost of living for these groups (mainly retired persons) has probably been very much sharper than the increase shown by the Consumer Price Index. As a consequence of the continued rise in the cost of living, those with fixed incomes and with savings in the form of bank accounts or Government bonds face a serious problem in the erosion of their standard of living. This situation will continue to be important, and cannot be cured by altering the rediscount rate, exhorting unions to live within the guidelines, or asking business to cut back investment. It should be recognized as a longrun economic problem, and attacked by such measures as tying social security payments to a properly constructed cost-of-living index and providing cost-of-living Government bonds as a form of safe, nonerodable savings for moderate and lower income groups.

(3) The increases in price indexes will be further intensified if the Government attempts to insure adequate levels of income by raising minimum wage rates, which result in increased costs. A negative income tax would not raise costs and prices as much and would be more equitable.

(4) The attempt to limit the current rise in consumer prices by dampening the economy would increase hardship through additional unemployment far more than it could possibly benefit the fixed income groups.

(5) Instead of trying to hold prices and wage rates down by depressing demand, a maneuver which is unlikely to be successful in any case, a more hopeful approach would be to strive to reduce wage costs by increasing productivity. Every attempt should be made to stimulate productivity gains by encouraging automation and the substitution of capital for labor. This would allow the economy to expand its output without running into increasing costs and consequent rising prices.

(6) Except for the development of a war situation, there is very little danger that a price inflation will result from demand outpacing supply. Rather, as is now becoming increasingly apparent, we may soon again be in the position where without further tax reduction we will be unable to purchase the amount the economy can and would like to produce. The most immediate threat to the peacetime American economy is that the rapid increase of industrial capacity will outstrip demand, and that our automatic stabilizers (profits and taxes) will limit our economic growth below the potential which we would achieve if we were able to take full advantage of our real resources.

Chairman PROXMIRE. Well, thank you very much, Mr. Ruggles.

Did you happen to have a chance to read the speech that President Johnson delivered to the AFL–CIO last week? It was a speech that was not widely reported because he was not present. He delivered it by telephone. But it was a speech in which he said that we have to look at our problem of using human labor much more positively and constructively than we have in the past. He said we have been looking at it in terms of a scarcity, when actually, people have been underemployed. Many of our retired people would like to do constructive activity. We have a great deal of wisdom, a great deal of energy that is being wasted in this country and we should be working hard, trying to develop ways in which we can find a constructive and positive outlet for this.

What do you think of this kind of thinking?

Mr. RUGGLES. I agree with this very much. It seems to me that economists are to blame, to a large extent, for trying to worry about a demand inflation when, in many cases, we do not worry equally about the utilization of all the real resources which we have in our economy. We do not make every effort to employ all the people who would like to enter the labor force. Our unemployment figures, I think, in a sense understate the situation. You notice, for example, that whenever we have a recession, the labor force participation of certain groups goes down markedly—the retired people cannot easily get jobs.

Chairman PROXMIRE. People withdraw from the labor force?

Mr. RUGGLES. They withdraw from the labor force. This is a loss to the economy and to the individual. They withdraw not because they want to, but because there is no easy opportunity for employment, and not everybody likes to sit around and accept unemployment relief. This is not a characteristic, I think, of a great portion of our population. So if they cannot find work, very often they withdraw.

This is also true of women in the labor force.

Chairman PROXMIRE. I would like to skip through some of your testimony with some questions and then try to see if Mr. Kravis and you could get together or disagree on some of these points.

You are the first witness who has taken a clear and unequivocal position that quality improvements are not reflected adequately in price increases. The preponderance of our testimony yesterday and on Tuesday was that this position has not been documented, that quality improvements are pretty well reflected, that the Bureau is very familiar with the problem, and that there are at least counterbalancing problems of quality deterioration.

You have emphasized this point. Do you have any kind of documentation that can refute what is pretty impressive and weighty testimony on the other side?

Mr. RUGGLES. Well, this is a philosophical rather than a statistical position. For example, take many of our new products such as the computer. I think this is a good case in point. To build a price index for this particular item is very difficult.

Chairman PROXMIRE. This does not affect, except indirectly, the Consumer Price Index. How many consumers buy computers?

Mr. RUGGLES. That is right. I thought you were talking about price indexes in general.

Chairman PROXMIRE. What I am talking about is the consumer cost of living, whether it is reflected fairly at the present time in our Consumer Price Index. All our witnesses did indicate their dissatisfaction with the failure to meet the recommendations of the Stigler report, for example. They feel we ought to have more comprehensive sector information and that kind of thing. But there was, I would say, a unanimity of opinion, in fact, until you came along, on this quality thing.

Mr. RUGGLES. All right, let's take, for example, the field of textiles, which I think is a very interesting one. In this area, the observed price index has gone up around 24 percent. You can separate the textile industry into two groups—consumer fabrics and, say, decorator fabrics, and so on. If you look at the development of consumer textiles in recent years, you see the increase in synthetics and the increase in, for example, permanent press, which, as you know, is a process which has just come in and has been overwhelmingly successful. It has not added substantially to the price but it has altered the ability of the housewife to do things at home instead of sending them out to the laundry.

I remember once asking one of the ladies that was working for us what, to her, was the greatest change in her lifetime. She said, "Well, I am here because I have been able to buy wash-and-wear fabrics for my daughters. Before that, I spent most of my time at home just keeping the laundry up. Now, I am able to take a job."

Now, this sort of change does not get reflected.

Chairman PROXMIRE. Are you quite positive it does not? To the extent that it seems to me there is a service——

Mr. RUGGLES. How can they take this into account?

Chairman PROXMIRE. Mr. Chase, would you like to comment on that?

Would you identify yourself again.

Mr. CHASE. Arnold Chase, Assistant Commissioner of the Bureau of Labor Statistics.

The point that Dr. Ruggles is making right now, I think, is valid, which is that although this new product would be introduced into

the index without affecting its level; if there is no difference in price between it and the old product, then something is lost in the index, because on the assumption that this story which Dr. Ruggles is relating is fairly universal, there is a benefit to the population generally from having this new product which is not possible to measure in a price index. I think there is something there.

Chairman PROXMIRE. Do you not allow for the additional service or the additional benefit? Do you not find some way of trying to correct for that?

Mr. CHASE. Not in the index as it is presently compiled. This new product would be introduced without affecting the level of the index. The point Dr. Ruggles is making is that it has an effect on the way people live that is beneficial and that part of it is not measured in the present index.

Chairman PROXMIRE. How comprehensive, how big, how significant is this factor to the Bureau? Has the Bureau had chance to—as I understood Mr. Bowman and Mr. Ross, they both took a very firm position that the CPI reflected changes quite accurately, because of counterbalancing factors, changes.

Mr. CHASE. There are other points than the one Dr. Ruggles is just now making where, quite frequently, a new product might be introduced at a higher price. The index technique is such that it would be assumed that the difference in price fully reflected the difference in quality. For example, suppose that the dress which this lady previously wore, or her girls wore, cost $16.95. This new product came in at $24.95. In our index techniques, we would assume that the difference in price did represent an actual difference in quality. In that kind of a situation, we would reflect the improvement in quality by introducing this new product with a linking technique without affecting the level of the index.

But if the new product came in at $16.95, the same price as the old one, and it was improved—enabled people to live better without additional expenditure—that kind of a situation would not be reflected in the index.

Chairman PROXMIRE. I see.

Mr. KRAVIS. Mr. Chairman, I think the truth is that nobody knows the answer to your question, not even people at BLS who run the index. Nobody knows to what extent there is a quality bias in the CPI, nor has there begun to be an attempt, in my opinion, to try to ferret this question out in any systematic way.

Each month, there must be hundreds of items, a large fraction of those that are reported in the manufactured area, which are not identical in specification to what was reported the preceding month. And each month, the whole series of judgments must have to be made about how prices will be compared.

Now, I do not believe anybody knows what the range of error, what the range of conceivable error is in the aggregate of those successive judgments that are made on those various products. I think it would be a very interesting experiment to give all the data that goes into the CPI to the group on the west coast and say, you put these numbers together using your best judgment, and try to make these quality adjustments. I believe that it is very likely the answers might be very different.

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Also, I believe, as we said in the Stigler report, that the philosophy of the BLS in computing this index makes for underestimation of the extent of the quality improvement. That is, what the BLS says, in effect, is we are going to measure the changes in the price of a constant bundle of goods. They do not say we are going to measure the change in the cost to the consumer of purchasing a bundle of goods yielding a constant quantity of satisfactions. So, you know, when a new product comes in, if the increase in the cost of getting this no press shirt is zero, then they do not regard that as a quality improvement. They do not regard that as a price reduction. What is really needed is a careful and thorough and imaginative study of the way in which changing qualities really affect changes in the cost to the consumer of buying a constant bundle of satisfactions.

Chairman PROXMIRE. How comprehensive a study do you envision? One that would cost a great deal of money? How many millions of dollars?

Mr. KRAVIS. Look, Mr. Chairman, I would say that money in price work would be a bargain for this country.

Chairman PROXMIRE. I think so, too, but you know——

Mr. KRAVIS. Let me tell why. 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 number—but was it $20, $40 billion by which now our gross national product is larger?

Chairman PROXMIRE. Every witness who has come before us here has said, how can you talk about money? This is so important. All that is involved is $100,000 or $2 or $3 million. And this is all true, and I am inclined to agree with these witnesses. I think statistics are the greatest bargain we have and the most important kind of service we can get if we are going to have any wisdom in our economic policy. But nevertheless, this is something that I think it is helpful for the committee to try to elicit if we can do so.

For instance, if you are just talking about additional statistical information which the Bureau could secure without much additional cost, then I think it is something that the committee could urge, and quite effectively. On the other hand, if it is something that would require a greater outlay, we have to go to the Appropriations Committee—as I have said, they turned us down on a very modest program of improving prices statistics last year, and they might turn us down again—then I think it is harder. We have to put it in the priority scale.

Mr. KRAVIS. It would take additional resources over what they have now. That is, they would either have to stop doing what they are doing now and start doing this or they would have to have additional resources. My own knowledge of the Bureau does not lead me to believe that these people sit around idly and if you could just put

them to work, they could produce this additional information. I think they are a hard working, dedicated bunch. I disagree with them on many technical issues, but I do not think it would be possible to squeeze important additional work out of the present staff of the Bureau.

Chairman PROXMIRE. Just a minute, Dr. Ruggles. Mr. Chase wanted to get in a point on this issue.

Mr. CHASE. Mr. Chairman, I think someone should say that no practical model of this kind of an index has ever been developed anywhere.

Chairman PROXMIRE. In any country?

Mr. CHASE. In any country. And the Stigler committee did not present a practical model for this kind of work.

Mr. KRAVIS. But it should also be added that the Stigler committee suggested certain lines of investigation which the Bureau has not notably followed.

Mr. CHASE. There are two reasons for this. Well, I should say three reasons. One is the lack of money. Another is that the kind of index that we are talking about now cannot be produced currently. It has to be produced after the fact. I am convinced of that. In other words, it could be produced for 1966 sometime during 1967. It cannot be——

Chairman PROXMIRE. We can produce it, maybe, for 1965 now, but not for the present year?

Mr. CHASE. Yes, sir. So we need some other kind of index, possibly similar to the current Consumer Price Index, for current reporting. The level of the Consumer Price Index might then be revised retroactively to the new benchmark on this other kind of index.

Chairman PROXMIRE. That is interesting.

Mr. CHASE. Also, I feel sure that it would be necessary to have current consumer expenditure surveys in order to carry out the construction of this kind of an index and we have not had the resources to do that.

Thank you, Mr. Chairman.

Chairman PROXMIRE. All right, Dr. Ruggles.

Thank you very much, Mr. Chase. That is a very helpful comment.

Mr. RUGGLES. I sense I am not as much of an empiricist as my colleague here. I remember a few years ago, a major corporation decided they would like to make an investigation as to how much of their productivity increase was given to their customers, how much was given to their wage earners and how much they retained. They invited a number of economists in to study this problem. After around 3 or 4 years' work, the economists gave up, because they could not measure productivity increase or output or prices. The reason why is that when you improve the performance of your product, it is hard, especially if you sell the product for the same price, to say how much of an increase in real output this is, how much people have benefited by it. The same is true if you improve the design of your product, or you introduce new products.

Chairman PROXMIRE. There you could do it, I think, just on a market basis, if you get a higher price for it.

Mr. RUGGLES. But many improved products do not sell for a higher price. They sell for the same price. Producers have to shut down one line and when they open up another line they may sell the new line for

the same price, or they may sell it for somewhat less, or they may sell it for somewhat more, depending on other factors of market conditions. So you cannot take our traditional free market approach.

Furthermore, if you conceive of the economic system as essentially a Darwinian survival of the fittest, a great deal of our economic progress comes about by the introduction of new things which supplant old things. And I have enough confidence in both the wisdom of the American people and the wisdom of the producers to believe that over the long run, such an evolution is in the correct direction, that we just do not get cheaper and more shoddy and more useless products. Television comes along and it supplants radio in one whole area. Radio develops then in a different way. The telephone supplants the pony express. These are major achievements in real output that cannot be measured in either an output index or a price index.

Chairman PROXMIRE. Instead of wasting our time with opera, we watch Batman.

Mr. RUGGLES. In one sense that is quite right. Put it this way: Instead of one-tenth of 1 percent of the people watching opera, 50 percent of the people watch Batman.

Chairman PROXMIRE. I am not sure that is an improvement.

Mr. RUGGLES. Perhaps it is not, but that is exactly the point. There are welfare considerations, value judgments, other things involved in such comparisons. All I am arguing is that we misinterpret our present information for purposes for which it is not particularly meaningful. I do feel that there is a tremendous amount of information in our present price collections that is very, very useful. But to interpret it naively, drawing wrong conclusions, does not help the situation any. I do not think that you can build an index of welfare to say how much happier people are in 1950 than they were in 1850. This is not the function of the economist. What our purpose is is to say how things will work better, what kinds of economic policies can we have that will improve things. Lots of things we just do not need to know. We do not need to know how happy people are. I am not urging that the Government spend money on making such investigations.

Mr. KRAVIS. Mr. Chairman, before I correct my colleague's grievous errors, I would like to rise to the defense of American culture. I think the situation is that something like instead of one-tenth of 1 percent watching opera, now we have two-tenths of 1 percent watching opera, although it may be true that 95 percent watch Batman. There has not been a displacement of the things that many would regard as being more worthwhile, but there has been a large addition about which we are doubtful.

Chairman PROXMIRE. I think that is true.

Mr. KRAVIS. But I want to return to my proposals for what ought to be investigated in this price area by the Bureau of Labor Statistics or some other group. The aim should not be a measure which is designed to see how happy people are today as compared with yesterday. But it would be a measure designed to see what the difference in the amount people have to pay to purchase at two different dates goods yielding the same satisfaction. In the case of the film that you mentioned before, when the old film is no longer marketed, it might be possible, through a sample survey, to ask people how much more the new film is worth to them than the old film? Suppose you could

buy the old film, would you buy it in preference to the new film selling for 50 cents if the price of the old film were 10 cents. Would you take it if the old film were priced a quarter, and so on? So I think you can get quite specific information.

Now, there is another approach to the measurement of prices and quality changes that has been tried on an experimental basis, with which I think the BLS should really work with quite seriously. That is the regression analysis in which price is made dependent upon certain physical characteristics of a good. At present automobile prices are compared from one period to the next by trying to figure out, well, which six models in the new line match up with the six models in the old line and determining what adjustments have to be made in price, for quality changes. Regression techniques may enable us to take all the information we have about this year's models, all of them, and last year's models, and to determine to what extent the observed change in price is due to changes in the physical characteristics of the autos and to what extent it therefore represents a true price increase. Now, I do not allege that any of these methods will be successful. I do not know whether they will be or not. All I claim is that it is an important enough question so that resources ought to be devoted in this country to trying to find out whether these methods are good. The world has moved ahead. Technological change has characterized every phase of our work almost to the exception of price index work.

If we can get a man on the moon, it ought not to be so hard to figure out what bundle of goods you need to give equal satisfaction to a group of consumers and how much they will cost, even though the composition of that bundle has changed.

Chairman PROXMIRE. I am not so sure it is not easier to get a man on the moon.

Mr. RUGGLES. I think it is.

Chairman PROXMIRE. Because the satisfactions are changing all the time. Let me move ahead on some of these other things.

You say, Dr. Ruggles, that this change or increase in wages and salaries is not only an increase in income; it is also an increase in the cost of labor. I am sure you would agree that is not necessarily true. You could increase the salaries, and you point that out in manufacturing. I want to come to services in a minute, but you argue that in manufacturing, at least, it is perfectly possible to pay people far higher wages without an increase in costs——

Mr. RUGGLES. In terms of the costs for their labor.

Chairman PROXMIRE. I wanted to establish that. Now, we are getting into service. You have a generalized statement that you do not have an increase in productivity in services and I certainly challenge that.

Mr. RUGGLES. No, I said in the area of services you do not measure it. We assume that productivity does not change, that your Congressmen and Senators are as efficient—

Chairman PROXMIRE. Let's not get on that subject.

Mr. RUGGLES (continuing). As they were 50 years ago.

Chairman PROXMIRE. But I think that, No. 1, we can point to some areas that are classified as services and No. 2, I think we can argue that there are productivity increases.

Mr. RUGGLES. I would agree.

Chairman PROXMIRE. Well, I think this is an important point, because I think that in most of the area of service, as well as in all the area of manufacturing, there has been a substantial increase in productivity. In some areas, I think even more rapid than in manufacturing. Whether it is more or less rapid overall, I am not sure. But if you run down the line, transportation, warehousing, communications—amusement is one of the big areas of service. Now, you have made a good case that by the changes we have had in television, for example, I do not know how you would measure it; it is so great. The enormous improvement in the productivity of entertainment, making entertainment available to people that they formerly had to pay a whale of a lot for, travel someplace to see a dramatic production and now to sit at home and for a few cents in electricity and the amortization of the TV set, they can watch a good program.

Mr. RUGGLES. I was talking about the price indexes, not about prices. I make a distinction. Price indexes are what we observe in the measured price, given certain assumptions. But in real prices, I would agree with you. As a matter of fact, some of the studies done by Victor Fuchs at the National Bureau that have gone into the measurement of productivity in the service industries have indicated that if careful measurement is done in this area, you do find very substantial productivity changes.

Chairman PROXMIRE. I think this is more significant, then, than the failure to measure quality.

Is this true, Mr. Chase, that in the service industries, you assume there is no productivity increase?

Mr. CHASE. In the sense that this is at least not reflected in a change in the quality, yes. In the price index, we do not really have to make any assumption about productivity except as it might be reflected in quality.

Mr. KRAVIS. Well, you certainly do have to make an assumption. You price medical care. How do you price that? You assume there is no change in the quality of an office visit?

Mr. CHASE. It comes to a question of quality whether——

Mr. KRAVIS. Well, it's productivity also.

Chairman PROXMIRE. I think most of us would agree, regardless of our cynicism about the medical profession, it has improved enormously in quality every year.

Mr. RUGGLES. Yet this is one of the items that is up most in the Consumer Price Index. Medical care is probably, is it not, the factor that has gone up most.

Mr. CHASE. Yes.

Chairman PROXMIRE. I want to be sure that I do not misunderstand you, because I did apparently miss the point that you made. It is a good point and I am glad you clarified it on services.

When you talk about agriculture, you say—

> In agriculture, we cannot expect to see any offsetting price decline; for reasons of equity, the Government considers that it is unfair to let agricultural prices drop significantly, and for the farmer thus to be forced to accept a lower standard of living as a result of the increased productivity of agriculture.

That may more or less be true overall, but I think that you might very well agree with me that you do say, as a matter of fact, that the

greatest increase in efficiency and productivity has been in the agricultural sector, number one.

Mr. RUGGLES. That is right.

Chairman PROXMIRE. And number two, this obviously has been affected in benefits to the consumer.

Mr. RUGGLES. Right.

Chairman PROXMIRE. Number three, I can point to specific areas of agriculture—poultry, for example, where a decline in prices has been very dramatic.

Mr. RUGGLES. Very dramatic, and very satisfying.

Chairman PROXMIRE. So, in this particular area and other areas, we might get a diminution in the price increase.

Mr. RUGGLES. I think that is right. Well, up to just recently, since Korea, this has been an area of price strength and stability in our economy.

Chairman PROXMIRE. Even since Korea?

Mr. RUGGLES. Since Korea, yes; up to last year.

Chairman PROXMIRE. In the last year, it seems to be one of these temporary movements you often get.

Mr. RUGGLES. I would agree.

Chairman PROXMIRE. Now, I wonder if there are any studies to show that the cost of living for retired people is higher than for others? We did get testimony that disputed that. I think it was Mr. Ross, was it not, or some other witness who indicated there is some question as to whether you can make this case.

I notice, for example, that economic indicators show that increase in rent has been probably not as great as the general increase in cost of living—well, it has not been much greater, at least, since 1957 or so. This is in spite of the fact that we have more people and it is apparent that the quality of the places that are being rented is improved somewhat.

Mr. RUGGLES. A lot of the aged own their own homes, so a lot of the cost would be property taxes and repairs. I suspect that both property taxes and repairs have gone up.

Chairman PROXMIRE. But would you say that the only real cost of a home, or of rental, an imputed rental, would be the property tax and repairs? This may be the only out-of-pocket, cash cost——

Mr. RUGGLES. I was thinking of the actual outlay of the retired people.

Chairman PROXMIRE. But the very fact that they do own their own home, that it was built at a lower cost at a previous time, that they own it, would suggest, particularly if they have borrowed money previously and they get the benefit of a lower cost.

Mr. RUGGLES. That is right.

Senator PROXMIRE. So this might compensate to some extent.

Then the very argument that I have made on food, that that has been, at least as far as farm income is concerned, this has been a commodity which has not increased in price very greatly over the years, although in the past few months, it certainly has. That would suggest that maybe retired people do not suffer a greatly disproportionate increase in the cost of living.

Mr. RUGGLES. My reasoning was based upon the fact that consumer durables, and to some extent, nondurable commodities, are the most sluggish elements in the whole index, and that probably the aged popu-

lation buy a smaller proportion of these than do younger families just acquiring their refrigerators, their new appliances, and so on.

Chairman PROXMIRE. Well, of course, the family formation groups have to pay the higher construction costs which are going up rapidly. They now suffer from the escalation in interest rates, which is a serious increase for them.

Mr. RUGGLES. That is true. The interest rate argument, I think, is very true. Probably the aged do not pay nearly as high interest charges. That is a very valid point.

Chairman PROXMIRE. You talk about wage increases being moderate in years in which the economy is expanding.

Mr. RUGGLES. That is right.

Chairman PROXMIRE. And unemployment is diminishing and in strict classical analysis, you would assume this would not be true.

Mr. RUGGLES. That is right.

Chairman PROXMIRE. Is it not true that you indicate that wage-price guidelines are not very useful.

Mr. RUGGLES. I do not think I said wage-price guidelines. I said labor controls.

Chairman PROXMIRE. Exhortions to labor to keep wages down.

Mr. RUGGLES. Exhortations are not a cure-all.

Chairman PROXMIRE. It seemed to me the Kennedy confrontation with big steel in 1962, following very careful and diligent work with labor unions before that; the confrontation by President Johnson with automobile manufacturers on several occasions; the use of stockpiles and so forth; plus the exhortion to business to keep prices down, are reasons why, during a period of diminishing unemployment and a little greater pressure on plant capacity, wages did not go up.

Mr. RUGGLES. Yes. What I was referring to, in the Historical Economic Indicators, if you look at the line of the increase——

Chairman PROXMIRE. What page is that? I have it right here.

Mr. RUGGLES. It is on page 49 of the Historical and Descriptive Supplement to Economic Indicators. If you do not look at the bottom axis, it is hard to tell what is prosperity and what is depression. It does not look like the wage rate is highly sensitive to pressures one way or the other. It just seems to go up all the time. My point was no more elaborate than that.

I think that in percentage terms, the last few years have shown a smaller increase in wages than in some other periods. But it is a second-order difference. I just do not feel that this is a very easy thing to control through dampening or expanding the economy.

Chairman PROXMIRE. Certainly the impression that we have received, newspaper reports lately in the last couple of months have indicated that since there is an apparent rejection by much of organized labor of wage-price guidelines, it has resulted in a sharp increase in wages in some areas.

Mr. RUGGLES. It will be interesting to see whether this chart, 2 or 3 years from now, will show a little bump.

Chairman PROXMIRE. This chart does not go back very far. It only goes back to 1947.

Mr. RUGGLES. That is right. I would agree. But I think it is illustrative of the last 15 years or so of our experience. And I do not think one needs a very elaborate statistical analysis to indicate some degree of insensitivity here.

Chairman PROXMIRE. Let me now move on quickly to your solutions. Would not escalation for private pensions, for social security, for bond interest and so forth, with the limitation you provide—in the first place, you agree that it would result in some pressure on prices, through demand, although you argue that demand is not as significant as cost.

Mr. RUGGLES. That is right.

As a matter of fact, I would even go a little further and say that we are going to have to have additional demand from time to time in order to sustain our rate of economic growth.

Chairman PROXMIRE. I agree and I think most people would tend to agree with that. But does it not also reduce pressure to keep prices down? I know that this may be a cruel way to look at it, but after all, we are all political animals, all of us in Congress, at least. If Congress is going to provide that any time you have an increase in the cost of living, all of the millions of people on social security, all the bondholders, all of the people on private pensions, are going to have a corresponding increase in income, you get an indifference to inflation that may not be wholesome.

Mr. RUGGLES. As a matter of fact, one of the reasons I would like to remove some of the pressure to keep prices down is because I feel the reaction of our economic policy to this pressure has not been a very intelligent one to date. To the extent that we try to combat the rise in the price index by causing more unemployment, and by dampening the economy down, the result will be to cause additional inequities in the system, to lower the rate of growth, and to lead to poor resource utilization. So if in fact the pressure to keep prices down results in this sort of policy then I would say, yes, I would hope we would remove those pressures.

We also, I feel, can attack the problem of price increase directly. As we have seen, much of the price increase that gets reported is for things like medical care. Well, we have to examine and ask ourselves, is this a true price rise? Will shutting the economy down help? Urban transportation—there are a number of things here which shutting the economy down does not really help.

Chairman PROXMIRE. What you are really doing here is, by your own testimony, saying that the CPI greatly overstates the rise in the cost of living. Now, if you will tie in increases in pensions to an index that greatly overstates the true cost of living increase, then are you not only imposing great additional cost but also introducing a super inflationary element? Or would you have some other index?

Mr. RUGGLES. No.

As a matter of fact, you see, in a sense, what I am trying to introduce is a new concept. I would maintain that from the point of view of the economy as a whole, and in real terms, prices have been falling, not rising——

Chairman PROXMIRE. Say that again.

Mr. RUGGLES. From the point of view of the economy as a whole, prices probably have been falling, not rising.

Chairman PROXMIRE. Over what period?

Mr. RUGGLES. I would say, except for the Korean boom, since the Korean war, that we have had falling prices.

Chairman PROXMIRE. Let me just say if this statement is true, then the substantial increases the Congress has given in social security——

Mr. RUGGLES. That is what I would like to speak to.

Chairman PROXMIRE. They are quite substantial.

Mr. RUGGLES. While prices are falling, prices and the cost of living are not coincident. A person's cost of living may go up at the same time he is getting more real benefit, but he cannot readjust his income so as to maintain an equivalent welfare.

Let me put it another way: Certain improvements which come about in the system may not result in a person having to spend less to maintain his standard of living. But he may actually get more quality and better services.

Supposing he goes to the doctor. Supposing for each visit, he has to pay $15 or $20, when previously, he paid $5. His cost of living goes up even if the visits are a lot more valuable to him.

Now, to say, well, you can go one-third as often; this may not be true. He may just live longer.

This is not a bad thing, but his cost of living has risen. In other words, what he has to pay in order to maintain what we consider a customary standard of living has gone up.

Chairman PROXMIRE. In other words, the customary standard of living itself has gone up?

Mr. RUGGLES. Will go up and has.

Chairman PROXMIRE. Well, if you get medicare in addition to all these others we are talking about?

Mr. RUGGLES. This is a case in point. Are you going to cut social security because you can say, now you have medicare? Before you spent money on doctors, now we are going to cut you back, because we are going to make sure you do not get any more? I do not think this is the philosophy. The cost of living has at some juncture to be separated from this more philosophical question as to whether prices have gone up. I think you can maintain that in real terms, welfare terms, prices are not rising, yet the cost of living is.

Chairman PROXMIRE. You are not saying, though, that a really accurate CPI would have been stable or falling the last 10 or 15 years?

Mr. RUGGLES. Let's take this medical expenditure as a good case in point. From a cost-of-living point of view, what is important to the individual is what he is forced to spend on medical care. From the point of view of prices in the economy, if, in fact, the doctors become a lot more efficient, if they cure disease and make people live longer—there has been a real productivity increase and improvement in services, which means an increase in output. Yet from a cost-of-living point of view for the person who has to pay it, this is a cost-of-living increase. I think we have been confused and have assumed that prices and the cost of living in some sense or other are coincident. But really, I would maintain that the advances in productivity and technology have not really given us inflation in the old sense that we have had in mind. Yet there are inequities caused by the changes in prices in the system, and we have to worry about these inequities. Merely because doctors' services have increased and people have to pay more for them, can place a burden upon people who want to consume this service. And I think we have to consider this.

Chairman PROXMIRE. Did we not have testimony, or is this something that I have read, that showed that since 1940, the real social

security benefit is less than it was at that time and it is less than it was in 1950?

Mr. RUGGLES. That is right.

Chairman PROXMIRE. That would not contradict what you are saying, that prices are down?

Mr. RUGGLES. No, that is right.

Chairman PROXMIRE. In other words, what they are saying is that inflation has wiped out the value of the increases in social security which Congress has given at quite regular intervals?

Mr. RUGGLES. I think this is true.

Chairman PROXMIRE. That does not contradict your statement——

Mr. RUGGLES. This does not contradict what I say and furthermore, does not contradict my views that prices in real terms have gone down for the economy but that the cost of living has gone up. This seems paradoxical.

Mr. KRAVIS. I think what the trouble is that you are using terms a little differently. Usually, when economists use the term "cost of living" they mean the changing cost of purchasing a constant bundle of satisfactions.

Mr. RUGGLES. That is right.

Mr. KRAVIS. You are using cost of living in a slightly different sense. You want to adjust the bundle of satisfactions that they purchase to some expanding standard and you are calling that the cost of living.

Mr. RUGGLES. Yes, you do not determine what new standard you should be giving people, but rather what is required to maintain their standard of living in commonsense terms.

Mr. KRAVIS. Let me put it this way. What you are saying is that there are certain substitutions that they are obliged to make because they cannot buy the old things.

Mr. RUGGLES. That is correct.

Mr. KRAVIS. They cannot go in to a doctor and say I want to give you $3 and give me exactly the medical service I could have bought 3 years ago when your fee was $3. They go in and give $5 or $10 and get today's medical service.

Mr. RUGGLES. That is right.

Mr. KRAVIS. Then it seems to me also when you talk about real prices, you have in mind the conventional economists' definition of a cost of living.

Mr. RUGGLES. That is right.

Mr. KRAVIS. When you talk about real prices, I think you mean what has happened to the cost of buying a constant bundle of satisfactions?

Mr. RUGGLES. That is right. And I think these two things need to be distinguished and we have not distinguished them thus far in our discussion or in the computation of price indexes.

I feel that the Bureau of Labor Statistics has done an excellent job and is doing an excellent job. The fault lies not with them but with the way people misuse this information for different purposes.

Chairman PROXMIRE. Let me ask you one last question, and Mr. Kravis might be interested in commenting on this.

This negative income tax that you suggest with quite considerable force, you think it is more important than the minimum wage increase

and so forth. What would be the cost of this? What do you have in mind there?

Mr. RUGGLES. Well, its cost can be anything you want to make it.

Chairman PROXMIRE. Well, make it satisfactory.

Mr. RUGGLES. I am not enough acquainted with the new statistics on the poverty program. I think this would dovetail right into that. This really requires a knowledge of the income distribution and the nature of the family households in that income distribution. I do think that there is a level of income that we have to recognize sooner or later as a subsistence level. I would be in favor of finding ways to provide this to everybody.

Chairman PROXMIRE. You are not concerned with the effect on incentive? Or you do not think——

Mr. RUGGLES. Put it this way: I think you can find devices to overcome that. For the population as a whole, no, I do not worry about that. Again, I think that study will show that these poverty groups are not the normal, usual group, but they are disadvantaged groups. There are reasons why they are in the circumstances they are.

Chairman PROXMIRE. What I have in mind is that I think the poverty program is a wonderful conception. It is just one of these things that it is hard to understand why it did not come along much sooner, the idea of doing everything possible to motivate people to get education, to get skills, to get capacity to support themselves and family and get the dignity and worth that enter into it. I wonder if a negative income tax might possibly be at this juncture very hard to sell, I think, to Congress, and to many people outside of Congress. It is hard to sell a rent supplement, as logical as that is. I dread to think how hard this negative income tax will be to sell. Not only hard to sell, but I think it might be spectacularly distorted by its opponents, until you get something like the poverty program working more effectively.

Mr. RUGGLES. I think it would have to be tied into the poverty program. Also, I would be very, very surprised if normal individuals in the American economy, with normal advantages, would find themselves below subsistence income. It seems to me these are people in very special circumstances and that Government policy should be aimed at removing these special circumstances. I am not saying that you should take a certain percentage of the income distribution and try to raise that lowest portion. I am talking about an absolute subsistence level. As we grow to be a wealthier nation, I would expect everybody to move above this. This is a temporary support, a support for special cases. It is not a general support of trying to bring the bottom up to the middle.

Chairman PROXMIRE. To tie this in with the subject we have this morning, would you say that the CPI and the other indexes of this kind are sufficiently accurate and adequate now so that we can arrive at what would be a reasonable cost-of-living level? I should say a reasonable level below which we would not permit the American family or an American person to fall?

Mr. RUGGLES. I feel that the BLS is fully competent to develop special measures of the cost of living for these groups and that they——

Chairman PROXMIRE. It has not done so yet.

Mr. RUGGLES. They have not been called on to do so yet. They naturally do not do things either without budget or requests to do

so. But I would expect that in the next few years, they would be called upon to do so. For example, there is misuse of Government indexes with respect to Government employees. Their retirement benefits are tied to the cost of living. I think it would be far better had the government requested the BLS to make a proper cost-of-living index for these people.

Mr. KNOWLES. I am just wondering. Could you not accomplish virtually the same thing and probably just as efficiently without worrying about prices? Let's go around on the other side, so to speak, of the income and product side, that is, to the income side, and tie the pensions by a percentage arrangement to the current job income rate of the job from which the individual retires. Then if the job income for a fixed position—to take the Government would be the simplest case. It would be like the old military program prior to a couple of years ago when we abolished what I think was a good idea. If a man retired as a GS–15, for example, in the second step or whatever it is, then whatever the salary is each year for that step, his pension is, let us say, 40 percent of that or whatever he has been entitled to upon retirement. Then his pension would change automatically with income, which is probably going to reflect all this complex of productivity and prices and what-will-you with sufficient accuracy that you can forget the—because you know what the current income is. You know what you are paying the person to do this at the moment and you know this automatically. This is much easier to find out. I would think you could solve a lot of problems as far as the retirement end of this problem is by this procedure.

Mr. RUGGLES. It is a fascinating idea.

Chairman PROXMIRE. It is a very interesting suggestion.

Mr. RUGGLES. It has lot of interesting equity implications which, as you say, the cost of living does not really share. I would like to see a research project done on this to see just what the implications would be in terms of costs and possible benefits and so on.

Mr. KRAVIS. You would still be left with the concern, though, about the rate of price increase for general policy purposes. That is, I think the fear—I think a large part of the fear about inflation is not based solely on equity considerations, although they loom large in it. I think the other fear is that if prices go up too fast, there is bound to be a bust. I think that that is why it is important to get better measures of prices.

There is one other thing I want to say about that. I think people who are concerned with public policy to which prices are relevant really ought to bear in mind that the most anybody can do is estimate what the price change is. I believe the BLS has been boxed into presenting an illusion of precision and accuracy which cannot possibly exist in any measure of prices.

I would invite you, Mr. Chairman—if you wanted to examine this for yourself—to ask the BLS to give you their raw data on the prices of automobiles between 2 years and give it to four members of your staff. Tell them each to come to the best decision they can, or give it to four different economists or statisticians. There are often a number of different sensible answers you can come to when you are trying to estimate price change. I think it is very important for us not to conduct our public policy on the basis of a price index which has been forced into a certain mold largely by the requirements of

collective bargaining so that the parties can know what the last tenth of that price change is because if it is plus one-tenth of a point, then wages go up and if it is not plus one-tenth of a point, wages do not go up. I would say let them have that index computed in the way it is so they all understand it and they know that is the one they are going to abide by. But let us not try to use that index for public policy purposes, for which it is not really suitable. Let us have an index that tells us the true range of error or the true range of uncertainty in the estimation of prices so that you can know when you vote on social security legislation or something that the truth lies somewhere between these two limits and you can be guided by what is the real situation, not by a spurious appearance of accuracy.

Chairman PROXMIRE. I think your suggestion on getting the raw data on automobile changes between 2 years and getting a competent economist to estimate it, see how far off they are, is excellent. I might start by asking you to do it. Maybe we can get two or three people on the staff to do it, too. I would hope we would get something that would not be too time-consuming.

Mr. Chase, do you think this is something that would not take more than part of a day. Would it?

Mr. CHASE. Yes, sir.

Chairman PROXMIRE. It is going to take several weeks?

Mr. CHASE. Yes, sir; it takes about three members of our staff the better part of 6 weeks to work this out.

Chairman PROXMIRE. This is between one automobile, between 2 years.

Your suggestion was just one car, was it not?

Mr. KRAVIS. No; my suggestion was between one model year and a second model year. I would not worry about the seasonal changes that happen. When a model first comes out in August or September, or whenever it is, there are certain prices set and then those prices tend to erode as the model year wears on. I would not worry about that. I would just say compare the prices of automobiles between these two model years and I would——

Chairman PROXMIRE. You would do a great job for us in Wharton School if you would get three groups of three to work 6 weeks on this, maybe three student groups, give them a little credit.

Maybe you and Dr. Ruggles could get together and have a Yale-Pennsylvania competition here. But I am afraid that our staff would be pretty hard hit to take 6 weeks off with three economists.

I might say, incidentally, that the suggestion that Mr. Knowles made on tying pensions into increases might go very well in Congress. You know, we have had salary increases from $10,000 to $12,500 to $22,500 and lately to $30,000 as we think about our own future, this might be a very wise policy to follow.

I want to thank you gentlemen very much. This has been a most stimulating day and I very much appreciate your testimony.

You will have a week before the record is final so you can change your remarks or add what you would like to them.

The subcommittee will adjourn sine die. This is the conclusion of our price statistics hearings.

Thank you very much.

(Whereupon, at 12:22 p.m., the subcommittee adjourned sine die.)

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