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value of owner-occupied farm and nonfarm dwelling, and (5) the net value of food and fuel produced and consumed by farm proprietors. This concept would avoid the distortions in the size distributions that would arise if all imputed items were neglected. At the same time, it would limit the imputations to those items that are clearly necessary to put the incomes of farm and nonfarm groups and of home owners and renters on a comparable basis.

It would be desirable also to provide size distributions on the basis of three additional concepts that have important practical and analytical usefulness. The first is a distribution based entirely on a cash income concept; the second a distribution based on the revised family personal income concept as defined above plus realized net capital gains and losses; the third a distribution based on the national income concept. The cash income concept is wanted by those who use the data for marketing purposes. The concept inclusive of capital gains is particularly important to evaluate the effect of profits realized as a result of changes in the value of individual asset holdings during inflation or depression. As indicated in chapter V, when data become available, both realized and unrealized capital gains should be introduced into the system of national accounts. It would be desirable to add at the same time unrealized capital gains to the second of the supplementary size distribution concepts suggested here. The national income concept would show the effect on the size distribution of income of all the imputed items that accrue to the benefit of individuals and of undistributed corporate profits.

14. CONSTANT-DOLLAR ESTIMATES

For some purposes, estimates of income size distributions using incomes in constant dollars are useful because they eliminate the effects of price changes. The committee recognizes that adequate deflators for the different types of families in the economy and for the different income levels are not available. Nonetheless, even approximate estimates based on constant dollar figures would be helpful. We suggest, therefore, that rough constant-dollar estimates be prepared when the official estimates in current dollars are released. Initially, the deflation of incomes for price changes might be made on the basis of the Consumer Price Index for urban and rural nonfarm families and the index of prices paid by farmers for farm families. However, later separate deflators might be developed at least for farm, rural nonfarm, and urban families and, if possible, for unattached individuals and high-income families.

CHAPTER XI. STATISTICAL ADEQUACY OF NATIONAL INCOME AND PRODUCT ESTIMATES

1. GENERAL CONSIDERATIONS

To the extent that national income and product data are utilized for public policy formulation, private decision making, and economic analysis, users of the data have a decided interest in their reliability. This concern is shared by the compilers of the figures—the staff of the National Income Division and other Federal statistical agencies—who exhibit a genuine professional desire to produce the best possible data,

and steadly to improve the adequacy and quality of their estimates. We have already indicated that, from the standpoint of accuracy both with respect to aggregates and much of the detail shown, the data in the national income and product accounts probably surpass those of any other country in the world. Deficiencies that do exist are the result primarily of the inadequacy of the basic data, so that major improvements in reliability will be possible only if the primary data sources are improved.

(a) Measurement of error

In the preparation of the national income and product accounts, use is made of a large volume of statistiacl materials collected by governmental and private agencies for other purposes—information that must be further processed to fill the gaps and to adjust for differences in definition. The final estimates are unavoidably affected by the degree of accuracy of the original data, their adaptability to the national accounting framework, the extent of the coverage as well as the character of the gaps in special-purpose statistics, the regularity with which figures usable for benchmark purposes or for current extrapolations are collected, and the timelags between the dates of collection and publication of the original material. The very nature of the available data thus leaves an imprint on the estimating procedures. No simple mathematical or mechanical procedure can be utilized—the procedure used must depend on the particular item being estimated. The problem is further complicated when subjective adjustments must be made to the original data, or when items that do not represent actual money transactions must be imputed. Reliance must be placed, therefore, on the use of judgment in the development of meaningful and consistent estimates suitable for incorporation in the national income accounting structure and—above all—on the development of checks against independently derived alternative measurements.

Although some measurements in economics may be presented with what may seem to be a great degree of mathematical precision, appearances may be deceptive. One frequently encounters economic data that give the impression of considerable accuracy and exactness, merely because of the form of presentation. This is the case, for example—to the uninitiated at least—with the ordinary balance sheets and cost of production statements. Even if expressed to the last penny, it is likely that only the figures in such statements that reflect the handling or possession of money and some types of claims are accurate. Other types of data, such as those reflecting inventory valuation, amortization, goodwill, patents, special contingency reserves, etc., can hardly be viewed in the same light. It is difficult, if not impossible, to apply the conventional statistical concepts of accuracy to such data because the figures are a byproduct of theories, conventions, and rationalization of self-interest. Because valuation is a subjective process the typical accounting statement is a combination of a hard kernel of relatively accurate figures, representing transactions to which the ordinary ideas of margins of error may apply, and numerous other figures that are fuzzy in character and definition because of the manner in which they are conceived. Yet, for all outward purposes, figures of both types may be indistinguishable in financial statements.

Even when one is not faced with the problems inherent in accounting data, it is not always possible to determine the degree of relative

accuracy with which measurement is carried out in the case of economic and social observations. Although the information sought is comparatively simple and the data are obtained though what purports to be a complete enumeration, errors creep into the final results—respondents may not provide correct answers due to misunderstanding of the questions asked, faulty recollection, inadequate records, desire to place themselves in a particular light or through sheer error, while the collectors of information may fumble by misrecording replies, or by omitting some units or persons who should have been covered.

Some of these difficulties may be minimized through the use of "probability" sampling which helps to reduce the task to a more manageable size and permits the use of more highly trained personnel to collect the information. But even then, although it may not be too difficult to estimate the probable error of measurement due to sampling, it probably will not be possible to account for response errors, or those committed in the course of collection and compilation of the information. As a practical matter, it is only in comparatively isolated instances that the margins of error can be computed in the case of economic statistics.

Thus, the use of estimating procedures in which judgment inevitably plays an important role, and of data collected by governmental and private agencies which are essentially byproducts of administrative routine, makes it virtually impossible to evaluate the relative accuracy of the various components of the national income and product accounts in quantitative terms. Little could be gained by the assignment of quantitative expressions of reliability to individual components so long as such evaluations are not derived from rigorous statistical procedures; and these cannot be used in the case of the national income data because much of the original source material does not lend itself to this type of computation.

Quantitative indicators of relative accuracy that are derived by judgment alone would also be misleading. Quantification of mere opinion, however well qualified, would inevitably give an erroneous impression of mathematical accuracy. Furthermore, the margin of error does not remain the same at all times, particularly when estimating procedures and available data change or when the benchmark data used become comparatively old due to the passage of time.

For these reasons, the committee does not believe that any useful purpose would be served by the publication of regular, quantitative estimates of error. The facts concerning the various sources of potential error are stated with great candor in the National Income supplement and, since the error sources are so varied in nature and so subject to change over time, anything more specific than general warnings about inadequacies does not appear to be justified.

If this reasoning is valid it also rules out a compromise suggestion, viz, to attach labels to the various published components of the national accounts indicating their relative reliability, one letter, e. g., identifying the components liability to the largest relative error. Such a classification, unless simply based on nonquantified judgment, presupposes the possibility of ranking the various components according to reliability by some objective criterion. If such a criterion existed it could also be expressed in quantitative terms.

(b) Verification of estimates

In practice, national income statisticians seek to improve the accuracy of their work in several ways. Initial estimates are made for small segments of national accounts, in the hope that, when independently estimated individual estimates are aggregated into broader components deemed suitable for publication, the errors in individual estimates will tend to offset each other. Pragmatic experience does, of course, confirm the theoretical expectation that errors in unbiased data tend to cancel out in the course of aggregation. This is far from certain, however, in specific cases, nor will this be the case when bias is present in the original data.

The reasonableness of particular estimates may sometimes be assessed by checking the conformity of the derived figures to some others in the light of some previously determined or determinable economic patterns. This type of check assumes that long-established patterns are substantially stable. It may perhaps be helpful when the primary concern is with the development of data suitable for the interpretation of long-term developments. However, when one is concerned with changes that take place over shorter spans of time, important deviations from long-term relationships are found more often than not.

Another method of verification is to compare the figures in the national income and product accounts which are usually derived from aggregative statistics—particularly figures relating to households—with blown-up sample data for the same items. However, the differences in concepts and the difficulties of obtaining adequate information from entrepreneurial and high-income families are still so great that this method of verification can be used for close comparisons only in exceptional cases, though it is often useful for checking orders of magnitude in items that are particularly difficult to measure satisfactorily by either method.[59]

The best check now available to national-income statisticians is the reconciliation of aggregates derived by the income method with the results obtained by the product method, i. e., essentially the comparison of gross national product with the sum of national income and indirect taxes. Unfortunately, not all the items represented on each side of the national account ledger are truly independent. The published "statistical discrepancy" between the income and product side thus cannot be taken as fully indicative of the degree of aggregate error in either or both of the two sides of the national income and product accounts. Moreover, the apparent consistency, or lack of it, of the final aggregates and the smallness of the "statistical discrepancy" is not necessarily indicative of accuracy of the global figures, but may be merely accidental.

There is a widespread impression that the National Income Division treats the statistical discrepancy as a simon-pure residual, letting it go where it will after entering the best possible estimates of the other items. Actually, the Division naturally has in mind the magnitude of the discrepancy and its change when making the multiplicity of estimates and adjustments that go into the preliminary data as they are being readied for publication. The corrections or adjustments

[59] For a more detailed discussion of the problems raised in such a comparison in the special case of saving estimates, see Reports of Federal Reserve Consultant Committees on Economic Statistics, hearings before the Subcommittee on Economic Statistics of the Joint Committee on the Economic Report, 84th Cong., 1st sess. (1955), pp. 73 ff.

then made are predominantly in the direction of minimizing the statistical discrepancy. The statistical discrepancy thus is a reflection of the fact that the processes of compiling income and product statistics are not, and cannot be perfect; but it is not necessarily a measure of the imperfection. Nonetheless, the comparatively small magnitude of the statistical discrepancy in the national income and product account for most of the last 30 years [60] may be regarded at least as partial evidence for the fundamental validity of the estimates.

Some users of the national income and product statistics urge that their utilization in practical analysis would be greatly facilitated if the statistical discrepancy were allocated by the producers of the data and not shown as a separate item in the accounts. The committee was about evenly divided on this suggestion. Several members felt that the publication of the discrepancy serves the useful purpose of warning users that the data are subject to error. Others thought that it would be more convenient to have the discrepancy allocated and that the estimators themselves are better qualified for this allocation than outsiders. All members of the committee recognized that the estimating process becomes more complicated if the discrepancy is eliminated—not only because its allocation involves additional work, but primarily because making revisions in individual series would entail numerous complementary revisions just to maintain consistency in the accounts. For this reason alone, the committee believes that allocation of the statistical discrepancy should be applied only to the annual estimates, if it is considered at all, and that no attempt at allocation be made in the quarterly estimates. In addition, before publishing allocations even for the annual data, the National Income Division should first experiment with various approaches in order to determine, in a pragmatic fashion, the extent to which this departure from present and past practice would enhance, or detract from, the usefulness of the data.

(*c*) *Revisions*

(1) *Magnitude.*—A different gage of the relative accuracy of national accounting data is offered by the periodic revisions of the estimates following the publication of additional underlying statistical information. Analysis of these revisions does permit some judgment in the light of new data of the nature of the previously made extrapolations or estimates of levels. But an evaluation of the reliability of any one series cannot be based entirely on the number and extent of past revisions, since the lack of revision is not necessarily indicative of the reliability of the previous estimate—it may be entirely due to the absence of newer data.

In practice, however, it appears that the series that are based on the least reliable data are subject to the largest revision. The committee has examined the successive revisions of all of the more important primary components of the national income and product accounts, both in the annual and the quarterly estimates. Although we have not included statistical summaries of the comparisons in this report, primarily because any one, or even several, measures of change

[60] The discrepancy exceeded 2 percent only in 1 year (1945—2.1 percent) from 1929 through 1955 and was below 1 percent in 18 of the 27 years. It was positive (gross national product exceeding national income plus indirect taxes) in 21 and negative in 6 years.

between revisions may be misleading, the findings corroborate what is already known generally about the reliability of the basic data. For example, estimates of such volatile items as inventory change, capital formation, and corporate profits are subject to rather substantial revisions. Similarly, the estimates of entrepreneurial incomes are subject to large revisions, since there are no reliable indicators of current change in such incomes. On the other hand, the larger components of the national income series—e. g., wages and salaries—and the aggregates both of income and product change relatively little between revisions.

(2) *Frequency.*—In view of the paucity of current information on the movements of a number of key items in the accounts, data for current and recent periods must be regarded as provisional and subject to revision. Nonetheless, complaints are frequently heard that the revisions are too frequent and the National Income Division is urged to keep the number of revisions to a minimum.

One reason for these complaints is that revisions sometimes confuse the users of the statistics and impose additional work in keeping records, charts, and analyses up to date. The committee feels that confusion is more likely to result from withholding the revised and presumably better data than from promptly publishing the corrections. The inconvenience caused by changes is real, but the choice between remaining uninformed of revisions and making the effort necessary to become fully informed seems clearly to be with the latter.

A second argument that has been advanced by those who favor fewer revisions is that they create a feeling of insubstantiality and thus undermine the authoritative character of the data. Authority, however, cannot be created by perpetuating error. What is not an error in the first instance becomes an error if it is repeated after information making possible a correction is available. The revision should be made in routine fashion and frankly presented to the public—not as an admission of error, but as a necessary part of the process of compiling sound data.

A final argument against making frequent revisions is that, by postponing them, the possibility of revisions in the wrong direction will be avoided and compensating errors in other series may result in an averaging out that will render revision unnecessary. The committee sees no merit in this argument either, since the hope that the figure originally published will eventually be justified by unforeseeable contingencies is hardly a sound basis for perpetuating a known error. Moreover, even if a revision in one component is later offset by a revision in another component, it is always better to have the best available information about every component currently.

It is the committee's view that the need for revisions of the totals can be minimized only by improving the quality of the underlying statistics to such an extent that fewer revisions will actually be necessary. Until such improvements can be made, it is better to admit the imperfections of the data and to educate the public in the use of imperfect statistics. The analytical usefulness of the data currently being published is so great as to overshadow criticism arising from unavoidable deficiencies. The most important pleas of the users is for something more—for further improvements—and not for any curtailment of what has already been achieved.

In view of the provisional nature of the initial estimates, revisions should be made and published whenever the accrual of further information makes significant corrections in the earlier published estimates possible. The committee believes that the general guiding principle should be to make revisions each quarter—at the earliest publication date after there is a reasonably firm basis for the correction. This principle should apply not only to the last quarterly data published but also to any previous quarters for which later data clearly indicate the necessity for revision. It should apply also even if the estimates have already been revised on more than one occasion. Similarly, if new information discloses the need for significant corrections in the annual estimates, they should be made at the earliest possible time. Such a policy would avoid the perpetuation of error in current quarterly estimates simply because the previous annual figures have not been revised. The committee recognizes that, especially in the case of the annual data, it would be very time consuming to make the necessary revisions in all of the income and product tables when one or a small number of items have been revised, and we do not contemplate that this be done. What we have in mind is the publication of revised figures for important components when new data show that the original figures are overstated or understated by significant amounts. Revisions of all the basic tables affected by the change should be reserved for the annual supplement.

(*d*) *Steps toward greater accuracy*

The kinds of improvements needed in the primary data sources from which national income and product data are drawn are fairly well known among experts. They include the undertaking of new surveys, the improvements of existing surveys in terms of reporting samples and of detail covered, and the regularization of censuses and other benchmark sources. Specific recommendations regarding the type of needed information have been presented to the committee by George Jaszi in a memorandum reproduced as appendix E of this report. Since these recommendations are based on the experience of the statisticians in the Division in actually preparing the estimates, the committee has given them serious consideration and believes that they should be implemented as rapidly as feasible. The areas in which action is most urgently needed are discussed in section 2 of this chapter.

Aside from the need for adequate budgets to improve the basic data—which, of course, is of decisive importance—more emphasis should be placed on research. Suitable revision of present procedures cannot be accomplished without direction from research and analysis designed to define data needs more carefully.

The committee believes, however, that the provision of additional resources for research as well as for the collection of basic data would not entirely solve the problem. Unrelated efforts by various agencies with larger resources, though capable of effecting improvements in many respects, might leave many of the existing gaps. Progress demands a higher degree of mutual understanding and cooperation on the part of all concerned. For this reason, concentration on planning and coordination should be continuous.

To avoid the inefficiencies that may result from lack of coordination, periodic surveys of the needs of the National Income Division should be instituted under the auspices of interdepartmental commit-

tees or the Bureau of the Budget. In the course of such reviews, recommendations could be formulated for improvement in the accuracy of some of the presently available information, the gaps in the available body of statistics could be identified and plans made for their elimination, ways could be sought to speed up the release of tabulations or to regularize their collection, and other suggestions could be made for better adaptation of statistics for national accounting purposes without affecting their utility for the primary purposes for which they are designed. Conceivably, private research agencies might be requested from time to time to sponsor such periodic reviews through the undertaking of appropriate inquiries or holding joint conferences of interested users and producers of the data.

(*e*) *Improving public understanding*

Since the national income and product accounts are relatively difficult for the layman to understand, it is in some respects quite remarkable that they are used and quoted so widely. This is, of course, attributable to the fact that the accounts present information that is of value to many different people and for many different purposes. It is still true, however, that a large part of the public does not understand the meaning of the national income and product statistics, and that only a few technicians are familiar with the details of their shortcomings.

A system of national income and product accounts that is designed to portray in summary fashion the manifold transactions of an economy as complicated as ours must make a compromise between presenting a broad picture and giving adequate information which implies considerable detail. The task of finding such a compromise is extremely difficult because the accounts are essentially and necessarily complicated. In formulating its recommendations the committee recognized the need for preserving as much simplicity as possible. Some of the committee's recommendations are designed to increase the clarity and understandability of the accounts. Nevertheless, in a few cases in which there appeared an urgent need for more detail, the committee recommended that a finer subclassification of aggregates be provided even though it increases the complexity of the accounts.

It should be recognized that the full set of accounts would be published only once a year in a special publication designed for the use of experts in Government and various research organizations of business, labor, agriculture, and in academic institutions. In the future, as in the past, these detailed accounts could be used as worksheet information from which various summaries will be derived depending on the purposes to be served. In the past, use was made most frequently of gross national product tabulations giving only the expenditure data of the accounts. The President included for the first time in the budget message of 1946 a tabulation that contrasted income, expenditures, and excess or deficit for each major sector of the economy. This summary table has been presented subsequently in somewhat improved form in the President's Economic Reports.[61] Also the Joint Economic Committee has been using a similar presentation as a frame of reference for the staff projections which have been pub-

[61] See e. g., The Economic Report of the President, January 1957, table E–6, p. 129.

lished regularly in its annual reports.[62] A summary table of this type, based on the revised income and product accounts which we proposed earlier, is shown in table E of chapter V.

The committee believes that the improvements it recommends will make more meaningful summaries possible than could be derived from the present accounts. However, the committee does not wish to recommend one standard form of summarization that would be used for all purposes. It believe that, if its recommendations are realized, the basic system of accounts will be so improved that various users can derive from its summaries that best serve their particular purposes. Experimentation with different methods of summary presentation should be continued by the National Income Division, the Council of Economic Advisers and the Joint Economic Committee in the interest of further simplification and adaptation to various uses.

The committee also believes that consideration should be given to the preparation of a popularized description of the accounts—the structure, the concepts used, the limitations of the data, and their possible applications—for the use of the intelligent layman. Such a description should not supersede or infringe on the technical documents of the type of National Income. It will be helpful, in the committee's opinion, to the widening circle of persons interested in the end results, and will materially improve understanding of this important source of statistical intelligence.

The National Income supplement satisfies most of the needs of the more technically inclined users of the national income and product accounts. However, the information now supplied is occasionally not sufficient for their purposes. In some cases, the description of methodology is too general; in others, the data are not provided in sufficient detail. It has been suggested, for instance, that descriptions of various estimating procedures be presented in sufficient detail to permit the user to duplicate the published figures from the original sources. Such descriptions might be provided in looseleaf form to permit ready supplementation of the basic documents whenever major changes in operating procedures take place.

Another suggestion is that more of the worksheet detail behind the published data be made available to the public.[63] Publication of a more detailed methodology and of more worksheet data would not only be useful to outsiders; it would also give the public a greater appreciation of the problems encountered in the compilation of national income and product data, and would stimulate suggestions for improvement by users who may be expert in one or more of the detailed areas covered by the accounts.

Although the committee was inclined to view sympathetically the suggestion that a more comprehensive description of methodology be prepared, if found that there was little demand for it even among the experts who were canvassed. (See appendix C.) Since the number of respondents who felt the need for more detailed descriptions of methodology was very small, it is clear that there would be no point in devoting considerable resources at the present time to such a project.

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[62] See e. g., 1957 Joint Economic Report, 85th Cong., 1st sess., H. Rept. No. 175.

[63] The committee members know from their own experience as users that the National Income Division is extremely cooperative in satisfying requests for more detail if the information is reliable enough for public use.

On the other hand, there is a significant demand for more detail than is now published. Perhaps the best way of satisfying this demand, and at the same time of providing a better indication of the actual derivation of the estimates, would be to prepare a set of annual summary tables—at least for the more important series—showing the major steps in the derivation of the published figures from the information reported in the censuses and other basic sources. Table 38 of the national income supplement, which reconciles estimates of corporate profits with the data reported in Statistics of Income, is an excellent example of the type of table we have in mind. Some of these tables might be added to the national income supplement, but it would be sufficient to prepare them for distribution in mimeographed form in most cases. The committee appreciates that this cannot be accomplished overnight. However, it should be possible to space the work gradually over a period of years so that it will not interfere with the preparation of current estimates and needed revisions of past data.

2. EXAMINATION OF SELECTED COMPONENTS

(*a*) *Unincorporated business profits*

For the immediate future, the most important single step that could be taken to improve the accuracy of the national accounts would be to improve the data for nonfarm sole proprietorships and partnerships. The inadequacy of the underlying data for this sector of the economy affects the reliability of practically every important component of the accounts; e. g., saving, capital expenditures, depreciation, sales, inventories, and many others, but particularly that of profits. Although estimates of these items are currently included in the various accounts, they can be regarded as little more than informed guesses for the small-business sector. The annual figures are poor enough, but those for shorter periods are even worse, since there are no intra-annual surveys of the operations of unincorporated businesses except for a few scraps of information obtained from private accounting firms. This situation is no fault of those who are responsible for making the estimates. Indeed, the estimates have been made with great care and ingenuity, and every bit of usable information has been employed. The estimators have repeatedly called attention to the need for better data in this area, but the data-collecting agencies have not been able to comply with these requests, mainly because of the limitation of funds.

Unfortunately, it will not be easy to remedy this difficulty which is as old as national income statistics in the United States. "There was general paucity of data on entrepreneurial incomes and the estimates relating to this income type are the most subject to doubt." [64] is a statement which is as true today as when it was made 25 years ago.

The small firm is typically operated as a family enterprise, and its accounts are usually intermingled with those of the proprietor's household. Even the tax returns they file are seriously in error, as the Audit Control Study conducted by the Internal Revenue Service for the year 1948 demonstrated. This study indicated that "the 7 million 1948 income tax returns filed by individuals with business and professional incomes (including income from farming) are more fre-

[64] National Income, 1929–32, p. 9.

quently in error, have larger amounts of tax change, and produce more dollars of tax change per man-year of examination effort expended than is the case regarding the 45 million returns without business incomes. Almost half of the business returns contain tax errors and this frequency of error is more than twice the frequency found on nonbusiness returns." [65] On the basis of a similar study conducted for the year 1949, it was estimated that net profits of nonfarm business enterprises reported on tax returns were understated by an average of almost 20 percent, with the percentages varying greatly among different industry groups and ranging as high as 50 or more in some groups.[66]

The absence of reliable data for unincorporated business enterprises is surprising in view of the great interest frequently expressed by public and private groups in the fortunes of small business. There is virtual unanimity in this country that public policy should protect and encourage small business, yet we know very little about it. Very frequently, the profit ratios of small and large corporations are used as if they showed the relative profitability of small versus big businesses. In actual fact, small corporations constitute a small and unrepresentative sample of all small business—they number less than one-tenth of all small enterprises and are of considerably larger average size—so that any conclusions about small business in general that may be drawn from the profit levels and trends of small corporations must be regarded as highly tenuous. Improvement of the information relating to unincorporated enterprises is, therefore, urgent to provide the basis for the formulation of policy and not merely for purposes of national accounting. The two purposes are, of course, not in conflict since the national accounts provide a useful framework for the analysis of significant economic problems like the problems of small business.

More reliable data on the profits of unincorporated nonfarm enterprises are needed at three different levels: (1) benchmark data, (2) current annual estimates, and (3) quarterly and monthly estimates.[67]

(1) *Benchmark data.*—The National Income Division relies primarily on the information tabulated from schedule C of the Federal individual income tax return as the basic source of information on profits of these enterprises, supplemented from various sources. Since 1939, the sole proprietorship returns have been tabulated biennially in the detail required for national income estimating. The corresponding data for partnership returns were tabulated only for the years 1939, 1945, 1947, and 1953.

The 1953 tabulations to be published later this year will include information not only from the income statements of partnerships but also—for the first time—from their balance sheets. These data will permit a rough calculation of the saving of partnerships and will also be helpful in improving the saving estimates of nonfarm households.

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[65] Marius Farioletti, Some Results of the First Year's Audit Control Program, National Tax Journal, March 1952, pp. 71–72.

[66] Marius Farioletti, Some Income Adjustment Results from the 1949 Audit Control Program, Studies in Income and Wealth, vol. 23 (in press).

[67] To provide the basis for making recommendations to improve the estimates of unincorporated business profits, the committee requested Mr. Thor Hultgren of the National Bureau of Economic Research to examine the procedures used by the National Income Division in estimating unincorporated business incomes other than farm and professional enterprises. Mr. Hultgren kindly consented and prepared for the use of the committee a memorandum describing the procedures and the data used and suggesting methods of improving the estimates. The committee wishes to take this opportunity to express its gratitude to Mr. Hultgren for his assistance.

Unfortunately, the sole proprietorship return does not call for balance sheet information, so that there is no possibility of obtaining the balance sheet items for these unincorporated enterprises from tax sources.

The committee has been informed that the Internal Revenue Service now plans to tabulate the sole proprietorship and partnership returns every other year, probably in odd-numbered calendar years. Since this information is so important, we hope that nothing will interfere with these plans, particularly with the preparation of tabulations for both forms of legal organization for identical years. As it is by no means certain that all partnerships file tax returns, even though they are required to do so, to provide a check, all future censuses of business should distinguish between sole proprietorships and partnerships in the query on legal form of organization.

The Internal Revenue Service tabulations for the income year 1955 are now being prepared, but it is hardly likely that they will be completed before the end of 1957. A 2-year lag is apparently the minimum that must be expected, in view of the industry detail required for the tabulations. Thus, these biennial tabulations will be useful only for benchmark purposes and other sources will need to be developed for the current annual and quarterly estimates.

Even as benchmark materials, these data will have serious deficiencies because of the substantial amount of understatement, mentioned earlier, of profits on tax returns. Corrections for understatement are now based almost entirely on the Audit Control Study of the Internal Revenue Service for the year 1949. The committee believes that such a study should be conducted at least once every 5 years, and should cover not only individual and partnership returns, but also the returns of corporations. As we indicate elsewhere (see ch. X), regular audit control surveys are needed for purposes of estimating the size distributions of income as well as profits.

(2) *Current annual estimates.*—The budget for 1958 provided for tabulating selected information from the income-tax returns 1 year sooner after filing than has been feasible in the past. A recommendation in this direction was also made in a staff report of the Joint Committee on Internal Revenue Taxation. Such tabulations among other things would provide the information necessary to carry forward the benchmark data on profits of corporate and unincorporated enterprises for at least 1 more year. This proposal, which was estimated to cost $300,000, was turned down by the House of Representatives. The Senate report emphasized the merits of this program and recommended that it should be financed with available funds. The committee, therefore, hopes that this proposal will be implemented in the near future. These tabulations should become a regular source of information of great importance for the improvement of the national economic accounts.

Even if this proposal is implemented, data would still be lacking for making firm estimates of profits of unincorporated enterprises in the latest year.[68] Of necessity, such estimates will have to be pro-

[68] This difficulty could only be overcome if a way could be found to abstract and tabulate a few key items from partnership and sole proprietorship returns, as well as from individual returns, as they come into the district offices of the Internal Revenue Service. With full use of the possibilities of rapid microfilming and electronic computing it is not impossible that such data, based on a substantial sample of returns, could become available in time to be used in the preparation of the first annual estimate of national income and product. The time for such an acceleration of preliminary income tax tabulations—which in due course might become sufficiently detailed to be used instead of the tabulations now published in Statistics of Income—appears to be too remote to justify specific recommendations that presuppose its realization.

visional and subject to revision when the more reliable tax-return data become available. However, consideration needs to be given to the development of more current information. For this purpose, the committee recommends that three approaches be considered:

First, the Federal Trade Commission should enlarge the coverage of its corporate profits surveys to include corporations in industries other than manufacturing, with particular emphasis on wholesale and retail trade. Changes in profits of small corporations are already used as an indication of the trend in the profits of some unincorporated enterprises—though this should be done only with great care for the reasons set forth at the beginning of this section. If the Federal Trade Commission industrial coverage were enlarged, this method could be applied more generally.

Secondly, an attempt might be made to experiment with annual mail questionnaire surveys of sole proprietorships and partnerships to supply the necessary data. If the surveys were timed correctly, the respondents would probably use the information they submit with their tax returns as a basis for reporting. Such surveys may be expected to understate profits greatly, but it may well be that they would provide a satisfactory indication of year-to-year changes.

Thirdly, the committee has also considered the possibility of using more elaborate sampling of entrepreneurial families in the annual income surveys by the Bureau of the Census and the Michigan Survey Research Center for this purpose. We do not believe that this would be a fruitful approach, first, because it would be too expensive to obtain adequate samples to provide the industry detail that would be needed; and, second, because experience with these surveys indicates that the response error of entrepreneurial families is very large. There is, however, a possibility of making use of interview data by adopting a suggestion advanced by the Federal Reserve Consultant Committee on Saving.[69] This suggestion provided for drawing a probability sample of a few hundred, or at best a few thousand, respondents among the 4 million unincorporated enterprises now in existence, and envisaged intensive examination of respondents' records by interviewers thoroughly familiar with accounting methods. These interviewers would reconstruct the respondents' income accounts and balance sheets and would calculate the desired figures from their records, instead of relying on respondents to produce the required information from memory or with the help of occasional consultation of their papers.

(3) *Quarterly and monthly data.*—For estimates covering periods of less than a year, the task seems extremely difficult since most small-business men simply do not keep the necessary records. The quarterly and monthly estimates needed for completing the national and personal income totals are now made by projecting annual data forward on the basis of the movement of gross sales and changes in profit margins that may be inferred from available data, particularly from public reports of corporations and the Federal Trade Commission corporate profits survey. To the extent that these sources are strengthened, the quarterly and monthly estimates of unincorporated nonfarm entrepreneurial income will also be improved.

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[69] Reports of Federal Reserve Consultant Committees on Economic Statistics, hearings before the Subcommittee on Economic Statistics of the Joint Committee on the Economic Report, 84th Cong., 1st sess. (1955), pp. 135, 136.

The experience with the annual mail questionnaire surveys of sole proprietorships and partnerships suggested above may indicate that collection of data by mail is feasible. In that case, the surveys might be gradually converted from an annual to a quarterly basis. The committee believes, however, that major emphasis should be placed on the collection of annual data for the immediate future.

(*b*) *Inventory changes*

Next in importance among the items urgently needing improvement in the current national accounts is the change in business inventories. A large part of the difficulty in this case goes back to accepted business practice in accounting for inventory holdings and for profits or losses resulting when changes take place in the prices at which inventories are valued. In most concerns, actual physical stocks are checked and valued only once a year, and interim quantities or book values are estimated from purchases and sales, usually in dollar terms. Errors in the interim estimates can be corrected only after the annual inventory check. Furthermore, the established procedure of valuing inventories on the principle of "cost or market whichever is lower" introduces unrealized capital gains or losses into the earnings account, where they are typically treated as though they were realized. These and other distortions produced by the inaccuracies in the inventory records themselves or by the changing bases of valuation used in calculating profit or loss represent one of the most serious sources of potential error in the overall accounts.

This problem is most acute for short-term economic analysis. The extreme volatility of inventory changes is widely recognized. The primary focus of efforts to make improvements must therefore be the monthly or quarterly statistics of quantities and values from which the estimates of overall changes in inventories are derived.

An extended review of this subject has recently been made by the Federal Reserve Consultant Committee on Inventory Statistics.[70] Its published report included 32 recommendations to improve and supplement the data currently available.

The committee finds itself wholly in accord with the views expressed in that report and merely reiterates the following recommendations for special emphasis: That agencies compiling inventory statistics cooperate and integrate their efforts more closely; that negotiations be conducted with business concerns to improve inventory reports in various respects; that reports for independent retail stores be expanded; that additional information be obtained on accounting practices and on the prices significant for deflating book values in various lines; and that inventories be consistently broken down by durability and destined end-use in addition to the present classification by industry or type of business.

We also endorse the position taken in that report on the costs of effecting recommended improvements. Costs are presently small, and the potential returns from a moderate expansion of effort in this area are so great that the attitional outlays required are fully warranted.

(*c*) *Capital expenditures*

Limitations of time and personnel prevented the committee from undertaking as thorough a survey as it would have wished of the

[70] Reports of Federal Reserve Consultant Committees on Economic Statistics, hearings before the Subcommittee on Economic Statistics of the Joint Committee on the Economic Report, 84th Cong., 1st sess. (1955), pp. 395 ff.

adequacy and reliability of estimates of capital expenditures that are now embodied in the national product accounts and in flow-of-funds statements. Some of the committee members who have worked fairly intensively with these figures over many years feel that the estimates that are now of necessity used within the national accounts probably are subject to a wider margin of error than many other series. All members are convinced of the necessity of improving the accuracy of the estimates because of the crucial importance of these figures for assessing both the current economic situation and the business outlook. In addition, the committee is convinced of the importance of securing as soon as possible consistent estimates of total fixed investment classified (*a*) by type of producers' durable equipment and of construction, (*b*) by industry classification, and (*c*) by legal form of organization of the purchasing units.[71]

No breakdown of producers' durables by type has been published in the national income and product accounts for years subsequent to 1952. The chief reason is that, since the discontinuance of series collected by the National Production Administration during the Korean emergency, there has been no source of information on government (particularly Federal Government) purchases of producers' durables. This information is necessary for the allocation of shipments by producers between private and government purchasers. Its lack not only prevents resumption of the breakdown of producers' durable equipment but also has impaired the accuracy of the aggregate figure for producers' durables. In addition, such information is most pertinent to the committee's recommendation for a segregation and classification of capital outlays of the Government. The committee recommends that the Office of Statistical Standards explore ways to obtain the resumption of such data.

Construction estimates are seriously inadequate in quality. A program for the improvement of the estimates of residential construction has been proposed by the Bureau of Labor Statistics and the committee has not investigated this field in detail. We do know, however, that there are serious deficiencies in the available estimates of expenditures on additions, alterations, repair and maintenance of residential structures, and that the estimates of nonresidential construction, including new construction, are far from satisfactory. Detailed recommendations for improvement of the figures that now go into the national income and product accounts would be premature before a thorough study is made of the quality of the present data and the possibilities and means of obtaining more accurate figures. Such a study is consequently recommended by the committee. It might be made either by the suggested Research Section of the National Income Division; or, if no such section is organized in the near future, by a group of experts who can concentrate their attention on this field and have an adequate staff for a careful analysis of all relevant data.

A classification of capital expenditures by purchasing industry is now provided for about three-fifths of gross fixed investment by the

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[71] The Federal Reserve Board's Consultant Committee on Business Plant and Equipment Expenditure Expectations unfortunately had to limit its study to the narrower field indicated in its title, and was not able "to review the available statistical series on past plant and equipment expenditures, except as this was necessary for an appraisal of the data on expectation" (reports of Federal Reserve Consultant Committees on Economic Statistics, hearings before the Subcommittee on Economic Statistics of the Joint Committee on the Economic Report, 84th Cong., 1st sess., 1955, p. 13).

Office of Business Economics-Securities and Exchange Commission survey of plant and equipment expenditures. The committee recommends that the size of the sample be increased, particularly in the nonmanufacturing industries, so as to permit the presentation of greater industrial detail (especially in the huge "commercial and other group") as well as to improve the accuracy of the aggregate. The committee further recommends that the Office of Business Economics provide a reconciliation of the plant and equipment series with the gross national product capital expenditure data; and that it develop an industry breakdown of the capital expenditures not included in the plant and equipment survey so as to complete an industry classification of the gross national product total for fixed capital expenditures.

The plant and equipment survey should also be utilized to improve the classification of capital expenditures as between corporations and noncorporate business. This breakdown, which is required to improve saving aggregates and flow-of-funds statements, as well as to develop sector saving and investments accounts, would also benefit from strengthening of the plant and equipment sample in nonmanufacturing industries.

These recommendations provide for separate classifications of total fixed capital expenditures by type, by purchasing industry, and by legal form of organization. The committee's recommendation for a cross-classification of fixed capital expenditures by type and by purchasing industry would go beyond this and may not be attainable in the near future.

(d) Saving

The committee has refrained from studying the adequacy and reliability of the statistics of saving now available as part of the national accounts for two main reasons.

First, these statistics have been investigated quite thoroughly less than 2 years ago by the Federal Reserve Board's Consultant Committee on Saving Statistics.[72] There would have been no point for the committee to go over the same ground again, necessarily in a much more cursory manner, the more so since two members of this committee served on the Consultant Committee on Statistics of Saving.

Secondly, the recommendations of the Consultant Committee have been studied, in accordance with the committee's suggestion, for over a year by the staff of the Federal Reserve Board. The committee understands that the Federal Reserve Board will be ready soon to recommend to the Office of Statistical Standards and to the agencies which furnish the main components of statistics of saving a coordinated program for improving the whole field of statistics of saving. The committee has every confidence from its discussions with representatives of the Federal Reserve Board that the Board's suggestions will fit in with the committee's own recommendations for improvement and expansion of the national income and product accounts and the flow-of-funds statements.

The committee, however, has given enough attention to statistics of saving, particularly with regard to their integration into a system of

[72] Reports of Federal Reserve Consultant Committees on Economic Statistics, hearings before the Subcommittee on Economic Statistics of the Joint Committee on the Economic Report, 84th Cong., 1st sess. (1955), pp. 73 ff.

national accounts, to feel justified in endorsing the Consultant's Committee's recommendations,[73] particularly the development of: (*a*) a separate estimate of saving for nonfarm households, farmers, and incorporated business and private nonprofit institutions; (*b*) supplementary estimates of saving through consumer durables; (*c*) figures on gross flows of saving; and (*d*) corporate statements of sources and uses of funds of corporations on a quarterly basis.

(*e*) *State and local governments*

In recent years, State and local government expenditures have been growing more rapidly than the expenditures of any other major sector of the economy. Between 1950 and 1956, while gross national product increased 45 percent, purchases of goods and services by the States and local governments rose 65 percent. During the same period, the net debt of these units of government almost doubled—from $21 billion to $41 billion. A continuation of these trends, although perhaps not at precisely the same relative pace, is to be expected at least for another decade in view of the many demands on the States and local governments for increased services resulting from such factors as the growth in population, the continued move to the suburbs, the bulge in public-school attendance, the renewal and rehabilitation of our large cities, and the growth of industry and commerce. Accordingly, it is important for economic analysis, as well as for policy purposes, to have reliable information on the operations of the States and local governments. Much of this information—though admittedly not all—would be supplied if the set of accounts envisaged in this report (i. e., income and product accounts, national balance sheets and flow-of-funds statements) were available.

The conceptual problems of fitting the State and local governments into these accounts are generally similar to those raised in connection with the Federal Government, and will not be repeated here. (See ch. VII, sec. 3.) However, the data problems are much more acute for the State and local governments, because the information must be obtained from thousands of jurisdictions that do not keep standardized records and are not required to report periodically to any one centralized agency. For this reason, it is essential that the census of governments, which is now being conducted for fiscal year 1957 for the first time since 1942, should be repeated once every 5 years, as now provided by law. In addition, since the census will supply only periodic benchmark data, it will be necessary substantially to improve and enlarge the flow of data from the States and local governments on an annual and quarterly sample basis to assure satisfactory coverage of this sector in the national accounts. Steps that can be taken to achieve this objective are described below. The committee urges that high priority be given to these recommendations.

(1) *Quarterly nationwide data for the national income and product accounts.*—The National Income Division relies very heavily upon data compiled by the Bureau of the Census for much of its information on States and local government transactions. In particular, the annual Summary of Governmental Finances supplies nationwide aggregates on governmental receipts, expenditures, debt, and financial assets.

[73] See summary in Reports of Federal Reserve Consultant Committees on Economic Statistics, hearings before the Subcommittee on Economic Statistics of the Joint Committee on the Economic Report, 84th Cong., 1st sess. (1955), pp. 74–75.

As a basis for reasonably prompt nationwide estimates on a quarterly basis, however, this census report is recognizably deficient. For example, by August 1957, when the financial summary covering Government fiscal years ending in calendar year 1956 will be issued, the National Income Division will have had to prepare and issue estimates for six quarterly intervals subsequent to the most recent period covered by the corresponding census report. For such quarterly estimates or extrapolations, the National Income Division can draw upon several series of partial data—e. g., as to payrolls, assistance payments, and construction expenditures of States and local governments. In recent years, however, significant adjustments of the quarterly figures initially based on such series have been necessary when the annual census reports have ultimately become available.

More precise and more timely nationwide aggregates for this sector could be obtained on the basis of quarterly sample surveys with respect to major components of State and local government finances—i. e., at least tax collections, construction expenditures, and wage and salary payments. After a limited initial period of design, testing, and development, it should be possible to prepare relatively precise nationwide estimates on these items (with appropriate supporting detail—for example, showing construction expenditure separately for highways, schools, and other major purposes) within 60 to 90 days after the period covered.[74]

Taxes make up about 60 percent of all revenue of States and local governments, and construction and personal-service payments represent about the same fraction of all their expenditure. Addition of Federal grants on the revenue side and of public assistance amounts on the expenditure side—for which reliable current data are available from the Treasury and the Social Security Administration—would raise these proportions to around three-fourths of the receipts and expenditure totals for this sector. The remainder comprises relatively less volatile items—on the income side, mainly receipts from charges; on the expenditure side, current procurement, interest payments, and retirement-fund benefits. The committee believes that relatively close overall measures of current trends in State and local government finances could be developed even without specific intrayear surveys of these remaining components.

(2) *Biennial surveys of State and local government finances.*—Because the census of governments is a large-scale operation, authorized to be conducted only at 5-year intervals, its findings will be relatively tardy, and will be useful mainly as benchmarks for estimates in the national accounts. These estimates would be improved substantially if the Census Bureau were authorized and equipped to carry out the recommendation made in 1954 to the Secretary of Commerce by the intensive review committee on census programs[75] that biennial surveys be conducted, between periodic governmental censuses, to supply estimates on the finances of State and local governments.

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[74] Responsibility for quarterly surveys on employment and payrolls of State and local governments was reassigned from the Bureau of the Census to the Bureau of Labor Statistics in February 1955. If the more complete quarterly surveys recommended above are authorized, it would be desirable to coordinate the collection of payroll and other financial data so as to avoid imposing an unnecessary burden on reporting on the reporting units of government.

[75] Appraisal of Census Programs, Report of the Intensive Review Committee to the Secretary of Commerce, February 1954.

The proposed intercensal surveys were suggested primarily for their uses in analysis of trends in governmental finance. However, their uses for national accounting should not be overlooked. In particular, they can be helpful for three specific purposes:

(*a*) To supplement the data in the quarterly surveys suggested above for receipts and expenditure items that do not vary greatly over short periods of time or that may be too complex to warrant insertion on quarterly questionnaires.

(*b*) To provide the basis for improved annual estimates of the number of State and local government employees and their earnings, which are included in the State-by-State personal-income series. At the present time, these estimates are prepared on the basis of a special survey conducted by the Census Bureau for only 1 month of each year (October).

(*c*) To provide information on the nonfinancial assets of State and local governments for purposes of national-wealth statements and the national balance sheet.

Therefore, the committee endorses the proposal of the Intensive Review Committee on Census Programs and urges that the first biennial survey of the States and local governments be taken for fiscal year 1959, i. e., 2 years following the census of governments.

(3) *Reconciliation between census data and national income and product data.*—As in the case of the Federal Government, data for the States and local governments which are derived essentially from budgetary accounts must be corrected for differences in timing, concepts, and coverage before they can be fitted into the national income and product accounts. Considerable confusion exists among users as a result of the exitsence of two series of data on receipts and expenditures of the States and local governments—one compiled by the Bureau of the Census and the other by the National Income Division. That there will be differences between the two series is inevitable, since they do not purport to measure the same things. However, the confusion would be minimized if the National Income Division added a table to its annual publication showing a detailed reconciliation between its own estimates and those of the Census Bureau. Together with the corresponding table for the Federal Government (see ch. VIII, sec. 3), the reconciliation statements would provide a useful summary of the differences between the data in government budgets and those that are entered into the national income and product accounts.

Chapter XII. Flow-of-Funds Statements Within the System of National Accounts

1. THE PRESENT SITUATION

(*a*) *Nature of flow-of-funds statements*

Flow-of-funds statements, first known under the more descriptive though less accurate name of money-flow statement, are the youngest member of the national accounting family. Morris Copeland's book, A Study of Moneyflows in the United States, published in 1952 by