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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 existence 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

the National Bureau of Economic Research, represents the first fully developed result of this aspect of national accounting.⁷⁶

Within the system of national accounts, flow-of-funds statements are, in principle, characterized by about a half dozen main features. Some of these features have been omitted or imperfectly realized in the flow-of-funds statistics that have actually been compiled, while actual estimates embody features that are not characteristic of the flow-of-funds concept.

The main characteristics of flow-of-funds statements are:

(1) Coverage of all economic units within the Nation, private and public.

(2) Arrangement of units into sectors on the principle of grouping together decision-making units of similar economic characteristics.

(3) Inclusion of all transactions (both in their monetary and their real aspects) between two units which involve the use of money or credit, and consequently omission of imputations and internal transactions.

(4) Emphasis on financial transactions in addition to transactions in goods and services which are treated in less detail.

(5) Separate recording of gross flows in both directions, where economically relevant, instead of offsetting them and showing only the resulting net flow in the accounts.

(6) No systematic distinction between current and capital account sources, hence no aggregate figure for saving.

(b) Present status of work on flow-of-funds statements

Morris Copeland's pioneering study provided annual flow-of-funds statements for the years 1936-42. The Federal Reserve Board's basic document⁷⁷ contains detailed annual estimates for 1939-53. These figures differ sufficiently from Copeland's estimates to prevent their being used jointly without special adjustments. Somewhat less detailed annual figures for 1950-55 showing all essential magnitudes for the 10 main sectors⁷⁸ were published in the April 1957 issue of the Federal Reserve Bulletin. The detailed tables, comparable to those in flow of funds in the United States 1939-53 will, however, become available in mimeographed form, so that analysts soon will have at their disposal a detailed continuous set of figures covering a period of 17 years.

⁷⁶ In addition to Morris Copeland's book (mimeographed drafts had been circulating for a few years before publication) the following documents discuss the basic features of flow-of-funds statements or provide actual figures for flow of funds in the United States:

(a) Flow of Funds in the United States, 1939-53 (Federal Reserve Board), 1955. A briefer mimeographed version, Progress Report on the Money-Flows Study, had been available since 1951.

(b) R. A. Young, The Federal Reserve Flow-of-Funds Accounts (International Monetary Fund, Staff Papers, February 1957).

(c) S. J. Sigel, A Comparison of the Structures of Three Social Accounting Systems, Studies in Income and Wealth, vol. 18, 1955.

(d) S. J. Sigel, A Comparative Study of Three Social Accounting Systems; National Income, Input-Output, and Money Flows (Harvard University thesis), 1955.

(e) Summary Flow-of-Funds Accounts, 1950-55, Federal Reserve Bulletin, April 1957.

⁷⁷ Flow of Funds in the United States, 1939-53, December 1955.

⁷⁸ Consumers, corporations, nonfarm unincorporated business, farm business, Federal Government, State and local government, banking, insurance, other investors, rest of the world.

In recent years simplified flow-of-funds statements, mostly limited to the main types of financial transactions, have been prepared by financial analysts interested in current figures and short-term forecasts of fund flows, since no Federal Reserve Board figures extending beyond 1953 were available until recently. These statements often provide semiannual and even quarterly estimates. The statement prepared early each year by the Bankers Trust Co. is probably the best known of these simplified statements of financial fund flows. The most ambitious of the unofficial projects in this field is the quarterly statement of flow of funds through the capital markets for the years 1953-55 which has been prepared by the National Bureau of Economic Research as part of its postwar capital markets study and which is expected to be published, at least in summary form, sometime later this year.⁷⁹

No foreign country has as yet published a flow-of-funds statement that compares in detail or duration with those Copeland and the Federal Reserve Board have prepared for the United States. A number of countries, however, have been issuing statements of the main financial flows of funds, usually in rather condensed form. This is the case for instance for France, Western Germany, the Netherlands, and Norway.⁸⁰ It may be noted that no flow-of-funds statements have as yet been published for the United Kingdom or Canada, although a rather elaborate one is in preparation for the latter country.⁸¹ Most of the more elaborate foreign flow-of-funds statements differ in one respect from the work done in the United States—apart from their being less detailed. They are closely integrated with the national income and products accounts and are prepared by the same organization that is responsible for the national income and product estimates.^{82 83}

(c) *The relation of flow-of-funds statements to the national income and product accounts*

Flow-of-funds statements constitute essentially an alternative selection from, or a rearrangement of, the same innumerable elementary transactions among and quasi-transactions within economic units that underlie the national income and product accounts. Differences, and considerable ones, between the two systems can, however, arise: because different categories of transactions are selected; because these transactions are grouped differently with respect to type of transaction or classification of transactor; because transactions are entered into the accounts at different values or at different points of time; and because transactions may be recorded after more or less extensive netting.

⁷⁹ For a description of this project see 36th Annual Report of National Bureau of Economic Research, pp. 54-57; and article by M. Mendelson in *Journal of Finance*, 1957, pp. 159-166.

⁸⁰ For a brief description of these documents, as well as even more summary statements in this field, see background paper by the Statistical Division, Meeting on Methods of Monetary Analysis, 11th annual meeting of the International Monetary Fund, September 1956.

⁸¹ See L. M. Read, *The Development of National Transactions Accounts; Canada's Version of, or Substitute for, Money-Flows Accounts*, Canadian Journal of Economics and Political Science, February 1957.

⁸² This is not the case for Western Germany where the flow-of-funds statement is prepared, as in the United States, by the central bank. There exists in Germany also an unofficial estimate, prepared by the Institute of Economic Research in Berlin, which has no counterpart in the United States.

⁸³ Although there is no administrative integration between flow-of-funds statements and income and product accounts in the United States, the two can be reconciled, though it requires a considerable effort, as shown, e. g., in appendix B of *Flow of Funds in the United States, 1939-53*.

Under present United States practice, the main points of similarity and dissimilarity between the flow-of-funds statements of the Federal Reserve Board with the national income and product accounts of the National Income Division may be summarized as follows, glossing over minor differences in the two systems:

(1) The flow-of-funds system is a quadruple-entry system compared to the double-entry system of the national income products accounts, that is, a given transaction is recorded twice in the accounts of both economic units involved—once as a debit and once as a credit—while only one entry for each participating unit is made in the national income and product accounts.

(2) The flow-of-funds statement distinguishes a considerably larger number of sectors than the national income and products accounts now do. Specifically consumers, corporate business, nonfarm noncorporate business, farm business, the banking system (with four subsectors), life-insurance companies, pension plans, other insurance companies, saving and loan associations, and nonprofit organizations constitute separate sectors in the published flow-of-funds statements. No separate figures for these sectors are shown in the national income and product accounts, which distinguish, insofar as full detail is concerned, only between two private sectors—consumers (including nonprofit organizations) and business.

(3) The flow-of-funds statement provides information on net purchases and sales by each sector (where applicable or where figures are available) on the following 12 types of financial assets, none of which enter into the national income and profit accounts: gold and Treasury currency, currency and demand deposits, time deposits, savings and loan and credit union shares, bank loans, Federal obligations, State and local obligations, corporate securities, mortgages, consumer credit, and trade credit.

(4) The flow-of-funds statement is published only on an annual basis and so far only with considerable delay, while the main aggregates in the national income and product accounts are estimated quarterly and are released less than 2 months after the end of the quarter.

(5) The flow-of-funds statement includes figures for the holdings of claims and liabilities, though not of equity securities and tangible assets, of each sector, information which does not figure at all in the national income and product accounts. This feature, however, is not necessarily inherent in a flow-of-funds statement.

(d) Relation of flow-of-funds statement to national balance sheet

In United States practice the flow-of-funds statement has been coupled with a partial balance sheet for all the sectors for which flow of funds are calculated. Thus the Federal Reserve Board shows the amounts outstanding (amounts held for creditors, amounts owed by debtors) for the same items for which flow data are provided, except that corporate securities are limited to bonds. It will thus be seen that among important types of assets and liabilities the flow-of-funds statement omits corporate stocks, tangible assets, and net worth. In other words, what is provided is essentially a statement of the claims and liabilities of each sector. The reason for including these asset items with the flow-of-funds statement is in part statistical—

annual flows are obtained as the differences between holdings at the beginning and end of the year. The arrangement to some extent also reflects analysts' need for comparisons of flows with the related stocks, permitting among other things the calculation of velocities of turnover and the evaluation of the importance of indicated net changes in holdings.

(e) Relation of flow-of-funds statements to input-output tables.

Neither in theory nor in practice is there a close relationship between flow-of-funds statements and input-output tables. Indeed these two aspects of a comprehensive national accounting system are about as far removed conceptually and statistically as is possible within that system. The flow-of-funds statement emphasizes financial flows and collects all its data on an enterprise basis. Input-output tables omit financial transactions altogether, concentrate on flows of goods and services among producers, and must be derived from very detailed data collected on a plant and preferably even on a process basis.

2. RECOMMENDATIONS

The recommendations of the committee for a further development of the flow-of-funds statements are straightforward, and are in accord with the Federal Reserve Board's own plans as they have been reported to the committee, although the recommendations may sometimes go beyond what the Federal Reserve Board is ready to undertake at this moment or in the near future.

(a) A shift of the flow-of-funds statements to a quarterly basis is by far the most important recommendation. The Federal Reserve Board is already working in this direction and expects to have a set of quarterly estimates for the last few years—probably through 1957—available late in 1958. The Board's intention is at that time to establish the quarterly statistics on a current basis, releasing the figures not more than half a year, and possibly as little as 4 months, after the end of the quarter.

The quarterly flow-of-funds estimates will necessarily be less detailed than the annual figures now available, and they will be more subject to revisions. The estimates will, however, include all figures of substantial financial significance, though nonfinancial transactions will be shown only in considerably more summary form than in the annual statements. With respect to sectoring the quarterly estimates should be approximately as detailed as the annual statements for 1952-55 shown in the April 1957 issue of the Federal Reserve Bulletin.

(b) Speeding up the release of the detailed annual figures is also definitely contemplated by the Federal Reserve Board. It is expected that these figures can be made available approximately 9 months after the end of the year, and that at the same time revised figures for the 2 to 3 preceding years will also be released.

(c) In view of the detailed sectoring of the present flow-of-funds statements only a few additions to the sectors now shown separately are recommended.

(1) Probably the most important suggestion is the separation of the personal trust fund departments of commercial banks from consumer households. These departments are now administering about \$80 billion of funds (excluding agency and custodian accounts), a

larger sum than any other group of financial institutions except the commercial banks themselves and life-insurance companies. No official, or even unofficial, information is available on the size and structure of personal trust funds or on their transactions. Setting up personal trust funds as a separate subsector will require the inauguration of a regular reporting system, probably on a sample basis. In the beginning annual statements may suffice, but quarterly reports should be the aim.

The absence of regular, comprehensive, reliable and, above all, standardized information on personal trust funds is one of the most important gaps in our financial information, keenly felt not only in the construction of flow-of-funds statements but also in the study of saving and in many other aspects of financial analysis. The committee is therefore inclined to assign a high degree of priority among its recommendations to development of a reporting system for personal trust funds administered by corporate trustees; and urges that the efforts which recently have been made in this direction, particularly by the Federal Reserve System and the American Bankers Association, be continued and intensified.

(2) A second suggestion in the field of sectoring, and one much easier to accomplish, is the division of the Federal and State and local government sectors into separate subsectors for general government activities, government enterprises, government financial agencies (insofar as not included with financial business) and government trust funds. Government enterprises would become a subsector of the broader business enterprise sector, while trust funds would constitute a subsector of the government sector.

(d) For intensive analysis several of the asset and liability categories distinguished in the present flow-of-funds statement are too broad. The recent separation, in the April 1957 issue of the Federal Reserve Bulletin, of demand from time and savings deposits and of consumer credit from trade credit and bank loans are steps in the right direction. The committee recommends that, as soon as possible, corporate securities be divided into bonds, preferred stock, and common stock; that mortgages be split into farm mortgages, nonfarm home and multifamily residential mortgages and other mortgages; that term loans be separated from other bank loans; and that United States Government securities be divided into those of short, intermediate, and long maturity.

(e) Presentation of transactions on a gross rather than a net basis, wherever the separate flows in both directions are economically relevant, is one of the main basic attractions of the flow-of-funds statements for the economic and financial analyst. The committee, therefore, suggests that continuous attempts be made to put the statistics of as many of the flows as possible, particularly those in the financial sphere, on a gross basis.

In particular, transactions in different types of securities (excluding short-term Treasury and similar securities for which gross flows are of less significance) by the various sectors should in principle be presented on a gross basis, showing separately issues and retirements by issuers and purchases and sales by each of the other sectors. The same principle should apply to mortgages, separating new loans from repayments; to term loans by commercial banks; and to installment loans—in short to all assets and liabilities with an original maturity

of more than approximately 1 year. (At the moment grossing is limited to transactions by issuers in the main types of securities.)

The committee realizes that the recommended shift to a gross basis will take considerable time and substantial effort, but feels that this shift should be the definite goal of a developing flow-of-funds system. Attempts to reach or approach this goal should be made continuously even if in any single instance they may affect only one type of asset and one group of institutions.

(*f*) Full cross classification of flows, leading for each type of asset or liability to a matrix that shows transactions between every one of the sectors distinguished in the flow-of-funds statement, appears to the committee to go too far beyond the data now available or in sight to need serious consideration. Such a cross classification would be formally parallel to the cross classification of the flows of goods and services in input-output tables, but seems to be of much less analytical significance for financial flows.

(*g*) To estimate the flow of funds for a given asset or liability by taking the first difference between holdings (or outstandings) at the beginning and the end of the period must always be regarded as only a substitute for the more informative and satisfactory method of separately determining the volume of acquisitions (issues) and of sales (repayments). At the present time, however, this substitute method is still often used in flow-of-funds statements—not only those of the Federal Reserve Board—chiefly because of lack of primary data on gross flows.

The absence of gross flow data not only reduces the amount of information available to analysts but is likely to lead to uncertainties and errors in the calculation of net flows whenever there are realized capital gains and losses or revaluations, and this is the common situation not only for stocks but for long-term fixed-interest-bearing securities. In that situation specific adjustments to the net flow estimate calculated from balances at the beginning and end of the period must be made, using the profit-and-loss statements of the institutions involved in the transactions. Since these statements are rarely available in sufficient detail rough estimates usually must be resorted to. Because of these difficulties adjustments to the net change in holdings as shown by opening and closing balance sheets are made only for some sectors and assets in the Federal Reserve Board's flow-of-funds statements.

The extension of these adjustments to other groups of transactions and to other assets and their improvements constitute one of the most important steps in refining flow-of-funds statements and in adapting them to a closer analysis of the capital market. The committee recommends that considerable attention be devoted to this aspect of the flow-of-funds statement, although the derivation of net flows as the difference of separate estimates of acquisitions and disposals should remain the ultimate objective.

(*h*) In the longer run the further development of the flow-of-funds statement should be sought, in the committee's opinion, more in the direction of increasing the number of subsectors than in the separation of assets and liabilities beyond the extent suggested under recommendation (*d*). Specifically, the present very large nonfinancial business sectors (both corporate and noncorporate) might be split into

about half a dozen subsectors covering, e. g., manufacturing and mining, public utilities, trade, services, and real estate.

Consideration might also be given to any alternative form of subsectoring that would segregate the large corporations for which more detailed and frequent data are available from the mass of medium sized and small enterprises. Such a separation will probably gain in importance with the spread of electronic accounting among the larger corporations, as this may increase still further the gulf between the information available for them and for smaller corporations, and may make it necessary to derive the figures for the two groups of corporations by quite different methods and on a different time schedule.

Subsectoring of the present consumer sector may be still further off. As far as can be judged from the material likely to become available and the requirements of users the introduction of a small number of subsectors based on the source of consumers' income will probably be the first step to be given serious consideration.

3. INTEGRATION OF FLOW-OF-FUNDS STATEMENTS AND NATIONAL INCOME AND PRODUCT ACCOUNTS

The arguments for or against closer integration of the different parts of the system of national accounts are discussed elsewhere in the report. Proceeding from the assumption that we want to go as far in integration as is feasible without either needlessly complicating the resulting systems or disproportionately increasing costs, the objective should be to minimize the differences now existing between the flow-of-funds statement and the national income and product accounts. These differences are in structure of accounts, coverage of sectors and transactions, classification of transactions, degree of netting, scope of consolidation, timing of some transactions, methods of valuation, estimating procedures, and sources of data.⁸⁴ The objective can be approached by gradually eliminating all those differences that are the result of the peculiarities of the origin of the two systems, or are essentially arbitrary in nature, or can be abandoned without serious loss to one of the systems, even though they possibly may have some value to some users. (More correctly, the criterion should be whether the loss to one of the systems from the point of view of its specific objective is regarded as more than offset by the advantage of integration which facilitates joint use of the two systems.) In many cases integration on this basis will be easy to achieve, in others it may involve overcoming considerable substantive difficulties and differences of opinion. The specific differences between the two systems which raise the problem of mutual adaptation are generally too complicated and technical to be discussed here and in many cases not yet sufficiently explored to lend themselves to simple recommendations. The principle enunciated at the beginning of this paragraph will therefore have to suffice, and ought to suffice provided final integration of the two systems is adopted as the goal and there is the will to effect a gradual mutual adaptation until full integration can be achieved.

One of the most important fields for integration of flow-of-funds statements and national income and product accounts is saving and investment. As indicated in chapter V, the flow-of-funds statement

⁸⁴ Some of these differences have been mentioned under (c), above.

produces, with only few changes—primarily the insertion of depreciation allowances—an estimate of saving which fits perfectly into the national income and product account and can be used as a check upon the direct estimate of aggregate saving which is inherent in the national income and product account, viz, the difference between current income and current expenditure. While that residual estimate of saving is by its very nature indivisible, the measurement of saving derived from the flow-of-funds statement has the great advantage from the point of view of economic analysis of showing the various forms of saving and dissaving. Tables A-13 and 14 in appendix A exemplify this integration.

CHAPTER XIII. INPUT-OUTPUT TABLES

1. THE NATURE OF INPUT-OUTPUT TABLES

An input-output table is, so far as the form of presentation goes, a table which shows the flows of commodities and services—represented by their money value—during a given period (usually 1 year) between a number of sectors, here generally called industries (whence the alternative name of “interindustry analysis”) into which the economy is divided. Each entry, or cell, identifies the value of commodities supplied by one and received by another “industry”—the term being used for any aggregation of economic units or even production processes within a firm or plant. An input-output table thus is a complete from-whom-to-whom breakdown of all commodity and service flows within the Nation and between the Nation and foreign countries. Since as a rule the classification of economic units into industries is the same for suppliers and recipients of goods and services the input-output table generally has the same number of rows and columns and hence the form which is called in algebra a square matrix. Input-output tables vary in size from an aggregative table distinguishing less than 20 supplying and receiving industries, and hence having less than 400 cells, to very detailed documents with over 400 industries and more than 160,000 cells, many of which, of course, may be empty.

Input-output tables may be regarded as simply an alternative form of presenting commodity and service flows within a system of national accounts and are so treated in chapter V and appendix A. In that capacity they provide a powerful check on the completeness and compatibility of much of the information used in building up national product and income estimates.

In practice, however, input-output tables have been developed primarily for a second, more ambitious purpose; namely, to serve, together with auxiliary information such as prices and technological data, as a tool of decision making in public policy and private investment planning by business enterprises. This use of input-output analysis is called economic or mathematical programming. For this purpose input-output coefficients and production functions are derived from the input-output data by the mathematical process known as matrix inversion, which requires modern high-speed calculating machines if the number of industries distinguished is substantial.

Input-output tables may depict a closed or an open system. In a closed system all industries are assumed to be completely interdependent and their inputs and outputs to be functionally related. For ex-