

A BALANCE SHEET FOR THE NATION:
A STUDY IN CONCEPTS

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INTRODUCTION

It is sometimes said that we do not know enough about the American economy. It might be more accurate to say that we do not have enough information of the right kind. Certainly there is no shortage of data--a quantity sufficiently large to fill a fair-sized library accumulates nearly every month. What has been lacking is a structure for organizing the massive quantities of facts into summary form so that one individual with limited time at his disposal can find out what he wants to know. Such an organizing device is provided by the national income and product accounts in which literally millions of detailed bits of data are organized into an easily digested summary statement. These accounts are well suited to measure the output of final products and the incomes which are generated in the production process. Other important information, however, will not fit into this particular mold and, as a result, cannot be satisfactorily shown.

Two notable examples are flows of intermediate products and transactions in financial instruments. The former are not shown since in the income and product accounts attention is focused on final products only. The latter group, which includes such transactions as borrowing and repaying, escapes attention in that neither incomes nor products are directly involved. Input-output analysis may be viewed as an attempt to supplement the product accounts by furnishing information about the flow of intermediate goods. Flow-of-funds analysis may be viewed as an attempt

to supply financial information which is of great importance in analyzing the economy, especially with respect to the all-important savings-investment process. The preparation and analytical use of these various measures of economic activity are generally called social accounting, national accounting, or economic accounting.

There is still another large body of data which as yet cannot be accommodated within the recently expanded framework of the social accounts--namely, balance sheet information. Assets and liabilities--money balances, mortgage debt, consumer credit, for example--all play vital roles in the economic affairs of the modern world, yet information regarding these factors has for the most part remained outside the growing and increasingly well-organized body of descriptive and analytical data provided by the various social accounting systems.

This situation, which only in the very recent past has begun to be corrected, is all the more surprising in view of the fact that we are almost daily supplied with information which on closer examination turns out to be merely a part of the national balance sheet. There are regularly published figures for the federal government's outstanding debt and its ownership, the money supply, bank reserves, mortgage credit, security credit, consumer credit, investments abroad, assets of insurance companies, corporate assets and liabilities, consumer assets and liabilities, and farm assets and liabilities--to mention only the more prominent kinds of available data. We are frequently left with the unfortunate impression, however, that each of these magnitudes exists in a vacuum, when in reality each is only a part of the over-all national

structure of assets and liabilities. Through this structure the economic life of the nation is bound together as surely as through the income and expenditure transactions already summarized and published in the income and products accounts.

This study is, then, a continuation of and a supplement to recent work aimed at filling this large and embarrassing gap in our economic statistics. A full summary of prior studies in this area is not attempted, though one can hardly proceed without mentioning the name of Raymond W. Goldsmith. His work, more than that of any other person, has brought the day closer when national balance sheet data can be prepared on a regular and official basis. The reader is referred to his several studies listed in the bibliography, of which his exhaustive savings study is perhaps the most significant contribution.¹ As one of the results of this and other works, Goldsmith has prepared national balance sheets for benchmark dates from 1900 forward, the latest published one appearing in the thirty-seventh annual report of the National Bureau of Economic Research.² Another of his articles contains a summary of past work in the field of balance sheet or wealth statistics, which is one of the reasons why such a summary is not attempted here.³ The other reason is that

¹Raymond W. Goldsmith, A Study of Saving in the United States (3 vols.; Princeton: Princeton University Press, 1955).

²National Bureau of Economic Research 37th Annual Report (New York: National Bureau of Economic Research, 1957).

³Raymond W. Goldsmith, "Measuring National Wealth in a System of Social Accounting," Studies in Income and Wealth, Vol. XII, by the Conference on Research in Income and Wealth (New York: National Bureau of Economic Research, 1950).

Goldsmith's work virtually eclipses anything done in the past, at least with respect to figures for the United States.

As the reader may surmise, much of the present study covers ground that has already been subjected to some exploration--some intensive, some cursory. The study is primarily concerned with examining and adding to the conceptual structure within which national assets and liabilities are measured. It should be stated that the study is not primarily concerned with collecting balance sheet data or with some of the baffling problems which confront the would-be collector. As one can well imagine, there is ample scope for several studies in this area alone. It is probably fair to say that the task of gathering and refining the necessary balance sheet information on a continuing basis is well beyond the resources of an individual investigator. It is, of course, necessary to introduce figures into the study, which figures are drawn from a variety of sources. The writer acknowledges his complete dependence upon other investigators for such figures as are available and his use of some rather crude guesses for figures which are not available. The results do not pretend to attain the degree of accuracy achieved in officially prepared and published figures, but they do illustrate the concepts which have been developed.

One of the recurring themes of the study is the development of an integrated social accounting system. As the writer envisions such a system, it would involve the preparation, on a mutually consistent and inter-related basis, of statements for national income and product, flow-of-funds, balance of international payments, the national balance sheet, and

input-output. There are, needless to say, some people who doubt the wisdom of trying to integrate into one system these various approaches to measuring macroeconomic activity. This is one controversy the writer prefers not to enter; he admits to a bias in the opposite direction. It seems relevant to observe, however, that a fully integrated set of accounts imposes a discipline on each of the components which has heretofore been lacking in that each statement must relate satisfactorily to the others.

It would seem appropriate that a writer who proposes to devote an entire study to the development of a national balance sheet should begin by justifying his efforts through a clear demonstration of the need for such a statement and a description of some of its possible uses. These steps are not taken for several reasons. One is that any study, if it is to be held within manageable bounds, must proceed on the basis of certain assumptions; there is simply not enough time to try to prove everything. One of the assumptions upon which this study is built is that a national balance sheet will provide useful information, the value of which will more than offset the trouble and expense involved.

Another reason for the omission of a long justification is that others have already made what to the writer is a conclusive case. As evidence there are offered some quotations from a recent report on the state of the nation's economic accounts and some related testimony before a Congressional subcommittee.⁴ The report and the accompanying expert

⁴U.S. Congress, Joint Economic Committee, Subcommittee on Economic Statistics, The National Economic Accounts of the United States, Hearings, 85th Cong., 1st Sess., October 29 & 30, 1957 (Washington: U.S. Government

testimony recommended, among other things, the beginning of official work on a national balance sheet. A few relevant quotations follow:

The committee feels that as part of a long-range program of improvement and expansion of our system of national accounts the development of comprehensive and consistent national and sectoral balance sheets on a regular periodic (if possible annual) basis should be taken in hand as soon as feasible.

The committee, however, recognizes that there are still so many unresolved conceptual problems in this field and that the estimates are in many cases necessarily still so rough that the next step should not be the immediate attempt by a Government agency to develop balance sheets or even national wealth statements. It seems to the committee that this is the field for a thorough study, exploratory and experimental, in part, possibly by one of our private research institutions.⁵

We are convinced that the development of a flexible integrated system of national accounts comprising the national income accounts, the money-flow statements, the input-output tables, the balance of payments, and the national balance sheet, is the most important long-range objective in this field.⁶

More recently it has become obvious that the flow of funds structure is not sufficient to analyze many of these problems, and that we are going to need information on the assets, liabilities, and liquid positions of various sectors of the economy in order to make a more adequate appraisal of inflationary pressures and the problems of full employment.⁷

National balance sheet: In view of my long-term interest in this relatively neglected field of social accounting, I approve the committee's recommendation that work begin as soon as feasible,

Printing Office, 1957). This publication is referred to in the following paragraphs as "Hearings."

⁵From the report of the National Accounts Review Committee, National Bureau of Economic Research. Ibid., p. 256.

⁶From a statement by Raymond W. Goldsmith, Chairman, National Accounts Review Committee. Ibid., p. 6.

⁷From a statement by Richard Ruggles, Professor of Economics at Yale University. Ibid., p. 23.

page XIV-16. In fact, I consider this a project of greater urgency, and raise the question, "When do we begin?"⁸

Before proceeding to a brief preview of the contents of the study, it is appropriate to concentrate attention for a few moments on some of the basic terms which appear immediately and which recur throughout. One such is the notion of an economic unit, by which is meant any individual or group of individuals who act as a unit in making economic decisions--selling, earning, spending, saving, and the like. The family (or one of its variants) is an economic unit, as is U.S. Steel or the federal government. The principal economic units for the purposes of this study are households (or families or spending units), business firms, non-profit organizations, and governments.

Another fundamental concept is that of sectors in the economy. Whatever the values of macroeconomic analysis (and in the writer's opinion they are considerable) one does not proceed very far before the need for some disaggregation becomes apparent. If disaggregation proceeds all the way down to the individual economic unit, we are back to a microeconomic level of analysis; some intermediate level between the nation at one extreme and the individual economic unit at the other is needed. The Marshallian industry is one of the devices used to fill this gap, but goes too far down the scale for most macroeconomic analysis. The sector, then, is introduced as the first stage of disaggregation below that level of analysis represented by national aggregates. This particu-

⁸From a statement with respect to the recommendations of the National Accounts Review Committee by Martin S. Gainsbrugh, Chief Economist, National Industrial Conference Board. Ibid., p. 53.

lar aspect of analysis is discussed at length in Chapter III, though it is of necessity introduced earlier in the study.

The following paragraphs are devoted to a brief statement of the contents of the study so that the reader is provided with some idea of where he is invited to go while he is on the way. The goal which the writer has attempted to keep constantly in view is that of developing a statement of assets and liabilities by sectors and for the nation as a whole, a statement which can be related to the other more highly developed measures provided by national income and flow-of-funds.⁹ Some detours are apparently unavoidable, though every effort is made to return to the main stream of development as soon as possible.

Chapter I deals with the relationships between the various concepts which a study on the borderline between economics and accounting must somehow reconcile--namely, wealth, assets, and capital. A working set of definitions is adopted for the purposes of this study, after which attention is shifted to a consideration of specific items of sector and national wealth which require a decision as to inclusion in or exclusion from the national balance sheet.

Once it has been decided what things are to appear on the balance sheet, it is necessary to decide on what basis they shall be valued. This

⁹Balance of payments figures are already integrated into national income and product figures. Of the social accounting systems mentioned earlier, only input-output remains unassimilated in this study. Given the present unsettled state of input-output work and the virtual infancy of the balance sheet, this situation is regrettable but probably unavoidable. Fortunately, input-output has the least direct connection with the balance sheet, though some incidental points of contact are mentioned in the course of the study.

question is the subject of Chapter II. Various possible methods of valuation and the relationships between them are discussed. Also treated is the question of divergences in asset valuation from the viewpoints of individual economic units, sectors, and the nation.

Chapter III takes up the question of dividing the economy into sectors for purposes of preparing the national balance sheet. The necessity for analysis at the sector level rather than the national level has already been suggested and is treated in more detail. Various criteria for sectoring are examined, as are the types of sectoring employed in other social accounting systems, especially the flow-of-funds work.

Chapter IV presents sample balance sheets for the nation as of the end of 1949 and the end of 1950. The balance sheets are prepared on the basis of decisions as to scope, valuation, and sectoring, which decisions are discussed in Chapters I, II, and III respectively. Both years are included so that the relationships between income, product, and funds flows for 1950, and the opening and closing balance sheets for that year may be discussed in Chapter VI.

One of the conclusions of Chapters I and II is that the wealth of individuals and of sectors can be satisfactorily related to the national wealth through a process of cancelling claims of domestic economic units against the corresponding liabilities of other units. Some of the special problems arising in this process-which, following accounting practice, we shall call consolidation, are discussed in

Chapter V.¹⁰

Chapter VI discusses the various relationships between flow measures (national income and flow-of-funds) and stock measures (the balance sheet) and, using 1950 figures, actually carries through a reconciliation between the three types of statements for that year. To the writer's knowledge this is the first time that such a process has actually been completed using official and semi-official national income and flow-of-funds figures. Chapter VII shifts to a more theoretical vein; some facets of economic and monetary theory are briefly reexamined in the light of the relationships suggested by the balance sheet and the manner in which it is linked to the more familiar social accounting statements.

In summary, the writer believes that the preparation and regular publication of national balance sheets would add considerably to our knowledge of economic processes within the nation. The study which follows attempts to formulate the conceptual framework of the balance sheet, to clarify many of the issues involved, and to propose solutions for the problems which arise. The reader may judge how well these objectives have been accomplished.

¹⁰A recent article by an accountant has proposed the preparation of a national balance sheet and independently arrived at essentially the same mechanics of consolidation as are here proposed. See S. C. Yu, "National Position Statement: A Proposal on Operational Principles and Process," Accounting Review, XXXIV (January, 1959), 74-83.

CHAPTER I

THE SCOPE OF NATIONAL AND SECTOR BALANCE SHEETS

A consideration of the scope of the national balance sheet--that is, those things to be included or excluded--can lead one almost immediately into some of the most difficult problems in the field of Economics.

Balance sheets deal with assets and liabilities, and they either measure or have some close relationship to the notion of wealth. Likewise, they, in some sense, measure capital, regardless of which of the numerous meanings of the term be accepted. Furthermore, they have a definite relationship to measures of income--a concept notoriously encumbered with ambiguities and varying definitions.

Without pretending to catalogue all of the difficulties which arise in properly delineating national and sector wealth we may enumerate a few of the more important ones. What, for example, is wealth? If wealth can be defined for an individual, can it be defined in the same way for a nation? If not, what are the relationships between the two concepts? Is the term "asset" as used by accountants, identical with the notion of wealth, and, if so, how do both terms relate to the idea of "capital?"

A brief survey of the literature of economics from the last two centuries is not conducive to optimism as to an ultimate resolution of these issues. Attempting to define wealth, for example, is closely

related to the quest for the proper limits to the subject matter of economics itself, an enterprise not marked with conspicuous success. Nor can the whole matter be dismissed as an unfortunate succession of semantic quibbles; there are some issues of substance involved.

Fortunately, what is required here is a somewhat more modest achievement than the solution of apparently insoluble problems. Our problem may be simply stated as follows: it is the practical one of deciding which things belong on balance sheets for individuals and for the nation and which things do not, within the framework of a system of social accounting. Practical problems admit of practical solutions. We are concerned with a social accounting statement for the United States at a particular period of time, not with developing concepts of wealth valid for all societies in all times--past, present, or future.

It is, of course, impossible to avoid completely all of the theoretical issues, no matter how "practical" a given solution. Indeed, the proposals advanced here will conform closely to what most economists mean by the term "wealth" and to what most accountants mean by the term "assets." Moreover, we hope to demonstrate that a properly designed and executed statement of individual and national wealth can show at the same time various concepts of wealth or assets and the relationships between them, which relationships are sometimes as significant as the items of wealth themselves. The plan of attack, then, is to discuss some of the general aspects of the measurement of balance sheet items and then to move on quickly to a consideration of individual cases.

Wealth may be (and has been) defined in numerous ways from the very

broad to the very narrow.¹ Some writers, speaking very broadly, have considered wealth to consist of all desirable events or sources of desirable events. Such a notion extends far beyond the customary limits of economics; it would include, for example, health, friends, memories, literature, democracy, freedom--even civilization itself. Nor is this nebulous collection narrowed down very much by stiffening the membership requirements with the aid of that old economic standby--utility. All of these things have utility.

One approach to a concept of wealth suitable for economic analysis has been to include only tangible economic goods as wealth--economic goods having already been defined in terms of relative scarcity and utility. While possibly suitable for identifying most of the components of the national wealth, this approach omits important segments of the wealth of individual economic units or even large groups of units. Much of such wealth is held in non-material form--that is, claims against other economic units. Examples of such claims are bank deposits, mortgages, bonds, and stocks. Even at the national level, a concept of wealth limited to tangible goods cannot cope with intangible claims against foreigners or claims held by foreigners against the nation.

Another attempted solution proceeds by dividing all of the components of the very broad concept previously mentioned into categories

¹No attempt has been made to cite references in the voluminous literature for the ideas discussed in the following paragraphs. Most of them are by now the common property of economists. For a summary of the development of various ideas of wealth through the early years of the twentieth century see Irving Fisher, The Nature of Capital and Income (New York: Macmillan Co., 1912).

of "transferable" (or "exchangeable") and "non-transferable" and then regarding only transferable items as comprising wealth for purposes of economic inquiry. This procedure has at least the virtue of excluding human beings (since they can no longer legally be bought and sold) and excludes most of the other things which cannot be brought under the measuring rod of money, things which economists generally prefer to leave outside the scope of their attention. It may, however, exclude too much, especially with respect to some things usually owned by governments. Government buildings, for example, are not, as a practical matter, usually transferable, yet they meet all of the other attributes one might require of wealth--they are scarce, useful (usually), and tangible.

The relationship between the accounting term "assets" and the economic term "wealth" touches upon some of these same questions and bears closer examination. It should be pointed out immediately that the term "asset" is susceptible to broad definition as is the case with wealth; one hears it said that "Jones is an asset to the company," a statement which may be literally true. Jones does not, however, appear on the company's balance sheet; accountants have developed some fairly rigorous conventions as to what things shall be included or excluded on business balance sheets.

In this connection, it may be observed that both assets and items of wealth have a past, a present and a future dimension. They are "worth" something now (at that particular point in time which constitutes the present), they are the cumulative result of past efforts, and they give rise to a flow of services in the future. These facets are clearly related, since any item which will not give rise to useful services in the future

(however short the time period in the future) cannot be worth anything now. Yet in another sense there is a vital difference, and the failure to recognize this difference lies at the root of some of the difficulties in economics.

These three dimensions are recognized in most present day accounting by generally regarding assets as unexpired costs. The balance-sheet value for the present is the sum of historical costs not yet yielded up as a flow of services in the productive process. The flow of services which will proceed in the future from a given item of wealth becomes for accountants a future flow of past costs. Assets to the accountant are deferred costs and nothing more.

It appears, then, that the accountants' notion of assets and the economists' notion of wealth will coincide only under very restrictive conditions not likely ever to be realized in practice. Most of the differences, however, exist with respect to valuation, and these are discussed in detail in the succeeding chapter.

The relationship between the concepts of wealth and capital likewise has a somewhat confusing history. Some writers regard the two terms as virtually synonymous.² Others maintain a distinction between reproducible goods (capital) and non-reproducible goods (land, or natural resources). Another question is concerned with the productivity of the goods in question or the lack thereof. If by capital is meant only goods

²See, for example, Simon Kuznets, "On the Measurement of National Wealth," Studies in Income and Wealth, Vol. II, by the Conference on Research in Income and Wealth (New York: National Bureau of Economic Research, 1937).

such as industrial machinery actively engaged in producing other goods, what of so-called consumer durable goods? If not capital, are they wealth, or should they be excluded from wealth too?

The preceding paragraphs have, by design, raised some old issues without yet attempting to resolve them. We may now begin to indicate some of the solutions appropriate for a national balance sheet which is part of a consistent system of social accounting. We shall first indicate some of the guide lines which will be useful in attempting to specify the treatment for particular issues, then move on to a discussion of some of these issues.

First, let us develop a definition of wealth for an individual economic unit. The initial step is to decide what shall be regarded as its assets and then to decide on appropriate monetary values. Next, a decision is required as to what shall be regarded as its liabilities and at what values. For the difference between assets and liabilities, we shall accept the accounting concept of net worth. Since it is an open question whether liabilities may be regarded simply as negative assets, we shall not adopt the tempting expedient of identifying net worth directly with wealth, but, rather, we shall use the term wealth to refer to the whole complex of assets, liabilities, and net worth. If pressed for a number to signify a unit's wealth, we should give its net worth but always along with the supplementary information afforded by its liabilities, hence, by addition, the total of its assets as well.

For the nation we shall do essentially the same thing--decide on national assets and their valuation, national liabilities and their valuation, and regard the difference as national net worth. This entire com-

plex of national assets, liabilities, and net worth we shall designate as the national wealth. In other words, we are proposing an accounting approach, albeit a "social" kind of accounting. When national assets and liabilities have been defined, then so, for our purposes, has national wealth.

A question arises immediately with respect to the relationship between the wealth of individual units and national wealth. Can national wealth be regarded as the sum of the net worth figures of all individual economic units? In order to answer this question it is necessary to make a number of unoriginal but indispensable observations.

Economic units may be classified generally as intermediate or ultimate holders of wealth.³ Intermediaries hold assets, but they in turn are owned by other economic units. Households, government units, and private groups of individuals are the ultimate owners of a nation's wealth, though much of their ownership is exercised indirectly--that is, through the medium of claims.

Claims--of which bank deposits, mortgages, bonds, and stocks are examples--always appear at two points in the economy--at least those claims which are domestically owned and owed. They appear as assets of some economic units and as liabilities of others. In preparing a statement of national wealth, domestic claims may be cancelled against the corresponding liabilities, so that the only items remaining are assets which are not the liabilities of other domestic units. In general, tangible assets and

³Goldsmith, "Measuring National Wealth in a System of Social Accounting," loc. cit., p. 35.

claims against foreigners less foreign claims against domestic units are the only wealth items which survive the process of cancellation.⁴

If we begin with balance sheets of all of the individual economic units in the nation and, through the process of consolidation, work toward the national balance sheet, any divergence between individual and national wealth is limited to the following cases:

1. Assets or liabilities which appear on the balance sheet of individual units but which do not disappear in the consolidation process and which are not in reality assets or liabilities of the nation.
2. Bases of valuation which differ for the same asset or liability as we move from the individual unit to the nation.
3. Claims which are valued differently as assets than as liabilities.

Cases (2) and (3) above are considered in detail in Chapters II and V; Chapter II deals with valuation problems, and Chapter V is concerned with problems in consolidation. Case (1) appears as a possibility with respect to certain types of assets such as patents, trademarks, copyrights, and goodwill and is discussed in more detail below.

An important consideration is consistency with the national income and product measures. For an individual economic unit, income less current expenditure (i.e., saving) results in an increased command over resources,

⁴This process is frequently used in private accounting in preparing group statements for a parent company and its subsidiaries and is known as "consolidation." This term will be used henceforth throughout this study.

or, from the standpoint of that unit, increased wealth. Similarly, we should so organize the national income and expenditure statement and the national balance sheet that national income less consumption (i.e., national saving) is equal to the increment in national wealth. That part of current production which is set aside to augment stocks of national assets (i.e., national investment) should likewise equal the increase in the value of national assets, when allowance is somehow made for changes, if any, in the values of existing assets. Some of the implications of these consistency requirements are discussed in Chapter VI below.

Another consideration which will influence the form and content of the national balance sheet is the occasional desirability of showing controversial items several ways, so that the results of alternative treatment may be compared. If used too frequently, this device can make a statement overly cumbersome; used sparingly, it presents valuable information.

Still another consideration is conformity to what individual economic units ordinarily regard as constituting their wealth. This is not an infallible guide since some units may value highly things which other units ignore or regard as nuisances. Yet, if measures of wealth are to have any motivational significance, we must not depart too far from notions of wealth which, however vague, are held by the economic units in question.

Having established a working definition of wealth and enumerated some of the considerations involved in identifying assets and liabilities, we turn to a discussion of some specific issues. We are, in effect,

solving the problems of the scope of national and sector wealth in a piecemeal fashion. Each decision regarding specific assets and liabilities is a decision as to the scope of wealth in our social accounting sense.

It may be well to begin at a point where virtual unanimity prevails and then move on to more controversial areas. Accordingly, we may say that nearly everyone regards machinery and equipment directly used in the production of other goods (capital goods narrowly defined) as wealth. Likewise, privately owned structures in commercial or industrial use are universally treated as forms of wealth (and capital). Land is also widely accepted as a form of wealth, whether treated as a species of capital broadly defined or as a form of wealth in its own right. Likewise, stocks of goods (inventories) in the production and distribution processes are usually regarded as both capital and wealth. All of the above, needless to say, are also regarded as assets from the viewpoint of business accounting, and additions to stocks of such goods are treated as investment in national income accounting. One cannot go much farther than these cases, however, without getting into controversial territory. The more important items which possibly qualify for inclusion in national and sector balance sheets are discussed in the following paragraphs.

A problem of long standing in social accounting has been the treatment of consumer durable goods such as automobiles, furniture, appliances, and other relatively long-lived consumer articles. For purposes of national income accounting, expenditures for such goods have usually been

regarded as consumption expenditures, not as saving or additions to the stock of capital goods.⁵ If, on the other hand, balance sheets were prepared for households, consumer durable goods would surely be listed as assets. Household liabilities are frequently assumed in connection with the acquisition of these goods, so that failure to list them as assets results in a distorted view of household finances. Durables have "value"; they can be sold; in fact, they are considered sufficiently valuable to secure the debts created when they are purchased. They meet the business accounting criterion of deferred costs--their purchase takes place in one time period, but the services which they produce are yielded up in later time periods as well. If consumption of the services for which durables are procured is measured solely by the initial purchase, consumption in the period of purchase is overstated, and consumption in later periods is understated.

The wealth or asset aspect of consumer durables, or the distortion of consumption expenditure resulting from the present treatment of national income, has been noted by Bandeen,⁶ Farrell,⁷ Fuerst,⁸

⁵It is interesting to note that the standard accounting system recommended by the United Nations justifies this procedure by the lack of the necessary statistical information. See United Nations, Department of Economic Affairs Statistical Office, A System of National Accounts and Supporting Tables (New York: United Nations, 1953), p. 9.

⁶Robert N. Bandeen, "Automobile Consumption, 1940-1950," Econometrica, XXV (October, 1957), 239-248.

⁷M. J. Farrell, "The Demand for Motor Cars in the United States," Journal of the Royal Statistical Society, CXVII, Part II (1954), 171-193.

⁸E. Fuerst, "An Alternative Presentation of Social Accounts," Accounting Research, III (July, 1952), 230-236.

Hamburger,⁹ Hough,¹⁰ Jacoby,¹¹ Jones,¹² Morgan,¹³ Stone,¹⁴ Derksen,¹⁵ Fabricant,¹⁶ Friend,¹⁷ Goldsmith,¹⁸ and Hicks.¹⁹ Other writers mention the desirability of treating consumer durables as assets, and expenditures for them as something other than consumption, but cite the lack of data on useful lives and depreciation rates as the reason for continuing the present national income treatment--namely, regarding purchases of consumer durables as consumption expenditure. Among these writers are

⁹William Hamburger, "The Determination of Aggregate Consumption," Review of Economic Studies, XXII (1954-1955), 23-34. See also by the same author "The Relation of Consumption to Wealth and the Wage Rate," Econometrica, XXIII (January, 1955), 1-17.

¹⁰Louis Hough, "An Asset Influence in the Labor Market," Journal of Political Economy, LXIII (June, 1955), 202-215.

¹¹Neil H. Jacoby, "The Demand for Funds by American Business Enterprises," Journal of Finance, III (October, 1948), 27-38.

¹²Homer Jones, "Some Aspects of Demand for Consumer Durable Goods," Journal of Finance, IX (May, 1954), 93-110.

¹³James N. Morgan, "The Structure of Aggregate Personal Saving," Journal of Political Economy, LIX (December, 1951), 528-534.

¹⁴R. Stone and D. A. Rowe, "The Market Demand for Durable Goods," Econometrica, XXV (October, 1957), 423-443.

¹⁵J. B. D. Derksen, A System of National Book-Keeping, National Institute of Economic and Social Research Occasional Papers, X (Cambridge, England: Cambridge University Press, 1946).

¹⁶Solomon Fabricant, Capital Consumption and Adjustment (New York: National Bureau of Economic Research, 1938), p. 139.

¹⁷Irwin Friend, Individuals' Saving: Volume and Composition (New York: Wiley, 1954), p. 14.

¹⁸Goldsmith, A Study of Saving, I, 28.

¹⁹J. R. Hicks, Value and Capital (2d ed.; Oxford: Clarendon Press, 1946), p. 176.

Edey and Peacock,²⁰ Stone,²¹ and Vandermeulen.²²

If we are to have a national balance sheet and a national income and expenditure statement prepared on a consistent basis, the treatment of consumer durables will have to be resolved in one direction or the other. Either they are assets--hence, (for our purposes) wealth--so that expenditures to acquire them are not current consumption; or they are not assets at all, so that their purchases may be regarded as current consumption. It will not do to continue the present national income treatment of writing off such goods as current consumption and then resurrecting them to a place on the national balance sheet.

Some of the difficulty stems, no doubt, from the national income treatment of all private expenditures as either consumption or investment--investment being defined as additions to the stock of capital goods. There is a reluctance, understandably enough, to call consumer durables capital goods. If they are not capital goods, expenditures for them may not be considered investment spending, hence must be consumption. This dilemma is illustrated by the present national income treatment of residential construction--such spending is clearly not consumption; yet

²⁰Harold C. Edey and Alan T. Peacock, National Income and Social Accounting (London: Hutchinson's University Library, 1954), p. 52.

²¹R. Stone, "Functions and Criteria of a System of Social Accounting," Income and Wealth, Series I, by the International Association for Research in Income and Wealth (Cambridge, England: Bowes and Bowes, 1951), p. 17.

²²D. C. Vandermeulen and A. J. Vandermeulen, National Income: Analysis by Sector Accounts (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956), p.ii.

houses are not capital goods, defined in a sufficiently narrow way.

It seems, then, that most of the difficulties revolve around the definition of capital. If the term is restricted to those produced goods which are used to produce other tangible goods, then all sorts of goods which produce only services, such as structures and equipment used in transportation, wholesaling, retailing, entertainment--in fact, much of our economic activity--are excluded. Surely this concept is too narrow; expenditures for these things cannot be regarded as consumption expenditure. Yet, if we admit goods which produce only services to the status of capital, we are obliged to admit consumer durables, for they too produce services.

We might restrict capital to include only those produced goods which produce goods or services to be sold in markets. This is not a wholly satisfactory solution either, since by this criterion, houses which are rented to others are capital, yet identical houses which are occupied by their owners are not. Stoves and refrigerators in restaurants or furnished by landlords to tenants are capital, but those used by their consumer-owners are not. Chevrolet taxicabs are capital, but Chevrolets in general are not. Automatic washing machines in laundromats are capital, while identical machines at home are not. These inconsistencies suggest the need for another definition of capital goods.

Another possibility is to be guided by durability--those goods which give up their services over sufficiently long periods of time may be regarded as capital goods, while those which are quickly consumed are not. This criterion does not, however, provide any grounds for excluding

consumer durables, since some have useful lives longer than much industrial equipment.

Other criteria could be tried, perhaps, and found wanting, but the futility of such a pursuit should now be apparent. There is probably no single definition of capital which is wholly satisfactory; at least the endless (and somewhat inconclusive) literature on the subject suggests as much.

Perhaps the best solution for our purposes is to recognize two kinds of capital, which we might call "business capital" and "consumer capital." The latter would include consumer durable goods and residential structures, while the former would coincide with the present national income definition of capital except for residences. There would correspondingly be two kinds of investment which we might call "business investment" and "consumer investment."²³ Some problems remain, of course, and there are no universally applicable rules. We shall have to be, in some cases, purely arbitrary, but there is in social accounting ample precedent for arbitrary choice. For example, are fifteen-story apartment houses consumer or business capital? If they are treated as consumer capital, what happens if the first floor is used for retail outlets? These problems are somewhat academic at the moment, however, since estimates of national assets which may become available in the foreseeable future are not likely to be sufficiently refined so that such difficulties will

²³James N. Morgan, "Consumer Investment Expenditures," American Economic Review, XLVIII (December, 1958), 874-902. The above approach is suggested by this recent article.

become important.

Another issue which has been a source of continuing controversy is the treatment of durable goods purchased by government units. This is not a particularly serious problem for government enterprises which sell their services to the public and which have counterparts in private business. The difficult questions arise with respect to highways, roads, streets, sidewalks, sewer systems, bridges, harbors, parks, airports, and public buildings. These items are presently treated as current (i.e., non-capital expenditures) in national income, along with all other expenditures of governments, as, for that matter, are capital expenditures of public enterprises. They meet most of the usual criteria for capital goods--they are durable, and they produce useful services. Their services are not generally sold in markets, however, though exceptions such as turnpikes and airports come quickly to mind. As we have already seen, this last consideration is not conclusive anyway in determining whether or not goods can be classified as capital.

The wealth aspect of public property such as that described above, or the desirability of showing government capital expenditures separately in the national accounts has been noted by Bray,²⁴ Fuerst,²⁵ Goode,²⁶

²⁴F. Sewell Bray and Richard Stone, "The Presentation of the Central Government Accounts," Accounting Research, I (November, 1948), 1-12.

²⁵Fuerst, "An Alternative Presentation of Social Accounts," loc. cit.

²⁶Richard Goode and E. A. Birnbaum, "Government Capital Budgets," International Monetary Fund Staff Papers, V (February, 1956), 23-46.

Jacoby,²⁷ Derksen,²⁸ Marshall,²⁹ Fabricant,³⁰ Kuznets,³¹ and Goldsmith.³² A staff member of the National Income Division of the Commerce Department acknowledged the desirability of full-scale capital accounting for government assets--that is, treating such expenditures as gross investment, computing capital consumption, and deriving net investment.³³

It might be well to recognize that such investment is different in some important respects from business investment, especially as to motivation and cyclical behavior. We shall, accordingly, designate durable goods owned by government units as "government capital" and the expenditures involved in its acquisition "government investment."

Durable military goods pose a further problem. To be consistent, we should probably regard them as assets, since they are durable and pro-

²⁷Jacoby, "The Demand for Funds by American Business Enterprises," loc. cit.

²⁸Derksen, op. cit.

²⁹Alfred Marshall, Principles of Economics (8th ed.; New York: Macmillan Co., 1952), p. 59.

³⁰Fabricant, op. cit., p. 120.

³¹Simon Kuznets, "Government Product and National Income," Income and Wealth, Series I, by the International Association for Research in Income and Wealth (Cambridge, England: Bowes and Bowes, 1951), p. 199.

³²Goldsmith, A Study of Saving, I, 113.

³³George Jaszi, "The Conceptual Basis of the Accounts--a Re-examination," A Critique of the United States Income and Product Accounts (Studies in Income and Wealth, Vol. XXII), by the Conference on Research in Income and Wealth (Princeton: Princeton University Press, 1958), p. 78.

vide services applicable to several time periods; quantitatively they can hardly be ignored, at least in recent decades. The real problem arises in measuring the length of time over which they provide useful services. In wartime--when, presumably, their usefulness is at a maximum--their useful lives are most uncertain; in peacetime they are subject to rapid obsolescence, and their opportunity costs, once produced, are virtually zero. There would appear to be little to gain by going through the motions of wealth accounting for such items; at best, they should probably be shown as supplementary information.

Monetary gold is treated in the national income accounts as part of net foreign investment--that is, a claim on foreigners. It should be treated as a domestic tangible asset for balance sheet purposes; not an international intangible asset; foreign nations recognize no liability to the United States in the amount of our gold holdings as they would for actual claims against them. Monetary silver may properly be regarded as an asset, though the appropriate valuation is another question which is deferred to Chapter II.

The point has now been reached where most of the major components of national wealth have been discussed; further treatment of less important items runs into rapidly diminishing returns. In the interests of completeness, however, a few such items will be mentioned.

For the record, stocks of perishable and semi-durable goods in households--such as food, clothing, and miscellaneous supplies--should probably be included in national wealth. Moreover, they are quantitative-

ly more important than one might think.³⁴ Year-to-year changes are probably small, however, so that for purposes of analysis it makes little difference whether or not such goods are included.

Such items as works of art and historical monuments present interesting conundrums; as a practical matter it makes little difference whether they are included or not. Any income to which they give rise is rarely measurable in monetary terms so that they might well be omitted from monetary measures of national wealth. Perhaps art treasures for which a market exists should be included since a reasonably appropriate measure of money value exists.

With respect to claims against foreigners and claims owed to foreigners, the principal problem for purposes of determining the scope of the national wealth is to identify foreigners. The best practice seems to be to follow the conventions developed by the National Income Division and followed by the Flow of Funds Section. Territories and possessions of the United States are excluded from the national accounts (hence treated as foreigners) as are the transactions of United States citizens residing permanently abroad. Residents of the United States proper are included, whether citizens or not.

Technically speaking, if only assets and liabilities of domestic economic units appear on the national balance sheet, physical assets lo-

³⁴Goldsmith quotes a study by Lenore A. Epstein which indicates holdings of semi-durables such as shoes and clothing of \$34 billion in 1946. See Raymond W. Goldsmith, "A Perpetual Inventory of National Wealth," Studies in Income and Wealth, Vol. XIV, by the Conference on Research in Income and Wealth (New York: National Bureau of Economic Research, 1951), p. 36.

cated in the nation but owned directly by foreigners would not appear at all. In practice, it would be better to show such assets on the national balance sheet, with an offsetting liability to foreigners in the same amount so that all domestically situated wealth is reported. Most foreign ownership, however, is in the form of claims against domestic economic units, including shares of domestic corporate subsidiaries of foreign firms, so that this problem does not arise. Certain other problems arise in connection with foreign assets and liabilities, but they are concerned with the classification of assets and liabilities (discussed in Chapter IV) and valuation (discussed in Chapter II).

The foregoing discussion has treated all of the items which are important from the viewpoint of the nation. We turn now to a discussion of some of the items which become significant only for individual economic units or for sectors. Sector balance sheets will contain many items that do not appear on the national balance sheet; specifically, all of the offsetting claims and liabilities already mentioned. Most of these items present no problems as to inclusion or exclusion; the troublesome features appear with respect to uniform valuation and are discussed in Chapters II and V. There are, however, a few matters which warrant separate attention; these are presented below.

Certain intangible business assets such as patents, copyrights, trademarks, and goodwill appear on business balance sheets. They will not disappear in the process of consolidation since no one else in the economy regards them as liabilities. Can they properly be entered, then, on balance sheets for sectors or for the nation? From the standpoint of

business firms, some of these items constitute saleable wealth, though rarely at the values which appear on balance sheets, where they may be listed at nominal values or omitted entirely. Part of the problem is one of valuation and as such will be discussed in Chapter II; the present concern is whether they should be included or not.

From the standpoint of the nation, useful knowledge of the sort represented by patents is an enormously valuable asset. There is, however, no way of valuing the total of knowledge available to a nation, so that showing on the national balance sheet that tiny portion of knowledge which happens at the moment to be covered by outstanding patents is a futile and meaningless gesture. Moreover, if patents are considered as items of value to firms, it is because there are associated with them elements of monopoly earning power. There could, theoretically, be shown on the balance sheets of the prospective purchasers of the patented product a liability which measures the present value of future "excessive" prices to be paid--prices which exceed those which would prevail under competitive conditions. This "excess" is, of course, the thing which gives rise to the asset value of the patent in the first place. If such liabilities were entered, they would cancel against assets in the consolidation process so that no asset value would remain for the national balance sheet.³⁵ In any event, patents should not appear on the national balance sheet as part of the national wealth, a conclusion which may be reached by either

³⁵This point is suggested by Goldsmith's discussion of the same problem. See his "Measuring National Wealth in a System of Social Accounting," loc. cit., p. 46.

of the above lines of reasoning.

From the viewpoint of individual economic units, however, patents are elements of wealth. They have value and can be sold. They should be permitted to appear on the balance sheets of the owning units, since their omission would distort the actual economic situation of the patent owners.

Much of the above discussion of patents applies to the other intangibles mentioned. In general, if the item represents a marketable possession--that is, if there is actually an opportunity cost involved in not selling--it should appear as an asset in individual and sector balance sheets but not in the national balance sheet. There are, of course, some very real problems of valuation, but these, as noted previously, are treated in the succeeding chapters.

With respect to households as a sector, some problems appear in connection with pension plans. Should the present values of future benefits, however computed, appear as household assets? In the national income scheme of things, different answers are given depending upon whether the pensions in question are publicly or privately administered.

Contributions by employers to private (self-administered and insurance company) pension funds are included in personal income (as "other labor income" under salaries and wages). Since neither these nor individuals' contributions appear as consumption expenditures, these amounts are implicitly reflected in personal saving, hence as increases in household assets. Furthermore, earnings of these funds are included in personal income (explicitly for self-administered plans and by imputa-

tion for insurance companies) so that cumulated amounts in the funds have all appeared in personal saving at one time or another.

It is true that accumulated funds, which appear as assets of the insurance sector in this study (see Chapter III) and also as liabilities to households, would not match the assets on household balance sheets if the latter were computed actuarially, mostly because past service credits have not yet been fully funded. With this exception, however, household assets include the present values of future benefits, which also appear as liabilities of the insurance sector. For purposes of this study, accruing claims for private pension benefits will be regarded as household assets and liabilities of the insurance sector.

A similar problem exists with respect to the social security program. Households are receiving or will in the future receive old age, survivors', and disability benefits. Those benefits already "earned" by covered employment to date might be computed, and the present value of this amount discounted at a suitable interest rate might be entered as household assets, and liabilities of the social security trust funds.³⁶

Another chain of reasoning which leads to quite different results is to consider the benefits as just another government transfer payment for which no specific liability is accruing any more than a liability for future federal payrolls is accruing. That the benefits happened to be financed in a particular way is incidental; social insurance contribu-

³⁶Goldsmith's savings study regards cumulated holdings of the various pension and retirement funds as household assets, and annual additions as a component of household saving. See A Study of Saving, III, 66.

tions could be regarded as just another form of taxation. Households would, under these assumptions, show no asset for future benefits, nor would the government trust funds show any such liability. This is the treatment suggested by the national income accounts, which do not show contributions to the social security trust funds as personal saving or disbursements as personal dis-saving.

It is highly improbable that any households consider the present value of future benefits likely to be received as an asset--at least not an asset on the order of a savings account or savings bonds. Such an "asset" is highly illiquid; it is strictly non-transferable. It is possible, on the other hand, that the likelihood of benefits in the future has some bearing on present saving and spending decisions, though how much, if any, is wholly a matter of conjecture.

The national wealth total is not, of course, affected by the treatment of this problem. Household assets and government liabilities are affected, however, and by a very considerable sum. In view of the fact that the liability of the trust funds is not and probably never will be fully funded and that the assets involved for households are at best nebulous, the national income treatment will be followed in this study. For those who prefer the alternative treatment, one figure--namely, the estimated government liability to households--can be shown as supplementary information and will suffice to make the necessary adjustment.

Another problem worthy of comment is the treatment of tax liabilities--both those which have already accrued and those which will fall due in the future. With respect to those tax liabilities already payable,

they should, in the interest of completeness, be shown as assets of governments and liabilities of other economic units. The national income accounts already follow this procedure insofar as corporate profits taxes are concerned in order to maintain consistency between corporate income statements and the national accounts. The implicit result is that changes in accrued taxes receivable by governments are an element of government saving or dis-saving. Furthermore, important changes such as the recent shift of corporate taxes toward a "pay-as-you-go" basis are obscured if a cash rather than accrual basis is followed.

With respect to future tax payments, it might be argued that taxpayers' balance sheets should show a liability amounting to the present value of such future payments. This argument is sometimes advanced in connection with the national debt; if it is ever paid off, taxes will provide the necessary funds. The national debt is a liability of taxpayers; their balance sheets should recognize it as such.

This argument may be countered at several levels. By setting up accounts for governments as separate economic units we recognize that some assets are collectively owned and some liabilities (such as the national debt) are collectively owed. Balance sheets of government units are the appropriate places for such assets and liabilities to be shown. Going beyond this to taxpayers' balance sheets is not necessary since it is recognized by everyone that government assets and liabilities are shared by all the people, nor is such a procedure feasible since each taxpayer's share of public debt is not determinable anyway.

Moreover, if we show future tax payments as present liabilities of taxpayers, we must show as assets the present values of future incomes from which the taxes will be paid. For labor income this amounts to showing as an asset the present capitalized value of future earnings, which we have already excluded from the national balance sheet. Societies differ as to what they regard as wealth, but in Western societies, at least since the abolition of slavery, human beings are generally excluded from any notion of measurable wealth as assets.

With respect to property incomes, balance sheet values of earning assets generally tend toward capitalized present values of future earning; to the extent that taxes reduce earnings, present balance sheet values already reflect an allowance for future tax payments. Regardless of the source of income from which taxes are to be paid, then, it would be inappropriate to record any liabilities for taxpayers.

We have completed a survey of the more important types of assets and liabilities that might appear on national and sector balance sheets. We turn now in the following chapter to a consideration of the problems involved in assigning appropriate values to these assets and liabilities.

CHAPTER II

VALUING SECTOR AND NATIONAL WEALTH

The question of placing a proper valuation on objects of wealth has plagued economists and accountants (and others) for years. Had it been satisfactorily resolved, the literature of both disciplines would be a great deal slimmer, for there are innumerable related problems which would be solved as well. This chapter, then, does not pretend to give easy answers in a few pages to such perplexing questions; even a mere summary of the present state of professional opinion would constitute an undertaking as large as this entire study and is, of course, not attempted. Some discussion of valuation, however, is inevitable for developing a national balance sheet; the aim of this chapter is to approach the subject of valuation from the standpoint of a social accounting measure of sector and national wealth.

In our discussion of valuation problems it will be helpful to deal individually with different types of assets and liabilities. We shall divide wealth into three familiar categories--namely, reproducible tangible assets, nonreproducible tangible assets, and intangibles. Each is discussed in turn.

First treated is the category of reproducible tangible assets, which is in economics usually discussed under the heading "capital goods" and in accounting as plant (excluding land), equipment, and inventories. In

many respects, valuation problems are most acute with respect to these items, and some of the principles developed will apply to other categories of wealth as well.

The usual alternative bases of valuation for reproducible tangible assets are historical cost, reproduction cost, replacement cost, and market value. Replacement cost and reproduction cost are technically different, though they are frequently confused in the literature. Reproduction cost suggests the cost of producing another article exactly like the one in question, whereas replacement cost suggests the cost of acquiring a good which will perform the same service. This distinction becomes important during periods of rapid technological advance--which is to say nearly all the time under present conditions.

The writer admits in advance to a predilection for market value as the basis of valuation appropriate for use in the national balance sheet. Unfortunately, there are a number of compelling reasons, discussed in detail below, why this method is not feasible in practice. Accordingly, depreciated original cost adjusted to depreciated current cost by means of appropriate indexes is proposed as the best approximation to market value. As a practical matter, the result is strictly speaking neither reproduction cost nor replacement cost, since price indexes too have trouble with technological change. It is rather a mixture of the two versions of cost, which is in the writer's opinion sufficiently precise for the purposes of the national balance sheet.

Since the proposed method of valuation for the national balance sheet differs from that used in private business accounting, some con-

siderable discussion is devoted to this matter of alternative valuation bases. Business accounting provides much of the basic data for social accounting; for that reason it is necessary to justify in some detail any departure from the carefully developed body of generally accepted accounting principles.

It will be instructive at the outset to consider a set of highly restrictive conditions under which all of these various bases of valuation produce the same results. Let us operate for a moment at that rarefied level of abstraction represented by a perfectly competitive economy in a state of long-run equilibrium--no net investment is taking place, nor does technology advance, and population is constant. Perfect foresight exists, so that divergences between planned and realized magnitudes are not possible, and there is no such thing as risk, so that debt and equity funds yield identical returns. Moreover, the interest rate, identical for all capital goods, is determined by the marginal productivity (or marginal efficiency) of capital since all of the motives for holding cash disappear with risk and uncertainty except the transactions motive. With no liquidity preference as such, there is no liquidity preference theory of interest.

In this highly imaginary economy, consider a certain capital good which costs \$100.00 and yields a product whose sales, after deducting the costs of the other factors of production, yield a return of exactly \$23.74 per year for five years. Assume that the machine is purchased and installed on January 1, year 1, and that the product is completed and sold once a year for each of five years--December 31 of years 1, 2, 3, 4, and

5. Each December 31 after the product is sold, the books are closed, depreciation is recorded, and profit is computed.

A glance at an annuity table will indicate that the marginal efficiency of this piece of capital is 6 per cent--that is, the rate required to discount the returns to the cost of the machine is 6 per cent. The relevant transactions may be simply represented in the following table:

TABLE 1
RETURNS, UNRECOVERED COST, AND DEPRECIATION OF A
HYPOTHETICAL ASSET

Date	Unrecovered Cost		Gross Return			Return as Per Cent of Unrecovered Cost
	Before Current Year's Depreciation	After Current Year's Depreciation	Depreciation	Net Return	Total	
December 31 Year						
1	\$100.00	\$82.26	\$17.74	\$6.00	\$23.74	6
2	82.26	63.46	18.80	4.94	23.74	6
3	63.46	43.43	19.93	3.81	23.74	6
4	43.53	22.40	21.13	2.61	23.74	6
5	22.40	-0-	22.40	1.34	23.74	6

Source: Hypothetical

The purchaser of the machine, under the extreme conditions of no risk and no uncertainty, is, in effect, buying an annuity which yields the going long-period interest rate.¹ We are sacrificing some precision

¹There are some people who think the interest rate under long-run competitive equilibrium must be zero. This is true only if the supply curve of new savings happens to become zero only at a zero interest rate. It would be just as plausible for such a rate to be positive or negative.

by letting the net return (\$6.00 in Year 1) be compared to the year-end value before depreciation (\$100.00 in Year 1) to compute the yield of 6 per cent. This assumes that the year's depreciation happens all at once late in the afternoon on December 31. We should more properly show depreciation occurring continuously through the year and compute the net return on the average value of the asset during the year. Refinements such as this, however, would not alter any conclusions of the argument and would distract from the simplicity of the example.

Several observations are now in order. If, on January 1 of Year 2 one were asked what he would pay for the machine under the assumed conditions, he would give for his answer the book value after the first year's depreciation was deducted, i.e., \$82.26. In other words, 6 per cent is the rate which correctly discounts four payments of \$23.74 for the next four years to a present value of \$82.26. Book value and market value coincide. Long-period equilibrium further implies no cost changes, so that reproduction cost is equal to historical cost new, and depreciated reproduction cost would be equal to depreciated book cost. Moreover, the absence of technological change implies that replacement cost is the same as reproduction cost. All of the bases of valuation, then, coincide under these extreme assumptions.

It should also be noted that depreciation charges increase as time passes; this result is implicit in the method adopted for computing the

We are assuming it here to be 6 per cent--that is, if the rate should fall below 6 per cent, people will dis-save; hence shrink the supply of capital; hence raise its return.

marginal efficiency of capital and the assumption of constant gross returns for each of the five years. Straight-line depreciation would, in this case, carry the implication of a zero rate of interest. This should not, however, be interpreted as a criticism of present-day accounting practices which rely heavily on straight-line depreciation. Our example is a long way away from a real world.

It is possible to arrive at the same conclusions even in the absence of long-run equilibrium, if the remaining assumptions--i.e., perfect competition, lack of technological change, constant population, and no risk or uncertainty--are retained. The conditions of a dynamic equilibrium, as an economy under the above four assumptions moves toward long-run equilibrium, have not been fully and satisfactorily worked out, but they would very likely include the following:

1. Net investment is taking place; capital goods production measured in current prices exceeds depreciation allowances.
2. There is a demand for capital funds on the part of business firms, and a supply of same on the part of savers. Or, putting the same thing in different words, there is a supply of securities (stocks or bonds indifferently under our conditions as noted above) by businesses and a demand for same by savers.
3. There is a corresponding demand by businesses for capital goods and a supply governed by marginal costs in the capital goods industry.
4. Returns to capital are identical in the consumer-goods and capital-goods industries. That is, the demand for capital

goods to expand the stock of capital has been met by a sufficiently expanded capital-goods industry so that excessively high returns do not prevail there.

5. The marginal productivity of capital--hence the rate of interest--declines (though in a perfectly foreseen fashion), but values of existing capital goods are not affected. This is true because even though new capital goods through diminishing returns are forcing down the return to all capital--new and old--the falling interest rate means that lower quasi-rents are being capitalized at a correspondingly lower rate; hence capital values need not change.² The equality between the various bases of valuation developed above need not be disturbed.

It is not possible to drop any more assumptions, however, without destroying this neat equality. In other words, if these highly restrictive assumptions are not fulfilled, the different methods of valuation lead to different results. We shall catalogue some of the departures from the extremely restrictive assumptions given above and note the effects on the relationships between original cost, replacement cost, reproduction cost, and market value.

One such is a departure from competition either in the markets

²This would not be strictly true if all earnings were capitalized into present values. Falling returns to capital imply higher wages, so that present values of human labor rise on two counts--higher returns and a lower rate of capitalization. This observation is made by A. P. Lerner in his article "On the Marginal Product of Capital and the Marginal Efficiency of Investment," Journal of Political Economy, LXI (February, 1953), 1-14.

for capital goods themselves or in the markets for goods produced with their aid. A related market imperfection is the lack of widespread knowledge of alternative opportunities as well as an infrequent market turnover for most existing capital goods. The multitudes of omniscient little competitors scurrying around taking advantage of every minute departure from equilibrium exist only in the textbooks. Conditions such as these explain why market value is not an overly attractive basis of valuation for either the business accountant or the social accountant.

A changing general price level, assumed out of existence in long-run equilibrium and not necessarily a feature of the dynamic equilibrium discussed above, in practice represents a frequent source of divergence between the different valuation methods, especially between historical cost and the other three. Since the net movement of prices over the last hundred years or so (at least) has been up, the usual result is that historical cost is the lowest value of the four, though there are important exceptions (such as the 1930's).

The existence of risk and uncertainty introduces a divergence between plans or expectations and realizations. Market value, which always depends on someone's expectations about future returns, is strictly an ex ante concept. Cost (whichever version--historical, replacement, or reproduction), on the other hand, is a realized, or ex post concept. True, from the standpoint of the purchaser of a capital good, cost and market value are identical at the moment of purchase, but this equality never necessarily holds again.

Changes in technology or changes in consumer tastes are equally destructive of the values of existing capital goods, a situation described by accountants as obsolescence. The inevitable result of technological advance is to render market values (or in the absence of an objective market value, present values reckoned by discounting expected returns within a firm) lower than costs, except to the extent that obsolescence is anticipated and allowed for in depreciation rates. As we have already noted, this factor (technological advance) also destroys the equality between replacement cost and reproduction cost. Shifts in consumer tastes raise market values of capital goods above costs or force them below costs, depending on the direction of the shift. About the only certainty is that some change will occur.

This brief recitation of departures from the abstract world of perfect competition and equilibrium--all of which departures are persisting features of our own and other economies--suggests that the four proposed bases of valuation will normally lead to four different results even if they all could be computed, and they frequently cannot. Furthermore, no one is intrinsically superior to the others, so that the reams of paper and gallons of ink consumed in "proving" that one or the other of the concepts is the "best" have been largely wasted. If one is interested in computing realized returns, he will use one of the cost concepts; which one he uses will depend on what is to be measured as capital gain or loss and what is to be considered returns from operations.³ If,

³The current controversy in accounting over historical cost versus one of the other cost variants may be viewed as an argument about how

on the other hand, one is interested in motivational factors, he is moving into ex ante territory; market value, which best measures opportunity cost, is the relevant consideration.

As noted in Chapter I, assets or items of wealth have past, present, and future dimensions; a balance sheet struck at a given moment--the "present"--is a link between past and future. If cost is taken as the measure of past efforts embodied, and a stream of returns to be earned represents the future dimension, then the value which appears on the balance sheet is the present link. We have already seen, however, that these differing dimensions converge on identical values only in special circumstances never likely to be realized. Some sort of choice must be made, and accountants have generally chosen the past.

Any such choice results in a dilemma; if a value which reflects future expected returns is selected (i.e., market value), the balance sheet gives no information about embodied costs. If, on the other hand, unrecovered costs are used as the basis, the balance sheet tells nothing about the present worth or future expectations, except that when market values fall below costs this fact is generally reflected in present-day business accounting.

Unfortunately, non-accountants persist in the belief that balance

money gains shall be allocated between capital gains on the one hand and profits from operations on the other. Historical cost devotees want to call all realized returns profit, while advocates of, say, replacement cost as the proper valuation basis want to show some of the returns as capital gains. The latter group, if consistent, will also write up the asset values as well as increase depreciation charges over those indicated by historical costs. This write-up is a capital gain which is "realized" through depreciation charges.

sheets (or statements of financial position, more precisely) tell something about what an enterprise is "worth," a not wholly unreasonable expectation. In response to this attitude, some accountants deny that balance sheets do any such thing.⁴ Some have ventured to suggest that since balance sheets are such technical affairs they should probably not be entrusted to the public (which is bound to misinterpret them) in their present form.⁵ The balance sheet becomes a mere appendage of the income statement--a temporary resting place for costs which await their final fate in some future income statement. This is a far cry from former times when income statements served only to link together successive balance sheets, which were thought to contain the really valuable information.

The shift of emphasis to the income statement is no doubt a healthy thing; we have witnessed much the same development in national accounting. As we have already pointed out, national income and product figures deserve all the care and attention they get and then some. We should not subordinate them to any of the other social accounting statements.

Nor is there anything wrong with looking upon assets as deferred costs. In the simplified example given at the beginning of this chapter,

⁴ See, for example, John N. Myer, "Fallacies in the Balance Sheet Approach," Accounting Review, XXI (January, 1946), 8-13. In this article accounting teachers are taken to task for spreading such false ideas.

⁵ George O. May, "The Future of the Balance Sheet," Journal of Accountancy, LXXXVIII (August, 1947), 98-101.

assets viewed as deferred costs and assets viewed as present values coincided. When different methods of valuation diverge (as they do in reality), especially when they diverge widely as in a period of rapidly rising prices, to hold that assets are only deferred historical costs is patently absurd. They are also the present value of a stream of expected future returns, and, if one has to choose which of the two concepts is the more significant, he would choose the latter. The past is, after all, past; the only decisions which can now be made refer to the present and future.

There are, of course, good reasons for maintaining historical cost as the basis for business accounting. Here, at least, is an objective and verifiable standard and one which affords a real measure of protection to the public and business shareholders after the shabby and fraudulent tricks of an earlier day. Most of its defenses are on practical grounds, however; there are few good theoretical ones.

We may now return to the problem of valuing reproducible tangible assets in the national balance sheet. Given the necessary information, it would seem preferable to use market value as the appropriate basis of valuation. Such a basis fairly represents the opportunity cost of holding and using assets, which is the relevant consideration as far as any decisions in the present are concerned. It would state the national wealth on the same basis as the national income and product. It would provide a basis for calculating capital consumption allowances on a current cost basis, a valuation basis more nearly comparable to other gross national product components--a sorely needed improvement in the

national accounts. Capital formation figures, which may now sensibly be expressed as a percentage of gross or net national product, could also be expressed as a percentage of existing capital since both would be on a comparable valuation basis. Moreover, stating each sector's wealth in current market values allows an estimate of its current command over national resources.

Unfortunately, there are some formidable difficulties in using market value as a basis of valuation, and they do not have much to do with difficulties of gathering existing data, which are formidable in their own right. Only a very small fraction of the nation's wealth passes through markets in a given period of time, and much of the nation's wealth never does at all. There are no such things as objectively determined market values in most cases.⁶

Our problem, then, is to use that basis of valuation which most nearly approximates current market value. In the writer's opinion, the appropriate second-best measure is original cost adjusted to a current basis by means of specific indexes--that is, separate indexes for each class of capital goods--with depreciation reserves similarly adjusted by means of price indexes. Since the available indexes are based on current production costs of similar articles, our method results in a mixture of replacement and reproduction costs, depending on the extent to which quality changes have been reflected in the indexes and the extent

⁶This difficulty is stressed by Kuznets, among others. See "On the Measurement of National Wealth," loc. cit., pp. 24-27.

to which quality changes have affected values of existing capital goods. The method outlined above, namely, original cost adjusted to current cost by means of specific price indexes and depreciated on a current cost basis, is used in this study.

This is not a wholly satisfactory solution. In fact, there is no way, really, to measure the stock of capital; we are merely using the best approximation. It follows that the same thing is true of capital consumption allowances.⁷ The method outlined has been used by the Department of Commerce,⁸ and it is followed by Goldsmith in all of his recent work.⁹ It is further suggested as an appropriate method in several other recent articles.¹⁰

With respect to tangible nonreproducible assets--the most important of which are land and other natural resources--the theoretical problem is much simpler. Since there is, strictly speaking, no production cost involved, the market provides the only means of valuation. As a practical matter, the problem is more serious since only a small

⁷Keynes is one of the several writers who has pointed this out. See John Maynard Keynes, The General Theory of Employment, Interest and Money (New York: Harcourt, Brace & Co., 1936), p. 39.

⁸Though not, of course, in official income and product figures. See Raymond Nassimbene and Donald G. Wooden, "Growth of Business Capital Equipment, 1929-53," Survey of Current Business, XXXIV (December, 1954), 18-26.

⁹See, for example, Goldsmith, A Study of Saving.

¹⁰Eric Schiff, "Gross Stocks Estimated from Past Installations," Review of Economics and Statistics, XL (May, 1958), 174-177; Myron J. Gordon, "The Valuation of Accounts at Current Cost," Accounting Review, XXVIII (July, 1953), 373-384.

fraction of such assets appear on the market in any given time period. Still, for reasons mentioned above in connection with reproducible assets, current market value, whether actually sold or not, is the appropriate measure--certainly more appropriate than original cost to the owner, which is, after all, only the market price of some past period. Real property is usually appraised with greater ease than tangible property in general; the problems here are more like problems of finding data in general than tough theoretical problems.

Some interesting questions arise in connection with certain types of public real property. Public domain in general presents no real problems, nor do military reservations nor, for that matter, parks and playgrounds. We may appeal to the principle of opportunity cost for an answer; if no opportunity cost, then no value on the national balance sheet. It is true that some private properties have a greater market value by virtue of their location adjacent to public properties, so that any value in the public land is already reflected in surrounding private land values. This, however, is a feature common to private property as well and cannot be advanced as an argument for excluding the value of such land from the national wealth.¹¹ As for the land underlying roads and streets, it may be argued that there are not really any opportunity costs since there is no real possibility of using such land for anything else. As a practical matter it would appear not to make very much difference whether this land is included or excluded in the national wealth.

¹¹This line of reasoning is used by Goldsmith in "Measuring National Wealth in a System of Social Accounting" (loc. cit.), p. 48.

A rough estimate is included for the purposes of this study. Reproducible assets like streets and sidewalks are a different matter, however; they represent resources which could well have been used elsewhere and as such have a real opportunity cost.

As for intangible assets, the appropriate basis of valuation is, in the writer's opinion, market value.¹² Market prices are much more readily available than in the case of tangible assets. Some assets are effectively marketable at their face values--for example, currency and demand deposits. Some interest-earning intangibles reflect changes in interest rates in their market values; others respond by a change in their own rates of return. Among the latter are time deposits and shares in savings and loan associations. These may safely be carried at face value.

With respect to marketable federal securities, quotations are readily available, while savings bonds may be valued on the basis of their redemption schedules. As to corporate, foreign, state, and local bonds, market quotations are available in many cases, and even those privately-placed issues may be valued roughly on the basis of comparable traded issues.

The proper valuation for bonds as liabilities presents another problem. They are generally recorded on debtors' books at face value, with any difference between this figure and the actual proceeds at the

¹²It might be reiterated at this point that intangible assets are matters of importance only for economic units or for sectors; they do not appear on the national balance sheet at all except in cases involving foreigners. The ensuing discussion, then, refers almost wholly to sector balance sheets, not the national balance sheet itself.

time of issue shown separately as bond discount or premium. If bonds are shown at market value from the standpoint of debtors, a discrepancy will arise when we begin cancelling offsetting domestic assets and liabilities. Problems of this nature are treated more fully in Chapter V of this study, but this is essentially a valuation problem and will be discussed here.

The method adopted here is to record bond liabilities at the market value of the securities so that no discrepancy between the asset and liability aspects of the same instrument appears. A superficial reason is that the debtor could redeem any one of the bonds at the going market value and hence discharge the liability.¹³ There is an even more fundamental reason, however. Consider the case of a corporation which has outstanding bonds due in ten years, bearing a 3 per cent coupon rate. Suppose the bonds have a market price of 92, or an effective yield of approximately 4 per cent. The market, in effect, is telling the corporation that it must pay 4 per cent if it wishes to borrow; the 3 per cent coupons do not represent all the interest which the corporation effectively pays in the future nor all of the interest which a present purchaser of the instrument would receive.

In order to measure properly the present liability of the corporation and the future interest payments, the liability should be shown at 92; then gradually increased over the ten-year period to 100, the

¹³It is true that the whole debt could probably not be discharged without changing the market price. Valuation at the margin, however, is a well established principle in economics.

annual addition to the liability being the same amount which the holder would record as accruing effective interest. In the absence of further changes in interest rates, market values would reflect precisely the same valuations. Should interest rates again change, the resulting market valuation is still the correct measuring rod for the liability. It will be objected, of course, that in this example the corporation "owes" the face amount, not 92 per cent of that amount. A debt maturing in ten years, however, is a considerably different thing from a debt maturing in two weeks or one year.

Something like this is actually done by business accountants in the case of the issue of securities at other than face value (ignoring, for the moment, flotation costs) which signifies that the coupon rate is not the effective rate. The difference is recorded as discount or premium. The gradual amortization of this quantity is a rough approximation of the treatment suggested above; it deals with the difference between face and market values on the date of issuance. We are merely extending this same treatment to every date between issuance and redemption for which a balance sheet is prepared.

Corporate stocks may also be shown as assets at market value since a very large portion of all outstanding issues have some shares traded at short intervals. The divergence between market values of stocks and the underlying equities in assets presents a very serious problem in consolidation, which is discussed at some length in Chapter V.

As for intangible assets like patents, trademarks, and copyrights, market value is again the theoretically correct method of valuation since

it represents the opportunity cost of retaining the advantage offered by such assets. As we have suggested in Chapter I, these items are not assets for the whole nation, but they are very definitely assets from the viewpoint of the individual firm. This is one case in which the concepts of private and national wealth diverge.¹⁴

As a practical matter, market values may rarely be available, so that, for purposes of balance sheets for the business sectors, book values (usually cost or nominal values) may be used. While technically inconsistent, this procedure is probably the only possible course. Goodwill, another intangible, is closely bound up with the question of business net worth versus market value of corporate stocks and will be discussed, as indicated above, in Chapter V.

Tangible assets in and claims against the United States owned by foreigners may be measured according to market valuations. With respect to frequently traded securities, market values are easily obtained. Wholly owned subsidiaries or others whose stocks seldom appear in markets may be valued by means of underlying assets and liabilities. Directly owned tangible assets may be valued in the same way as are corresponding ones which are domestically owned. As already noted in Chapter I, such assets should be included on the national balance sheet and then

¹⁴As noted in Chapter I, there are a few such cases which cannot be satisfactorily resolved without doing violence either to sector wealth on the one hand or national wealth on the other. The most important divergence in valuation is that between corporate net worth and the market value of outstanding stock, mentioned above. As also noted in Chapter I, these instances are dealt with by showing the discrepancy in the national balance sheet so that the user may resolve the matter in whichever way he wishes.

offset by a liability to foreigners in the same amount so that all domestically situated wealth is covered.

American holdings of foreign securities may also be shown at market values; many are traded regularly in American markets so that direct dollar valuations are easily obtainable. Others are regularly traded in foreign markets; values so determined may be converted at free market rates or the same rates which are normally used for withdrawing earnings. Direct investments in foreign countries, for which market values are frequently not available, may be valued on the basis of original costs adjusted to current costs, as is the case with domestic reproducible assets.

All of the quantitatively important types of assets and liabilities have been mentioned; there are others which might be considered in a study devoted completely to such problems but which need not detain us here.

CHAPTER III

SECTORING THE ECONOMY

Chapters I and II have examined the scope of the national balance sheet and the methods of valuation which are suitable for use in its preparation. There has been frequent reference to the sectors of the economy, the idea of sectoring having been mentioned in the Introduction to this study. It is the purpose of this chapter to discuss in more detail the purposes of sectoring in social accounting and the type of sectoring which is appropriate for the national balance sheet.

Every social accounting system which has set out to measure national aggregates has--of necessity, it would seem--developed sector information. The income and product accounts may be used as an example. They purport to measure the nation's income and the nation's production, yet in practice they do considerably more than this. Personal income, one of the closely observed indicators of the nation's economic health, is a sector concept, not a national concept, the sector in question being persons or households. Sectoring is even more explicit in the national savings-investment account. National investment (gross private domestic investment plus net foreign investment) is, except for the statistical discrepancy, numerically equal to personal saving plus corporate saving (retained earnings) plus government saving.

The basic reason for sectoring is that national aggregates in themselves do not always convey enough information. Some disaggregation

adds considerably to the information about the economy which social accounting statements can convey. This observation is particularly relevant to the national balance sheet. It is informative, no doubt, to know the total amount of the nation's wealth at any particular time. If all items of national wealth were directly owned by individuals, a simple statement of the national wealth might be sufficient, though it would probably still be helpful to know something about its distribution (a step in the direction of disaggregation).

It is characteristic of most developed economies, however, that ownership is exercised largely through claims, sometimes three or four stages removed from the actual possession of tangible items of wealth which, except for foreign claims, comprise the nation's wealth. An individual, for example, may have a claim against an insurance company which has in turn a claim against a business firm exercised through the ownership of corporate bonds. It is this structure of claims and liabilities which makes necessary the inclusion of sector information in the national balance sheet. It is perhaps fair to say that the national balance sheet, in throwing fresh light on the nature of this claims structure, performs a more valuable service than in showing the total of national wealth.

The questions which arise in dividing the economy into sectors and the combining or consolidating of economic units within the sectors must be answered with a number of considerations in view.

The first consideration is the homogeneity of units combined; if the information presented by the balance sheets is to have much

analytical usefulness, the economic units in a given sector should respond similarly to changes in the economic variables. Complete homogeneity for each sector is probably a goal which cannot be wholly realized, at least with a respectably small number of sectors. Within broad limits, however, and by the judicious use of sub-sectors, it should be possible to effect a reasonable compromise between the diversity of units and the need for a readable statement. The reader may judge whether this objective is subsequently accomplished.

A second consideration is the choice of an arrangement which will show to best advantage the complex network of claims and counter-claims through which America's wealth is owned. As a little reflection will make clear, everything of value in the nation is ultimately owned by someone--either individuals singly, groups of individuals in private nonprofit organizations, or individuals collectively through their governments. The larger share of the national wealth is owned indirectly, that is, by businesses, which are in turn owned by individuals, or even more remotely, through financial intermediaries such as banks, insurance companies, or investment trusts. To reduce to a single coherent statement this vast, circuitous chain of assets and claims is one of the primary purposes of the national balance sheet.

A third consideration is a form of organization which will facilitate the establishment of relationships with the other social accounting statements, an objective briefly discussed above and analyzed in some detail in Chapter VI of this study.

There are several different criteria by which economic units may

be grouped into sectors--by activity, for example, or by function, or on the basis of the decision-making authority.¹ Mining, ore-shipping, and steel-making are three different activities from the viewpoint of input-output accounting, but, if conducted by U.S. Steel, they are all treated as a unit from the standpoint of decision-making authority. For another example, certain assets and liabilities of the U.S. Treasury are tied to the national money supply so that functionally they could be grouped with the banking system under the heading "Money"; yet from the decision-making standpoint banking is one sector and the U.S. Government is another.

The national income and products accounts are generally organized around four sectors, assembled on the basis of activities. The sector labelled "Persons" does all the consuming while "Business" does virtually all the producing. Government, which would not fit into either category, is shown separately, as are foreigners, so that the four familiar sectors emerge. Housing, which is largely owned by individuals, is nevertheless shown in the business sector, as are the commercial activities of government. Insofar as possible, any "productive" activity is assigned to the business sector, and investment activity takes place

¹ A discussion of the criteria used (differently) in national income, input-output, and flow-of-funds accounts appears in a paper by Stanley J. Sigel entitled "A Comparison of the Structures of Three Social Accounting Systems" (Conference on Research in Income and Wealth, Input-Output Analysis--an Appraisal [Studies in Income and Wealth, Vol. XVIII (Princeton: Princeton University Press, 1955)]). This study is based on Dr. Sigel's Harvard Ph.D. dissertation.

exclusively there.²

Input-output systems, too, are oriented toward activity-sectoring, but in quite a different way from national income.³ They expand in great detail precisely those activities which are wholly suppressed in income and product accounting, namely, the flows of intermediate goods and services between "industries" which are the relevant sectors.

The Flow-of-Funds System,⁴ in its present stage of development, is oriented toward sectoring on the basis of decision-making authority. Since it expressly takes into account transactions in "financial" assets and liabilities as well as in goods and services, this arrangement almost necessarily follows. U.S. Steel, which for input-output purposes may be allocated to several industries, is, for purposes of issuing securities, paying dividends, borrowing from banks, and the like, one entity.

Of the three systems mentioned,⁵ the national balance sheet

²The latest published description of procedures and concepts in the U.S. income and product accounts is found in National Income, 1954 Edition (Washington: U.S. Government Printing Office, 1954) by the U.S. Department of Commerce, Office of Business Economics.

³For a thorough summary of the state of input-output, see Conference on Research in Income and Wealth, Input-Output Analysis--an Appraisal. The Technical Supplement gives the tables prepared in the 1947 inter-industry study as well as much detail on sources and methods.

⁴The definitive published work to date is Flow of Funds in the United States, 1939-1953 (Washington: Board of Governors of the Federal Reserve System, 1955) by the Board of Governors of the Federal Reserve System. Later mimeographed revisions and extensions are available on request.

⁵Technically speaking, there should be only one system of social accounting from which the various statements result. The fact that the three above-mentioned have independently originated and as yet have not been wholly integrated justifies the use of the term "three systems."

probably has most in common with the flow-of-funds accounts. Indeed, the "financial" transactions shown therein are changes in balances of intangible assets and liabilities, i.e., in accounts reflected in the national balance sheet. In the absence of such a statement, the Flow-of-Funds Section has constructed what amounts to the top half of a national balance sheet.

Like the flow-of-funds accounts, then, the balance sheet is oriented toward sectoring by decision-making units. All decisions regarding production, consumption, the distribution of asset holdings, the incurrence of debt, investment and the like are made by some unit. They are made, insofar as quantitative factors are concerned, on the basis of the relevant flows (income, expenditure, etc.) and stocks (balance sheet items), and on the quantitative terms on which the flows take place (prices, wages, interest rates, etc.). Units which typically react in a similar way are grouped together (as, for example, commercial banks which would respond predictably to decreased reserves), and all of the descriptive information about a given unit provided by a balance sheet should be assigned to the same sector--that is, all of its assets and liabilities should be shown within the same sector.⁶

⁶Income and product accounting, for example, considers the ownership of one's home a business activity, so that the individual (consumer sector) pays himself an imputed rent (business sector) in order to maintain, as far as possible, productive activity (shelter services here) within the business sector. While this is a perfectly acceptable abstraction for deriving production and consumption totals, it is not well suited to balance sheet objectives. Owner-occupied houses are assets which compete with the remaining assets of their owners, and the mortgages against them are personal liabilities. Or, according to Graeme S. Dorrance, split personalities should be avoided. These matters are dis-

A study of the evolution of the flow-of-funds work in the United States may prove instructive, especially with respect to problems of sectoring. The initial moneyflows project which was undertaken by Professor Morris Copeland indicated the practicability of such a study,⁷ so that it was carried forward on an official basis by the Board of Governors of the Federal Reserve System. The work is still in a state of evolution, considerable revisions having been made since the 1955 publication already referred to in footnote four of this chapter.⁸ Some of the shifts in sectoring which have been made serve to highlight the problems which arise in this connection. Copeland's study divided the economy into eleven sectors, which were rearranged and reduced to ten in the Reserve Board's first published tables.⁹ Later revisions raised the number to twelve; then reduced it to eleven. For purposes of comparison, the various sectoring schemes are presented in Table 2 below:

cussed in his very interesting unpublished paper "The Place of the Balance Sheet in an Integrated System of Economic Accounts" (Washington: International Monetary Fund, January 7, 1959 [Mimeographed]), p. 7.

⁷Morris A. Copeland, A Study of Moneyflows in the United States (New York: National Bureau of Economic Research, 1952).

⁸Board of Governors of the Federal Reserve System, Flow of Funds in the United States, 1939-1953.

⁹Ibid.

TABLE 2

COMPARATIVE METHODS OF SECTORING THE
ECONOMY IN VARIOUS FLOW-OF-FUNDS STUDIES

Copeland	Flow-of-Funds 1955	Flow-of-Funds Revised
1. Households	1. Consumers	1. Consumers
2. Farms	2. Corporate Business	2. Corporate Business
3. Industrial Corporations	3. Nonfarm Unincorporated Business	3. Nonfarm Unincorporated Business
4. Business Proprietorships and Partnerships	4. Farm Business	4. Farm Business
5. Federal Government	5. Federal Government	5. Federal Government
6. State and Local Governments	6. State and Local Governments	6. State and Local Governments
7. Banks and Monetary Funds	7. Banking System	7. Banking
8. Life Insurance	8. Insurance	8. Savings Institutions
9. Other Insurance	9. Other Institutional Investors	9. Insurance
10. Security and Realty Firms, <i>et al.</i>	10. Rest of the World	10. Finance, n.e.c.
11. Rest of the World		11. Nonprofit Organizations*
		12. Rest of the World

*Combined with Consumers in more recent revisions.

Most units of the federal government are shown under that heading; among the exceptions are the municipal government activities of Washington, D.C., which are grouped with State and Local Governments, and the Exchange Stabilization Fund, which is grouped with the banking sector, as are the Treasury monetary funds (gold, silver, currency, *etc.*). Postal savings, shown under banking by Copeland and the original flow-of-funds study, are moved back to the federal government in the latest revision.

Savings and loan associations, grouped by Copeland with Security and Realty Firms, were treated as Other Institutional Investors in the flow-of-funds study and then removed to the Savings Institutions sector in a later revision. Private pension funds are uniformly included in the Insurance sector, and home ownership (owner-occupied) is treated as a consumer function in contrast to national income, where it is regarded as a business. Homes held for rental, assigned by Copeland to the Security and Realty Firms category, are in the Reserve Board's study treated as Unincorporated Businesses.

By way of contrast, Goldsmith's national balance sheet is confined to seven sectors,¹⁰ namely, (1) Consumers, (2) Farm Business, (3) Non-farm Non-corporate Business, (4) Financial Intermediaries, (5) Other Corporate Business, (6) Federal Government, and (7) State and Local Government. All of the studies include both farm and nonfarm households under the heading of Consumers. Nonprofit organizations, included under Consumers by Goldsmith, were originally treated by flow-of-funds as Other Institutional Investors, then shown separately, and finally moved to the Consumer sector. Federal trust funds and veterans' life insurance reserves are classified as financial intermediaries by Goldsmith but are shown under the federal government throughout the flow-of-funds studies. Treasury monetary funds, on the other hand, are classified

¹⁰The latest published figures are for 1955, taken from the National Bureau of Economic Research 37th Annual Report, p. 36, and the Joint Economic Committee of the U.S. Congress has had them reproduced in The National Economic Accounts of the United States, p. 301.

with the federal government by Goldsmith, whereas flow-of-funds considers them part of the banking sector.

The foregoing brief summary of some alternative plans of sectoring will serve as background for a more detailed discussion here of some of the issues involved. We shall take as a starting point the minimal four-sector scheme used in income and product accounting and work toward a more informative though not unwieldy statement. Our first aim will be to dispose quickly of some of the more straight-forward, relatively uncontroversial matters.

The government sector should undoubtedly be divided between the federal government on the one hand and state and local units on the other. The financial resources of the federal government are infinitely more flexible. Its cyclical behavior differs, especially since it is formally committed to contra-cyclical action, and it is more closely related to the nation's money supply. This treatment has been followed consistently by Goldsmith and all of the flow-of-funds studies.

Another obvious need is the development of separate sectors for financial activities. In the income and product accounts they are shown as part of the business sector, an acceptable procedure in view of the relatively small volumes of incomes and services which they originate. From the standpoint of funds flows or claims and liabilities, however, they are vitally important. This fact is recognized in all of the sectoring schemes reviewed above; it is stressed by Dorrance,¹¹

¹¹Dorrance, op. cit., p. 8.

Vandermeulen,¹² Edey and Peacock¹³--in fact, by virtually every writer whose thinking has gone beyond income and product accounting.

A somewhat more difficult question arises as to the degree of further division of financial institutions. At the very minimum it would seem desirable to separate institutions whose liabilities are considered to be money from those that are not. This is done in all of the various stages of the flow-of-funds work. As Dorrance points out, the banking system, especially along with the central bank, is one of the sectors which enjoys considerable independence of action; it may initiate expansions or contractions in money and credit to which all of the remaining asset-liability relationships in the economy must adjust.¹⁴ This, it may be noted, is the premise on which monetary policy is built.

A closely related question concerns the central bank: is it a separate sector, or merely part of the banking sector? The flow-of-funds group, oddly enough, completely consolidates the reserve banks into the banking sector and suppresses all of their relationships with the commercial banks. It is true that, quantitatively, the reserve banks hold a small share of the national total of assets and liabilities; it is also true that a subsector statement might be used to portray the relationships. In view of the fact, however, that this is the locus of monetary policy--in fact, one of the critical points at which coercion is brought

¹²Vandermeulen and Vandermeulen, op. cit., p. 323.

¹³Edey and Peacock, op. cit., p. 194.

¹⁴Dorrance, op. cit., p. 9.

to bear on the whole economy--it would seem appropriate to show the reserve banks as a separate sector in the national balance sheet. Furthermore, a consolidation at this point violates the principle of homogeneity. The commercial banks and reserve banks are ordinarily at cross purposes; it is the business of the reserve banks to "lean against the wind," at least as the Federal Reserve System conceives its own role. This opinion is shared by Edey and Peacock,¹⁵ and Dorrance.¹⁶

Another issue is the treatment of the Treasury monetary accounts--gold, gold certificates, silver, silver certificates, U.S. notes, coin, the Exchange Stabilization Fund, and other minor monetary assets and liabilities. These are consolidated with the banking sector in the flow-of-funds work; Goldsmith has left them, as already noted, in the accounts of the federal government. Since we are using as a guiding principle the exercise of control, it would appear that such accounts belong in the federal government. True, we are dividing the suppliers of money into several sectors, which is what flow-of-funds has attempted to avoid with a consolidated banking sector. Nevertheless, the monetary responsibilities are divided in the United States, and our social accounting may as well recognize as much. Furthermore, all of the external factors which impinge upon the commercial banks should be highlighted in the national balance sheet.

¹⁵Edey and Peacock, op. cit., p. 195.

¹⁶Dorrance, op. cit., p. 9.

The non-bank financial institutions are too heterogeneous a group to avoid further sectoring. As indicated above, flow-of-funds has tentatively settled on a three-fold division--savings institutions, insurance, and finance not elsewhere classified. Savings institutions are savings and loan associations, mutual savings banks, and credit unions--units which offer their substantially similar liabilities as outlets for personal saving, and which quantitatively are sufficiently important to merit treatment as a separate sector. The insurance sector includes life insurance companies (stock and mutual), property insurance companies (stock and mutual), fraternal order insurance plans, non-profit medical insurance plans, and self-administered pension activities. Publicly administered pension plans (federal, state, and local) are shown in the accounts of the respective government units.

The remaining sector (finance not elsewhere classified) contains a wide variety of units and is perhaps the one place where anything resembling homogeneity is unattainable. Fortunately, the annual flows and year-end balances are not large; no great violence is done to the accounts. Included at this point are open-end investment companies; sales, industrial, and personal finance companies; mortgage companies; factors; and security and commodity dealers.

The flow-of-funds treatment outlined above offers few grounds for objection. It would seem that closed-end investment companies should be classified as financial institutions, as should purely financial holding companies where the various enterprises are not con-

solidated for tax or business accounting purposes. The flow-of-funds group has informally expressed a similar view; difficulties of data, and also of distinguishing between operating and holding companies, account for the present treatment.

Drawing the proper lines between consumer and business activities presents a set of knotty problems as does the related question of homogeneity of the resulting groups. First, to mention some of the problems:

1. Consumer and producer activities are sometimes closely intertwined, especially for farmers, owners of unincorporated businesses, and owners of real property.
2. In principle, corporations belong in one sector and unincorporated businesses in another, since the line between business and owner personal accounts is clear cut for corporations. In practice, for small family-held corporations, the line between business and personal accounts may be more blurred than for some partnerships or proprietorships.
3. If the consumer and producer activities of farmers and entrepreneurs are divided (as is presently the case in national income figures), a distinctly nonhomogeneous consumer group results. This difficulty has been pointed

out by Friend,¹⁷ Klein,¹⁸ Margolis,¹⁹ and Morgan²⁰--
to mention only a few.

4. "Business" or even "Corporate Business" is an extremely heterogeneous sector.
5. If ownership of residences is a consumer activity, what happens when an owner decides to rent his house to someone else? Or if ownership of rental residences is a permissible consumer activity, where do we draw the line? May consumers own commercial real estate, or does this make them businesses?
6. If sectoring is performed by dividing business into corporate and non-corporate, what happens when an individual unit changes its legal form? If, for example, a partnership incorporates, corporate assets and liabilities in the national balance sheet would show a change not related to current transactions at all.

¹⁷Friend, op. cit., p. 16; Irwin Friend and Irving B. Kravis, "Entrepreneurial Income, Saving and Investment," American Economic Review, XLVII (June, 1957), 271.

¹⁸Lawrence R. Klein and Julius Margolis, "Statistical Studies of Unincorporated Business," Review of Economics and Statistics, XXXVI (February, 1954), 33.

¹⁹Ibid.; Julius Margolis, "National Economic Accounting--a Reorientation Needed," Review of Economics and Statistics, XXXIV (November, 1952), 291.

²⁰Morgan, "The Structure of Aggregate Personal Saving," loc. cit., p. 528.

With respect to the problems posed under section one above, several solutions are possible. One is to treat both the producer and consumer activities of farmers in the farm sector, and to treat nonfarm unincorporated businesses and the consumer activities of their owners together in a sector of their own. The remaining household sector would exclude farmers and owners of unincorporated businesses completely. This solution would have the very real advantage of avoiding any artificial dissections of consumer assets and liabilities. There is no rational way, in many cases, to divide a farmer's or a dentist's bank account between his personal and business activities.

Another proposal would consider proprietors to be dominated by their consumer interests, so that their accounts would be shown in the household sector.²¹ This solution, like the one above, avoids a questionable split in the accounts of the individuals concerned.

Another solution lies in the present national income and flow-of-funds practice; the division between consuming and producing functions is arbitrarily made. Although farmers' residences have been conceded to farm business activity, farm households are treated as consumers like everyone else.

There is, under existing institutional arrangements in our economy, probably no wholly satisfactory solution to these problems. The writer inclines toward the solution adopted by national income and

²¹Dorrance, op. cit., p. 15.

flow-of-funds which maintains the distinction between business and personal affairs. In the first place, nearly all partnerships as well as many farms and other proprietorships do maintain records which would permit a division to be made on a non-arbitrary basis, and their number is probably increasing under the influence of the tax laws.

Secondly, nearly everyone makes some decisions in his capacity as a consumer as opposed to those he makes as a contributor to production. True, the principle of maintaining all the accounts of a single decision-maker in the same sector is violated, but the resulting split personality is not necessarily any more schizophrenic than the salaried corporate executive who owns some stock in his enterprise. We are really assuming that there are two decision-makers under one hat, and we have kept the relevant accounts of each decision-maker in the same sector.

Thirdly, the fact that some assets and liabilities must be arbitrarily allocated is not necessarily fatal; errors are offset by equal errors opposite in sign in the owner's proprietorship account. If we erroneously allocate all of a farmer's \$100,000 bank account to his business, we have increased the net worth of the business and hence the farmer's equity, which appears in his separate personal accounts. While admittedly we have substituted a less liquid asset for money in his personal accounts, we have disturbed neither his total assets, total liabilities, nor net worth.

We might also meet the objection raised in item three above

(the nonhomogeneity of a consumer sector containing farmers and other entrepreneurs) by dividing the broadly inclusive consumer sector proposed here into subsectors--farmers, entrepreneurs, and others. Each of the consumer subsectors could be examined along with the appropriate business sector--farm households with farm business, and proprietors with the unincorporated business sector.

With respect to the problem raised in item two above regarding corporate and non-corporate business, it would probably be more instructive to divide businesses between "small" and "large" rather than observe the legal distinctions between incorporated and unincorporated businesses. The term "large" is taken to mean those businesses whose shares are listed on stock exchanges or traded extensively over the counter. The term "small" refers to closely held businesses, be they corporations, partnerships, or proprietorships. This distinction has recently been recognized in tax legislation, which permits certain "small" corporations to be taxed as partnerships. The same distinction would probably be made in social accounting, except that the form of available data compels the present arrangement. Internal Revenue Service tabulations are prepared regularly for corporations, though after a considerable time lag; they are prepared less frequently for other returns. This adjustment, while desirable, probably cannot be made at the present time.

The problem raised above regarding the nonhomogeneity of the business sector has no satisfactory solution aside from preparing supporting schedules to the main national balance sheet. Attempting

to insert even a limited number of major groups--such as railroads, utilities, mining, etc.--would probably result in an overly cumbersome statement without doing much to improve the homogeneity of the sectors. The best solution would seem to be showing three business sectors in the national balance sheet--farms, unincorporated businesses, and corporations. For the latter two sectors, complete subsectors could be prepared showing all assets and liabilities for the major industry groups. For physical assets--namely, inventories and fixed capital--figures for the three main business sectors should be combined and then redivided on a much finer basis--specifically, to conform to the industry division employed in the input-output table so as to yield capital coefficients for purposes of input-output analysis.²²

As to the problems raised above regarding the ownership of real property, this, in general, would appear to be a legitimate activity for households. Real estate--whether residential, rental, or commercial--competes with other earning household assets in the absorption of household savings; such transactions constitute an investment decision similar to the purchase of securities or other forms of household wealth. Real estate holdings which go beyond the ownership of property and the earnings of rentals--that is, properties used in business enterprises also owned by the same household--should be shown along with the other accounts of the business itself.

In the national income accounts, all ownership of real property

²²See Conference on Research in Income and Wealth, Input-Output Analysis--an Appraisal.

is considered to be a business activity. Flow-of-funds has assigned owner-occupied residences to the consumer sector but treats all other real property ownership as an unincorporated business activity. Goldsmith draws the line at multi-family and commercial properties; single residences--whether owner-occupied or rented--are treated as assets of the household sector.²³ Our treatment, which permits households to own all kinds of property directly, avoids split personalities in all cases except those already split above with respect to unincorporated businesses.

The problem raised above regarding the shifting of units from one sector to another is probably quantitatively unimportant. If shifts of sufficient size should develop, they could be shown separately in reconciling balance sheet figures from one year to the next. The same is true of a similar problem--that of foreigners taking up permanent residence in the United States or American citizens permanently residing abroad.²⁴

Private non-profit institutions--churches, schools, colleges, foundations, labor, veterans, fraternal, and welfare groups, and the like--present another problem in sectoring. National income treats them as part of the personal sector; the early flow-of-funds treatment was to classify them as "other institutional investors." Later

²³U.S. Congress, Joint Economic Committee, Subcommittee on Economic Statistics, op. cit., p. 302.

²⁴See the discussion in Chapter I regarding the conceptual boundaries of the national wealth.

shown by themselves as a separate sector, they have been more recently combined with the consumer sector in the latest revision, mostly on grounds of incomplete data.

The national income treatment, suitable for purposes of measuring income and product, should probably not be extended to other social accounting measures.²⁵ Though some of their activities might be regarded as collective consumption, they are certainly not consumers in the ordinary sense of the word nor do they belong in the consumer sector from the standpoint of decision-making authority. While some of their activities resemble those of businesses, the absence of the profit motives and the relatively large role of transfer receipts and expenditures preclude placing them in one of the business sectors.²⁶ It is the belief of the writer that nonprofit organization holdings of real estate and financial assets are sufficiently large to warrant the establishment of a separate sector, at least for purposes of the national balance sheet. Though their role in economic activity is probably passive--that is, they react to rather than initiate changes--it would be useful to have available sufficient information to find out.

²⁵This treatment has not gone unchallenged with respect to the resulting nonhomogeneity of the consumer sector. See, for example, S. A. Goldberg and F. H. Leacy, "The National Accounts: Whither Now?" Canadian Journal of Economics and Political Science, XXII (February, 1956), 73; Margolis, "National Economic Accounting--A Reorientation Needed," loc. cit., p. 291.

²⁶This is the treatment accorded them by Dorrance (op. cit., p. 19) after a discussion of some of the difficulties in classifying them. The reason given is that showing them separately would exaggerate their importance.

It is possible that their activities, especially construction, represent a cyclically de-stabilizing factor. It may also be true that their transfer receipts, treated as current "expenditures" by the donors, are to some (and occasionally significant) extent saved. Such transactions are labelled "personal saving" in the national income accounts, which treatment, while consistent with the classification of non-profit organizations, is hardly suitable for the national balance sheet. The accumulated savings of such organizations are not at the disposal of households in the formulation of their consumption decisions, and this fact should be reflected in the national accounts.

With respect to foreign transactions, it is technically unnecessary to include any separate sector. While national income and flow-of-funds both have a "Rest of the World" account, the nature of the balance sheet is such that the appropriate information emerges in any event. If all of the assets and liabilities of units within the United States are consistently valued and then offset against each other, claims against foreigners (assets) and claims of foreigners against domestic units (liabilities) will remain unconsolidated and will appear in the resulting statement of the national wealth (defined as in Chapter I).

There are, however, numerous slips between the theoretical cup and the technical lip, so that it would be advisable to include on a memorandum basis a sector for foreigners. This procedure would also facilitate relating the national balance sheet to the balance of

payment figures, as well as to net foreign investment in the income and product accounts and the flow-of-funds foreign sector.

All of the major problems in sectoring have now been catalogued, and the solutions thought to be appropriate to the national balance sheet have been indicated. The resulting sectors, by way of summary, are indicated below together with some of the more important economic units which are included in each.

TABLE 3

PROPOSED SECTORS FOR THE NATIONAL BALANCE SHEET, WITH
MAJOR SECTOR COMPONENTS

Sector	Economic Units Included
1. Households	Household ownership of real estate, farm households, and personal trust funds
2. Nonprofit Organizations	
3. Farm Business	Farm corporations and utility, marketing and purchasing cooperatives
4. Nonfarm Unincorporated Business	
5. Nonfarm Corporate Business	
6. Federal Government	Trust Funds, Lending Agencies, Monetary Funds, Enterprises and Insuring Agencies, and Postal Savings
7. State and Local Governments	Trust Funds, Sinking Funds, Enterprises, Semi-Independent Authorities, and the Washington, D. C. Accounts
8. Federal Reserve System	
9. Commercial Banks	
10. Savings Institutions	Savings and Loan Associations, Mutual Savings Banks, and Credit Unions
11. Insurance	Life, Fire, and Other Property Insurers, Insurance Activities of Nonprofit Organizations, Self-Administered Pension Funds, Health Insurers
12. Other Financial Institutions	Investment Trusts, Finance Companies, Mortgage Companies, Factors, Security and Commodity Brokers
13. Rest of the World	

CHAPTER IV

SAMPLE NATIONAL BALANCE SHEETS FOR 1949 AND 1950

The preceding three chapters have developed the conceptual structure within which national and sector wealth may be measured. It is the purpose of this chapter to present illustrative national balance sheets for two recent dates, to comment on some of the salient features of the balance sheets, and indicate briefly the sources of the estimates.

As we have already noted, a balance sheet prepared only for the nation as a whole is a good deal less informative than one which conveys information about the various sectors of the nation as well. Accordingly, the sample balance sheets presented below show each of the thirteen sectors (as discussed in the preceding chapter) side by side so that comparisons are easily possible and national totals are readily obtained. The assets and liabilities shown are selected for inclusion on the basis of the discussion in Chapter I; valuation of the assets and liabilities is accomplished on the bases described in Chapter II.

The balance sheets are arranged so that both sector and national wealth are shown, as, more important, is the way in which national and sector wealth are related. Both the asset and liability aspects of financial instruments are shown on the same line in order to facilitate

the process of consolidation. Demand deposits and currency, for example, appear as assets of all of the sectors and, on the same line, as liabilities of the federal government, Federal Reserve, and commercial banking sectors.

National totals of assets and liabilities are shown in the column headed "Combined National Balance Sheet." Discrepancies and adjustments (which are discussed in some detail in the following chapter) are entered in the next column. Financial assets and liabilities as adjusted are then cancelled against each other so that only assets and liabilities involving foreigners remain on the consolidated national balance sheet.

Assets are divided into tangible and intangible groupings on the balance sheet, except that monetary metals, while tangible, are shown along with intangible assets. Listing of assets is roughly in the order of liquidity, though some complications are added by the scheme of presentation adopted wherein both the asset and liability features of a given financial instrument are treated in the same line of the balance sheet. For example, corporate stocks when viewed as assets are a good deal more liquid than the corresponding net worth, at least with respect to those stocks traded in organized markets. Long-term bonds likewise may be considerably more liquid as assets than as liabilities, since any individual bondholder may liquidate his holdings through the bond market long before the issuer is obliged to make payment.

For financial assets and liabilities most of the balance sheet figures are taken from unpublished materials made available by the Flow-

of-Funds Section at the Board of Governors.¹ For tangible assets the basic source is Goldsmith's savings study.² Figures for tangible assets were available only for 1949; gross investment less capital consumption provided the figures for 1950, as explained below. Those cases in which other sources were used or in which adjustments were made to figures from the two basic sources are discussed in some detail below.

The flow-of-funds accounts structure consolidates into one sector the Federal Reserve System, the commercial banks, and the Treasury monetary activities. As explained in Chapter III, a great deal of information which is useful for the purposes of this study is thus suppressed. Accordingly, these three components have been separated; Federal Reserve and commercial banks are shown as separate sectors, while Treasury monetary activities have been transferred to the federal government sector. Amounts for gold, gold certificates, other monetary metals, treasury currency outstanding, and treasury cash holdings were taken from the Federal Reserve Bulletin.³ The flow-of-funds study also

¹Board of Governors of the Federal Reserve System, "A Summary of the Flow of Funds Accounts, 1950-1957" (Washington: Board of Governors of the Federal Reserve System, 1958 [Mimeographed]). These materials represent revisions and extensions of the previously published Flow of Funds in the United States, 1939-1953.

²Goldsmith, A Study of Saving, III, 57.

³Federal Reserve Bulletin, XXXVI (February, 1950), 185-194; ibid., XXXVII (February, 1951), 170-178.

subtracts holdings of federal obligations by trust funds and other federal agencies from the total outstanding; these amounts have been restored as assets of the federal government sector while the corresponding liability has been increased in the same amount.

Holdings by corporations of stocks of other corporations are not shown in the flow-of-funds figures; Goldsmith's estimate is used to make this adjustment to the 1949 figures. For 1950, the same percentage increase in stock values shown in the flow-of-funds accounts was applied to corporate stock holdings. Year-end balances of direct foreign investments are not shown in the flow-of-funds tables, though annual changes are. Year-end amounts for 1949 and 1950 were taken from the Survey of Current Business.⁴

Household equities in unincorporated businesses are not shown in the flow-of-funds year-end figures though annual changes are given. The addition of tangible assets in the national balance sheet to intangible assets and liabilities given in the flow-of-funds accounts provides sufficient information for a calculation of unincorporated business net worth, which is also shown as a household asset.

With respect to saving through life insurance contracts, it has been necessary to adjust the funds-flow figures. These figures reflect only cash surrender values of policies, though present values of future payments computed actuarially are somewhat larger. In this study an

⁴Samuel Pizer and John B. Boddie, "International Investment Position of the United States," Survey of Current Business, XXXIV (May, 1954), 9.

attempt has been made to show the full amount of life insurance reserves as a household asset, of which only the portion represented by cash surrender values may be considered a liquid asset.

Goldsmith's figures for saving through life insurance seem, on the other hand, to be too large since they include retained earnings and other reserves of insurance companies in household savings as well as policy reserves.⁵ Goldsmith's figure for consumer assets in life insurance is adjusted by subtracting an estimate of retained earnings and reserves other than policy reserves. The adjustment is estimated from Internal Revenue Service figures.⁶

Savings through privately-administered pension funds is omitted from flow-of-funds year-end assets and liabilities. Household equities in this study are taken to be the full amount of pension fund assets. This procedure is not really satisfactory since fund assets frequently fall far short of pension liabilities computed on an actuarial basis. For newly established funds, past service credits may not be fully funded for years. Even in the case of established funds, unexpected wage and salary increases raise the basis on which pension benefits are calculated and hence render past accumulations inadequate. A fully informative national balance sheet would show the full present values of actuarially computed pension liabilities as

⁵Goldsmith, A Study of Saving, II, 268.

⁶U.S. Treasury Department, Internal Revenue Service, Statistics of Income for 1950 (Washington: U.S. Government Printing Office, 1954), Part II, 126.

household assets and pension fund liabilities. Any fund liability in excess of fund assets is, of course, a liability of the sponsoring business enterprise, not only of the pension fund itself. Unfortunately, the writer has not been able to discover an estimate of such liabilities and is not sufficiently well informed in the specialized field of insurance to make even a crude guess. The figure is undoubtedly a large one--sufficiently large to modify significantly the whole structure of national assets and liabilities.

It has not been possible fully to reflect accrued, prepaid, and deferred items in the national balance sheet. They have already been included to an undeterminable extent in flow-of-funds trade credit figures. The figures shown in the national balance sheet are taken from Goldsmith's estimates of accrued taxes, which are not included in flow-of-funds figures.

Estimates of year-end tangible asset values have been taken from the national balance sheet prepared by Goldsmith in connection with his savings study. His method of computing tangible assets was to cumulate annual investment expenditures, adjusted to current cost and depreciated on the basis of current cost.

Since Goldsmith's work is sectored on a different basis than that employed here, some changes in sectoring were necessary. Among these were moving his government corporations sector into the federal government accounts and dividing up his financial intermediaries sector into the savings, insurance, and other finance sectors used in this study.

Residential property--which in Goldsmith's balance sheet appears only in the household, farm, and corporate sectors--was reallocated in a very rough fashion to unincorporated business, government--federal, state, and local--and insurance. The allocation from households to business and government was made on the basis of the respective rent receipts for 1950 (cash and imputed) given in National Income, 1954 Edition. The relatively small amounts allocated to the government and insurance sectors are purely arbitrary.

Nonresidential property was reallocated in part from the business sectors to households, again on the basis of rents received by households from commercial and industrial property as reported for the year 1950 in National Income, 1954 Edition. A small amount of producer durables was arbitrarily allocated to banks and insurance companies.

For farm assets and liabilities, flow-of-funds and Goldsmith's figures were used even though figures prepared by the Department of Agriculture in the annual "Balance Sheet of Agriculture" were available. Sufficient data to reconcile the many differences were not available, so that the above stated sources were used to maintain consistency throughout the balance sheet.

Tangible asset figures were available only for 1949, so that 1950 figures had to be computed. This operation was done on a rough basis in three steps. First, implicit deflators for broad components of gross national product were applied to 1949 balance sheet amounts to adjust them to a 1950 cost basis. The deflators employed are given

in the following table.

TABLE 4
 IMPLICIT DEFLATORS FOR NATIONAL ASSETS
 (Index Numbers, 1947=100)

Assets	1949	1950
Consumer Durables	105.1	105.1
Producer Durables	113.3	115.7
Nonfarm Residential Structures	109.2	113.8
Other Structures	112.0	113.9

Source: National Income, 1954 Edition, p. 217.

The next step was to add capital expenditures for 1950, and the third step was that of computing capital consumption on a current cost basis. For producer and consumer durables, the same relationships between depreciation and net stocks (cost less accumulated depreciation reserves) as calculated by Goldsmith in 1949 were used to compute 1950 depreciation. Depreciation percentages are properly applied to assets gross of depreciation reserves, not net, of course. However, gross asset figures are not available, so the method used will serve as a crude approximation. Residences were arbitrarily depreciated at 2 per cent and other structures at 2-1/2 per cent. Since only net values (net of depreciation reserves) were known, it was assumed that accumulated reserves amounted to one half of gross values; rates of 4 per cent and 5 per cent were applied to net values of residences and other structures respectively. These procedures are hardly defensible

for anything but rough approximations, but they do serve in this study to produce figures not too far removed from reality--figures which illustrate the conceptual structure under study.

With respect to land values, Goldsmith's estimates are used for 1949. The Department of Agriculture estimated that farm land increased in value by 14 per cent from 1949 to 1950 so that this figure was used in arriving at a 1950 valuation.⁷ All other land was increased in value by 5 per cent--a purely arbitrary assumption but one which again serves to illustrate the relationships involved. Livestock values for 1950 were taken from "The Balance Sheet of Agriculture."⁸ Business inventories in 1950 were derived by adding net 1950 accumulations plus inventory valuation adjustments to the 1949 figures. Farm inventories apparently changed very little, and federal government inventories were left at the same figure as in 1949 in the absence of data.

Sector net worth estimates in the national balance sheets are taken as assets less liabilities. They are divided into corporate and non-corporate net worth so that the former may be compared with market values of outstanding equity securities. Most of the corporate net worth is located in the nonfinancial nonfarm corporate business sector; the remainder consists of corporate farms, banks, stock insurance companies, and corporations in the "Other Financial Institutions"

⁷"The Balance Sheet of Agriculture," Federal Reserve Bulletin, XXXVII (September, 1951), 1094.

⁸Ibid. Goldsmith apparently used this source for his 1949 livestock estimate.

sector. Farm net worth is allocated to corporate farms on the basis of respective sales of corporate and noncorporate farms.⁹ Bank net worth is entirely corporate, while 1949 insurance net worth is arbitrarily assigned 20 per cent to corporations and 80 per cent to mutual companies. 1950 corporate insurance net worth is derived from 1949 net worth plus retained earnings plus the estimated corporate share of capital gains. The 1949 share of corporations in the net worth of the "Other Financial Institutions" is arbitrarily set at one-half. The 1950 share is based on retained earnings plus net issues of new stocks.

There are a number of points where the figures in the national balance sheet are less than satisfactory in addition to those mentioned above. Domestic holdings of foreign bonds are combined in the flow-of-funds figures with corporate bonds; it has not been possible to show them separately by holder on the national balance sheet. Figures for holdings of foreign stocks are entirely lacking since they are not given in the flow-of-funds accounts. This and the omission of various minor holdings of foreign assets accounts for the discrepancy (1949) in U.S. assets abroad of \$2.7 billion between the national balance sheet and the Department of Commerce estimates.¹⁰ Even the Commerce Department figures are not wholly suitable for the purposes of this study since direct foreign investments and some other foreign assets

⁹Six per cent, as noted in Board of Governors of the Federal Reserve System, Flow of Funds in the United States, 1939-1953, p. 106.

¹⁰Pizer and Boddie, "International Investment Position of the United States," loc. cit., p. 9.

are included at book values to parent companies, not at market values or adjusted original cost.

A very serious shortcoming of the balance sheet is that depreciable tangible assets are shown net of depreciation reserves only. The average age of the various components of the nation's stock of capital as indicated by the size of the reserves is a fact of great significance for cycle theory. Also in this connection, the balance sheet should be supplemented by detailed schedules for the major types of tangible assets; durable producer goods, for example, should be broken down into twenty or thirty major categories.

The estimates for corporate and government bonds are such that nominal rather than market values have been used, though market values are preferable for the purposes of this study as indicated in Chapter II. Part of the federal securities are valued at cost to holders, thus giving rise to a small discrepancy which has not been removed since the sectors to which the adjustments should be applied are not known.

Estimates for the market values or book values of patents and copyrights are not available so that these items have not been shown on the balance sheet. Closed-end investment trusts, which should be shown in the "Other Financial Institutions" sector, were left by flow-of-funds in the corporate sector. This deficiency has not been remedied in the absence of suitable data.

The foregoing discussion has catalogued the principal weaknesses which remain in the sample balance sheets presented at the end of this chapter. There are numerous possibilities for supplementary information

to be shown in supporting schedules, some of which possibilities are discussed in the following paragraphs. The necessary information for the actual preparation of such schedules is, for the most part, not yet available.

Assets and liabilities of the household sector may be broken down by income classes, by age of heads of households, by occupation, or by other relevant distinguishing characteristics. Studies of this sort would probably proceed by "blowing up" sample data such as that obtained by the Federal Reserve Survey of Consumer Finances. Some analysis of this type may be found in Goldsmith's savings study.¹¹

Another useful means of organizing the data would be a breakdown of tangible assets by input-output sectors. There is little reason to divide the entire balance sheet in this fashion, even if it were possible to do so. One firm which would clearly lie in one sector on the national balance sheet might well be distributed among several input-output sectors. A division of intangible assets and liabilities is thus not possible. A division of tangible assets, however, is feasible and would provide capital coefficients for each industry.

An age distribution of tangible assets would provide useful information which might, among other things, be used in the estimation of future replacement expenditures. A breakdown of debt by year of scheduled repayment would provide useful information about future fund flows and aid considerably any attempts to measure the burden of debt

¹¹Goldsmith, A Study of Saving, III, 102ff.

for each sector.

If one is interested in measuring the growth of national wealth, it is necessary to use constant dollar estimates of national wealth. Tangible assets may be deflated by price indexes so as to make meaningful comparisons possible, at least within the limitations imposed by the use of index numbers. Any objections which might be raised to this procedure are equally applicable to constant dollar estimates of gross national product. It is doubtful, however, whether the entire balance sheet could be adjusted for price changes in any meaningful sense. True, assets and liabilities fixed in dollars could be converted by means of some sort of index of general purchasing power--the consumer price index or the implicit gross national product deflator, perhaps. This leaves open the question of deflating financial assets like common stocks which are not fixed in dollars. There is some doubt, though, as to just what would be accomplished by such operations. The national wealth, except for net foreign assets, is virtually identical to the total of tangible assets, which can be adjusted by means of specific, not general, deflators. The only information added to the national wealth statement by the national balance sheet is the means by which the national wealth is owned; hence each sector's share in the national wealth. But each sector's share in the national wealth can be determined at any particular date in current values. If total national wealth can be deflated by means of adjustments to the values of tangible assets, and if each sector's share is already known, there would appear to be little point in going through the mechanics of

deflating the entire balance sheet--especially in view of the peculiar problems involved in deflating common stocks, the means through which a large share of the national wealth is owned.

The next matter to be considered is the national balance sheet itself. That an individual investigator like Goldsmith has been able to assemble from various sources sufficient information to prepare a national balance sheet and that enough supplementary information is available so that the substantially different form and content can be presented in this study testify to the feasibility of the balance sheet project.

The reader may feel entitled at this point to some suggestions as to the value for economic analysis of balance sheet information, an expectation fulfilled in some measure in Chapter VII. It is probably not possible to foresee some of the uses to which national balance sheet data might be put; this has certainly been the case with respect to national income and product figures. Theoretical and empirical work, for all the heat generated in defense of one as against the other, frequently go hand in hand. That some chapters of economic theory remain unwritten is suggested more than once in the course of this study.

At this point the reader's attention is invited to the sample balance sheets which appear on the following pages. Perhaps the most interesting feature of the statement as presented here is the manner in which offsetting assets and claims are arranged so as to facilitate

the process of consolidation. This is the major change from the national balance sheets developed by Goldsmith. It is on this process of consolidation that attention is focused in the following chapter.

CHAPTER V

PROBLEMS IN CONSOLIDATION

As we have already stated in Chapters I and II, the national wealth is not the same thing as the sum total of all assets owned by individual economic units within the nation. The principle reason is that many assets held within the nation are simply liabilities owed by some other units, so that these items cancel out in the process of measuring total wealth. Some bank deposits, for example, are household assets, and the corresponding bank deposit liabilities should be cancelled against these assets in computing national wealth. This cancelling process we have agreed to call consolidation.

The consolidation process is an important part of the preparation of the national balance sheet for several reasons. For one, it is the means by which double counting is avoided in measuring the national wealth. When Jones lends \$1,000 to Smith, the national assets have not really increased, though it would appear that they had in any national balance sheet which is merely a summation of individual balance sheets. The process of offsetting Jones' \$1,000 claim against Smith and Smith's \$1,000 liability to Jones is a means of preserving a correct statement of national assets.

A second and perhaps more important feature of the consolidation process is that it clarifies the relationship between individual, sector,

and national wealth. The assets held by a particular sector are not a reliable guide to its share of the ownership of national wealth; its liabilities must also be taken into account. If all domestic claims and liabilities were stated on a comparable basis so that they all neatly cancelled out, then only tangible assets and sector net worths would survive the consolidation process (except for claims and liabilities involving foreigners). One could then say that a sector's net worth truly indicates its share of the national wealth.

Not all claims are offset by liabilities elsewhere in the economy, however. Some claims--namely, corporate stocks and equities in unincorporated businesses--are claims to the net worth of sectors or parts of sectors. Only after such net worth items have been offset against the corresponding claims can it be said that the remaining sector net worths add up to the national wealth. Even this statement is somewhat oversimplified, for the process of consolidation also runs afoul of the fact that corresponding asset and liability or net worth items are frequently not valued consistently from the standpoint of both debtor and creditor. This problem has been noted by several writers and explored in some detail by Goldsmith.¹ The remainder of this chapter deals almost exclusively with these matters.

¹The problem is mentioned in each of the following works: J. R. Hicks and Albert Gailord Hart, The Social Framework of the American Economy (New York: Oxford University Press, 1945), p. 129; C. Reinold Noyes, "A Consolidated Balance Sheet for a Democracy," Journal of Accountancy, LXXXVIII (February, 1947), 100-112. Moreover, several of the specific problems discussed in this chapter are treated (though not in quite as much detail and with some different conclusions) by

The general question may be posed as to whether the asset and liability sides of the same instrument can or should be brought into agreement in every case. In this study the position is adopted that in some instances there is no reasonable way to achieve such agreement and that forcing equality would suppress or distort some significant aspects of sector wealth. These specific instances will be introduced in the following paragraphs, which examine one at a time some of the particular problems which arise.

We do not move very far down the national balance sheet before some difficulties appear; the first arise in connection with currency. If all holdings of currency and coin which appear as assets on sector balance sheets are totalled, the resulting sum will not coincide with the liabilities appearing in the books of the two issuing sectors--namely, the federal government and the Federal Reserve Banks. The discrepancy has several sources.

There is an undetermined but in some periods fairly large amount of currency in foreign hoards in excess of those amounts which appear as assets of foreign financial institutions. This is wholly a problem of gathering data, since in principle such holdings are liabilities of the United States to the bearers of the currency. A somewhat different problem arises with respect to currency and coin which is lost or destroyed. Such cash is not an asset of anyone and may be deducted

from the liabilities shown by the U.S. Treasury and the Federal Reserve Banks.²

Coins and currency which have disappeared from circulation into collections have values considerably in excess of face values and would not appear among the assets of any unit as cash. They should, rather, be shown as collectors' items. They are not likely ever to be used as cash nor be presented for redemption; no liability need be shown by the issuing sectors.

Most of the discrepancies in bank deposits result from checks in transit. At any given moment, there are checks en route from debtors to their creditors, from creditors to their banks, and from creditors' banks to debtors' banks. The first two stages are generally referred to as "mail float"; the latter as "bank float." For checks between banks that are cleared through the Federal Reserve System, a third type of float--namely, "Federal Reserve float"--comes into existence. Because of a difference in timing between crediting deposits to commercial bank accounts and collection against drawee banks, Federal Reserve float has some influence on member bank reserves.

The results of checks in transit from debtors to creditors in the national balance sheet is to reduce debtors' cash assets on their records before creditors' cash assets are increased. Bank deposits

²This adjustment is estimated in the flow-of-funds accounts in computing sector holdings of currency and coin but is not deducted in arriving at Treasury and Federal Reserve Bank liabilities. See Board of Governors of the Federal Reserve System, Flow of Funds in the United States, 1939-1953, p. 311.

listed as assets by individuals, businesses, and governments therefore fall short of the liabilities of the banking sector. Checking deposits as assets are understated, while commercial bank liabilities as a whole are correctly stated. As soon as the checks are received and deposited by creditors, this discrepancy disappears, though at any given point in time there are always some items en route; hence some discrepancy.

Bank float, however, gives rise to another type of problem. When the creditor's bank accepts his deposit and credits his account, total deposit liabilities of the commercial banking system are overstated, and this discrepancy prevails until the check reaches the debtor's bank and is debited to his account. This is the reason why in banking statistics checks in process of collection are deducted from total bank deposit liabilities in computing the nation's money supply.³ The mechanics of collecting checks through the Federal Reserve System produce a situation in which some bank float disappears from the accounts of commercial banks and reappears in the accounts of the Federal Reserve Banks. Federal Reserve float is, then, only an element in the over-all total of bank float for the purposes of this study.

In summary, mail float has the effect of understating bank deposits as assets on the part of holders without causing any misstatement of deposit liabilities on bank records. Bank float, on the other

³A more detailed discussion of float is given in Board of Governors of the Federal Reserve System, Flow of Funds in the United States, 1939-1953, pp. 304ff.

hand, has the opposite effect; it overstates deposit liabilities of the banking system without having any distorting effect on bank deposit assets reported by holders.

In preparing the national balance sheet, bank float is deducted from the deposit liabilities of the banking system, as is the case in monetary statistics. It is further necessary to reduce deposit liabilities of the banking system by the amount of Federal Reserve float. Commercial bank float (which appears on bank balance sheets as "cash items in process of collection") may be deducted from deposit liabilities before they are recorded on the national balance sheet; this direct treatment is not possible with respect to Federal Reserve float since it appears in this study on the balance sheet of another sector. The required adjustment is accomplished by recording federal reserve float as an asset of the system in the line "Demand Deposits." This entry has the effect of off-setting demand deposit liabilities of the commercial banking sector in the appropriate amount.

Mail float cannot be handled so easily. One possible solution is to restore the amounts involved to the balance sheets of the paying sectors. Another is to add the amount to the recorded cash balances of the receiving sectors. Either procedure would correct the understatement of cash balances, yet both suffer from the defect of distorting the position of some economic units by making it appear that they have more cash than they actually do.

In developing a satisfactory treatment of this problem it is helpful to remember that the discrepancy in cash on deposit is offset

by an equal discrepancy in accounts receivable and payable. These items should theoretically amount to the same figure since for every debtor there must be a creditor. However, when debtors write checks they reduce their accounts payable, while creditors do not reduce their receivables until the checks are received. At any given time accounts receivable for all economic units will amount to more than the total of accounts payable.

The method adopted in this study is that of accepting each economic unit's view of its own financial position without artificial corrections either to cash or payables. This results in a discrepancy at both points equal in amount and opposite in sign. The adjustment is not made in the accounts of any of the sectors but is made at the national level.⁴

With respect to current receivable and payable items, two major discrepancies arise. One has already been discussed above; the other results from bad debts. The total of accounts receivable reported in the economy will differ from accounts payable in the amount of bad debt reserves. One possible procedure is to reduce the total accounts payable by the amount of bad debt reserves and so bring payables and receivables into agreement. Another would be to restore bad debt reserves to accounts receivable on the grounds that adjustments for such debts should not be made until they are actually written off as

⁴This adjustment appears as item (1) in the adjustment column on the sample balance sheet given in Chapter IV of this study.

uncollectible. This method has the advantage of consistency with the national income treatment.⁵ The latter procedure is followed in this study.

Assets and liabilities relating to life insurance contracts pose another set of problems. Life insurance companies show on their balance sheets amounts for policy reserves based on the present values of actuarially computed future liabilities. Households, on the other hand, may regard these claims against life insurance companies as assets. If the consolidation process is to proceed smoothly, the household assets and insuror liabilities must be equal.

In evaluating the household assets one is tempted to use cash surrender values of policies and to include this item among liquid assets. Cash surrender values are not, however, equal to reserves of insurance companies. In the early years of an individual policy, the cash surrender value is considerably less than the reserve maintained against the policy, the difference growing smaller and smaller the longer the policy runs. Recording household life insurance assets in the national balance sheet at cash surrender value would result in a discrepancy and, during a period in which life insurance in force is increasing rapidly, a very considerable discrepancy. This fact may be

⁵Bad debts written off are recorded as business transfer payments; the basic data sources are Internal Revenue Service tabulations. Until 1954 only losses actually sustained were allowable as deductions from taxable income. Since 1954 provisions for expected losses are allowable as deductions. The writer has not been able to determine what adjustments, if any, are presently made by the National Income Division to reflect this changed procedure.

used as an argument against the use of cash surrender value.

In this study household assets in life insurance are shown at the same value as insuror reserves. This amount records the estimated present value of the future benefit payments at different future dates weighted by their respective probabilities. Assets viewed in this way are in part highly illiquid; only that portion represented by cash surrender value may be shown as a liquid asset.

Flow-of-funds shows only cash surrender value as a household asset; Goldsmith goes to the opposite extreme and regards virtually all life insurance company assets as held indirectly by households.⁶ The latter treatment seems to include too much in household assets--such items, for example, as security valuation reserves, retained earnings of stock companies, and surpluses of mutual companies. For purposes of the present study such items are treated as net worth rather than liabilities to households. For stock companies they are part of the net worth which is held through outstanding stocks. For mutual companies they represent ultimate ownership of part of the national wealth.

It should also be pointed out that assets in life insurance contracts do not appear only on household balance sheets, though the preceding discussion has been carried on wholly in those terms. In some cases businesses pay premiums, receive benefits, and are entitled to cash surrender values. Reinsurance contracts may give rise to off-

⁶Goldsmith, A Study of Savings, II, 268.

setting assets and liabilities in insurance sector balance sheets.

With respect to pension funds, we have proposed in Chapter I not to record publicly administered funds either as household assets or government liabilities. This treatment may be less than adequate for some government employee plans which do permit withdrawals upon termination of employment so that an identifiable household asset actually exists.

Privately administered funds, on the other hand, normally identify the amounts set aside for each individual, and such amounts may, under specified conditions, become available to the individual before he retires. Assets of privately administered pension funds may be regarded as indirectly held household assets.

There are many cases, however, in which pension fund assets do not properly reflect the accrued liability to future beneficiaries computed actuarially. This is usually true with respect to newly established plans where a large liability for past service credit exists. Such liabilities are usually gradually funded over a period of years and are not recognized immediately. Properly speaking, such liabilities should be recorded as employer debts to pension funds and pension fund liabilities to households. This adjustment has not been made to the national balance sheet in Chapter IV solely because the necessary figures are not available.

Discrepancies may arise with respect to bonded debt, a subject discussed at some length in Chapter II. The treatment there proposed deals adequately with any potential differences which might result

from issues at a discount or premium, or fluctuations in the market values of outstanding securities. The reader may recall that for the purposes of this study bonds are recorded at market values both as assets and as liabilities.

There is another source of discrepancies between bonds as assets and as liabilities which is not discussed above--namely, costs of flotation. Consider a situation in which bonds are issued at par--that is, the coupon rate coincides with the ruling market rate. Payments for the bonds by purchasers will still exceed receipts by the issuer by the amount of flotation costs. This difference is normally treated as an asset in business accounting and is usually amortized over the life of the issue as something resembling an additional interest cost. If this "asset" is deducted from the issuer's bond liability in the consolidation process, a discrepancy is introduced. If, on the other hand, it is permitted to stand as an asset in its own right, the issuer's bond liability will agree with valuation placed on the bond by holders. Since the asset representing deferred flotation costs is not then cancelled against any liability, it will appear in the national balance sheet as part of the national wealth--a somewhat surprising result.

One might treat such costs as prepaid interest, thus justifying their inclusion among the assets of the issuer. A prepaid expense which appears among the assets of one economic unit, however, should always have its counterpart in an unearned income item among the liabilities of some other economic unit. In preparing a national

balance sheet, prepaid expense should disappear in the consolidation process. If bond flotation costs are prepaid expenses of the issuer, one would expect investment bankers to show a liability for unearned income, which they do not. From the standpoint of the national wealth accountant, flotation costs cannot be regarded as prepaid interest.

There is still another argument for treating flotation costs as assets. Proceeds of bond issues are normally used to finance the acquisition of capital goods; any expenses in connection with the issuance of bonds are part of the cost of the capital goods so acquired so that they should be recorded among the assets of the issuer. If this line of reasoning is pursued, there is no reason why unamortized flotation costs should not be included in the national wealth along with capital goods. Moreover, such costs should be considered a part of investment spending for purposes of national income and product accounting.⁷ This argument breaks down, however, with respect to re-funding issues and is further weakened by the fact that uses of specific receipts of funds are difficult to trace. A firm might well acquire capital goods by reducing its working capital; then later float bonds to replace working capital.

It should be pointed out that flotation costs, like all administrative expenses of financial intermediaries, result from imperfec-

⁷This is the treatment proposed in the published flow-of-funds study (Board of Governors of the Federal Reserve System, Flow of Funds in the United States, 1939-1953, p. 294). National Income does not include them in capital formation, and unpublished revisions of the flow-of-funds accounts concede this point.

tions in capital markets. Like other problems which arise from market imperfections, there is probably no really satisfactory theoretical solution. For purposes of this study flotation costs are treated as capital outlays and so appear in national wealth in connection with capital goods.

Perhaps the most significant (and numerically the largest) discrepancy appears with respect to equity securities. As may readily be imagined, the net worth of a corporation does not necessarily coincide with the market value of its outstanding shares. There is almost always some discrepancy, and in some circumstances it may become very large.⁸ Which, then, measures most accurately the value of corporate assets--the market values of individual assets less liabilities, or the market values of outstanding shares?

Before attempting to answer this question, we shall inquire into some of the circumstances that serve to bring the discrepancy into being. To use accounting terminology, firms typically have a "going concern" value which exceeds the book values of assets less liabilities, which may also be expressed by the term goodwill. Some of the factors which are responsible are temporary; others may be permanent.

⁸The estimated figures for 1949 and 1950 are given on the national balance sheets in the previous chapter. Goldsmith estimates that by December 31, 1955, the market values of shares exceeded depreciated replacement costs of corporate assets by thirty-two billion dollars--that is, share values have risen from a figure lower than corporate assets to one considerably higher. See U.S. Congress, Joint Economic Committee, Subcommittee on Economic Statistics, op. cit., p. 302.

The presence of monopoly may have the effect of securing larger returns to capital than is the case in competitive industries. Curiously enough, the shares of a corporate monopoly may be traded in a highly competitive securities market, so that the competitively determined market value of outstanding shares will permanently exceed the value of net assets. Even in the absence of monopoly, large scale production or other barriers to entry may cause larger than ordinary returns in an industry to persist, which returns, given a competitive securities market, will drive up share prices.

In addition to situations in which the discrepancy between share values and net asset values tend to be permanent, there are a host of forces which bring about short-run discrepancies as well. Extraordinary profits in one industry, even with no barriers to entry, will temporarily tend to raise share prices. Indeed, this is part of the mechanism by which capital is attracted into relatively profitable industries. With respect to relatively unprofitable industries, share prices may remain well below net asset values, though in cases where capital goods themselves have low opportunity costs (as, for example, the railroads) this need not be the case.

The existence of risk and uncertainty (differing degrees of which provide the principal distinction between debt and equity securities) creates additional opportunities for further divergences between asset and share values. Not the least important result is stimulus to

speculative activity.⁹ Another important factor is the relative demand and supply of debt and equity securities, a largely unexplored subject. In the late forties there were widely expressed fears of an insufficient demand for equities--as, indeed, the relative undervaluation of common stocks would substantiate--as compared to a greatly enlarged demand for debt securities (allegedly abetted by the newly-found importance of large financial intermediaries). Ten years later--if the financial columnists are to be believed--there is an insufficient demand for bonds; everyone wants stocks. As is indicated in Chapter VII, there is a need within economics for a unified theory of assets and liabilities which will explore some of these matters, particularly the forces which affect the relative supplies of and demands for debt and equity securities.

This brief discussion underscores the fact that forces making for discrepancies between corporate net assets and market values of corporate equity securities are many and varied. If we consider corporate net worth a kind of liability to shareholders, then the process of cancelling domestic financial claims and liabilities will produce a discrepancy. The question then arises as to which measure of corporate net assets is the best--that is, which of the two figures shall be adjusted to the other so as to eliminate the discrepancy.

It might seem reasonable to conclude that the valuations placed

⁹One could hardly hope to match Keynes' classic exposition of the price-determining forces in the stock market, many of which have little to do with prospective dividends (op. cit., pp. 152f).

upon shares by the securities markets are the better measure of corporate net assets. There seem to be ample (already referred to) grounds for questioning this conclusion, however. The most important one is the relatively large role played by speculation in determining share prices at any particular time. It is true, of course, that in the long run the market recognizes changes in earnings and in other more basic factors, but, as we have seen, this may be a very long run indeed.

The position adopted in this study is that neither measure of the value of corporate net assets should be adjusted to the other--that is, the discrepancy should not be artificially eliminated. Indeed, the size of the discrepancy conveys information just as important as any other entry in the national balance sheet. For example, a large excess of share market values over net asset values indicates a long-run equilibrium in corporate financing and in expansion has not been reached. The larger the discrepancy, the lower the "cost" of equity capital. One would then expect a shift of corporate financing from debt to equity issues and a further expansion of corporate holdings of tangible assets.

A large excess of net asset values over security values indicates, on the other hand, that the cost of debt financing is lower than equity financing, so that a shift toward debt issues is indicated. Such changes, of course, take time, and the indicated shifts may be slow in materializing. It would appear to be a defensible generalization, however, that the larger the discrepancy in either direction, the stronger will be the pressures for a shift in financing.

Another significant feature of a large excess of stock values over corporate net assets is the discrepancy between the rate of return on corporate assets and the lower rate of return on stocks at market value. This is, of course, a difference over and above any resulting from corporate retained earnings. This may be the hidden means by which a falling rate of return on capital in an advancing economy is manifested, even though effective rates of interest on debt securities are rising. Capital may, after all, have a falling marginal productivity, or, if the reader prefers, a falling marginal efficiency.

At any rate the size of the discrepancy is a matter of some importance; it is not eliminated in the consolidation process. For the national wealth statement (consolidated national balance sheet), corporate assets are entered in the same manner as on the balance sheet of the corporate sector--namely, depreciated cost adjusted to current cost, which method was selected as the best available approximation to market values. Market values of corporate shares are given, as is the discrepancy between the two figures. If the reader prefers to value corporate net assets on the basis of market values of stocks, he may do so by means of one simple adjustment to the figures.

There are, of course, some additional points in the balance sheet where some difficulties arise in the consolidation process. The most important ones, especially for purposes of analysis, have been treated so that any additional discussion would appear to run rapidly into diminishing returns.

CHAPTER VI

THE NATIONAL BALANCE SHEET, THE NATIONAL INCOME, AND THE FLOW OF FUNDS

It is the purpose of this chapter to examine some of the relationships between stocks of goods and claims as measured by the balance sheet and flows of goods and claims as measured by the more familiar social accounting structures of the national income and flow-of-funds accounts. There are several kinds of relationships between stocks and flows; these will be examined in turn. Some of the theoretical aspects of these relationships are discussed in the following chapter; most of this chapter is devoted to the exposition of the more technical aspects of the matter.

Flows are, among other things, additions to or subtractions from existing stocks of goods or claims. Net investment, for example, may be defined as the act of adding to the stock of capital goods. Stated somewhat differently, all production represents an addition to stocks, while consumption represents a subtraction from stocks, though in some cases production and consumption take place simultaneously. Cash receipts are an addition to the stock of cash, while expenditures are a subtraction; income is an addition to net worth, while consumption expenditure is a subtraction. These relationships may be expressed mathematically in terms of first derivatives

if continuous flows are assumed. If x represents the stock of a commodity (or a claim) at some point in time, $\frac{dx}{dt}$, the first derivative with respect to time (t), measures the related flow. Positive values of $\frac{dx}{dt}$ represent additions to the stock; negative values represent subtractions.

Another important relationship between stocks and flows is that involved in computing a rate of return on investment. In this case the net income (a flow) produced by a stock of goods or claims is compared to the stock; if both can be reduced to a common measure (ordinarily money), the resulting ratio may be called the rate of return or, loosely, the rate of interest.

Still another relationship of some interest is that involved in developing capital coefficients--that is, stocks of capital goods, either inventories or fixed capital, required to sustain specified flows of production. The acceleration principle in cycle theory depends on the existence and stability of such coefficients. A fully developed input-output structure also requires that provision be made for flows of capital goods as well as intermediate and final products in general.¹ This particular aspect of the relationship between stocks and flows is a rather large subject; any further develop-

¹For a detailed discussion of capital coefficients in input-output studies, see Research Project on the Structure of the American Economy, Studies in the Structure of the American Economy, by Wassily Leontief et al. (New York: Oxford University Press, 1953), pp. 53-90.

ment lies beyond the scope of this study.²

A final type of stock-flow relationship which has been the object of study in economic and monetary theory is that of velocity of circulation. This notion has been developed mostly with respect to the stock of money as, for example, in the equation of exchange $MV=PT$. V represents the relationship between the stock of money at some point or points in time and the volume of expenditures in a given period of time. The idea of velocity or turnover is equally applicable to inventories, fixed capital, or any other stock. Very little analysis of this sort has been attempted, however, and none is attempted here.

The first type of relationship mentioned above--namely, that in which flows are looked at as additions to or subtractions from stocks--is explored in some detail in the following pages. The most important of the possible relationships is that between the national wealth and the national income, which may be best portrayed in a system of social accounting containing both income and balance sheet accounts.

The obvious point of contact between national production or income and national wealth is that portion of current production which is not consumed but which is invested or added to the stock of wealth. Consistency, then, requires that expenditure for any items

²For a recent further discussion of capital coefficients, see Conference on Research in Income and Wealth, Problems of Capital Formation (Studies in Income and Wealth, Vol. XIX [Princeton: Princeton University Press, 1957]).

which are regarded as wealth may not be treated in the income and product accounts as consumption expenditure. In Chapter I it was decided that for the purposes of this study certain articles the expenditure for which is treated in the present United States income and product accounts as current expenditures, would be included in the concept of wealth developed for this study. Expenditure for the acquisition of these goods must then be considered a species of capital expenditure. The most important items at issue are consumer durable goods and government capital goods.

For purposes of illustration, the national income and product figures for 1950 have been modified so as to relate the 1949 and 1950 balance sheets. Some of the ways in which the statements fit together may be illustrated as follows:

1. Tangible wealth at the beginning of 1950 plus gross investment less capital consumption equals tangible wealth at the end of 1950 (allowing for changes in values of existing capital goods).
2. For each sector, net worth at the beginning of 1950 plus income less current expenditure plus capital gains equals net worth at the end of 1950.
3. For each sector, tangible assets at the beginning of 1950 plus gross investment in new tangible assets less capital consumption plus (or minus) transactions in existing tangible assets equals tangible assets at the end of 1950.

In order to portray properly these relationships, it is necessary

to revise the income and product figures in several respects. Expenditures for consumer durables are treated as capital expenditures as are government construction and other durable goods outlays. Capital gains are computed in the process of adjusting existing goods to current values, and capital consumption allowances are based on current values, not on original cost which is the basis of computation for most of the capital consumption estimates in the official income and product figures. As noted in Chapter IV, many of these figures are rather crude estimates; they are useful, nevertheless, for purposes of illustration.

The 1950 national income and product estimates may be summarized as follows:³

TABLE 7
NATIONAL INCOME AND PRODUCT ACCOUNT, 1950
(Billions of Dollars)

Labor Income	154.3	Personal Consumption	194.0
Unincorporated Business Income	36.1	Gross Private Domestic Investment	51.2
Rent	8.5	Net Foreign Investment	-2.2
Corporate Profits	35.1	Government Purchases of Goods and Services	42.0
Interest	5.9		
Indirect Business Taxes	23.7		
Capital Consumption	20.5		
Other Minor Items	.9		
Charges against Gross National Product	<u>285.1</u>	Gross National Product	<u>285.1</u>

Source: National Income, 1954 Edition, p. 33.

³U.S. Department of Commerce, Office of Business Economics, op. cit., p. 33. The revised figures which have recently become

When the revisions mentioned above are incorporated, the income and product figures appear as follows:

TABLE 8

NATIONAL INCOME AND PRODUCT ACCOUNT, 1950, REVISED

(Billions of Dollars)

Labor Income	154.3	Personal Consumption	184.6
Unincorporated Business Income	38.2	Gross Domestic Investment	87.3
Rent	2.4	Net Foreign Investment	-2.2
Corporate Profits	33.3	Government Purchases of Goods and Services	39.0
Interest	5.9		
Indirect Business Taxes	23.7		
Capital Consumption	50.0		
Other Minor Items	.9		
Charges against Gross National Product	<u>308.7</u>	Gross National Product	<u>308.7</u>

Source: Writer's revision of Table 7.

The major changes are the reduction of personal consumption in the amount of consumer-durables purchases which are in this study treated as capital goods purchases and the increase of personal consumption in the amount of depreciation on the existing stock of consumer durables. Government purchases are reduced in the amount of government capital purchases but increased by the amount of depreciation on existing capital goods. Gross private domestic investment

available have not been used since much of the detail available in the 1954 supplement has been used in this study and is not available for the revised figures. Also, the detail furnished in the published flow-of-funds study uses the unrevised 1950 figures.

is increased as a result of the broader definition of capital expenditure. On the other side of the statement the major changes are a greatly increased capital consumption allowance with resulting reductions in business and rent income items. Capital consumption charges are increased for two reasons. One is that the broader definition of capital increases the amount of capital subject to depreciation. The other is that the conversion of capital goods values from original cost to current cost increases the dollar amount to which depreciation rates are applied.

If the reader will refer back to the balance sheets given in Chapter IV, transactions in tangible assets may be summarized as follows:

TABLE 9
CHANGES IN NATIONAL TANGIBLE ASSETS, 1950
(Billions of Dollars)

Tangible Assets, Beginning of 1950	853.0
Capital Gains	36.4
Gross Investment, 1950	<u>87.3</u>
	976.7
Less Capital Consumption	50.0
Discrepancy	<u>.2</u>
Tangible Assets, End of 1950	<u><u>926.9</u></u>

Source: Tables 5, 6, and 8.

The next step is an analysis of the same transactions by sectors. First, the income and product figures must be deconsolidated into the various sector components, an operation which is accomplished in

Table 10 on the following page. The figures are taken mostly from the published flow-of-funds work though some substantial revisions were necessary to recast the data in the desired form.⁴ The revisions were based on detailed figures supplied in the same study or on data contained in the 1954 national income supplement.⁵ The more important adjustments are described in the following paragraph.

⁴Board of Governors of the Federal Reserve System, Flow of Funds in the United States, 1939-1953.

⁵U.S. Department of Commerce, Office of Business Economics, op. cit.

TABLE 10

GROSS NATIONAL PRODUCT AND RELATED FLOWS
BY SECTORS, 1950

(Billions of Dollars)

Transactions	Households		Nonprofit Organiza-		Nonfinancial Business						Government				Financial Institutions						Rest of the World		Totals		Adjustments (a)		Gross National Product		Personal Consumption (Memo)					
	R	E	R	E	Farm		Nonfarm Unincorporated		Corporate		Federal		State and Local		Federal Reserve System		Commercial Banks		Savings Institutions		Insurance		Other		R	E	R	E	R	E	R	E		
					R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E	R	E												
Sales	.....	.....	3.6	....	31.6	....	164.4	.....	443.3	.....	4.4	....	4.3	....	.....	.....	.7	....	.....	.....	.....	.....	.....	11.5	....	663.8	.....	.....	.....	.....	.....	.....	.....
Purchases
Intermediate Goods	.....	4.2	.....	1.9	.....	10.0	.....	107.0	.....	287.9	.....	3.6	.....	1.6	.....	.....	.....	.4	.....	.....	.....	2.4	.....	.....	11.3	.....	430.3	.....	.....	.....	.....	.....	.....
Consumer Goods	.....	133.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	133.9	.....	.....	(c)	184.6	.....	132.9	.....
Capital Goods	.....	(41.4)	.....	(1.9)	.....	(4.5)	.....	(8.5)	.....	(23.4)	.....	(1.6)	.....	(5.7)	.....	.....	(.1)	.....	.....	.....	.....	.....	.....	.....	.....	(87.3)	.....	.....	.....	.....	87.3	.....	.....
Government	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.0	.....	4.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.1	.....	26.9	.....	39.0	.....	.....
Labor Income	154.3	2.7	.....	3.9	.....	2.7	.....	23.7	.....	94.3	.....	12.5	.....	10.9	.....	.1	.....	1.3	.....	.1	.....	2.0	.....	.....	.....	154.3	154.3	.....	.....	154.3	.....	2.7	.....
Interest (Cash)	6.1	4.4	.1	.16	.2	.5	.8	2.5	1.4	5.9	.3	.6	.3	3.1	.3	1.4	.8	2.15	.3	.1	.3	16.4	16.4	14.9	1.5	3.5
Imputed Interest (memo)	(.1)	(2.9)	(.6)	(2.0)	(.2)	(5.8)	1.4	4.4	2.0
Rent	13.9	8.5	.....	.3	.9	2.9	.2	3.2	4.0	4.5	.1	.2	.2	.2	.....	.....	.1	.1	.....	.....	.2	.....	.1	.....	.....	19.8	19.8	17.4	.....	2.4	.....	10.2	.....
Unincorporated Business Income	37.1	.....	.....	.....	.....	12.1	.....	25.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(1.7)	.....	.....	.....	.....	37.1	37.1	1.1	.....	38.2	.....	.....	.....
Corporate Profits	.....	.....	.....	.....	.....	.2	.....	.....	.....	33.2	.....	.....	.....	.....	.....	.2	.....	1.3	.....	.....	.3	.....	.....	.....	.....	.....	35.2	1.9	.....	33.3	.....	.....	.....
Taxes	.....	.....	.....	.....	.....	(.1)	.....	.....	.....	(16.9)	17.0	.....	.8	.....	.....	(.2)	.....	(.4)	.....	.....	(.2)	.....	(.3)	.....	.....	(17.8)	(17.8)	.....	.....	.....	.....	.....	.....
Dividends	9.0	.....	.1	.....	.....	(.1)	.....	.....	2.9	(10.5)	.....	.....	.....	.....	.....	.....	(.4)	.....	.....	.....	.3	(.2)	.3	.3	.3	1.3	(12.9)	(12.9)	.....	.....	.....	.....	.....
Retained Earnings	.....	.....	.....	.....	.....	.....	.....	.....	.....	(5.8)	.....	.....	.....	.....	.....	.....	(.5)	.....	.....	.....	(1.6)	.....	.....	.....	.....	.....	(6.3)	.....	.....	.....	.....	.....	.....
Capital Consumption	.....	27.5	.....	.7	.....	3.4	.....	2.5	.....	11.6	.....	1.4	.....	2.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50.0	.....	.....	50.0	.....	23.1	.....
Indirect Business Taxes	.....	4.6	.....	.....	.....	.8	.....	3.1	.....	13.8	8.7	.....	14.2	.....	.....	.....	.....	.2	.....	.....	.3	.....	.....	.....	.....	22.9	22.9	.8	.....	23.7	.....	.....
Social Insurance	6.5	6.5	.....	.....	.....	.....	.....	.....	.....	5.5	6.1	1.0	.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.0	13.0	.....	.....	.....	.....	.....
Other Insurance	6.2	8.0	.....	.2	.2	.3	.5	.7	.8	2.6	.2	.....	.....	.....	.....	.....	.....	.3	.....	.....	15.6	11.5	.....	.....	.1	.....	23.6	23.6	.....	.....	.....	3.3	.....
Other Transfer Payments	8.4	4.4	4.9	.8	.2	.....	.2	.2	.4	1.1	.2	10.3	6.9	7.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.4	.2	24.6	24.6	23.8	.....	.8	.....	3.6	.....
Personal Taxes	.....	19.9	.....	.....	.....	.....	.....	.....	.....	18.2	.....	1.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19.9	19.9	.....	.....	.....	.....	2.8	.....
Discrepancy	.....	.....	.....	.....	.....	.4	.....	.....	.....	.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.1	.....	.....	(b)	(b)	.....	.....	.1	.....	.5	.....
Total Current Receipts and Expenses	241.5	224.6	8.7	7.9	33.0	33.0	165.9	165.9	452.2	452.2	55.7	48.1	29.4	28.3	.3	.3	3.9	3.9	1.4	1.0	18.2	18.2	.8	.7	15.4	13.2	(b)	(b)	(b)	(b)	.....	184.6	.....
Net Saving	16.9	.....	.8	.....	.....	.....	.....	.....	5.8	.....	7.6	.....	1.1	.....	.....	.....	.5	.....	.4	.....	1.6	.....	.1	.....	2.2	.....	37.0	.....	.....	.....	.....	-2.2	.....
Capital Consumption	27.5	.....	.7	.....	3.4	.....	2.5	.....	11.6	.....	1.4	.....	2.9	.....	.....	.....	.5	.....	.4	.....	.....	.....	.....	.....	.....	.....	50.0	.....	.....	.....	.....	.....	.....
Gross Saving	44.4	.....	1.5	.....	3.4	.....	2.5	.....	17.4	.....	9.0	.....	4.0	.....	.....	.....	.5	.....	.4	.....	1.6	.....	.1	.....	2.2	.....	87.0	.....	.....	.....	.....	.....	.....
Transactions in Used
Tangible Assets	16.2	17.5	.....	.....	.4	.....	1.5	.....	.2	.1	.....	.....	.....	.4	.....	.....	.....	.....	.....	.....	.....	.2	.....	.....	.....	.....	18.3	18.3	.....	.....	.....	.....	.....
Increase in Liabilities	12.4	.....	.4	.....	.6	.....	6.6	.....	21.4	.....	-.4	.....	3.4	.....	1.1	.....	8.1	.....	2.9	.....	4.6	.....	2.2	.....	1.4	.....	64.7	.....	.....	.....	.....	.....	.....
Increase in Financial Assets	.....	13.7	.....	.2	.....	-.1	.....	2.1	.....	15.8	.....	6.7	.....	2.3	.....	1.1	.....	8.9	.....	3.3	.....	5.9	.....	2.6	.....	3.6	.....	66.1	.....	.....	.....	.....	.....
Gross Investment	.....	41.4	.....	1.2	.....	4.5	.....	8.5	.....	23.6	.....	1.6	.....	5.7	.....	.....	.....	.1	.....	.....	.....	.....	.....	.....	.....	.....	87.3	.....	.....	.....	.....	.....	.....
Discrepancy	.....	.4	.2	.....	.....	.....	.....	.....	.5	.....	.....	.3	1.0	.....	.....	.....	.4	.....	.....	.1	.....	.....	.4	.....	.....	.....	1.7	.....	.....	.....	.....	.....	.....
Totals	73.0	73.0	2.1	2.1	4.4	4.4	10.6	10.6	39.5	39.5	8.6	8.6	8.4	8.4	1.1	1.1	9.0	9.0	3.3	3.3	6.2	6.2	2.6	2.6	3.6	3.6	171.7	171.7	.....	.....	308.7	308.7	.....

Notes

Details may not add to totals because of rounding.
() indicates memorandum entry not included in totals.
R indicates receipts; E indicates expenditures.

(a) See Table 11 for explanations.
(b) Not applicable
(c) See next column

Sources: Computed from data given in National Income, 1954 Edition and Flow of Funds in the United States, 1939-1953.

TABLE 11

EXPLANATION OF ADJUSTMENTS IN
TABLE 10

(Billions of Dollars)

<u>Interest</u>	
Interest received by nonhousehold sectors	10.3
Government net payments treated as transfer payments in gross national product	4.7
Interest received by nonprofit organizations treated as personal receipts in gross national product	(.1)
	<u>14.9</u>
<u>Imputed Interest</u>	
Received by business	<u>1.4</u>
<u>Rent</u>	
Business rent receipts	5.9
Expenses of personal landlords	12.4
Imputed rent from owner-occupied homes	(.7)
Other	(.2)
	<u>17.4</u>
<u>Unincorporated Business Income</u>	
Imputed rent from farm residences	1.0
Discrepancy	.1
	<u>1.1</u>
<u>Corporate Profits</u>	
Domestic dividends received by domestic corporations already shown in corporate profits	<u>1.9</u>
<u>Indirect Business Taxes</u>	
Unidentified discrepancy	<u>.8</u>
<u>Other Transfer Payments</u>	
To eliminate all except business transfer payments	<u>23.8</u>
<u>Government Purchases</u>	
Payrolls, except government enterprises	20.7
Foreign aid treated as purchases from abroad in gross national product	2.8
Depreciation of government capital	4.3
Other adjustments	(.9)
	<u>26.9</u>

Notes

() indicates deduction

Source: Computed from data given in National Income, 1954 Edition and Flow of Funds in the United States, 1939-1953.

The sectors were rearranged to conform to those used in this study; the sectoring employed in the published flow-of-funds work, as indicated in Chapter III, differs somewhat from that employed here. Payrolls, which in the flow-of-funds study were limited to cash pay plus employees' social security, were raised to conform to the national income treatment. The flow of rent payments was revised to reflect the ownership of rented real property by households; lessorship activities of households were entirely in the unincorporated business sector in the flow-of-funds study. Insurance, tax, and transfer payment flows were rearranged somewhat, and capital consumption was explicitly entered as an expense.

On the basis of sector information provided in Table 10, Table 9, which deals with tangible assets, is expanded to show detail by sectors in Table 12. The reconciliation of balance sheet values for tangible assets from the end of 1949 (beginning of 1950) is complete. Table 10 also demonstrates the way in which net additions to stocks of capital goods were financed by sectors. The basic identity for each sector may be stated in the following manner: net savings (current receipts less current expenses) plus capital consumption allowances equals gross saving. Gross saving plus increases in financial liabilities plus transactions in existing assets less increases in financial assets equals gross investment.

At this point, as the reader has observed, it becomes necessary to introduce financial claims into the social accounts. It is possible to discuss national saving and investment without recourse to shifts in claims (except foreign capital movements); it is not possible to

TABLE 12

CHANGES IN NATIONAL TANGIBLE
BY SECTOR AND BY ASSET CLASSIFI

(Billions of Dollars)

Sector	Balance Beginning of 1950	Capital Gains	Gross Invest- ment	s
Households	339.9	10.1	41.4	
Nonprofit Organ- izations	12.9	.3	1.9	
Nonfinancial Business				
Farm	115.3	13.0	4.5	
Nonfarm Unincor- porated	51.5	1.0	8.5	
Nonfarm Corporate	217.3	9.1	23.6	
Government				
Federal	37.3	.9	1.6	
State and Local	75.9	2.0	5.7	
Financial Institutions				
Federal Reserve System	*	*	*	
Commercial Banks	1.3	*	.1	
Savings Institutions	.3	*	*	
Insurance	1.5	*	*	
Other	*	*	*	
<u>Totals</u>	<u>853.0</u>	<u>36.4</u>	<u>87.3</u>	
<u>Summary by Assets</u>				
Land	160.0	12.7	....
Residential Buildings	209.7	8.8	15.0	
Other Structures	198.7	3.5	14.5	
Producer Durables	104.2	2.2	22.8	
Consumer Durables	99.3	....	28.6	
Inventories	67.9	4.9	6.4	
Livestock	13.2	4.3	....
<u>Totals</u>	<u>853.0</u>	<u>36.4</u>	<u>87.3</u>	

Notes:

* Less than \$50 million

(a) net figures only shown

Details may not add to totals because of rounding

Source: Tables 5, 6, and 10.

TABLE 12

CHANGES IN NATIONAL TANGIBLE ASSETS
BY SECTOR AND BY ASSET CLASSIFICATION, 1950

(Billions of Dollars)

Sector	Balance Beginning of 1950	Capital Gains	Gross Invest- ment	Capital Con- sumption	Transactions in Existing Assets		Balance End of 1950
					Sales	Purchases	
Households	339.9	10.1	41.4	27.5	16.2	17.5	365.2
Nonprofit Organ- izations	12.9	.3	1.9	.7	*	*	14.4
Nonfinancial Business							
Farm	115.3	13.0	4.5	3.4	.4	(a)	129.0
Nonfarm Unincor- porated	51.5	1.0	8.5	2.5	1.5	(a)	57.0
Nonfarm Corporate	217.3	9.1	23.6	11.6	.2	.1	238.3
Government							
Federal	37.3	.9	1.6	1.4	(a)	(a)	38.4
State and Local	75.9	2.0	5.7	2.9	(a)	.4	81.0
Financial Institutions							
Federal Reserve System	*	*	*	*	*	*	*
Commercial Banks	1.3	*	.1	*	*	*	1.4
Savings Institutions	.3	*	*	*	*	*	.3
Insurance	1.5	*	*	*	*	.2	1.7
Other	*	*	*	*	*	*	*
Totals	<u>853.0</u>	<u>36.4</u>	<u>87.3</u>	<u>50.0</u>	<u>18.3</u>	<u>18.3</u>	<u>926.9</u>
<u>Summary by Assets</u>							
Land	160.0	12.7	....	....	1.9	1.9	172.7
Residential Buildings	209.7	8.8	15.0	9.0	12.6	12.6	224.5
Other Structures	198.7	3.5	14.5	10.4	.2	.2	206.5
Producer Durables	104.2	2.2	22.8	11.7	....	....	117.6
Consumer Durables	99.3	....	28.6	18.9	3.6	3.6	109.0
Inventories	67.9	4.9	6.4	....	....	....	79.1
Livestock	13.2	4.3	....	....	....	....	17.5
Totals	<u>853.0</u>	<u>36.4</u>	<u>87.3</u>	<u>50.0</u>	<u>18.3</u>	<u>18.3</u>	<u>926.9</u>

Notes:

* Less than \$50 million

(a) net figures only shown

Details may not add to totals because of rounding

Source: Tables 5, 6, and 10.

discuss sector saving and investment strictly in terms of tangible assets. This is the point at which flow-of-funds information becomes important; it sheds light on advances of funds between sectors and the financial instruments by means of which these flows are accomplished. Changes in financial assets, liabilities, and net worth by sectors are summarized in Table 13. The changes in assets and liabilities, which constitute the bulk of flow-of-funds information, may be traced directly to the national balance sheet.

It is through the device of financial claims that sectors are able to invest in tangible assets amounts different from their savings. For example, a sector may save more than it invests (in the sense of acquiring tangible assets) by accumulating financial claims against other sectors. This is the role normally played by households. A sector may, on the other hand, invest more than it saves, financing the excess of investment over saving through borrowing from other sectors. The nation as a whole, needless to say, is not at liberty to invest an amount which differs from its saving, but sectors may and normally do. This is why, for example, the figure for personal savings is not in itself very informative. We also need to know about personal (household, in this study) investment and the net advances of funds by households to other sectors--information now conveyed in the flow-of-funds accounts. Both national income and flow-of-funds accounts become considerably more informative when fully integrated into a system of accounts containing a balance sheet. The portrayal of the way in which these three national financial state-

TABLE 13

CHANGES IN FINANCIAL ASSETS, LIABILITIES, AND NET WORTH, 1950

(Billions of Dollars)

Sector	Financial Assets				Liabilities			Net Worth					
	Balance Beginning of 1950	Changes 1950	Capital Gains	Balance End of 1950	Balance Beginning of 1950	Changes 1950	Balance End of 1950	Balance Beginning of 1950	Saving	Owners' Investment	Capital Gains	Discrepancy	Balance End of 1950
Households	538.1	13.7	35.4(a)	587.1	67.5	12.4	79.9	810.5	16.9	...	45.5	(.4)	872.4
Nonprofit Organizations	12.3	.2	1.0	13.5	1.7	.4	2.1	23.5	.8	...	1.3	.2	25.8
Nonfinancial Businesses													
Farm	6.9	(.1)	....	6.8	12.4	.3(c)	12.7	109.8	....	.3	13.0	...	123.1
Nonfarm Unincorporated	19.6	2.1	....	21.7	18.0	2.7(d)	20.7	53.1	....	3.9	1.0	...	58.0
Nonfarm Corporate	120.1	15.8	6.3(b)	142.1	96.9	20.1(e)	116.9	240.5	5.8	1.3	15.4	.5	263.5
Government													
Federal	108.0	6.7	....	114.6	295.6	(.4)	295.3	(150.3)	7.6	...	.9	(.3)	(142.3)
State and Local	29.7	2.3	....	32.0	27.1	3.4	30.5	78.5	1.1	...	2.0	1.0	82.5
Financial Institutions													
Federal Reserve System	43.1	1.1	....	44.2	42.2	1.1	43.3	.9	...	...	....	...	.9
Commercial Banks	149.0	8.9	....	157.9	139.1	8.1	147.1	11.2	.5	...	....	.4	12.2
Savings Institutions	36.7	3.3	....	39.9	33.2	2.9	36.2	3.8	.4	...	....	(.1)	4.0
Insurance	75.6	5.9	.5	82.0	60.6	4.6	65.2	16.5	1.6	...	.5	...	18.5
Other	14.0	2.6	.3	16.9	8.8	1.9(f)	10.7	5.2	.1	.3	.3	.4	6.2
Totals	<u>1,152.9</u>	<u>62.5</u>	<u>43.5</u>	<u>1,258.4</u>	<u>803.1</u>	<u>57.4</u>	<u>860.4</u>	<u>1,202.9</u>	<u>34.8</u>	<u>5.8</u>	<u>79.9</u>	<u>1.7</u>	<u>1,324.8</u>
		(h)		(g)		(h)			(h)				(i)

Notes

Details may not add to totals because of rounding.

() Indicates Deductions.

(a) Common Stocks - \$22.2 billion; equity in unincorporated businesses - \$13.2 billion.

(b) Includes reinvested earnings abroad \$.5 billion.

(c) Does not include increase in proprietors' investments of \$.3 billion.

(d) Does not include increase in proprietors' investments of \$3.9 billion.

(e) Does not include net issues of stock of \$1.3 billion.

(f) Does not include net issues of stock of \$.3 billion.

(g) Cumulated rounding errors of \$.5 billion.

(h) Excludes foreign saving and net changes in foreigners' assets and liabilities which items are included in the figures in Table 10.

(i) Cumulated rounding errors of \$.3 billion.

Source: Tables 5, 6 and 10.

ments are linked together is one of the purposes of this study.

It may be helpful to the reader if an example is taken which illustrates the manner in which the various tables in this study fit together. Attention is invited to the household sector on the national balance sheets in Chapter IV. It may be noted that at the end of 1949, households held financial assets of \$538.1 billion and tangible assets of \$339.9 billion, owed liabilities of \$67.5 billion, and showed a combined net worth figure of \$810.5 billion. By the end of 1950 these items amounted to the following: financial assets \$587.1 billion, tangible assets \$365.2 billion, liabilities \$79.9 billion and net worth \$872.4 billion.

If the reader will now refer to Table 10, he will see that household net saving in 1950 is estimated at \$16.9 billion, which along with capital gains of \$45.5 billion accounts for the increase in net worth. This relationship is traced out for each of the sectors in Table 13. Table 10 also indicates that households increased their liabilities by \$12.4 billion in 1950, which amount serves to reconcile the outstanding liabilities on the two dates as shown above. This relationship is also developed for each sector in Table 13.

The beginning and ending figures for tangible assets as shown above are reconciled in Table 12. Holdings by households of \$339.9 billion at the end of 1949, plus 1950 additions less 1950 capital consumption (both shown in Table 10) plus capital gains equal holdings at the end of 1950 of \$365.2 billion. Financial asset holdings by households are reconciled in a similar manner in Table 13. Holdings

amounting to \$538.1 billion at the end of 1949 plus \$13.7 billion added in 1950 (from Table 10) plus capital gains of \$35.4 billion equal holdings at the end of 1950 amounting to \$587.1 billion.

Another matter of some interest for which the balance sheet provides some information is that of the rate of return on invested capital, or the ratio between property income and the value of property held for income. A few rough computations are attempted in the following paragraphs, though the estimates, as noted in Chapter IV, are hardly sufficiently refined to do much more than indicate some avenues for further research.

The first task in computing a rate of return on national wealth is to reduce property income and wealth to a comparable basis. It is necessary either to include in the national income a return on capital whose services are not sold in markets or to exclude such capital from the wealth measure to which income is compared. The principal items at issue are consumer durables and government capital goods; owner-occupied residences do not present any problem in this connection since an estimated rent is imputed in the national income accounts. No attempt is made here to resolve these involved questions; the wealth items at issue are simply deducted from the national wealth totals in computing the rate of return on wealth.

Another difficulty is that of dividing unincorporated business income between labor and property income; the division adopted may have a significant effect on the computed rate of return. Still another question is that of the proper valuation to be placed on corpor-

ate assets--that given by the market values of stocks or by market values (or the approximation to market value afforded by adjusted original cost) of individual assets. This problem has already been discussed in some detail in the preceding chapter. For the purposes of the present computation, both methods are used; the computations are presented in Table 14. If corporate profits after taxes are used, the figures are lower still--5.3 per cent and 6.3 per cent respectively. Different estimates of the share of property returns in unincorporated business will, of course, produce markedly different results. The writer does not claim sufficient knowledge to determine the appropriate share; for purposes of illustrating the computation, the share has been arbitrarily set at 1/3.

There are, of course, numerous objections which could be raised to the computations, even if more accurate estimates of wealth components were available. There is the standard complaint that realized (or ex post) returns convey no information about prospective (or ex ante) returns. The latter are the relevant facts for purposes of analysis and prediction. Even realized returns are not really properly stated. Consider, for example, the case of interest on any security where market value and nominal value diverge. The nominal return does not measure the effective return; yet only the nominal return appears in the national income statistics. The rate of return as computed should do, however, as a rough approximation, especially if more accurate balance sheet figures were available. Not perfect, perhaps, but certainly as accurate as many estimates which serve as the basis

TABLE 14
 RETURNS FROM NATIONAL WEALTH, 1950
 (Billions of Dollars)

	End of 1949	End of 1950
<u>National Wealth</u>	<u>895.0</u>	<u>966.0</u>
<u>Less items for which property income estimates are not available</u>		
Consumer durable goods	99.3	109.0
Tangible assets less liabilities of nonprofit organizations	11.2	12.3
Government tangible assets	<u>113.2</u>	<u>119.4</u>
<u>Total deductions</u>	<u>223.7</u>	<u>240.7</u>
<u>Adjusted National Wealth</u>	<u>671.3</u>	<u>725.3</u>
<u>Averages for 1950</u>		
Adjusted national wealth as above		<u>698.3</u>
Using market values of corporate stocks to value corporate assets		<u>588.1</u>
<u>Property Income</u>		
Corporate Profits (before taxes)		33.3
Rent		2.4
Interest		5.9
Unincorporated Business Income (1/3)		<u>12.7</u>
Total		<u>54.3</u>
<u>Rate of Return</u> (Using high estimate of national wealth)		<u>7.8%</u>
<u>Rate of Return</u> (Using low estimate of national wealth)		<u>9.2%</u>

Source: Tables 5, 6, and 8.

for complex business decisions.

There are almost endless possibilities for further analysis should the national balance sheet ever reach the degree of development which now characterizes the national income and product account. Further explorations would provide ample scope for several studies of this nature; no further developments will be attempted in this one.

CHAPTER VII

SOME IMPLICATIONS FOR ECONOMIC AND MONETARY THEORY

It is frequently the case that when a new block of empirical information becomes available theoretical developments are stimulated. Such is likely to be the case with measures of national and sector wealth. It is the purpose of this chapter to explore some of the possibilities for further developments in economic and monetary theory which might result from balance sheet information. There is hardly a corner of economics which is not directly related to some aspect of wealth as well as income. We shall not be able to do everything in a few pages; indeed, we will hardly be able to do more than suggest some promising lines of inquiry. The reader's indulgence is asked if he is frequently left with the feeling that there is more to be said; we shall have to resist the temptation to follow up some tantalizing leads.

Wealth items or balance sheet items may be thought of as stocks of goods or claims in contrast to income items, which may be thought of as flows over a period of time. For decades the attention of economists has been confined largely to flows--income, expenditure, savings, investment, production, consumption. Such attention as has been given to stocks has been concentrated almost exclusively on money

and capital goods. In recent years there has been increased interest in the theoretical implications of stocks, though hardly to the point where a fully integrated theoretical structure dealing satisfactorily with both stocks and flows can be said to exist.

In general, for every flow equilibrium there is a corresponding stock equilibrium, and neither may persist in the absence of the other. In some cases stocks are so small as to be virtually negligible in the adjustment process, so that flow analysis alone will suffice. In other cases stocks are so large that flow analysis is quite inadequate. Interest theory provides perhaps the best example: stocks of capital are large relative to flows in any short period; outstanding stocks of securities and money are large relative to the flows in any short period.

Neo-classical economists generally focused attention on the flow equilibrium of savings and investment thought to be achieved via changes in the interest rate. Keynes, on the other hand, developed interest theory in terms of a stock equilibrium. The demand for cash as a stock (cash to hold, not cash to spend) in conjunction with the existing stock of cash determine the interest rate in the Keynesian system. It is, of course, beyond the scope of this study to attempt any further unravelling of interest theory. It is probably safe to say, however, that no rate of interest is an equilibrium rate unless it simultaneously equates planned saving and investment and the existing and desired amounts of money.

A consideration of balance sheet items also leads to a reformula-

tion of the budget restraint which appears in one form or another in most general equilibrium systems. Ordinarily it is stated in terms of prices and quantities of goods purchased and incomes, as, for example:

$$p_1 x_1 + p_2 x_2 + p_3 x_3 + \dots + p_n x_n = y$$

where p_i = price of the i^{th} good
 x_i = quantity purchased per time period
of the i^{th} good
 y = income per time period¹

The introduction of stocks of goods, money, and other assets considerably alters the nature of the budget restraint. Since consumers may own goods and financial claims, and since the prices of these instruments are subject to change, the budget restraint must recognize the possibility of capital gains and losses as well as income as it is ordinarily calculated. There are the further possibilities of borrowing, selling existing assets, or reducing cash balances, so that expenditure for goods in any one time period is in no way limited to income received in that time period. Income plus wealth plus the maximum amount which can be borrowed set the effective upper limit to the spending of any one period. Some of these implications are pursued in Patinkin's recent book.²

As we have already suggested, there is a need for reworking economic theory to take fully into account stocks as well as flows.

¹See, for example, Hicks, op. cit., p. 305.

²Don Patinkin, Money, Interest and Prices (Evanston, Illinois: Row, Peterson and Co., 1956).

That is, there is a need for a fully developed theory of assets and liabilities to be integrated into the main body of economic doctrine. Moreover, it would appear desirable to make explicit and complete that which is frequently implicit and partially complete--namely, a body of theory for each sector of the economy. The division between the firm and the household is well established as is the distinction between foreign and domestic transactions. A body of theory has grown up around the banking sector, though it hardly had a speaking acquaintance with the main body of economic doctrine until Keynes and still remains a somewhat undigested lump.

Nonbank financial institutions have been virtually ignored even in monetary and banking theory until very recently, though their activities have been growing in importance by the year. Government activities are surely of sufficient magnitude to warrant further theoretical development; yet they do not fall into the customary molds of firms, households, or banks. Nonprofit institutions make strange bedfellows for households, but they are treated as such on the rare occasions when they are formally noticed at all. We are suggesting, in short, that there be a full-blown theory of flows (receipts and expenditures) and stocks (assets and liabilities) by sectors and that sectoring be done on a basis similar to this study.

Such a theory would recognize that saving (additions to wealth) is one thing and the composition of wealth is quite another. These are two related but quite different sets of decisions. Some flows represent additions to wealth or saving; other flows represent mere

shifts in the composition of assets already accumulated. There would be no great problem except that these two dissimilar types of flows take place frequently by means of the same medium--namely, money. Failure to observe these distinctions with care has cost dearly in terms of confusion.

A glance at the national balance sheet indicates that household assets are generally held in six major groupings:

1. Cash.
2. Tangible assets (such as land, houses, and consumer durables).
3. Equity securities or unincorporated business equities.
4. Fixed value claims (such as time deposits, savings and loan shares, and savings bonds).
5. Fixed-income claims (such as mortgages, corporate bonds, foreign bonds, and marketable government bonds).
6. Insurance and pension reserves.

The major household liabilities are mortgage credit, consumer credit, and security credit.

Of these various household assets and liabilities, only two have received any serious theoretical attention. Cash balances have been the subject of much work, sometimes under the heading of liquidity preference. Still more recent work has been done with respect to "securities," by which is usually meant bonds or perpetuities; theoretical work has hardly come to grips with equity securities at all.

It is truly amazing how much monetary theory treats cash balances in total isolation. Cash is part of an over-all structure of assets and liabilities; one is absolutely limited by the amount of his wealth in deciding what his cash holdings shall be (with the possible exception of borrowing to hold cash--a rare phenomenon). Indeed, the few recent attempts to deal with securities have come about mostly in connection with liquidity analysis and interest theory; if changes in cash balances take place through means other than saving or dis-saving, there must be some alternative asset for households to own.

It would be presumptuous in this paper to attempt a thoroughgoing development of a theory of household assets and liabilities. Some of the outlines of such a theory, however, come readily to mind. If we may proceed to that level of abstraction where rationality prevails, we may postulate that households will so arrange their asset holdings that returns from each type of asset held are equalized at the margin of holdings. That is, the rate which discounts expected future returns to present values is equal for every asset. It then becomes necessary to explain why a given household may be observed to hold assets of apparently different returns--a savings deposit yielding 3 per cent, a corporate bond yielding 5 per cent, and a share of U.S. Steel yielding 4 per cent, for example.

This is the point at which risk and liquidity premiums fit into a comprehensive theory: a good bit of work has already been done in these areas. It is probably also necessary to assume that risk and

liquidity premiums change as the proportion of wealth held in a given form changes. Otherwise all wealth would be held in the form of that one asset which afforded the highest return. This notion is something like the meaning of the term 'diversification' in the financial world. It is also necessary to take into account the costs of changing the composition of assets; transactions then take place only when prospective gains outweigh the costs of transferring ownership.

Willingness to undertake liabilities may be explained in terms of the prospective returns of the assets to be acquired. It is important to notice at this point that returns need not be monetary; in the case of consumer capital--i.e., homes, autos, and other consumer durables--returns are mostly imputed but are nonetheless present. Presumably households, like businesses, so arrange their borrowing or lending until returns from all assets are equal at the margin, and are also equal to the interest cost of any borrowed funds. That externally imposed limitations (by lenders) sometimes come into play long before this point is reached may be taken to indicate imperfection in the capital markets. It may also indicate sharply rising risk premiums demanded by lenders when a certain level of liabilities has been reached by households. It may indicate more simply that our assumed rationality which is so rarely present in practice is being forcibly imposed by lenders.

A fully-developed theory of business assets and liabilities would have to go beyond the typical analyses of capital theory.

Capital goods, in the sense of plant and equipment, are only a segment of business assets. Inventories, cash, and other elements of working capital play important roles in business activity. Capital theorists frequently fail to make a clear distinction between business demands for funds on the one hand the demands for capital goods on the other. Furthermore, the demand for savings to finance capital goods purchases (a flow) is sometimes confused with the demand for cash balances (a stock). The latter, which we might call business liquidity preference, is frequently not carefully distinguished from household liquidity preference. If one is interested in developing a liquidity preference theory of interest or anything else, it is necessary to specify exactly whose liquidity is meant.³

It is not enough to explain only business assets. A theory of liabilities is necessary for business in general and, for corporations, one which encompasses equity securities as well.⁴ If profit maximization may be assumed as the goal of entrepreneurs, then firms will presumably continue to borrow until marginal interest

³For an interesting recasting of some traditional theory into the form of the demand and supply for stocks rather than flows, see Kenneth E. Boulding, "A Liquidity Preference Theory of Market Prices," Economica, XIIn.s. (May, 1944), 55-63.

⁴For three recent papers dealing with these matters see Franco Modigliani and M. H. Miller, "The Cost of Capital, Corporation Finance and the Theory of Investment," American Economic Review, XLVIII (June, 1958), 261-297; William J. Frazer, "Some Factors Affecting Business Financing," Southern Economic Journal, XXV (July, 1958), 33-47; Carl A. Dauten, "Toward a Theory of Business Finance," Journal of Finance, X (May, 1955), 107-120.

costs are equal to marginal returns from investment, discounted in some fashion for risk. For corporations, financing is presumably distributed between debt and equity issues so as to equalize at the margin the cost of capital--provided, that is, that the cost of equity capital can be measured satisfactorily.

It is doubtful whether much headway can be made in developing a theory for the government sector, since governments are supposedly immune to most of the considerations which govern household and business economic activity. Benefits from government activity are rarely measured in the marketplace, so that any attempt at a theoretical treatment leads almost immediately into inter-personal comparisons of utility or one of its allegedly measurable variants. The soundest policy is, perhaps, to regard virtually all government activities as exogenous to the economic system, excepting possibly the automatic stabilizers. At any rate, it is not necessary for the purposes of this study to take a stand on such issues.

It is possible, however, to recognize that government activities have an impact on the asset-liability structure of the economy as well as the income-expenditure patterns. This has been recognized for some time with respect to the federal debt, though far too much discussion proceeds as though the debt existed in a vacuum. It is only a part (though a very large part) of a vast structure of claims and liabilities; its place in the economy can hardly be fully described without such a statement as the national balance sheet or the flow-of-funds accounts. Other financial features of the government

sector which affect the nation's asset-liability structure are trust funds, sinking funds, lending operations--principally agriculture, housing, and foreign--and insuring operations.⁵

Banking as a separate sector has been the object of study for decades, though economic theory and monetary theory have led somewhat independent lives. It is a curious thing that in liquidity preference theory the quantity of money (which in conjunction with a liquidity preference schedule determines the interest rate) is taken as given, or at least uniquely established by the action of the monetary authorities. This is certainly not true under conditions of deep depression and serves only as a fairly accurate approximation in circumstances of inflation. Given the size of bank reserves and reserve requirements, the potential supply of bank money may be uniquely determined. Even this is not strictly true in the United States today; it depends on which banks have reserves and in what amounts. The money supply, in short, is one of the variables, not one of the parameters.

It is only recently that nonbank financial intermediaries have begun to receive the attention warranted by their size.⁶ Their

⁵For a discussion of the aspects of federal finance, see Raymond J. Saulnier, Harold G. Halcrow, and Neil H. Jacoby, Federal Lending and Loan Insurance (Princeton: Princeton University Press, 1958).

⁶See Raymond W. Goldsmith, Financial Intermediaries in the American Economy Since 1900 (Princeton: Princeton University Press, 1958). See also a series of articles by John G. Gurley and Edward S. Shaw as noted in the bibliography. Much of their line of argument is summarized and criticized in John M. Culbertson, "Inter-

liabilities (savings and loan shares, pension and insurance reserves, etc.) are among the largest household assets. A complete theory of assets and liabilities would explain why households prefer to own claims on financial intermediaries rather than owning directly the stocks, bonds, and mortgages which comprise the bulk of the assets of financial intermediaries. Indeed, it is first necessary to explain why households choose to own stocks, bonds, and mortgages (which are claims against economic units which themselves own tangible assets) rather than directly owning tangible assets. It is characteristic of all highly developed economies that ownership of wealth is one, two, or even more stages removed from actual physical control. Some of the implications of these superimposed layers of claims have been explored by Goldsmith.⁷ It is, of course, beyond the scope of this paper to attempt the development of a comprehensive theory of financial intermediaries. It is likely, however, that it would involve those considerations of liquidity, risk, and diversification mentioned above, with the added factor of economies of scale in managing financial investments.⁸

mediaries and Monetary Theory: A Criticism of the Gurley-Shaw Theory," American Economic Review, XLVIII (March, 1958), 119-131. A well-done reply by Gurley and Shaw follows immediately.

⁷Goldsmith, Financial Intermediaries, pp. 18-48.

⁸Keynes makes some interesting observations concerning the transformation of the ownership of highly illiquid assets (plant and equipment) into liquid claims. The discussion is oriented towards common stocks but is equally applicable to the activities of financial intermediaries. The disastrous record of occasional mass attempts to exercise simultaneously these liquidity features is wellknown, espec-

Nonprofit institutions do not lend themselves easily to theoretical treatment. To the extent that their services are sold they may be treated in the business sector. If their expenditures were entirely financed by consumer gifts and grants, they could be treated as consumers--as is done by the National Income Division. It is sometimes asserted that their operations are relatively so small that almost any treatment has little effect on national aggregates. It would appear to the writer that insufficient data are available to confirm or reject this view, especially with respect to assets and liabilities. It would seem preferable to treat nonprofit institutions as an autonomous sector.

We have now sketched the outlines of an over-all economic theory by sectors--one which treats stocks as well as flows. We are not suggesting much in the way of new theory--only a somewhat more explicit statement of the framework in which virtually all investigators have done their work.

The view of the economy which is suggested by the national balance sheet (and the flow-of-funds accounts) is full of implications for monetary theory and policy--few new truths, to be sure, but new ways of looking at old ones. The national balance sheet provides what is probably the best possible picture of the environment in which monetary policy operates. Every policy instrument applies to assets and liabilities and to those flows which represent changes

ially that following 1929. See Keynes, op. cit., pp. 159-160.

in holdings of assets and liabilities as opposed to flows of incomes and products.⁹ It is worth noting that not a single factor controlled directly by monetary policy appears in the national income and product accounts. This is perhaps why so many attempts to connect the money supply or monetary policy and national income are loaded with apparent non sequiturs; everyone knows there must be some link, but its precise nature is elusive.

Those aspects of economic activity which are described by the national balance sheet and the flow-of-funds accounts, however, supply the missing links. Monetary policy brings pressures to bear on stocks (assets and liabilities) and those flows which result from changes in holdings of stocks. In the national balance sheet as it is developed in this study, there are 680 possible cells to be filled in with numbers. Monetary policy may be thought of as influencing all of these cells by policy instruments which operate directly on only a few strategically located ones. A few moments' reflection will suffice to make clear which cells in the national balance sheet fall under the direct control of monetary policy, namely:

1. Member bank reserves (assets) and the corresponding liabilities at Federal Reserve Banks.
2. Member bank borrowings from the Federal Reserve Banks

⁹This is the distinction made in the flow-of-funds accounts between financial and nonfinancial transactions. Nonfinancial transactions include payments for salaries and wages, rent, interest, dividends, insurance premiums, and purchases of goods and services. Financial transactions cover only changes in intangible assets and liabilities.

(liabilities) and the corresponding Federal Reserve assets.

3. Reserve Bank holdings of government securities.
4. Security credit.
5. Installment credit (at certain past times).
6. Mortgage credit (at certain past times).

It should be mentioned at this point that monetary policy actions and, for that matter, interest rate changes in general have an impact on asset and liability values throughout the economy. Indeed, the causal chain by which monetary policy actions influence economic decisions may be traced as well through asset-liability relationships as through funds-flow relationships.

Consider, for example, a prospective investment in a tangible capital good which is expected to yield a return (making suitable allowances for risk) of 5 per cent. If funds can be obtained at 4 per cent the investment will presumably be made. Now suppose that monetary policy actions result in generally higher interest rates so that the prospective borrower must pay 6 per cent. In terms of flows of income and interest payments, the prospective investment is seen to be unattractive.

Consider now the same situation examined from the viewpoint of the balance sheet. In the circumstances first outlined, the present value of the prospective investment discounted at 4 per cent (the rate at which funds are obtainable) exceeds the cost of the asset, so that the investment will be made. Likewise, the present values of similar existing assets will exceed the cost of the asset to be

newly produced. After the shift in interest rates, the present values of the existing assets, as well as that of the asset which would be newly produced, would fall below the production cost of the assets in question. The investment would not take place.¹⁰

The need for further developments in economic theory with respect to stock equilibria as well as flow equilibria has been suggested above. Such a development is well under way in monetary theory; this is one of the points at which the integration of economic and monetary theory is likely to be most fruitful.

An issue of some years' standing in monetary policy is that of the relative merits of long- or short-term securities in open market operations. The balance sheet provides information which will be useful in assessing the probable results of alternative courses of action. If short-term securities are used, it is with the expectation that interest rate changes will be transmitted to longer-term borrowing as well. Such changes can be transmitted only if at some points in the economy there are actual or potential dealings by the same economic units in both kinds of securities. The national balance sheet gives this information with respect to actual holders and suggests, as no other single statement can, potential holders.

Another question of increasing importance in recent years is

¹⁰This and other aspects of the relationship between monetary policy and capital values are explored in a paper prepared for early publication in the Journal of Finance. See C. A. Matthews, "Monetary Controls and Capital Values," to be published in the Journal of Finance, September or December, 1959.

the question of the effectiveness of presently available monetary policy weapons in the light of the rapid growth of nonbank financial intermediaries and the relative shrinkage of commercial banking. It is sometimes argued that much lending and borrowing escapes the influence of monetary policy and that some new powers are needed by the monetary authorities if these are successfully to achieve their objectives. A related argument is that commercial banks suffer undue discrimination in bearing the brunt of monetary policy. The national balance sheet provides a particularly valuable means of evaluating these arguments since it shows in one place the entire asset-liability structure of the economy and the respective roles of bank and nonbank financial intermediaries.

In approaching these problems, let us first point out that as a general rule lending by nonbank intermediaries comes from voluntary savings; any resulting investment spending financed by these institutions will not destroy the savings-investment balance and hence will not tend to alter the level of the national income. The banking system is unique in its power to "create" the means of payment; it alone brings into being its own liability in the process of lending. It is sometimes argued that banks, like nonbank intermediaries, can do nothing to destroy the savings-investment equality. If new deposits are created to finance investment, someone in the economy must own these deposits after the borrower makes his investment, and these individuals have "saved"--that is, spent less than their incomes--or else they would not now own the deposits. This is, however, only

the old confusion between ex ante and ex post magnitudes. Even in the worst of inflations, at any given moment someone must hold all existing cash balances, however temporarily. Moreover, ex post or realized savings and investment are equal for any particular period, no matter how temporary the saving. We should perhaps reformulate our above statement by saying that as a general rule resources of nonbank intermediaries represent realized savings plans, whereas bank deposits need not.

There are several possible situations in which lending by non-bank intermediaries will not be strictly financed by planned savings; these represent the only circumstances in which such intermediaries may contribute to an inequality between planned saving and planned investment. Consider, for example, a situation in which individuals deposit previously accumulated cash balances with financial intermediaries, so that subsequent lending may lead to investment not offset by saving in the current period. This, however, is not a problem unique with respect to financial institutions. Any attempt to reduce previously accumulated cash balances is inflationary (assuming full employment), whether the occasion is the purchase of a new Cadillac or a deposit in a savings bank which indirectly finances investment spending. Attempted reductions in cash balances (a leftward shift of the liquidity preference curve of the various nonbank sectors) is an ever-present threat to stability, and one with which existing policy instruments must already deal. New powers are hardly needed at this point, at least not on account of

financial intermediaries.

Another possibility is that intermediaries themselves may hoard or dishoard--that is, thwart the ex ante savings-investment equality by accumulating savings as cash balances or reducing cash balances to lend more than currently received savings. Hoarding or disharding is a generally recognized phenomenon with respect to households or business; it is a somewhat neglected idea in the present connection.¹¹

Under inflationary conditions, the imposition of cash reserve requirements could prevent the using of cash balances to sustain lending operations in excess of new deposits. Such a proposal deserves, on theoretical grounds, some study, though a glance at the flow-of-funds accounts for the post World War II years suggests that there is virtually no inflationary impact at all from this source. In a deflationary crisis, cash reserve requirements for intermediaries could not prevent hoarding by intermediaries any more than they can prevent hoarding of excess reserves by banks. About the only effective forces are those which provide the liquidity which the whole economy is so desperately seeking--a need which at present can be filled by Federal Reserve open-market purchases and rediscounting, by Federal National Mortgage Association purchases of mortgages; in fact, by

¹¹For a discussion of the role of hoarding by financial intermediaries in the contraction of the early 1930's, see Homer Jones, "The Optimum Rate of Investment, the Savings Institutions and the Banks," American Economic Review Supplement, XXXVIII (May, 1948), 321-339.

any device which serves to make illiquid assets of the public convertible into more liquid assets. In short, there appears to be little warrant for additional monetary policy devices to control hoarding or dishoarding by intermediaries.

The only other means by which nonbank intermediaries may contribute to an imbalance between planned saving and investment is through borrowing.¹² If borrowing is done from banks, existing instruments of monetary policy which already control bank lending may be used. The only other source aside from savings in the private sectors--which, being savings, do not upset the savings-investment equality--is the federal government. Lending by government agencies under their various programs or purchasing privately-held securities such as mortgages does, of course, provide funds to financial intermediaries as well as to other sectors of the economy. That monetary policy can to some extent be thus circumvented is not an argument for control of nonbank intermediaries; it is rather an argument for a fully co-ordinated monetary policy.¹³ In short, nonbank

¹²That is, through other than their usual channels of securing funds. We would not include increases in savings deposits (liabilities) of mutual savings banks, for example.

¹³It must be emphasized at this point that, given our present financial structure, the Federal Reserve System is the ultimate creator of liquidity. The ability of the other sectors (including the federal government) to furnish liquidity to the economy is strictly limited in the absence of aid from the Federal Reserve System, though cash balances held by the Treasury and other government funds and agencies provide some leeway.

Consider, for example, a situation in which a government agency is supplying funds to the economy by purchasing mortgages at the same time that the Board of Governors is pursuing a policy of credit

financial intermediaries present no problems that cannot be handled with existing monetary policy instruments or that are not part of a broader problem, like that of government agencies moving at cross-purposes with Federal Reserve policies.

Another feature of the economic system that is made prominent by the national balance sheet is the superstructure of debt. The existence of debt in large amounts is full of implications for economic theory, few of which have yet been fully developed. It has been said, for example, that prices and wages are indeterminate in most classical and neo-classical models; a proportionate change in all prices and wages would not affect the equilibrium condition of the system. The quantity theory of money or one of its variants has then been introduced so that, given the quantity of money in the system, a unique equilibrium is determinable. Even at this extreme level of abstraction, it might be more accurate to say that all instruments, the price or dollar value of which are fixed in amount, not just money, enter into the fixing of equilibrium. Or putting the matter in a slightly different way, introducing constants into the system destroys its zero-degree homogeneity; a system whose terms were all ratio variables must now accommodate itself to con-

stringency. The Treasury will eventually be obliged to seek funds in the market so that funds supplied at one point in the economy are taken away at another. In short, without the co-operation of the Federal Reserve System, the Treasury cannot alter significantly the total of funds available to the economy. It can, however, alter the composition of private security holdings by substituting, in effect, government debt for private debt, a power which is far from negligible.

stants.

At a somewhat less restrictive level of analysis, it may be asserted that a stock of debt in existence at some particular point in time indicates the pattern of interest and principal payment flows which will take place in the future. When attempts are made to measure the impact of debt on sectors or individual units of the economy, comparisons with income flows, liquid assets, or even total assets held are steps in the right direction, but only steps. The addition of some relatively simple information about maturities and annual debt service flows would greatly improve our ability to assess the burden of debt at various points in the economy.

In this connection, the development of balance sheet and funds flows data should add to the accuracy of our estimates of future flows. Budgets of macroeconomic data, somewhat in disrepute since the early post war experiences, are probably more feasible than at any time in the past. Inconsistencies in projected income and product figures may appear when detailed tie-ins with projected balance sheet and funds flow data are required. It is true that such an attempt adds greatly to the number of future unknowns which must be estimated, but it also adds to the number of future magnitudes which may be estimated with a great deal of certainty. Debt service flows, for example, may be estimated with a high degree of certainty if enough is known about the composition of existing debt. Capital consumption charges may be estimated closely from existing stocks of capital goods. The money supply for one or two years in the future

may be closely estimated, given certain assumptions about monetary policy, as may be the federal debt, given budget information. Survey data as to projected business and consumer durable expenditures provide still more building blocks for the estimates.

As we have already indicated, an exhaustive listing of those parts of economic theory which relate to balance sheet data is well beyond the scope of this paper. We have made only a few observations; the reader perhaps can supply others. It suffices to say that stocks of economic goods and claims against these goods as portrayed by the national balance sheet pose questions which lie at the very heart of economic theory. The empirical work involved in developing the balance sheet cannot avoid some fruitful stimulation of theoretical work as well.

CONCLUSION

This study has undertaken the construction of a conceptual framework for the measurement of national wealth, an objective which has been approached through the presentation of a national balance sheet. In the course of attempting to fulfill this primary purpose the study has been led into a consideration of certain other objectives as well. The integration of the developing balance sheet with other social accounting measures has appeared to be a natural and desirable goal, and has affected some of the decisions taken with respect to the form and content of the balance sheet itself. Likewise, some implications for economic and monetary theory seem to arise almost inevitably when one begins to examine the economy from the viewpoint of the balance sheet. A brief exploration of some of these implications has become a part of this study.

The primary objective--that of developing the conceptual framework of the national balance sheet--has been pursued by grouping the problems involved under three broad headings and considering these groupings one at a time. The first group concerns the proper definition and delineation of the national wealth. The study does not pretend to have solved satisfactorily all of the problems in this area. It has, however, proposed solutions and presented

alternative points of view. It is doubtful, perhaps, that complete and final answers can ever be given to all of the questions involved in a rigorous definition of wealth, but the writer is firmly convinced that answers as satisfactory as those developed in defining income are within reach. There seem to be few people who are now willing to abandon the measurement of national income and product just because the conceptual structure has a few cracks and gaps that are rather awkwardly papered over here and there.

The second group of problems considered has to do with placing values on the items which appear in the national balance sheet. At this point the balance sheet does not fare quite as well as the measure of gross national product. The reason is that market values are available for a large share of the items appearing in the gross national product but for only a small portion of tangible assets which appear on the national balance sheet. The solution adopted in this study--namely, original cost adjusted by means of price indexes to current cost--is not wholly satisfactory, especially in the case of a declining industry using highly specialized equipment. Still, the balance sheet is no worse off than the measures of net national product or of national income, since these depend on the capital consumption allowance. All of the difficulties in measuring the values of tangible capital goods apply with equal force to the capital consumption allowance. In fact, the development of the balance sheet information proposed in this study and elsewhere will provide the necessary data for improving the quality of the capital consump-

tion allowance estimate and thus make the income and product accounts better in the process. There are again probably no perfect answers to some of the valuation questions, but there are some which better approximate perfect answers than others.

The third group of problems in designing the framework of the national balance sheet has to do with sectoring the economy so that some disaggregation is possible in analyzing the national wealth. The solutions proposed are very close to the sectoring found in the revised flow-of-funds accounts, with the important exception that the Federal Reserve System is shown as a separate sector.

Once the basic conceptual structure has been outlined, the framework is filled with estimates for two recent years, mostly to illustrate the preceding discussion of conceptual problems. After the reader has had the opportunity to examine the proposed national balance sheet, some of the problems which are especially pertinent to the manner in which sector and national wealth are related are re-examined in more detail. At this point what is perhaps the most difficult conceptual problem in the entire study becomes apparent--the possibility of a very large discrepancy between corporate shares at market value and the underlying net asset values.

This issue, coming as it does after a recital of other very difficult problems, might be for the reader the last straw. He might conclude that the problems involved in preparing the national balance sheet are insoluble and that its preparation should not even

be undertaken. The writer, needless to say, does not share this opinion. This study has already pointed out that some of the knottier problems discussed earlier have their counterparts in the measurement of national income and product and that the usefulness--even indispensable character--of the income and product figures is not thereby fatally damaged.

Even the large discrepancy between share and corporate net asset values is not a fatal weakness--it is perhaps on closer examination not a weakness at all. The existence of such a discrepancy is a fact with which economic theory has hardly yet come to grips. It might become just as important for analysis to know the size of this discrepancy as it is to know any of the other figures on the national balance sheet. Certainly this is a question which deserves further investigation, a course of action not likely to be furthered by abandoning the national balance sheet and pretending that such problems do not exist.

In short, the writer has arrived at the conclusion that a national balance sheet would represent a useful addition to our descriptive and analytical measures of economic activity. It provides information about economic units and sectors within the economy which cannot be contained within the framework of the other social accounting measures, a fact of which economic theorists and others are becoming increasingly well aware. This study emphasizes what other writers have already demonstrated--that a national balance sheet can be prepared. Moreover, the present study goes beyond this

point and indicates the feasibility of a balance sheet which fits together with national income and funds-flow statements to form an integrated system of social accounts for the nation.

As the reader may verify, no attempt has been made to camouflage the many problems which appear in the course of the study. Though positive solutions have been proposed, the study makes no claims that the matters discussed are settled finally and completely. We have perhaps given undue emphasis to some of the problems; a reasonably adequate balance sheet has, after all, been prepared. It is the writer's hope that this work will contribute to the goal of an officially prepared and published national balance sheet and will stimulate some further examination of the issues involved.

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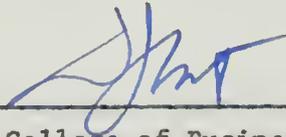
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BIOGRAPHICAL DATA

John Oliver Blackburn was born on September 13, 1929, in Miami, Florida. After graduation from Miami Senior High School, he attended Duke University, from which he received the A. B. degree, Magna Cum Laude, in June, 1951. He continued his studies in accounting and economics at the University of Miami and Harvard University and passed the uniform C. P. A. examination with Highest Honors in the State of Florida in May, 1952. His studies were temporarily interrupted by three years in the U.S. Navy, where he served with the U.S. Navy Audit Office at United Aircraft Corporation. He began his residence for the Ph.D. degree at the University of Florida in February, 1956, and passed his qualifying examinations in January, 1958. While a graduate student at the University of Florida, he held a fellowship for one semester and, for four semesters, a teaching assistantship in the Department of Economics. During the academic year of 1958-1959, he held the position of interim instructor of Economics. He is a member of Phi Beta Kappa, Phi Eta Sigma, and Beta Gamma Sigma honor fraternities.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Business Administration and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August 8, 1959



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