Volume Title: Measuring the Nation's Wealth

Volume Author/Editor: Wealth Inventory Planning Study

Volume Publisher: U.S. Government Printing Office

Volume ISBN: 0-870-14185-6

Volume URL: http://www.nber.org/books/unkn64-3

Publication Date: 1964

Chapter Title: Scope and Uses of a Wealth Inventory

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Chapter URL: http://www.nber.org/chapters/c5188

Chapter pages in book: (p. 11 - 20)

# CHAPTER 2

# SCOPE AND USES OF A WEALTH INVENTORY

The wealth of a nation consists of all its productive resources—those aspects of the environment, natural and manmade, which contribute to the production of goods and services that men want. While thus productive of income, wealth itself is a fund, or a *stock*, as contrasted with the *flow* of income and product which results from its use. Production results from the *use* of wealth; the *using up* of wealth, or capital consumption, must be deducted from gross investment in order to calculate net changes in wealth, and it must also be deducted from gross income in order to estimate the net income accruing to owners of wealth.[1]

The chief common characteristic of all forms of wealth, its contribution to net income and product, is the source of its value. That is, capital assets are generally valued in terms of their expected future net income stream discounted to the present. The income may, of course, be of a direct psychic nature, as well as monetary. The valuation of wealth is discussed in detail in chapter 6, both theoretically and from the viewpoint of measurement. Here, it suffices to note that unless resources have value they are not included in estimates of wealth.

### MAJOR PHYSICAL TYPES OF WEALTH

Wealth is composed of myriad types of tangible assets, human and nonhuman, embodying varying intangible characteristics, and the term is also used to cover financial claims. The underlying physical composition of wealth gradually changes, just as the drops of water in waterfall change, but the fund remains a source of productive power. Nevertheless, in the case of wealth, it is customary and useful to distinguish certain broad categories based on physical characteristics.

A basic distinction is that between human and nonhuman wealth. This distinction is fundamental in a free society in which labor services are bought and sold, but not the human beings themselves. In addition to the legal distinction between men and property, the inevitably man-centered interests of man dictate that human and nonhuman wealth, and the income flows accruing to each, be distinguished. Further, in the case of wealth, the purchase and sale of nonhuman assets in the market provides a means of valuation that is not accessible for human capital. Some economists have became interested in imputing a value to human wealth, or in valuing certain qualities of this wealth, such as the portion of human capital created by investments in education, training, and medical care, as well as the basic

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[1] See John W. Kendrick, "Some Theoretical Aspects of Capital Measurement," American Economic Review, vol. 51, No. 2, May 1961.

expense of rearing children to working age. Due to the experimental nature of this work, and the complexity of the problem, the staff and Advisory Committee of the Wealth Study decided at the outset to confine the study to the problems of estimating nonhuman wealth. This is not to deny the central importance of human capital, and we would encourage the collection of data which would facilitate further exploratory estimation work—such as data on incomes cross-classified by relevant characteristics, the investments involved in education, training, and medical care, as well as the basic expense of child rearing. But the estimation of the value of human wealth must still be regarded as experimental.

Even when the scope of a wealth inventory is limited to the more readily quantifiable nonhuman assets, it is still very broad—comprising both tangible productive assets and the "intangible" or financial assets. In the Nation as a whole, a part of the total assets is offset by liabilities, and the residual net worth comprises primarily tangible wealth consisting of productive natural resources, structures, equipment, and inventories, plus net claims on other countries.

The central focus of the Wealth Study is on the domestic tangibles, plus the net foreign claims adjustment, which comprise national wealth on a *consolidated* balance sheet. But, there is also interest in balance sheets of the various sectors, and a combined balance sheet for the Nation. Hence, we have also paid attention to the requirements for improving and expanding data on financial assets and liabilities. But since the financial data and estimates generally are in better shape and pose less difficult conceptual and data-collection problems, less time has been devoted to their study.

Within tangibles, a distinction is often made between manmade "reproducible" capital, and land and other natural resources. Yet considerable labor must be invested in the discovery and development of most natural resources, so that in a sense they also have a production, if not a reproduction, cost. Further, the value of natural resources, like that of all capital, is derived from their expected future net income stream; investments in natural resource development, like that in reproducibles, depends on the expected rate of return in relation to the cost of the required funds.

As the Natural Resources Working Group points out, however, it is generally difficult if not impossible to separate the value of the capital sunk in productive natural resources from the capitalization of the rents of the pure gifts of nature. Even the valuation of developed natural resources as a whole generally presents greater difficulties than the valuation of reproducibles since a cost approach is not practical. Nevertheless, because of the general interest in natural resources, we favor presenting estimates for this category separately while recognizing the basic similarities to purely manmade wealth, and the mixture of the two in resource valuations.

The reproducible tangibles comprise the broad categories of fixed depreciable assets—structures and equipment—and inventories. Some economists have questioned the inclusion of military assets in Federal Government and national wealth. We have included them in our review, and suggest that sector and national totals can be shown both inclusive and exclusive of military assets to suit different analytical purposes.

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The questions of further desirable detail of the broad categories are discussed later in the report. But the common characteristic of all wealth must be held in mind—namely, that the value of all assets derives from the future income stream expected from their use.

SECTORS OF OWNERSHIP AND USE OF WEALTH

The Wealth Study staff has been interested in all nonhuman assets irrespective of sector of ownership or use. In a predominately free enterprise, market directed economy the bulk of productive tangible assets is owned by the private business sector. But much of publicly owned wealth contributes to the productivity of the private economy, or is used to furnish services directly to consumers. Likewise, consumer durables and household inventories furnish a stream of services directly to households—whether owned by individuals or leased from business. The wealth held by cooperatives and nonprofit institutions is likewise productive and should be included in any nationwide inventory.

After all, there has been a considerable relative shift in ownership of various types of capital as among the three major sectors, business, government, and households, in part due to the development of consumer durables, the proliferation of leasing arrangements, and the relative growth of governmental activities. One of the basic rules of economic accounting is that significant aggregates should be invariant to institutional changes. The basic criterion with respect to inclusion of items as wealth should be the broad one that they are productive of consumer satisfaction or utility, either directly or indirectly, or are expected to be in the foreseeable future. Identification of the sectors and industries of ownership and use is desirable, of course, in that this permits the analysis of changing patterns through time. The question as to the sectors and categories of wealth which it is significant to distinguish will be discussed further in the sections on design of the inventory in chapters 4 and 5.

USES OF WEALTH ESTIMATES, ACTUAL AND POTENTIAL

It has become a cliche in economic statistics that the intended uses of estimates condition their nature—the estimating methodology employed as well as underlying concepts and definitions. This is only partially true as regards the broad, summary estimates presented in varying degrees of detail which compose the national economic accounts.

By their very nature, the national economic accounts are designed to serve many uses and users. In this respect they are "general purpose" statistics. The requirements of different classes of users may be different, and even opposed, so that the accounts cannot serve all uses equally well. Further, all uses cannot be anticipated in advance. Various uses emerge once new estimates become available and familiar.

It is nevertheless true that a consideration of major potential uses is desirable in planning new sets of estimates such as national balance sheets and wealth estimates designed to complement the income and product accounts. These will influence choices of framework, concept, and method, although compromises will have to be made among uses and between the ideal and the statistically feasible.

It is particularly important that much detail be provided, so that users can rearrange series to fit their needs; that alternative series be present in some cases (as current, original, and constant values); and finally, that sources and methods be described in enough detail to allow users to determine for themselves the appropriateness of given series for their purposes.

### GENERAL USES OF NATIONAL ECONOMIC ACCOUNTS

Summary economic statistics, in the first instance, are used in analyses that contribute to more precise knowledge of magnitudes and relationships, both at a point in time and through time. Understanding of the functioning of the economy, based on the statistics, can be used either directly as a basis for policy formulation, or in projections which, in turn, are used as a basis for formulating policies of either an adaptive or directive nature.

In direct use, the statistics may serve to reveal situations that require correction. Or, the relationships and models that developed from the statistics can be used to indicate the effects of alternative policies, and thus help in choosing among them. The chief users of macroeconomic estimates as background for the formulation of policies intended to influence the economy are governmental bodies, particularly the Federal Government agencies, including the Federal Reserve Board.

As national income and product accounts have improved, they have been used increasingly as a framework for short- and long-run macroeconomic projection, both by governmental agencies and by private companies and other organizations as background against which to project microeconomic variables. The projections have been used at both levels in planning policies to adapt to the anticipated changes. At the govenmental level, in some instances the projections reveal developing situations requiring corrective policies.

It is within this context that we discuss uses of national balance sheet and wealth estimates by sector and industry, for varying degrees of regional detail. The estimates are useful in broadening economic intelligence, making possible deeper, and more accurate, economic analyses as a background for projections and policy formulations with particular regard to mitigation of economic fluctuation and promotion of growth.

### LEVELS OF ANALYSIS

For each of the substantive analytical uses discussed below, the analysis can proceed on a number of levels. A one-time inventory makes possible cross-sectional comparisons—the composition of wealth by sector, by type of assets, by type of ownership, by size of establishments; by income and asset size of property owner. The relationship of structure to other factors can be explored. Assuming regional breakdown, and comparable inventories for other countries, interregional and international comparisons can be made for each of the variables noted above. Also, the composition of sector aggregates can be used by component organizations (households, firms, nonprofit institutions, or governmental units) as norms against which the individual unit's characteristics can be compared.

Successive wealth inventories (or annual estimates on a less-detailed basis) can be used to trace historical changes for given items, changes in composition for a given area, relationships between wealth and associated variables for the total economy and its sectors, and to make interspatial comparisons of changes in all these factors.

This summary description of possible levels of analysis suggests the richness of the potential increments to knowledge that would be made possible by systematic wealth estimates prepared consistently with the national income accounts. The accounting framework is essential to insure compatible estimates for the study of economic interrelationships.

### MAJOR CATEGORIES OF ANALYTICAL USES

Concrete types of analyses made possible by wealth estimates are discussed below under six major headings. The first five relate to tangible wealth, the sixth primarily to financial items on national and sector balance sheets. The uses themselves suggest the sorts of detail that would be desirable in wealth estimates. Potential uses, and data requirements for their realization, are discussed by some major users of wealth estimates in appendix I, part A.

### 1. Studies of economic aggregates and their structure

Estimates of total wealth, by various meaningful classifications, permit analysis of changes in aggregates and structure through time, and cross-sectional and dynamic comparisons among nations and regions. Classification may relate to types of assets, sectors and industries of ownership and use, asset-size classes of establishments and firms within the producing sector, and asset-size classes of families in the household sector.

Differences in structure between countries at different stages of economic development can be compared, as well as changes in structure in the course of economic growth. This adds a dimension to the usual analysis in terms of income and product, since certain types of assets (as for households and governments) are not reflected in income flows, and the composition of assets differs from the composition of realized income for the various sectors.

Comparative and temporal analysis of aggregates and structure provide a background for long-range planning and projections, both in developed and underdeveloped countries. A wealth-size distribution of families usefully supplements income-size distributions in studies of consumer behavior. The wealth-size distribution of firms and establishments may aid in studies of efficiency (point 2).

To appraise relative national security potentials, current levels of economic output and capital stocks and rates of growth of various countries are important statistics. National wealth estimates also aid in the appraisal of the current potential for total and security output of the Nation in case of emergency.

The composition of national wealth, as well as of national product, adds a significant qualitative aspect to comparisons of national economic strength and welfare. For example, the compartive size and growth of stocks of capital allocated to production of military goods and to military research and development are important to determine.

## 2. Productivity, or efficiency, studies

Estimates of the relationship between real capital stocks and output in the total economy, by sector and industry, indicate levels and changes in the use of capital goods per unit of output. The capital coefficient (capital-output ratio) and its inverse capital productivity (output-capital ratio) can be calculated for as many types of capital as there are separate estimates.

Capital productivity ratios can be combined with ratios of output to the other resource inputs (labor and materials) in order to yield total productivity ratios; or production functions can be computed for different periods or points in time. Statistical production functions, or changes in total productivity, indicate the net saving of resource inputs, or real costs, per unit of output, and thus the increase in productive efficiency over time. If productivity is measured in terms of output per worker (or man-hour), then capital per worker measures help to explain changes in labor productivity.

In addition to economy and industry measures, individual companies and governmental agencies have been undertaking measures of their own productivity in recent years. They serve as management control tools and the calculation and publication of productivity estimates promote the development of efficiency mindedness. Causes of productivity change can be uncovered by relating output-capital and other productivity ratios to associated variables, such as intensity of research and development, industry structure, business fluctuations, profit rates, and scale of output. These analyses serve as background for policy measures designed to increase productivity at the organization or economy level.

Studies can be made of the effects of productivity change on economic aggregates and structure (through interrelationship with unit costs, prices, sales and output), which can serve as a basis for projections, and for the formulation of policies designed to deal with technological and economic changes as they affect people.

## 3. General demand analysis

Economists are beginning to place more emphasis on the process of adjustment in holdings of assets of various sectors toward desired norms. Thus, for the household sector, liquid assets and their relationship to income are believed to influence spending-saving decisions. Just as businessmen are clearly influenced by the actual and desired ratios of inventories to sales (the number of days supply) in their rates of ordering and purchase, so are they also influenced in investment decisions by the relation of actual to desired ratios of fixed capital to output.

Thus, the economic analyst, by watching sector stock-flow relations, is aided in projections, and in formulation of policies designed to stabilize the rate (or rate of growth) of expenditure.

## 4. Analysis of capital goods markets

The capital-output ratios furnish a useful background for analyses and longer-range projections which, in conjunction with output projections, make possible estimates of new capital requirements in the aggregate, by sector, and by broad classes of capital goods. Likewise, estimates of the value (or number of items) of capital goods, by age

group, in conjunction with length-of-life or mortality curve estimates, provide a basis for projecting replacement requirements.

Projections of capital goods purchases are useful from several points of view. Companies, nonprofit organizations, and governmental units need such projections as part of the budgeting procedure, which, in turn, is necessary for estimating required financing. Construction firms and capital goods manufacturers, on the selling end, are very much interested in projecting their probable markets over short and longer periods. From the overall economic viewpoint, projections of capital outlays are a key ingredient in general economic forecasts, necessary as a background for national policies to maintain high level demand, income, and employment.

### 5. Rate of return comparisons

Estimated asset values, when divided into the corresponding property income, yield estimates of rate of return on capital. Levels and changes in rates of return in the whole business economy are relevant to total investment, income, and employment. Comparisons among industries are of interest, especially to the regulated industries. Differences in levels and rates can be related to associated factors, on the sides both of cause and effect. Among the latter, the relationship to rates of investment is particularly important. Individual company rates can be compared with average industry rates.

For interindustry comparisons, it is important that asset values consistently be converted to current values. This gives rise to the need of "depreciation valuation adjustments" to profits in order to eliminate the effects on profits of under or over depreciation due to price level inflation or deflation.

Rate-of-return analyses are useful background for business investment decisions, and have a bearing on public utility regulation. Overall rate-of-return trends and movements are central to income and employment policy formulation.

### 6. Financial analysis

Various financial analyses illustrated in the list below are made possible by complete sector and national balance sheets.[2] These are useful both to the agencies responsible for framing fiscal and monetary policy, and as background for projections and policy formulation by managements of various types of financial institutions.

(a) *Composition of assets.*—The proportion of total assets the public chooses to hold as money, and the relation of the stock of money to total transactions and to income, are important for cycle analysis and monetary policy. So also are velocities of turnover of other types of assets, classified by degree of liquidity.

(b) *The structure of debt.*—Knowledge of the term-structure of debt maturities is needed for monetary and fiscal analysis and management. Total potential sources and uses of funds are important in analyzing money market conditions and in formulating policy where necessary.

(c) *The relationship of assets to debt.*—The ratios of debt to tangible wealth in the consumer, Government, and business sectors help to supplement the interest-income ratios in assessing the soundness of

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[2] See "The National Economic Accounts of the United States," pp. 249–50.

debt positions. Debt-equity ratios are also helpful in analyzing secular and cyclical financial developments and in forecasting demand in the light of projected debt repayment burdens.

(d) *The density of financial activity.*—The financial interrelations ratio (the proportion of tangible to financial assets in balance sheets) is a measure which may reveal developing imbalances in the economy.

<p style="text-align:center">SPECIAL USES OF SECTOR AND INDUSTRY ESTIMATES</p>

Many of the sector working group reports in appendix II discuss special uses of wealth estimates for these sectors or industry groups. Some of those uses will be indicated here.

*Governments.*—Within Federal, State, and local governmental agencies, it is obvious that the underlying property records are essential to property management—purchase and sale of inventory items—and to longer term capital budgeting. For purposes of rational budgeting, in general, estimates of depreciation and an imputed interest charge on capital are necessary ingredients of realistic cost estimates. These, in turn, are necessary for decisionmaking. Estimates of capital stocks and services also give the taxpayer a fuller picture of the services he is getting in return for his tax payments. Estimates of that portion of wealth located in each jurisdiction which is tax exempt give the tax authorities a clearer notion of taxes foregone. Knowledge of total assets also is of obvious value in framing policy and projecting yields from certain types of taxes, such as estate, inheritance, and capital gains.

At the State and local level, estimates of capital in relation to costs or output by function also permit comparisons among similar units which may help to raise standards in below-average areas (for example, public school plant per pupil). Federal Government performance, can, of course, not only be compared among agencies, but also central governments in other countries for similar functions.

With respect to national defense, the usefulness of international comparisons of the growth and structure of wealth have been mentioned. More specifically, the Office of Civilian Defense conducted its own inventory of buildings in connection with the shelter program. The National Resource Evaluation Center in the Office of Emergency Planning is interested in all productive resources, including capital assets "* * * for predicting and monitoring the status of resources under all degrees of emergency, for identifying resource deficiencies and feasible production programs, and for supplying resource evaluations at national and subordinate levels to support mobilization base planning, continuity of government, resource management, and economic recovery." [3] For OEP purposes, it is clear that wealth data should be collected on an establishment basis, in terms of considerable geographical detail.

*Net foreign assets.*—Knowledge of foreign-owned assets in any country aids in the analyses of the role of foreign capital in economic growth and development. This is particularly important in analysis of development of the economically less developed countries, where foreign capital frequently has a large role to play. In conjunction

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[3] Executive Office of the President, OEP Circular 6500.1, Jan. 17, 1964.

with profit estimates, the foreign asset estimates (particularly of direct investments) permit the computation of relative rates of return on investment which help explain, and direct, international capital movements.

Quite comprehensive data on foreign assets in the United States and on investments by U.S. residents abroad are required for adequate analysis (and even computation) of the balance-of-payments position. That is, the structure of assets and liabilities, in terms of relative degrees of liquidity, is an important part of any appraisal of that position. The expansion of asset and liability data, recommended by the working group, would further narrow the "statistical discrepancy" in the balance of payments estimates, permitting identification of additional factors influencing gold movements.

*Households.*—Estimates of tangible as well as of intangible wealth of households permit more accurate wealth-size distributions of households than those previously made which were based largely on financial assets. Asset holdings, in turn, permit fuller analysis of consumer spending, and saving behavior.

Some stock data, by age, are already collected by various trade associations due to their value for market analysis. To the extent that a household inventory adds to knowledge of consumer holdings, it contributes to that end. This would be especially true of stocks of semidurables and perishables, about which least is known. The contribution of household inventory data to national defense planning is obvious; surveys of days supplies of food inventories have occasionally been made.

As in governments, estimates of household stocks permit estimates of depreciation of durables, and imputed interest on all tangibles, thus permitting more comprehensive analysis of personal income and consumption.

*Business.*—Managements of firms or establishments in each industry are interested in comparing their productivity, rates of return, and various financial ratios with industry averages, and with firms and industries abroad if data are available. Suppliers of equipment to each industry are interested in data on the status of the stocks of equipment, age, rates of growth, and so forth. Economic analysts are interested in the changing relative position of each industry in total wealth, in relation to associated variables.

But there are also special interests in wealth data in each industry. For example, in extractive industries there is interest in the role of reproducible capital in offsetting the tendency toward diminishing returns to land. In capital-intensive industries, such as the utilities, there is special interest in the load factor, and changes in the rate of utilization of capacity as it affects productivity. In some areas, such as the nonprofit sector of the service industries, there is interest in obtaining wealth data to assess its relative importance, since few asset data are now collected.

In certain industries, it is found to be analytically useful to relate output and other variables to certain physical wealth measures. Thus, in agriculture yields per acre, and yields per animal unit, are computed; in transportation, freight or passengers carried per vehicle (of various types) in absolute terms, and relative to capacity, are

meaningful. In retail trade, sales per square foot of floor space are computed. In the working group reports still other special uses are indicated.

Occasional benchmark estimates of tangible wealth serve as a check on estimates of net investment obtained from different sources. Investment estimates can, of course, be used as a means of extrapolating the benchmark estimates, but in this case, the occasional benchmarks are needed to keep the perpetual inventory extrapolations from developing serious biases (see ch. 3). In the case of flow of fund estimates, the annual figures are, in many cases, obtained as changes in yearend balance sheet estimates.

As mentioned earlier, the stock of consumer durables, and Government capital, can serve as the basis for estimating the value of the services of these stocks of wealth which are consumed over time. Estimates of these direct services of durables contribute to more comprehensive estimates of national income and product.

Real stock estimates have been used by a number of investigators as an indirect means of estimating capacity output in various industries (see ch. 4). In conjunction with actual output estimates, stock figures aid in the computation of rates of utilization of capacity.

In general, integration of balance sheet estimates with the income and product accounts provides additional avenues for cross-checking estimates, and generally improving reliability of the national economic accounts.

## SUMMARY

Wealth estimates are needed in many types of general economic analysis: of economic growth and fluctuations, productivity changes and differences, capital goods markets and general demand, differences and changes in rates of return, financial conditions, size-class holdings, and tax impacts. They provide a dimension not available in the income and product flow estimates, and help improve the accuracy of the latter.

The analyses made possible by comprehensive wealth estimates together with other variables contained in the national accounts provide a richer background for economic projections and policy formulation than is now available. As has been true of the national income and product estimates, however, once wealth and balance sheet estimates become regularly available, uses for them will develop that cannot now be clearly anticipated.

The greater the detail in which the estimates become available, the greater the range of potential uses. Since increasing detail must be purchased at an increasing cost, a balance must be struck around the point where the cost of additional detail begins to offset the additional value.