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> For those not intimately acquainted with this type of work it is difficult to realize the degree to which estimates of national income have been and must be affected by implicit or explicit value judgments. (5)
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> [National income] is essentially an appraisal of the final net product of the business and public economies of the country, two of the three important social institutions that contribute to the production of economic goods; and excludes completely the product of the third -- the family. (10)
>
> [The use of market criteria] swells national income with items that represent what many citizens condemn as a misuse of energy and the inadequacies of the existing social structure. It includes dreadnoughts, bombing planes, poison gas, and patent medicines because they are rated economic goods in our country today. (20)

Calculation of national income has never been a matter of objective observation alone, but has always involved observation embedded in a matrix of theoretical analysis, value judgments, and ultimately somewhat arbitrary definitions, often driven by expediency and data availability. In this classic work, Kuznets presents the first systematic definition and calculation of U.S. national income, and discusses the countless ambiguities and judgments (many more than appear in this summary) that arise in the process.

"National income may be defined as the net value of all economic goods produced by the nation." (3) This definition involves four ambiguous terms: "net value," "economic goods," "produced," and "nation." While there are core areas of agreement on the meaning of each term, there are also peripheral areas of disagreement, where subjective elements inevitably enter the definition of what is to be measured. Thus national income is necessarily an appraisal of the economic system, not a colorless statement of fact. Denial of any role for judgment would turn national income accounting into a useless summary of all transactions, many of them obviously unproductive or involving double-counting of productive activity.

ECONOMIC GOODS

All economic goods may be sources of satisfaction; but the converse is not true, since many satisfactions come from personal activities that are conventionally excluded from economic analysis. No definition of the boundary between economic and noneconomic activities can be applicable to all times and places, but for "mature economies" in the twentieth century, we may define economic goods as those that "usually appear on the market." [7] However, even this is not free of ambiguity, because of the treatment of goods that are usually, but not always, marketed.

Several different detailed definitions are possible; the one adopted for national income calculations includes all goods sold by private enterprises or public agencies, plus barter (such as payment in kind), products retained by producers for their own consumption (especially important on farms), and the services provided by residential real estate that is owned and occupied by consumers. The definition excludes all other household services and nonmarket production, and free services of public capital (such as roads). The exclusion of household services is compelled both by convention and by lack of data, but is nonetheless arbitrary: unemployed people may perform many varieties of household labor outside the market, while employed people often hire others to perform some of the same tasks.

Nonproductive transactions, which add nothing to the available flow of goods, include gifts and other transfers, gambling, receipt of capital gains, and theft. Neither private charity nor public relief payments add anything directly to the nation's supply of goods, though the recipients may later spend the money in ways that stimulate production. Capital gains are in part the result of gambling on other people's changes in tastes, and in part the result of real investments that change the value of enterprises and properties. In the latter case, the investments are included in national income directly, so inclusion of the resulting capital gains would be double-counting. However, despite these exclusions, enterprises or agencies that facilitate charity, relief, gambling, or the receipt of capital gains are providing real services, and should be counted. That is, employment in charities and casinos adds to national income, even though receipt of charity payments or gambling winnings does not.

What about the treatment of goods that some consider desirable and others undesirable? Such goods add less to the satisfaction of society as a whole than to their individual purchasers. A number of theoretically appropriate schemes could be suggested to address this problem, but none appear to be possible to carry out. Practicality dictates reliance on the law to express society's judgment: only illegal activities are excluded.

ECONOMIC VALUE

A common yardstick of economic value is needed to measure the disparate goods and services that make up national income. Market price is the obvious candidate; identification of economic value with market price solves many problems. Three categories of problems, though, are not resolved; these involve goods that do not appear on the market, "peculiarities of the market mechanism," (24) and the valuation of government services.

Goods that are not marketed are often valued at the price of comparable marketed goods. The comparability may be limited, however, precisely because of the institutional difference between market and nonmarket provision. Payment in kind gives an employee much less choice in consumption than the equivalent payment in cash.

A different problem of goods that are not (yet) marketed occurs when production is in progress, but incomplete by the end of the reporting period. In this case, there is no alternative to valuing goods at the cost of production, essentially using past market prices for the inputs rather than current market prices for the outputs.

There are limits to the validity of market price as a measure of value, even for marketed goods. The value of goods ultimately results from the satisfaction they are capable of yielding, but

> market demand reflects human needs only so far as they are backed by purchasing power. No one supposes that the distribution of income parallels the distribution of wants or satisfactions ... Therefore we cannot claim that our estimates of national income, based as they must be upon market valuations, evaluate goods as means of satisfying directly or indirectly the present or future needs of the population. (24-25)[1]

Yet once we accept society's judgment as to what is productive, there is no alternative to reliance on market prices as a measure of value.

In economic theory, it is only the price in a competitive market that can be identified with the social value of a product. Many markets are of course monopolized to varying degrees, allowing prices to be set above the competitive level. It would be essentially impossible to correct for this problem -- and one could argue that society has accepted existing, imperfect market structures, and the prices they imply.

The use of money in transactions may itself introduce problems of valuation, for the value of money can fluctuate even if the supply of goods remains constant. Inflation and deflation do not affect all goods equally, making the process of adjustment for price changes a difficult one. The most common method of adjustment is to construct price indexes for the same goods at different times, a process that entails a set of technical difficulties of its own. One important problem arises when the goods on the market change in composition or quality. When entirely new goods appear, or old ones undergo substantial changes in quality, any price index becomes an uncertain guide to the value of money.

How should government services be valued? There are two leading alternatives. One is to measure the value of government by the amounts paid to it by enterprises and households, in the form of taxes, fees, etc. This would assume that, for society as a whole if not for each individual, what we pay is a measure of the value of what we get. The other is to measure the cost, in labor and materials, of providing government services.

DISTINCTION BETWEEN NET AND GROSS

National income is the net value of goods produced during a given time period. If the material inputs into production of a good have already been counted, it would not do to count them again; only the value added to previously counted inputs should be included. Alternatively, we could count only the value of final consumption, not that of the intermediate consumption of inputs into further production processes.

But what counts as a production process? Individual wage earners could view themselves as enterprises engaged in producing labor services, and deduct the cost of food, clothing, and other necessary inputs. By convention, we do not make this calculation. Economic goods are assumed to exist for human beings, rather than human beings existing for the production of goods; this gives a privileged status to final consumption by households, as usually defined. The result is that national income includes labor income on a gross basis, and enterprises on a net basis. For self-employed individuals, only those costs which they identify as business expenses are deducted.

Even within enterprises, there are complex issues related to the distinction between gross and net product. The calculation is straightforward when intermediate goods are fully used up within the reporting period. But when durable capital goods are only partially consumed, how should they be counted? An estimate is needed of the fraction of the total value of the goods that is consumed in each period. In essence this involves forecasting the useful life of the equipment, a process which is surrounded by uncertainty. There is no practical alternative to using the estimates made by business enterprises. However, it is clear that current, or replacement, values should be used, while businesses typically use book value, or historical cost. National income figures need to be adjusted to reflect current market values.

THE MEANING OF 'PRODUCED'

There are several points in the flow of goods, and payment for them, at which national income could be evaluated. We could calculate either the net value of goods produced, or total factor payments by producers to individuals, or total expenditure on final goods, or total value of final goods consumed. For any reasonably short period, no two of these measures will be the same. The value of goods produced is preferred because production is the source of payments and consumption -- and because it is generally the largest of the measures, making it more likely that the other income concepts can be calculated as components of it.

When should a good be considered to be 'produced'? It would simplify calculation to consider a good as produced only when it is actually sold on the market. However, the disadvantage of this approach is that many production processes occur over long periods of time; calculation of work in progress is needed for accurate short-term measures of economic activity. The alternative adopted for national income accounting, as previously mentioned, is to count only the portion of the production process that occurs within each reporting period. Price changes during the production process can therefore lead to complications in accounting.

NATIONAL ECONOMY AS OBJECT OF MEASUREMENT

Calculation of national income incorporates the results of the historical accidents that led to today's boundaries; often nations are not self-contained or natural economic units. Totals for industries, occupations, enterprises or regions might be more meaningful. Some of these can be assessed by dividing national totals into meaningful subtotals.

Still, national totals are undeniably needed. Several definitions of the "nation" could be adopted, depending on whether productive activity occurs inside or outside of the country, whether it is owned by citizens or noncitizens, and whether it is owned by residents or nonresidents. Different definitions are useful for different purposes. In order "to reflect the kind of international relations that prevailed during most of the nineteenth and into the twentieth century," (54) the appropriate definition includes activities owned or performed by residents of the country, regardless of citizenship or of the location of the activity.[2]

SUMMARY

In defining national income the fundamental distinctions ... imply fundamental notions concerning the meaning of economic productivity -- notions that represent a social philosophy. ... In formulating these notions we attempted in general to hold consistently to two theses. The first is that needs of ultimate consumers provide the touchstone by which the results of economic activity are to be judged ... The second thesis is that in judging relevance to needs, the overt expression of social judgment, the standards followed by society in its economic institutions are to be accepted as a guide. For this reason we excluded only such activities as are considered harmful or not productive by society, and adopted the market price basis of valuation. [57-58]

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1. Kuznets argues for the first approach, while contemporary national income accounting uses the second
2. This definition is used in Gross National Product (GNP), the preferred measure until the 1990s. Recent discussion more often uses Gross Domestic Product (GDP), including all activities located within the country, regardless of ownership or citizenship