

## The National Income and Product Accounts

Economists have attempted to determine the wealth or aggregate economic output of nations almost from the time of their earliest inquiries. However, most economists did not make rigorous and systematic attempts to quantify such aggregates for specific countries until well after the present century began. Moreover, only during the past quarter century, as electronic data processing has facilitated detailed estimates, have data on aggregate economic output become of interest to the general public rather than only to economic historians and analysts.

Estimates of aggregate output and income of the United States are regularly published by the Department of Commerce under the title "National Income and Product Accounts."\* The economic time series reported in these accounts, such as gross national product, national income, and disposable personal income, are widely used in discussions about economic developments. Probably few of those who refer to these series (and fewer still of those who hear or read of them) understand what such series represent or how they are constructed. The purpose of this report is to provide our readers with such understanding.

### *The Problem of Subjective Appraisals*

An important but little known aspect of the national income and product accounts is the number of arbitrary judgments involved in estimating the data for them. The compilation of any set of accounts requires the designation of the "accounting entity." Such designation is relatively simple for a corporation or a household, but it is extraordinarily complex for a nation. In attempting to measure a nation's economic output, the accountant must assign to rigid categories almost countless kinds of human economic activities and transactions. Professor Simon Kuznets, one of the pioneers in this branch of economics, has asserted that ". . . all national income estimates are appraisals of the end products of the economic system rather than colorless statements of fact; and, like all appraisals, they are predetermined by criteria that are at worst a matter of chance, at best a matter of deliberate choice."<sup>†</sup>

The national income and product accounts of the United States contain many such deliberate choices. We describe some of these choices in the following description of the accounts.

### *The Accounts Simplified*

We have constructed a greatly simplified version of the U.S. national income and product accounts for 1975 and

\*Such accounts contain quarterly data at annual rates from 1946 through the first quarter of this year. These data can be found in the monthly *Survey of Current Business* and various supplements to that publication.

<sup>†</sup>National Income and its Composition, National Bureau of Economic Research, 1941.

have presented the data in a table on the next page. We invite readers to refer to the table as they read of the items mentioned in the text. In the lower right hand corner of the table, the estimate of \$1,500 billion is shown for "gross national product." This amount is the estimated value of the "end products" (goods and services) produced during 1975. GNP is purported to be the value of all goods and services sold to final consumers; the value of goods at intermediate stages of processing are excluded.

Also excluded are illegal activities. Although economists would prefer to include all goods and services that satisfy consumers' wants, the practical difficulties involved in compiling reasonably reliable data on illegal activities precludes the inclusion of such activites in the national income accounts. The exclusion of illegal activities is not a major problem, but it can be used to illustrate an interesting aspect of the national income accounts. Recently a number of States have legalized various forms of gambling when it is conducted through state-run agencies. Substantial sums have been wagered with such agencies, and some States have obtained large amounts of revenues from such betting. Revenues so obtained are included in the national income accounts, but similar earnings that are illegal are not.

The value of goods produced and services provided for self-consumption (which are not involved in transactions) usually are excluded. For example, the price of a dress purchased at retail would be included in GNP; however, only the prices of the piece goods and sewing notions would be included if a homemaker made an identical dress for a member of her family. There are exceptions to such exclusions that are known as "imputations." For example, the estimated rental value of owner-occupied homes is an imputed outlay of consumers. The amount of that outlay less capital consumption allowances, taxes, and interest is imputed as income to consumers.

Thus, some things are included in the estimate of GNP and some are not, depending on whether or not the data are readily available. Also, when total GNP is examined by categories of expenditure (personal, government, gross private domestic investment, and exports), other incongruous aspects of GNP become apparent. The purchase of a sewing machine by the homemaker referred to above would be counted as a personal consumption expenditure, although she would use the machine to produce useable things for many years. An identical machine would be included in gross private domestic investment if it were purchased by an apparel manufacturer. Similarly, government expenditures are not counted as investment outlays in the national income accounts, although some government purchases, such as those for road construction, clearly would be used for many years.

### Gross and Net National Product

In simplest terms, net national product is gross national product less depreciation, or "capital consumption allowances" as it is named in the national income accounts. This depreciation (\$152 billion during 1975) is an estimate of the amount of producers' durable goods and private structures "consumed" in the course of processing things during the year. Replacing such processing equipment is necessary to maintain the productive capacity of the economy.

The calculation of depreciation is highly subjective. A recent study by the Department of Commerce revealed that the capital consumption allowance for 1975 could have been estimated to have been as little as \$100 billion or as much as \$175 billion by using reasonable alternative accounting methods. The application of a different estimate of depreciation would not have changed estimated GNP, but it would have changed estimated net national product and national income. None of these calculations includes depreciation of any assets owned by government units nor of durable goods owned by consumers other than owner-occupied homes.

### Adjusting for the "Rubber Yardstick"

Since the items in the national income and product accounts are valued at transaction prices, the effect of increasing prices (a depreciating currency or rubber yardstick) is not reflected in the current-dollar accounts. Price indexes (deflators) have been computed and used to calculate constant-dollar series for many items in the accounts; however, allowances for the effects of changes in prices are made in only two areas: inventories and capital consumption allowances.

The change in inventories reported for 1975 (a decrease of \$15 billion) is an estimate of the change in the physical volume of inventories, valued at average prices during the year. Because the general level of prices increased during 1975, the current-dollar value of inventories at the end of 1975 was reported to have been \$4.0 billion more than that a year earlier, although the physical volume of inventories decreased during 1975.

When ending inventories are overstated, the cost of goods sold is understated, and profits therefore are overstated. Thus, a portion of the profits of proprietors and corporations was simply a monetary gain attributable to owning goods during a period in which the currency depreciated. To avoid such overstatements, an "inventory valuation adjustment" is made to profits, which results in a better balance between estimated factor incomes (wages, rent, interest, and profits) and estimated output.

For many years capital consumption allowances were simply the depreciation claimed by businesses on their tax returns plus imputed depreciation of owner-occupied homes. This practice was criticized for the reasons that (1) the historical-cost basis used in the computation of depreciation for tax purposes was inappropriate for the national accounts and that (2) the provisions of the tax code permitting "accelerated depreciation" probably understated the actual service lives of the items involved. In January 1976 the Department of Commerce incorporated a "capital consumption adjustment" in the national income accounts. This adjustment is the difference between depreciation reported in tax returns and the Department's estimate of "economic depreciation," which is based on the current replacement cost and actual service lives of the processing equipment used. The effect of this revision on national income accounts data for corporations was to increase their capital consumption allowances for the years 1929 through 1961 and for 1974 and 1975. During the years 1962 through 1973, the capital consumption adjustment reduced the capital consumption allowance for corporations, which suggests that the effects of "accelerated depreciation" for tax purposes more than offset the effects of increasing replacement costs during those years.

### National Income and Personal Income

National income is the aggregate of incomes accruing to the factors of production. However, some payments, primarily those related to sales and property taxes, are not traceable and thus not allocated among the factors of production in the national income accounts. Therefore, national income is less than net national product by the

SIMPLIFIED U.S. NATIONAL INCOME AND PRODUCT ACCOUNTS FOR 1975  
(Billions of dollars)

Category	Income (Outlays) by Sector			Product
	Private	Government	Rest of World	Income
Compensation of Employees	\$813	\$108		\$921
Profits and Interest	258	25	\$4	287
<i>National Income</i>				<u>\$1,208</u>
Transfer Payments	175	(178)	3	
<i>Personal Income</i>	<u>\$1,246</u>			
Personal Taxes	(169)	169		
<i>Disposable Personal Income</i>	<u>\$1,077</u>			
Indirect Taxes		140		\$140
<i>Net National Product</i>				<u>\$1,348</u>
Personal Outlays	(905)		1	\$964
Government Outlays		(330)		330
Savings and Investment*	(112)	66	13	152
Net Exports			(21)	185
<i>Gross National Product</i>				<u>\$1,500</u>
				\$1,500

Source of data: Department of Commerce, Bureau of Economic Analysis. Non-italicized entries balance among the columns of this table; italicized entries are aggregates for which there are no offsetting entries.

\*Gross private domestic investment (\$185 billion), which equals capital consumption allowances (\$152 billion) plus personal savings and retained earnings of corporations (\$122 billion) less government deficit (\$66 billion) and net investment abroad (\$13 billion).

amount of such payments not so allocated (\$140 billion in 1975). One should otherwise expect the value of net product to equal the amount of income.

Personal income is the amount of national income that individuals receive (excluding payroll and profit taxes) for providing factors of production plus so-called transfer payments (receipts not earned from contributing to production). Note that personal income during 1975 was larger than national income. This situation has not been unusual during periods of recession. During several years of the Great Depression of the 1930's, *disposable* personal income (personal income less personal taxes) was larger than national income because "transfer payments" exceeded payroll, profits, and personal taxes and because dividends were larger than the earnings of corporations. These anomalies appear to be of little significance other than to reveal the arbitrary nature of the national income and product classifications.

### *How Accurate and Useful are the Data?*

Many knowledgeable observers such as Dr. Kuznets who have worked extensively in the field of national income accounting have asserted that the probable error of the national income statistics probably is as large as 10 percent. This estimate of error relates to the aggregates compiled according to the "deliberate choices" and arbitrary distinctions described above.

That the cyclical changes in some series of the national income and product accounts have tended to conform to such changes in other important economic series suggests that these errors are relatively stable within short periods of time. In other words, because the data have been compiled in similar fashion in the short-run of a few years, the errors of estimation involved have changed little from one year to the next. Thus, some of these series have reflected usefully short-run economic changes, such as those during a business cycle.

However, as the foregoing discussion suggests, there are good reasons to question the usefulness of national income aggregates for comparing the relative material well-being of different nations or of the same nation in distant time periods. Even if the income and product data were highly accurate, what, in fact, would have been measured? As we have noted, the procedures used in compiling the accounts are highly subjective and arbitrary. Changes in the reported amounts might simply reflect the fact that consumer practices had changed. For example, consumers might have increased their purchases of prepared foods or restaurant meals, or they might have increased their "do-it-yourself" activities.

With reference to international comparisons, the methods used in compiling the income and product accounts of different countries differ substantially. In an underdeveloped country more than one-half of the estimate of GNP might be an imputation of the value of food, fuel, and housing produced and consumed on farms. Thus, the GNP of such a country cannot be compared usefully with the GNP of an industrialized country such as the United States.

Finally, because the various aggregates reflect assumptions used in their compilation, great care should be used in evaluating analyses based on such data. To illustrate a possible pitfall, an increase in capital consumption allowances would be reflected in a decrease in national income and in personal savings and/or retained earnings of corporations. Since any estimate of capital consumption allowances is highly subjective, assertions based on the reported trends of such series might be warranted or

unwarranted, depending on how depreciation was calculated.

To summarize, the possibility is great for the development of misleading and unwarranted assertions by analysts who assume that the national income and product accounts accurately reflect economic activity in a nation. No one should expect analysts who have failed to recognize the limitations of their data to produce useful inquiry.

## STATISTICAL INDICATORS

No additional data were received for any of the primary leading or lagging indicators of business-cycle changes. The percentages of these groups appraised as expanding cyclically remain at 67 and 50, respectively.

Among the primary roughly coincident indicators, a revision of data by the Department of Commerce revealed that gross national product in constant dollars increased during the first quarter at a larger rate than had been reported previously. This series reached a record rate then. Five of the six primary coincident series continued to expand cyclically through March, and the sixth continued to do so through February.

*The apparent cyclical expansion of two-thirds of the primary leading indicators suggests that general business activity will continue to expand during the next few months.*

### SUPPLY INDUSTRIAL PRODUCTION

Production of steel, automobiles, and electric power (1) in the 1- and 4-week periods ended on the indicated dates in the current year and (2) in the corresponding periods of earlier years was as follows:

	Steel	1929	1932	1973	1974	1975	1976
Ingots (million tons)							
1 week: May 22	1.32	0.40	3.02	2.84	2.20	2.73	
4 weeks: May 22	5.41	1.49	11.92	11.54	9.19	10.86	
Automobiles							
Vehicles (thousands)							
1 week: May 22	110	37	218	163	137	193p	
4 weeks: May 22	447	139	858	653	579	766p	
Electric Power							
Kilowatt-hours (billions)							
1 week: May 22	1.7	1.4	33.3	35.8	36.6	36.2	
4 weeks: May 22	6.8	5.8	132.4	138.3	137.4	143.4	
Percent change from 4 weeks a year earlier: +4.4							

p Preliminary.

### DEMAND RETAIL SALES

Estimates of retail sales during the most recent week and 4 weeks compare with such sales during the corresponding periods a year earlier as follows:

Period	Percent change
Week ended May 21	+ 7
Four weeks ended May 21	+10

### PRICES COMMODITIES AT WHOLESALE

According to the Bureau of Labor Statistics, the WPI (Wholesale Price Index) increased 0.9 percent before seasonal adjustment and 0.8 percent after such adjustment during April. The WPI for that month of 181.3 (1967=100) was 5.3 percent more than that during April 1975. The increase in the unadjusted WPI during April was the largest such increase since July 1975.

All of the 3-percent increase in prices of farm products during April was attributable to increases in prices of

fresh and dried fruits and vegetables, livestock, eggs, and "other farm products" (coffee, cocoa beans, and tea). Prices of livestock increased a marked 12.7 percent during April to a level nearly 11 percent more than that in April 1975. Prices of live poultry decreased a marked 9.4 percent during April, and prices for fluid milk decreased 5.1 percent then.

The 1.3-percent increase in prices of processed foods and feeds during April was the first increase in such prices since October 1975 and was the largest such increase since July 1975. During the period November 1975 through March 1976, prices of processed foods and feeds decreased a total of 4.4 percent. Most of the increase in such prices during April was attributable to large increases in prices of meats, poultry, and fish, of beverages and beverage materials, and of miscellaneous processed foods.

One noteworthy aspect of the increase in prices of farm products and processed foods and feeds during April is that it reflected large increases in prices of only a few components of the two groups. Prices of a majority of items included in those categories decreased during April. These decreases, however, were not sufficient to offset the large increases in the few items mentioned above.

The industrial commodities component of the WPI, which accounts for about three-quarters of the total index, increased 0.6 percent during April. Prices of industrial commodities have increased during every month for more than 4 years. The accompanying chart shows that the rate of increase in industrial commodities prices was relatively stable during the period 1969-72 but that this rate accelerated early in 1973 and accelerated further early in 1974. The rate of increase during the period from November 1974 to April 1976 was less than the marked rate during the preceding 12 months but still was large (about 6 percent annually).

Sellers recently announced increases in prices of several major metals, including steel, aluminum, lead, zinc, and copper. Such increases presumably will be reflected in the industrial commodities component of the WPI in the near future.

The index of 13 industrial raw materials prices

increased 4 percent during April to a level 7.8 percent more than that in April 1975. This index in April was at the highest level since October 1974 and was about 17 percent more than the level in July 1975, when the index reached a cyclical trough. The weekly averages of the daily index of such prices continued to increase through mid-May.

The weekly index of 22 commodities prices published by the Bureau of Labor Statistics late in April was 3.0 percent more than that late in March and 2.2 percent more than that a year earlier. The Dow-Jones index of commodity futures prices late in April was 5.7 percent more than that late in March and nearly 19 percent more than that late in April 1975.

Recently announced increases in prices of some major metals suggest that the Wholesale Price Index for May will be substantially larger than that for April.

#### Latest Indexes

	1975 Index	1976 May 17	May 10	May 17
Spot-market, 22 commodities*	508	529	530	
Commodity-futures	532	685	680	
Steel-scrap	\$84.17	\$83.50	\$82.83	

\*For the preceding Tuesday.

Note: The indexes are, respectively, those of the U.S. Bureau of Labor Statistics, Dow-Jones, and *Iron Age*. The spot-market and futures indexes are converted so that their August 1939 daily averages equal 100. The steel-scrap index is a composite price for No. 1 heavy melting scrap.

#### PRICE OF GOLD

	1975 May 29	1976 May 20	May 27
Final fixing in London	\$168.25	\$125.65	\$126.20

*Research Reports* is published weekly at Great Barrington, Massachusetts 01230 by American Institute for Economic Research, a nonprofit, scientific, educational, and charitable organization. Application to mail at second class postage rates is pending at Great Barrington, Massachusetts 01230. Sustaining membership: \$9 per quarter or \$35 per year.

