Recent Revisions of GNP

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GROSS national product (GNP) is the market value of goods and services produced by labor and property supplied by residents of a country before the deduction of depreciation charges for capital goods. This measure is widely accepted as the most comprehensive measure of national economic activity. Its use is no longer restricted to economists; noneconomist professionals and laymen now rely on this measure in the planning and coordination of a variety of activities. The availability of estimates is taken for granted; the reliability and accuracy of these estimates are seldom questioned.

The task of preparing and distributing estimates of GNP rests with the Bureau of Economic Analysis (BEA) for the U.S. Department of Commerce. Although much work was done during the 1930s and early 1940s in developing estimates of national economic activity, it was not until 1947 that the Department of Commerce started regularly publishing national income and product statistics within the framework of a comprehensive national economic accounting system. These statistics have since been published in the Department of Commerce's monthly publication, *Survey of Current Business.*

Since the publication of the 1947 *National Income Supplement,* the Department of Commerce has published seven comprehensive revisions of the national income and product accounts. The main purpose of these revisions is to make use of new source data; however, from time to time, the department develops new estimating procedures and makes definitional and conceptual changes. The latest of these revisions was published in December 1980.[1]

This article focuses on the nature of the most recent revisions on GNP estimates and their implications in interpreting and analyzing economic trends.

[1]For a full discussion of the revision, see "The National Income and Product Accounts of the United States: An Introduction to the Revised Estimates for 1929-80," *Survey of Current Business* (December 1980), pp. 1-26.

BASIS FOR RECENT REVISIONS

The recent revisions apply primarily to estimates since 1968. New information from the 1972 input-output tables, the 1977 economic censuses (mining, manufacturing, wholesale and retail trade, construction, transportation, selected services and governments) and the 1973 and 1976 Taxpayer Compliance Measurement Program provide the basis for the bulk of the changes.[2] The most important conceptual change involves the redefinition of GNP to include reinvested earnings of incorporated foreign affiliates of U.S. direct investors and eliminate those of incorporated U.S. affiliates of foreign direct investors.[3] Reinvested earnings are the difference between an affiliate's after-tax earnings and dividends paid to stockholders.

Summary of GNP Revisions

Table 1 compares the previous and revised estimates of GNP for 1979, the year in which the revision was the largest. Each side of the table represents an alternative but equivalent method of calculating the value of GNP. The left-hand side of the table shows GNP in terms of the costs incurred and the profits earned in its production. These are charges against GNP, which consist of factor charges, that is, the incomes of factors of production (labor and property), and nonfactor charges, which include indirect

[2]The input-output tables summarize inter-industry flows of production, showing how much of each industry's output is sold to every other industry and to final buyers, and how much of each industry's inputs are bought from each other industry and from the factors of production.

The Taxpayer Compliance Measurement Program is conducted by the Internal Revenue Service and is based on a sample of individual income tax returns for the purpose of obtaining data on the nature and extent of compliance with the Internal Revenue laws.

[3]U.S. (foreign) direct investors are U.S. (foreign) residents who own or control 10 percent or more of the voting securities of an incorporated foreign (U.S.) business enterprise or an equivalent interest in an unincorporated foreign (U.S.) business enterprise.

Table 1
1979 GNP (in billions of current dollars)

Income Approach	Previous	Change	Revised
National income	$1,924.8	$38.5	$1,963.3
Compensation of employees	1,459.2	1.7	1,460.9
Proprietors' income with inventory valuation and capital consumption adjustments	130.8	0.8	131.6
Rental income of persons with capital consumption adjustment	26.9	3.6	30.5
Corporate profits with inventory valuation and capital consumption adjustment	178.2	18.7	196.8
Net interest	129.7	13.7	143.4
Plus: Indirect business tax and nontax liability	189.5	–1.1	188.4
Business transfer payments	10.2	–0.7	9.4
Statistical discrepancy	3.7	–1.5	2.2
Less: Subsidies less current surplus of government enterprises	2.3	0.7	3.1
Plus: Capital consumption allowances with capital consumption adjustment	243.0	10.7	253.6
Equals: Charges against gross national product	2,368.8	45.1	2,413.9

Expenditure Approach	Previous	Change	Revised
Personal consumption expenditures	$1,509.8	$ 1.1	$1,510.9
Plus: Gross private domestic investment	387.2	28.6	415.8
Plus: Net exports of goods and services	–4.6	18.0	13.4
Exports	257.5	23.9	281.3
Imports	262.1	5.9	267.9
Plus: Government purchases of goods and services	476.4	–2.7	473.8
Equals: Gross national product	2,368.8	45.1	2,413.9

business taxes and capital consumption allowances (depreciation).

The right-hand side of table 1 gives GNP in terms of expenditures according to four major market categories: (1) personal consumption expenditures, (2) gross private domestic investment, (3) net exports of goods and services, and (4) government purchases of goods and services. These categories conform to the operational definition of final products as those purchases not resold during the accounting period.

The comparison of previous and revised estimates reflects all statistical and definitional factors underlying the revisions. These revisions represent, in total, 1.9 percent of the previous GNP estimate for 1979. On the income side, the largest changes resulted from revisions in corporate profits, net interest and capital consumption allowances. On the expenditure side, the major changes were in gross private domestic investment and net exports of goods and services.

Redefining GNP: The Conceptual Change

The major conceptual change in the recent revision is the treatment of reinvested earnings of incorporated foreign and U.S. affiliates of direct investors in the estimation of GNP. Since GNP can be derived in two

ways (see table 1), the conceptual change must show up in both methods of GNP calculation.

Prior to the revision, the net inflow of reinvested earnings of foreign and U.S. affiliates of direct investors was *not* included in the measure of corporate profits. Since GNP, as measured by the income method, is the sum of all income earned by labor and property of U.S. residents, including that from foreign ventures, the exclusion of these reinvested earnings was inconsistent.[4] The magnitude of this inconsistency, however, was small until recently. Including these earnings in the estimate of GNP requires calculating the difference between reinvested earnings of incorporated foreign affiliates of U.S. investors and reinvested earnings of incorporated U.S. affiliates of foreign investors. Because these reinvested earnings are much larger for U.S. investors than for foreign investors, the effect of the change is to increase the measure of U.S. GNP, especially in recent years. This effect was estimated at $15.1 billion in 1979.

On the income side, corporate profits were increased, representing an increase in income originating in foreign countries but accruing to domestic residents; this magnitude is well in excess of the income originating domestically but accruing to foreign residents. The effect of this conceptual redefinition accounts for 33 percent of the revised increase in GNP in 1979.

On the expenditure side of table 1, the effect of the redefinition is reflected in net exports. Reinvested earnings of an affiliate of a U.S. investor is an export of the service of capital; that of an affiliate of a foreign investor is an import of the service of foreign capital. With exports of capital services exceeding imports, the basis is provided for an upward revision of GNP as measured by expenditure for final product.

Other Sources of Revision: Statistical Changes

The definitional change accounted for 33 percent of the revision in 1979 GNP; the remaining 67 percent was attributable to statistical considerations. These statistical revisions reflected: (1) new and revised data from regularly used sources that become available every few years (called benchmark revisions), (2) new and revised data from regularly used sources that become available annually, (3) data from sources previously not available, (4) new estimating techniques, and (5) new classifications. Only the largest of these statistical changes are highlighted here.[5]

Income side As indicated in table 1, the largest changes on the income side were for corporate profits, net interest and capital consumption allowances. Since $15.1 billion of the $18.7 billion revision in corporate profits was attributable to the inclusion of reinvested earnings, the effect of statistical revisions on corporate profits was quite small.

The other substantially revised component of national income was net interest. The revision resulted from a BEA study of corporate income tax returns, which indicated that interest receipts were a smaller proportion of business receipts of corporate credit agencies other than banks and savings and loan associations (for example, credit unions, credit card companies, finance companies) than previously estimated. As a result, the reduction in interest receipts received by businesses increased the amount of net interest received by households.

The final component of GNP from the income side that was affected substantially by the revision was the capital consumption allowance (depreciation). This nonfactor charge against GNP was revised upward by almost $11 billion in 1979 to reflect faster growth in the gross capital stock than originally estimated (see revision of gross private domestic investment below). In addition, there were a number of small changes involving reestimates of corporate profits and proprietors' incomes.

Expenditure side Aside from the revision of net exports of goods and services, the only other substantially revised component of final expenditure was gross private domestic investment. The revision was quite large, amounting to $28.6 billion in 1979.

Most of this revision stemmed from the use of data received from new benchmark sources, primarily the 1972 input-output tables, as well as preliminary estimates for the 1977 input-output tables, and the 1977 economic censuses. As a result of these new sources and regular sources made available on an annual basis, revisions in estimates of producers' durable equipment accounted for $21.2 billion of the total upward revision in gross private domestic investment.

[4]This conceptual change puts the national income accounts on the same basis as the balance of payments accounts. Reinvested earnings were introduced into the balance of payments accounts in 1978. See *Survey of Current Business*, Part II (June 1978), p. 7.

[5]For a complete discussion of these statistical revisions, see *Survey of Current Business* (December 1980).

Table 2
GNP (in billions of current and 1972 dollars) and GNP Deflator

	GNP IN CURRENT DOLLARS				GNP IN 1972 DOLLARS				GNP DEFLATOR			
	Previous		Revised		Previous		Revised		Previous		Revised	
	Level	Change	Level	Change	Level	Change	Level	Change	Level	Change	Level	Change
1960	$ 506.0	4.0%	$ 506.5	3.8%	$ 736.8	2.3%	$ 737.1	2.2%	68.7	1.7%	68.7	1.6%
1961	523.3	3.4	524.6	3.6	755.3	2.5	756.6	2.6	69.3	0.9	69.3	0.9
1962	563.8	7.7	565.0	7.7	799.1	5.8	800.3	5.8	70.6	1.8	70.6	1.8
1963	594.7	5.5	596.7	5.6	830.7	4.0	832.5	4.0	71.6	1.5	71.7	1.5
1964	635.7	6.9	637.7	6.9	874.4	5.3	876.4	5.3	72.7	1.6	72.8	1.5
1965	688.1	8.2	691.1	8.4	925.9	5.9	929.3	6.0	74.3	2.2	74.4	2.2
1966	753.0	9.4	756.0	9.4	981.0	6.0	984.8	6.0	76.8	3.3	76.8	3.2
1967	796.3	5.8	799.6	5.8	1,007.7	2.7	1,011.4	2.7	79.0	2.9	79.1	3.0
1968	868.5	9.1	873.4	9.2	1,051.8	4.4	1,058.1	4.6	82.6	4.5	82.5	4.4
1969	935.5	7.7	944.0	8.1	1,078.8	2.6	1,087.6	2.8	86.7	5.0	86.8	5.1
1970	982.4	5.0	992.7	5.2	1,075.3	-0.3	1,085.6	-0.2	91.4	5.4	91.5	5.4
1971	1,063.4	8.2	1,077.6	8.6	1,107.5	3.0	1,122.4	3.4	96.0	5.1	96.0	5.0
1972	1,171.1	10.1	1,185.9	10.1	1,171.1	5.7	1,185.9	5.7	100.0	4.1	100.0	4.2
1973	1,306.6	11.6	1,326.4	11.8	1,235.0	5.5	1,255.0	5.8	105.8	5.8	105.7	5.7
1974	1,412.9	8.1	1,434.2	8.1	1,217.8	-1.4	1,248.0	-0.6	116.0	9.7	114.9	8.7
1975	1,528.8	8.2	1,549.2	8.0	1,202.3	-1.3	1,233.9	-1.1	127.2	9.6	125.6	9.3
1976	1,702.2	11.3	1,718.0	10.9	1,273.0	5.9	1,300.4	5.4	133.7	5.2	132.1	5.2
1977	1,899.5	11.6	1,918.0	11.6	1,340.5	5.3	1,371.7	5.5	141.7	6.0	139.8	5.8
1978	2,127.6	12.0	2,156.1	12.4	1,399.2	4.4	1,436.9	4.8	152.1	7.3	150.1	7.3
1979	2,368.8	11.3	2,413.9	12.0	1,431.6	2.3	1,483.1	3.2	165.5	8.8	162.8	8.5
1959-64		5.5%		5.5%		4.0%		4.0%		1.5%		1.5%
1964-69		8.0		8.2		4.3		4.4		3.6		3.6
1969-74		8.6		8.7		2.5		2.8		6.0		5.8
1974-79		10.9		11.0		3.3		3.5		7.4		7.2

ANALYTICAL IMPACT OF RECENT REVISIONS

When economic data are revised, a question naturally arises whether the previous interpretation of past events should be changed significantly. If so, a reassessment of the role of public policy may be required. Since the most recent GNP revision involves a redefinition of GNP as well, the continued use of that measure for analytical purposes also requires examination.

Interpretation of Recent Trends

Table 2 shows the previous and revised estimates of GNP, real GNP and the implicit GNP deflator.[6] Although the differences appear to be substantial for 1969 through 1979, the rates of change for these three key variables are only negligibly affected by the revisions. Since it is rates of change that provide the basis for interpreting the direction and magnitude of movement of the economy, the revisions do not appear to have significantly affected previous interpretation of economic events. Although small on a year-to-year basis, the revisions do accumulate over time. For example, GNP in 1972 dollars advanced at a 3.5 percent average rate from 1974 to 1979, compared with a pre-

[6]Tables 2 and 3 show the revisions back through 1960. All of the major GNP series were revised back through 1929. Prior to 1960, annual revisions were of a magnitude of 0.5 percent or less.

Table 3
GNP and GDP (in billions of current and 1972 dollars) and Implicit Price Deflator

	CURRENT DOLLARS				1972 DOLLARS				IMPLICIT PRICE DEFLATOR			
	GNP		GDP		GNP		GDP		GNP		GDP	
	Level	Change	Level	Change	Level	Change	Level	Change	Level	Change	Level	Change
1960	$ 506.5	3.8%	$ 502.9	3.8%	$ 737.1	2.1%	$ 731.8	2.1%	68.7	1.6%	68.7	1.6%
1961	524.6	3.6	520.7	3.5	756.6	2.6	751.0	2.6	69.3	0.9	69.3	0.9
1962	565.0	7.7	560.5	7.6	800.3	5.8	793.8	5.7	70.6	1.9	70.6	1.9
1963	596.7	5.6	591.8	5.6	832.5	4.0	825.6	4.0	71.7	1.6	71.7	1.6
1964	637.7	6.9	632.3	6.8	876.4	5.3	868.9	5.2	72.8	1.5	72.8	1.5
1965	691.1	8.4	685.2	8.4	929.3	6.0	921.4	6.0	74.4	2.2	74.4	2.2
1966	756.0	9.4	750.3	9.5	984.8	6.0	977.5	6.1	76.8	3.2	76.8	3.2
1967	799.6	5.8	793.7	5.8	1,011.4	2.7	1,003.9	2.7	79.1	3.0	79.1	3.0
1968	873.4	9.2	866.7	9.2	1,058.1	4.6	1,050.0	4.6	82.5	4.3	82.5	4.3
1969	944.0	8.1	937.1	8.1	1,087.6	2.8	1,079.7	2.8	86.8	5.2	86.8	5.2
1970	992.7	5.2	985.4	5.2	1,085.6	-0.2	1,077.6	-0.2	91.5	5.4	91.4	5.4
1971	1,077.6	8.6	1,068.5	8.4	1,122.4	3.4	1,112.9	3.3	96.0	4.9	96.0	4.9
1972	1,185.9	10.1	1,175.0	10.0	1,185.9	5.7	1,175.0	5.6	100.0	4.2	100.0	4.2
1973	1,326.4	11.8	1,310.4	11.5	1,255.0	5.8	1,239.9	5.5	105.7	5.7	105.7	5.7
1974	1,434.2	8.1	1,414.4	7.9	1,248.0	-0.6	1,230.7	-0.7	114.9	8.7	114.9	8.7
1975	1,549.2	8.0	1,531.9	8.3	1,233.9	-1.1	1,220.0	-0.9	125.6	9.3	125.6	9.3
1976	1,718.0	10.9	1,697.5	10.8	1,300.4	5.4	1,284.8	5.3	132.1	5.2	132.1	5.2
1977	1,918.0	11.6	1,894.5	11.6	1,371.7	5.5	1,354.7	5.4	139.8	5.8	139.8	5.8
1978	2,156.1	12.4	2,126.2	12.2	1,436.9	4.8	1,416.8	4.6	150.1	7.4	150.1	7.4
1979	2,413.9	12.0	2,370.1	11.5	1,483.1	3.2	1,455.9	2.8	162.8	8.5	162.8	8.5
1959-64		5.5%		5.5%		4.0%		3.9%		1.5%		1.5%
1964-69		8.2		8.2		4.4		4.4		3.6		3.6
1969-74		8.7		8.6		2.8		2.7		5.8		5.8
1974-79		11.0		10.9		3.5		3.4		7.2		7.2

vious estimate of 3.3 percent. The rise in the GNP deflator during this period is now estimated at a 7.2 percent average rate, compared with the previous estimate of 7.4 percent.

Probably the most important revisions from the standpoint of implications for public policy involve investment and saving. Estimates of both were raised sufficiently to raise the ratio of each relative to GNP in recent years. For example, the ratio of nonresidential fixed investment to GNP in 1979, originally estimated at 10.8 percent, was revised to 11.6 percent. Previous conclusions about the severity of the nation's capital formation problem will require renewed study in light of these revisions.

Analysis of Economic Relationships

GNP is defined as income earned by the labor and property of U.S. residents. As such, it includes a considerable and growing portion that originates in the rest of the world. How good, then, is it as a measure of U.S. economic activity? An alternative measure of U.S. economic activity is gross domestic product (GDP). GDP is defined as the value of production attributable to factors of production actually located in a given country regardless of their ownership; that is, GDP equals GNP minus the product of U.S. residents originating in the rest of the world. Incorporating reinvested foreign earnings into estimates of GNP thus widened the difference between GNP and GDP.

The nation's primary economic goals are stated in terms of employment, price stability and economic growth. Since GNP is a measure of *all* income earned by U.S. residents, it is a better measure of the nation's welfare than GDP. GDP, however, can be thought of as a measure of the economic performance of the U.S. economy because it focuses attention on the *origin* of income and product, rather than ownership. Consequently, the difference between GNP and GDP provides one indication of the contribution of international investment to the general welfare of the U.S. residents. Moreover, certain economic analyses might be more appropriately conducted using GDP instead of GNP, simply because income originating abroad is not directly relevant to some issues. For example, studies of the productivity problem are best done with GDP; similarly, analysis of the impact of monetary and fiscal policy would seem more relevant in terms of GDP than GNP.

Table 3 compares the rates of change for GNP and GDP in both current and constant dollars and for their respective implicit price deflators. As shown in this table, the two deflator measures are identical from 1960 to 1979. The current and constant dollar measures occasionally deviate by more than 0.1 percent after 1962, but their growth rates move consistently in the same direction.

The rates of change shown in table 3 do not provide clear support for switching analytical emphasis from GNP to GDP. However, the growing wedge between GNP and GDP suggests, at least, that GDP should be watched *along with* GNP in assessing economic developments.