

Improved Estimates of the National Income and Product Accounts for 1959–95: Results of the Comprehensive Revision

Contents

Annual Current-Dollar Measures	2
National income and product	3
Gross domestic product	3
Product-side components	3
Personal consumption expenditures (PCE) for goods	3
PCE for services	4
Nonresidential structures	5
Nonresidential producers' durable equipment	5
Residential investment	5
Change in business inventories	6
Net exports of goods and services	6
Government consumption expenditures and gross investment ..	6
Income-side components	7
Compensation of employees	7
Proprietors' income with inventory valuation adjustment (IVA) and capital consumption adjustment (CCAdj)	8
Rental income of persons with CCAdj	8
Corporate profits with IVA and CCAdj	9
Net interest	9
Nonfactor incomes	9
Consumption of fixed capital	10
Personal income and its disposition	10
Government receipts and current expenditures	11
Federal Government	11
State and local government	12
Rest-of-the-world transactions	12
Gross saving and investment	13
Annual Real Gross Domestic Product and Related Measures	13
Annual changes	14
Real disposable personal income	16
Annual Prices	16
Quarterly Real Gross Domestic Product	17
Major Statistical Changes	19
Improved chain-type measures of real output and prices	20
Regular benchmark source data for 1959–92	20
Regular source data for 1993–95	21
Changes in methodology	22
Consumer and business purchases of new autos	22
Nonresidential structures	22
Voluntary contributions to thrift savings plans	23
Wage accruals less disbursements	23
Employer contributions to pension plans	24
Tax return misreporting adjustments	24
Amortization of intangible assets	25
Consumption of fixed capital	25
Federal Government receipts and current expenditures	26
Semiconductor prices	27

IN JANUARY, the Bureau of Economic Analysis (BEA) released national income and product accounts (NIPA) estimates beginning with 1959 that reflect the results of the 10th comprehensive revision of the accounts.¹ Comprehensive revisions differ from annual NIPA revisions, the most recent of which was released in July 1994, because of the scope of the changes and because of the number of years subject to revision. Comprehensive revisions incorporate three major types of improvements: (1) Definitional and classificational changes that update the accounts to portray more accurately the evolving U.S. economy, (2) statistical changes that update the accounts to reflect the introduction of new and improved methodologies and the incorporation of newly available and revised source data, and (3) presentational changes that update the NIPA tables to reflect definitional, classificational, and statistical changes and to make the tables more informative.

The most important improvements incorporated for this comprehensive revision, which were previewed in earlier issues of the SURVEY OF CURRENT BUSINESS, are the following:

- Improved chain-type measures of real output and prices that eliminate the overstatement of real GDP growth for periods after the base year and the understatement of real GDP growth for periods before the base year;
- A new treatment of government investment that provides a more complete picture of investment through the consistent treatment of fixed assets whether purchased by the public or private sector and that improves the international comparability of U.S. estimates of saving and investment;
- A new methodology for calculating depreciation that improves the empirical basis of these estimates by replacing straight-line depreciation patterns with estimates based on

1. The ninth comprehensive revision was released in December 1991.

studies of prices of used equipment and structures in resale markets; and

- New and redesigned tables that update the presentation of the NIPA's with special emphasis on the improved measures of real output and prices and the new treatment of government investment.²

Later this year, BEA will release revised NIPA estimates for 1929–58 that reflect the adoption of BEA's improved measures of real output and prices, the definitional change recognizing government investment, the improved methodology for calculating depreciation, and most of the presentational changes. (For information on the availability of the revised estimates, see the box on page 26.)

Annual Current-Dollar Measures

As shown in table 1 (and appendix A), gross domestic product (GDP) and national income are

2. See "Preview of the Comprehensive Revision of the National Income and Product Accounts: BEA's New Featured Measures of Output and Prices," SURVEY 75 (July 1995): 21–38; "Preview of the Comprehensive Revision of the National Income and Product Accounts: Recognition of Government Investment and Incorporation of a New Methodology for Calculating Depreciation," SURVEY 75 (September 1995): 33–41; and "Preview of the Comprehensive Revision of the National Income and Product Accounts: New and Redesigned Tables," SURVEY 75 (October 1995): 30–39.

revised up for all years. For GDP, the revisions are primarily accounted for by the two definitional changes incorporated in this comprehensive revision, both of which affect "government consumption expenditures and gross investment":³ The recognition of government investment, which has the larger impact and which affects the estimates back to 1959, and the redefinition of Federal Government contributions to military and civilian retirement programs, which affects the estimates beginning with 1969.⁴

The net effects of the statistical changes increase GDP for each year beginning with 1969 and result primarily from the incorporation of newly available and revised source data. Personal consumption expenditures is revised up, primarily reflecting revised estimates of imputed rental payments by owner-occupants of dwellings (in services) and of purchased meals and bev-

3. In the product-side measure of GDP, "government consumption expenditures and gross investment" is the redefined government component that replaces "government purchases."

4. As noted in the October 1995 SURVEY, for the civilian retirement programs, contributions beginning with 1969 will now include payments to the Civil Service Retirement Fund for interest on unfunded liability. For the military retirement programs, contributions beginning with the fourth quarter of 1984, when a formal retirement fund was established, will now be the actual contributions to the fund. In the previously published estimates, military contributions for all periods were "imputed" to equal the value of benefits that are paid out of the current operating budget.

Acknowledgments

Gerald F. Donahoe, Associate Director for National Income, Expenditure, and Wealth Accounts, supervised the preparation of this comprehensive revision of the national income and product accounts of the United States. Karl D. Galbraith, Chief of the Government Division, directed major parts of the revision. Robert P. Parker, Chief Statistician, provided overall supervision.

Robert P. Parker and Eugene P. Seskin wrote the article describing the revision. Kurt Kunze and Teresa L. Weadock prepared the tables for the article.

Other BEA staff members contributed significantly to the revision:

Personal consumption expenditures—**Clinton P. McCully**, M. Greg Key, Aaron C. Catlin, Everette P. Johnson, Myung G. Han, James J. Raley, Craig D. Yokum, Moses J. Branch.

Investment—**Carol E. Moylan**. *Structures*—Brooks B. Robinson, Lance Lane. *Producers' durable equipment*—Jeffrey W. Crawford, Kali K. Kong, Chris W. Garner. *Inventories*—Leonard J. Loebach. *Investment prices*—Nadia F. Sadée.

Net exports—**Christian Ehemann**, David B. Wasshausen, Phyllistine M. Barnes.

Government transactions—**Karl D. Galbraith**, **D. Timothy Dobbs**, Thae S. Park, Gary W. Davis. *Federal Government*—**Pamela A. Kelly**, Peter G. Beall, Kurt S. Bersani, Laura M. Bilenki, James E. Boucher, Ann M. Groszkiewicz, Doris N. Johnson, Sean P. Keehan, Raymen G. Labella, Tamara M. Mast, Matthew P. McNeil, Joyce M. Northwood, Claire G. Pitzer, Michelle D. Robinson, Benyam Tsehaye, Andrew E. Vargo, Michael W. Webb. *State and local government*—**David F.**

Sullivan, Steven J. Andrews, Florence H. Campi, Richard L. Carlson, Jennifer A. Medairy, Alex Nemirovsky, Donald L. Peters.

Chain-type quantity and price measures—**Christian Ehemann**, Michael J. Boehm, Sherman Hammack.

Income—Leon W. Taub.

Personal income—**Paul R. Lally**, Toui C. Pomsouvan. *Wages and salaries*—Paul R. Lally, Tracey D. Schlitzer, James E. Rankin. *Other labor income*—Paul R. Lally, Patricia A. Newman, James E. Rankin. Other contributors to the personal income estimates include Ernest D. Wilcox, Thae S. Park, Craig D. Yokum.

Business income—**Kenneth A. Petrick**. *Corporate profits*—Kenneth A. Petrick, Craig A. Hargenrader, Kevin Molloy, Jerry L. Stone. *Nonfarm proprietors' income*—Willie J. Abney.

Property income—**George M. Smith**. *Farm output and income*—Michael N. Reynnells. *Interest income*—Mary Kate Schuster. *Housing output and rental income of persons*—Denise A. McBride.

Consumption of fixed capital—**Shelby W. Herman**, Michael D. Glenn, Kurt Kunze, Alexie M. Malcolm.

Computer services—**Norman E. Bakka**, Mary Carol Barron, Michael J. Boehm, Phyllistine M. Barnes.

NIPA information—**Robert P. Parker**, Virginia H. Mannering, Stephanie L. Howell, Teresa L. Weadock, Marilyn E. Baker.

Definitional changes—D. Timothy Dobbs, Bruce T. Grimm, Arnold J. Katz, John S. Pitzer, Helen S. Tice.

Secretarial—Esther M. Carter, Katherine Dent, Angela P. Pointer, Dorothy A. Wilson.

Table 1.—Revisions to Gross Domestic Product and National Income

	1959	1982	1987	1992	1993	1994
	Billions of dollars					
Gross domestic product	13.0	92.5	152.4	224.2	206.9	193.0
Definitional	13.0	74.1	104.2	122.4	123.2	125.1
Statistical	0	18.4	48.2	101.8	83.7	67.9
National income .....	.3	46.7	85.8	121.3	63.0	36.7
Definitional	0	11.0	21.9	15.9	12.1	9.2
Statistical .....	.3	35.7	63.9	105.4	50.9	27.5
	Revision as a percentage of previously published					
Gross domestic product	2.6	2.9	3.4	3.7	3.3	2.9
Definitional	2.6	2.4	2.3	2.0	1.9	1.9
Statistical	0	.6	1.1	1.7	1.3	1.0
National income .....	.1	1.9	2.3	2.5	1.5	.7
Definitional	0	.4	.6	.3	.2	.2
Statistical .....	.1	1.4	1.7	2.2	1.2	.5

erages (in nondurable goods). Private nonresidential producers' durable equipment is revised down, primarily reflecting revised estimates of information processing and related equipment.

For national income, the upward revisions are primarily accounted for by the following statistical changes: (1) The improved methodology for calculating depreciation, which is deducted in the estimation of business incomes; (2) the revised estimates of imputed rental payments by owner-occupants of dwellings, which affects rental income of persons; and (3) an improved methodology for calculating private employee contributions to pension plans, which affects compensation of employees. For 1993 and 1994, the upward revisions are partly offset by downward revisions to wage and salary accruals, to nonfarm proprietors' income, and to net interest, all of which reflect the incorporation of newly available source data. The only definitional change that affects national income (in supplements to wages and salaries) is the one that redefines contributions to Federal Government employee retirement programs.

The remainder of the discussion of the revisions to the NIPA estimates provides additional detail on GDP, national income, other NIPA aggregates, and their major components; the discussion focuses on 1982–94, the period in which the statistical changes are concentrated. **Appendix B** shows the revisions to the components of the five summary NIPA's for 1959 and for 1982–94.

National income and product

GDP.—GDP in current dollars is revised up for all years; the average annual growth rate for 1959–94, at 7.7 percent, is unrevised from the previously published estimates. The percent revisions to the

Table 2.—Revisions to Personal Consumption Expenditures

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	0	17.6	42.3	82.9	75.9	70.3
By source of revision						
Definitional						
Statistical	0	17.6	42.3	82.9	75.9	70.3
By component						
Goods	–1	17.3	15.9	22.1	22.4	24.8
Durable goods	–1	2.8	13.0	–4.2	–7.3	–10.6
Motor vehicles and parts	0	5.2	9.6	2.8	–1.9	–5.9
Furniture and household equipment	0	0	6.4	–3.1	–3.4	–2.9
Other	–1	–2.4	–3.0	–3.8	–2.1	–1.8
Nondurable goods	0	14.5	2.9	26.3	29.7	35.4
Food	0	16.6	13.2	33.2	36.0	36.1
Other nondurable goods	0	–2.1	–10.3	–6.9	–6.3	–7
Services .....	.2	.3	26.4	60.7	53.6	45.4
Housing	0	2.1	24.1	45.5	44.2	46.6
Household operation	0	0	7.1	8.8	12.2	14.7
Transportation	0	–7	1.6	1.4	–1.0	1.7
Medical care .....	.1	–1.1	–3.6	18.3	16.9	12.0
Other	0	0	–2.7	–13.3	–18.9	–29.7

level of GDP range from 2.3 percent for each of the years 1964–66 to 3.7 percent for 1992.

The definitional changes account for almost two-thirds of the revisions for all years; the revisions due to statistical changes range from zero for 1959 and 1960 to 1.7 percent for 1992. (In the preceding comprehensive revision, the largest upward revision due to statistical changes was also 1.7 percent.) The upward revisions primarily reflect revisions to government consumption expenditures and gross investment for all years and to personal consumption expenditures beginning with 1966. The upward revisions to GDP generally increase each year through 1992 and then taper somewhat for 1993 and 1994, primarily reflecting the previously noted large downward revisions to producers' durable equipment. For 1994, the revision to the level of GDP is 2.9 percent; the revision due to statistical changes is 1.0 percent.

Product-side components

PCE for goods.—PCE for goods is revised little for 1959–67 and revised up from 1968 forward (table 2). These revisions are accounted for by statistical changes.

PCE for durable goods is revised up for 1980–90 and down for 1991–94. For 1980–90, the upward revisions are primarily to motor vehicles and parts (mostly to parts) and to furniture and household equipment (mostly to video and audio products and to computers); "other durables" is revised down. These revisions primarily reflect the incorporation of data from the 1987 input-output (I-O) accounts. For 1991–94, the downward revisions to durable goods are concentrated in expenditures for a number of categories of furniture and household equipment, reflect-

ing the incorporation of consumer purchases by type of product from the 1987 I-O accounts, merchandise-line sales from the 1992 Census of Retail Trade, retail store sales from the 1993 Annual Retail Trade Survey, and revised monthly retail store sales for 1994. Purchases of both new and used autos are also revised down; the revisions to new autos primarily reflect lower estimates of average expenditure per car that result from an improved methodology and from the reclassification of sales of imported sport-utility vehicles and minivans from autos to trucks (see the section “Changes in methodology”). The downward revisions to used autos primarily reflect improved estimates of holding periods of autos purchased by business; the improved estimates are based on a BEA analysis of retention rates by type of use—rental, lease, and fleet.⁵ For 1991–94, within durable goods, the aforementioned downward revisions are partly offset by upward revisions to purchases of new and used trucks. The revisions to purchases of new trucks primarily reflect the reclassification of imported sport-utility vehicles and minivans and the incorporation of data from the 1987 I-O accounts, the 1992 Census of Manufactures, and the 1993 Annual Survey of Manufactures. The revisions to purchases of used trucks primarily reflect the incorporation of data from the 1987 I-O accounts.

PCE for nondurable goods is revised up beginning with 1966; the revisions for recent years are sizable. The upward revisions are more than accounted for by revisions to expenditures for food, primarily reflecting the use of a higher consumer share for purchases of restaurant meals. The higher share is estimated using information from the 1987 I-O accounts that was based on a detailed analysis of restaurant receipts by type of restaurant from the 1987 Census of Retail Trade. For 1982 forward, the upward revisions to expenditures for food are partly offset by downward revisions to expenditures for “other nondurables,” particularly expenditures for cleaning and other household supplies; for 1988 forward, the revisions are reinforced by upward revisions to expenditures for drug preparations and sundries, particularly prescription drugs.

Through 1987, the revisions to PCE for nondurable goods primarily reflect the incorporation of data from the 1987 I-O accounts. Most of these

revisions begin with 1983. For restaurant meals and a few other components, information from the 1987 I-O accounts led to revisions for earlier years. The revisions for 1988–94 reflect the incorporation of the same newly available and revised source data used for the revised estimates of durable goods other than motor vehicles.

PCE for services.—PCE for services is revised up substantially beginning with 1983. The largest upward revisions are to housing services, particularly to the imputed rental payments by owner-occupants of nonfarm dwellings. These revisions primarily reflect the incorporation of newly available data on rental payments and on the value of tenant- and owner-occupied units from the 1991 Residential Finance Survey (a follow-on survey to the 1990 Census of Housing); the imputed payments, which represent the amounts that owner-occupants would pay if they rented their dwellings instead of owned them, are derived by applying rents of tenant-occupied units to similarly valued owner-occupied units. Space rent for tenant-occupied units is also revised up substantially, reflecting the incorporation of information on mean rent from the 1990 Census of Housing and of an improved methodology for removing utility costs included in reported rental payments.⁶

Household operation services are also revised up beginning with 1983. The revisions are primarily to expenditures for telephone and telegraph and reflect the incorporation of data on local telephone service from the 1987 I-O accounts and, after 1987, of new data on consumer purchases of cellular telephone service that were introduced in the 1993 annual NIPA revision but not fully incorporated into earlier NIPA estimates. For 1990 forward, medical care services are revised up substantially, primarily reflecting receipts data from the 1992 Census of Service Industries, and revised 1993 and new 1994 receipts data from the service annual survey. Upward revisions to expenditures for physicians and other professional medical services more than offset downward revisions to hospital and nursing home services. For 1990 forward, the revisions are reinforced by upward revisions to health insurance, primarily reflecting revised and new data from the Health Care Financing Administration.

5. The downward revision to PCE used autos results from an upward revision to the used-auto component of nonresidential producers' durable equipment because the estimates of net purchases of used autos by consumers are based on changes in the stock of autos held by consumers. This stock is determined by subtracting estimates of changes in holdings by business and by government from the changes in the total stock of autos.

6. A detailed discussion of the rental imputation and the methodology used to prepare the rental estimates for owners and tenants appears in U.S. Department of Commerce, Bureau of Economic Analysis, *Personal Consumption Expenditures*, Methodology Paper Series MP-6 (Washington DC: U.S. Government Printing Office, 1990): 8.

Table 3.—Revisions to Gross Private Domestic Investment

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	0	-2.3	-2.1	2.1	-10.9	-18.5
By source of revision						
Definitional	0	-2.3	-2.1	2.1	-10.9	-18.5
Statistical	0	-2.3	-2.1	2.1	-10.9	-18.5
By component						
Fixed investment	0	-3.7	-1	-1.8	-16.2	-25.8
Nonresidential	0	-3.8	-2.4	-3.5	-17.3	-30.4
Structures	0	-3.8	.8	-1.9	-1.6	-2.6
Producers' durable equipment ..	0	0	-3.2	-1.6	-15.7	-27.8
Information processing and related equipment	0	0	.4	2.2	-9.7	-19.9
Computers and peripheral equipment	0	0	1.8	7.4	1.7	.4
Other	0	0	-1.3	-5.3	-11.5	-20.2
Industrial equipment	0	0	1.1	3.3	.9	-3.4
Transportation and related equipment	0	0	-3.2	-5.3	-5.0	-2.2
Motor vehicles	0	0	-4.5	-5.9	-6.1	-3.6
Other	0	0	1.3	.6	1.1	1.4
Other	0	0	-1.5	-1.8	-2.1	-2.4
Residential	0	0	2.4	1.8	1.1	4.7
Change in business inventories ...	0	1.4	-2.1	4.0	5.2	7.3
Farm	0	0	0	-7	-1.5	5.1
Nonfarm	0	1.5	-2.0	4.7	6.7	2.1

For 1987 forward, "other services" is revised down. Downward revisions to personal business services (mostly legal services and tax return preparation services) and to education and research services primarily reflect the incorporation of the same newly available and revised source data used for the revised estimates of medical care services other than health insurance and hospital services. The expense of handling life insurance, which includes noninsured pension plans, also is revised down for 1987 forward, reflecting revised estimates of pension fund operating expenses for 1987–92, based on Department of Labor tabulations of private pension plans and for 1993, newly available trade source data. These downward revisions more than offset upward revisions to net foreign travel, which primarily reflect revised estimates of international airline travel by U.S. residents on U.S. carriers.

Nonresidential structures.—Revisions to nonresidential structures, which begin with 1978, are downward for most years (table 3). The relatively large downward revisions for 1978–82 are accounted for by buildings and reflect a modification of the methodology introduced in the last comprehensive revision (see the section "Changes in methodology"). The downward revisions for 1992–94 result from downward revisions to buildings and to "other" structures, reflecting both the modified methodology and the incorporation of revised data from regular sources for 1993 and 1994, and to utility structures, reflecting newly available data from regular sources; these revisions more than offset upward revisions to

mining exploration, shafts, and wells, reflecting the incorporation of data from the 1992 Census of Mineral Industries.

Nonresidential producers' durable equipment (PDE).—Except for 1989 and 1992, nonresidential PDE is revised down substantially for 1988 forward. The revisions are primarily to transportation and related equipment and to information processing and related equipment. Within transportation and related equipment, purchases of new autos are revised down, reflecting the incorporation of the new, lower estimates of average expenditure per car and of unit sales. These revisions are largely offset by upward revisions to net purchases of used autos (see footnote 5). In addition, purchases of new trucks are revised down, reflecting the incorporation of data from the 1987 i-o accounts, the 1992 Census of Manufactures, and the 1993 Annual Survey of Manufactures. Within information processing and related equipment, purchases of communications equipment are revised down, reflecting newly available business purchases by type of product from the 1987 i-o accounts, product shipments from the 1992 Census of Manufactures and the 1993 Annual Survey of Manufactures, and unpublished revised monthly industry shipments for 1994. For 1993, the large revision reflects the replacement of an extrapolator based on monthly industry shipments with one based on product shipments that provides a more accurate measure of capital equipment purchased by business. For 1994, the large revision also reflects extrapolation with more detailed industry shipments. Large revisions for 1988 and 1990 to several components of PDE reflect revisions to a BEA bias adjustment for 1988–91.⁷ The bias adjustments in the previously published estimates were from a judgmental projection of the 1983–86 bias as indicated by data from the 1987 census; the revised adjustments reflect the actual 1988–91 bias as indicated by data from the 1992 census.

Residential investment.—Except for 1994, the revisions to residential investment are relatively small. For 1994, an upward revision to "other structures" reflects the incorporation of newly available information on brokerage commissions on sales of condominiums from the 1987 i-o accounts.

7. The adjustment allocates a downward bias in the Census Bureau's monthly and annual surveys of manufactures that develops between the quinquennial censuses of manufactures and that results primarily from an incomplete incorporation of new businesses into the surveys.

Table 4.—Revisions to Net Exports of Goods and Services

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	0	0.1	1.0	0.8	0.4	1.8
By source of revision						
Definitional						
Statistical	0	0.1	1.0	.8	.4	1.8
By component						
Exports	0	0	1.7	1.3	.9	3.3
Goods	0	-2	-2	-1.0	-1.5	-3.0
Services	0	.2	2.0	2.2	2.3	6.3
Imports	0	0	.8	.6	.6	1.5
Goods	0	-1	0	.3	.6	.1
Services	0	0	.8	.3	-1	1.4

Change in business inventories.—Revisions to change in business inventories are very small until 1977, and then they vary from year to year. (The discussion that follows focuses primarily on revisions greater than \$2.0 billion without regard to sign.) Except for 1994, revisions to farm inventories are small; the upward revision for 1994 reflects revised U.S. Department of Agriculture data.

For 1977–83, upward revisions to nonfarm inventories are accounted for by wholesale and retail trade and reflect the incorporation of revised data on change in book value that were not available in time to be incorporated into the 1991 comprehensive revision.

From 1984 forward, there are downward revisions to nonfarm inventories for 1984 and 1988 and upward revisions for 1992–94. The downward revisions reflect downward revisions to both the inventory valuation adjustment (IVA) and the change in book value. The downward revisions to the IVA, which are widespread among industries, primarily reflect the incorporation of revised commodity weights from the 1987 I-O accounts. The downward revision to the change in book value for 1984 primarily reflects the incorporation of the revised wholesale and retail trade data (noted above); the downward revision for 1988 is more than accounted for by manufacturing and reflects revisions to the bias adjustment to the annual survey of manufactures (see footnote 7).

For 1992 and 1993, the upward revisions to nonfarm inventories reflect upward revisions to the change in book value. The revisions to the change in book value are primarily to manufacturing and reflect the incorporation of newly available data from the 1992 Census of Manufactures and the 1993 Annual Survey of Manufactures. Smaller upward revisions to retail trade reflect the incorporation of inventory data from the 1992 Census of Retail Trade and the 1993

Table 5.—Revisions to Government Consumption Expenditures and Gross Investment

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	13.0	77.2	111.3	138.5	141.5	139.4
By source of revision						
Definitional	13.0	74.1	104.2	122.4	123.2	125.1
Government investment	13.0	66.1	85.3	110.2	114.7	119.4
Federal Government retirement contributions (general government)	0	8.0	18.9	12.2	8.6	5.7
Statistical	0	3.1	7.2	16.1	18.3	14.3
By component						
Federal	10.1	46.6	70.8	79.0	78.5	79.0
Compensation of employees	0	8.0	19.8	11.4	7.3	1.4
Consumption of fixed capital	10.0	38.6	50.1	63.5	65.8	68.0
Other	0	0	.9	4.1	5.4	9.6
State and local	3.0	30.5	40.6	59.5	63.1	60.4
Compensation of employees	0	-7	2.2	-1.7	-2.1	-6.4
Consumption of fixed capital	3.0	27.4	35.2	46.6	49.0	51.4
Other	0	3.8	3.2	14.6	16.2	15.4
Addenda:						
National defense	9.3	37.1	58.3	61.6	59.5	59.7
Nondefense .....	.7	9.6	12.4	17.4	19.0	19.3

Annual Retail Trade Survey. For 1994, the upward revision to nonfarm inventories is more than accounted for by the IVA, which is revised up to reflect the incorporation of revised commodity weights from the 1987 I-O accounts and revised price data. For 1994, the downward revision to the change in book value is primarily to retail trade and to “other” industries. The revision to retail trade is to motor vehicle dealers and reflects the incorporation of revised estimates of motor vehicle production and sales from trade sources; the revision to “other” industries primarily reflects the incorporation of Internal Revenue Service (IRS) tabulations of inventory data from corporate tax returns for 1993.

Net exports of goods and services.—Revisions to net exports of goods and services are small (table 4). For 1983–94, both exports and imports are revised up except for a slight downward revision to imports for 1985. These revisions are largely traceable to statistical revisions from the balance of payments accounts that were not previously incorporated into the NIPA's.⁸ The upward revisions to both exports and imports are primarily to services; the largest revision is to exports of services for 1994. Within exports of services, upward revisions to a number of components contribute to the overall revisions.

Government consumption expenditures and gross investment.—As previously noted, as part of this comprehensive revision, government consumption expenditures and gross investment (hereafter

8. For the most recent annual revision to the balance of payments accounts, see Christopher L. Bach, “U.S. International Transactions, Revised Estimates for 1983–94,” SURVEY 75 (June 1995): 69–75.

referred to as government consumption and investment) replaces government purchases as the product-side government GDP component. This definitional change, which recognizes government expenditures for structures and equipment as investment, results in substantial upward revisions to the “government” component of GDP by including the services of government fixed assets—which is measured as depreciation, or consumption of fixed capital—as expenditures (table 5). These upward revisions are reinforced by revisions resulting from the redefinition of the Federal Government’s contributions to the retirement programs of both civilian employees and military personnel.⁹ Beginning with 1975, statistical changes also contribute to the upward revisions; the revisions become increasingly large, peaking at \$18.3 billion for 1993. The revisions due to statistical changes reflect both revisions to the previously published government purchases component that is now included in government consumption expenditures and revisions to the part that is now included in government gross investment.

For Federal Government consumption and investment, the revisions from statistical changes tend to be small. The noteworthy statistical revisions for 1989 forward are to nondefense expenditures and reflect an improved allocation of outlays from budget documents to NIPA expenditure categories. For State and local government consumption and investment, the largest upward revisions are to expenditures for structures and reflect the introduction, beginning with 1975, of a new estimating procedure (see the section “Changes in methodology”). For 1985–90, these upward revisions are reinforced by upward revisions to compensation of employees.¹⁰ For

Table 6.—Revisions to Compensation of Employees

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	0	11.6	59.0	53.7	29.0	3.7
By source of revision						
Definitional	0	11.0	21.9	15.9	12.1	9.2
Federal Government retirement contributions	0	11.0	21.9	15.9	12.1	9.2
Statistical	0	.6	37.1	37.8	16.9	-5.5
By component						
Wage and salary accruals	0	.6	11.5	15.8	-5.6	-23.1
Wage and salary disbursements ..	0	.6	11.5	11.6	9.8	-37.9
Wage accruals less disbursements	0	0	0	4.2	-15.4	14.8
Supplements to wages and salaries ..	0	11.0	47.6	37.9	34.6	26.8
Employer contributions for social insurance	0	11.0	22.6	15.3	9.0	5.6
Other labor income	0	0	25.0	22.6	25.6	21.2
Pension and profit-sharing	0	0	16.7	9.5	12.1	.....
Group health insurance	0	0	8.1	11.7	14.0	.....
Other	0	0	.2	1.4	-5	.....

1992–94, the upward revisions are partly offset by downward revisions to government contributions for retirement plans and for health and life insurance plans, reflecting the incorporation of data from regular sources.

Income-side components

Compensation of employees.—Compensation of employees is revised up for all years, with increasingly large revisions through 1987, reflecting revisions to supplements to wages and salaries and revisions to wage and salary accruals; for 1993 and 1994, downward revisions to wage and salary accruals partly offset the upward revisions to supplements (table 6).

The upward revisions to supplements through 1982 solely reflect the redefinition of the Federal Government’s contribution to civilian retirement programs. Beginning with 1984, the revisions increase substantially, reflecting the effects of the establishment of the military retirement fund. The revisions generally start to lessen from 1988 forward because the contributions to the military retirement programs become smaller than the previously published estimates, which were based on the value of benefits paid (see footnote 4).

For 1983 forward, other labor income is also revised up, reflecting both newly developed estimates of private employer contributions to pension plans (see the section “Changes in methodology”) and revised estimates of employer contributions to private health insurance that are based primarily on revised data from the Health Care Financing Administration.

of all general government employees. The “compensation of employees” lines shown in table 5 show revisions to the estimates of the compensation of all general government employees.

9. The definitional changes involve transactions of both general government and government enterprises. (Government enterprises are government agencies that cover a substantial portion of their operating costs by selling goods and services to the public and that maintain their own separate accounts.) For GDP and for government consumption and investment, the revisions reflect only the effects on general government. For other NIPA components, there are different effects. For the compensation of employees component of gross domestic income, the revisions reflect the effects of the redefinition of contributions on both general government and government enterprises. For consumption of fixed capital, the revisions reflect the effects of the definitional change recognizing government investment on both general government and government enterprises; the effect on government enterprises is discussed in more detail in the article in the September 1995 SURVEY (see footnote 2). For the current surplus of government enterprises component of gross domestic income, the revisions reflect both definitional changes.

10. The definitional change relating to government investment also results in a change in the classification of compensation of “force-account” employees of general government—that is, government employees engaged in the construction of new structures. This compensation is included in gross investment for consistency between government and private expenditures for structures and is thus excluded from the compensation of employees component of government consumption expenditures. This change does not affect the compensation of employees component of gross domestic income, and general government gross product will continue to include the compensation

Table 7.—Revisions to Proprietors' Income With Inventory Valuation and Capital Consumption Adjustments

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	-1.2	-8	-17.3	-9.2	-21.6	-22.8
By source of revision						
Definitional						
Statistical	-1.2	-8	-17.3	-9.2	-21.6	-22.8
Improved measure of depreciation	-1.4	-1.5	-1.8	-4.0	-6.6	-9.8
Other .....	.2	.7	-15.5	-5.2	-15.0	-13.0
By component						
Farm .....	.2	2.9	1.0	-6.4	-5.3	-4.5
Proprietors' income with inventory valuation adjustment .....	.2	1.7	0	-6.2	-5.0	-4.3
Capital consumption adjustment	0	1.3	1.0	-.2	-.3	-.2
Nonfarm	-1.5	-3.8	-18.4	-2.9	-16.2	-18.3
Proprietors' income	0	.4	-14.2	1.1	-9.2	-8.6
Inventory valuation adjustment	0	0	-.2	-.2	.2	.1
Capital consumption adjustment	-1.5	-4.1	-4.0	-3.7	-7.1	-9.9

Upward revisions to wage and salary accruals and disbursements for 1984–92 primarily reflect a new adjustment to account for voluntary contributions by employees to thrift savings plans, such as 401(k) plans (see the section “Changes in methodology”). For 1993, the downward revision to wage and salary accruals is more than accounted for by a downward revision to “wage accruals less disbursements” (WALD) (see the section “Changes in methodology”).¹¹ For 1994, the downward revision to wage and salary accruals is attributable to a large downward revision to wage and salary disbursements, reflecting newly available Bureau of Labor Statistics tabulations of wages and salary data of employees covered by State unemployment insurance, that more than offsets an upward revision to WALD.

Proprietors' income with inventory valuation adjustment (IVA) and capital consumption adjustment (CCAdj).—Except for 1984, proprietors' income with IVA and CCAdj is revised down for all years (table 7). Through 1987, downward revisions to nonfarm proprietors' income more than offset upward revisions to farm proprietors' income; for 1988–90, downward revisions to farm proprietors' income more than offset upward revisions to nonfarm proprietors' income; and for 1991–94, both components are revised down. The upward revisions to farm proprietors' income through 1987 are relatively small (\$3.6 billion or less) and largely reflect the improved methodology for calculating depreciation that affects both the capital consumption allowances and the capital consumption adjustment, both of which affect the calculation of farm proprietors'

11. Wage accruals less disbursements is the difference between wages and salaries on a “when-earned” (accrual) basis, the proper timing for inclusion in national income, and wage and salaries on a “when-paid” (disbursement) basis, the proper timing for inclusion in personal income.

Table 8.—Revisions to Rental Income of Persons with Capital Consumption Adjustment

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	3.5	25.7	42.3	86.1	78.4	88.9
By source of revision						
Definitional						
Statistical	3.5	25.7	42.3	86.1	78.4	88.9
Improved measure of depreciation	3.3	23.8	27.7	38.4	39.6	49.4
Other .....	.2	1.9	14.6	47.7	38.8	39.5
By component						
Rental income of persons	1.7	10.3	27.6	65.7	58.0	60.5
Capital consumption adjustment	1.9	15.3	14.7	20.5	20.4	28.3
Addendum:						
Capital consumption allowances	-1.4	-8.5	-13.0	-17.9	-19.2	-21.1

income (see the section “Changes in methodology”).¹² The downward revisions for 1988–94 are slightly larger, reflecting revised data from the U.S. Department of Agriculture.

Nonfarm proprietors' income is revised down for all years except 1988–90. The downward revisions through 1982 primarily reflect the new depreciation estimates, which for nonfarm proprietors' income, affect only the capital consumption adjustment.¹³ The revisions for 1986 and 1987 primarily reflect the incorporation of revised adjustments for tax return misreporting (see the section “Changes in methodology”). The downward revisions for 1993 and 1994 primarily reflect the incorporation of newly available IRS tabulations of sole proprietorship and partnership tax return data for 1993.

Rental income of persons with CCAdj.—Rental income of persons with CCAdj is revised up substantially for all years (table 8). The revisions primarily reflect (1) the improved methodology for estimating depreciation, which results in downward revisions to the capital consumption allowances—a deduction in calculating rental income—and in upward revisions to the CCAdj (see the section “Changes in methodology”), and (2) the incorporation of the newly available data from the 1991 Residential Finance Survey on rental payments and on the value of tenant- and

12. BEA estimates historical-cost capital consumption—capital consumption allowances (CCA)—and current-replacement-cost capital consumption—consumption of fixed capital (CFC)—based on fixed investment flows, depreciation patterns, and average service lives. The CCA is used as the deduction for depreciation in the calculation of farm proprietors' income and rental income of persons. The resulting income measures are converted to current-replacement cost using the CCAdj—the difference between CCA and CFC. Thus, revisions to the CFC affect both historical cost (through the CCA) and current-replacement cost (through the CCAdj).

13. For nonfarm proprietors' income and corporate profits, the deduction item for depreciation is as reported on tax returns. Because the CCAdj converts the depreciation charges to current-replacement cost, revisions to CFC affect the CCAdj for both of these components. Thus, revisions to the CCAdj reflect revisions to both the CCA and CFC.

Table 9.—Revisions to Corporate Profits with Inventory Valuation and Capital Consumption Adjustments

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	-2.1	7.7	-10.1	-3.7	-21.3	-16.2
By source of revision						
Definitional						
Statistical	-2.1	7.7	-10.1	-3.7	-21.3	-16.2
Improved measure of depreciation	-2.1	-2.9	-8.6	-6.2	-9.1	-8.8
Other	0	10.6	-1.5	2.5	-12.2	-7.4
By component						
Profits before tax	0	4	5.7	3.3	1.9	3.7
Inventory valuation adjustment	0	0	-6.2	-1.1	-4	6.2
Capital consumption adjustment	-2.1	7.3	-9.6	-13.2	-22.8	-26.1
Addenda:						
Domestic financial	0	3.3	6.8	18.6	8.1	12.4
Domestic nonfinancial	-2.1	4.9	-19.0	-26.6	-33.6	-29.4
Rest of the world	0	-4	2.1	4.3	4.3	.8
Receipts from the rest of the world	0	-1.7	1.2	2.6	4.5	2.7
Less: Payments to the rest of the world	0	-1.3	-9	-1.7	.2	1.9

Table 10.—Revisions to Net Interest

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	0	2.5	11.8	-5.7	-1.4	-16.9
By source of revision						
Definitional						
Statistical	0	2.5	11.8	-5.7	-1.4	-16.9
By component						
Net monetary interest	0	2.5	5.9	-3.1	-1.3	-20.5
Domestic business	0	2.5	2.2	-4.9	-2.8	-22.3
Corporate	0	0	-8	-3.3	-4.6	
Sole proprietorships and partnerships	0	0	-7	-3.0	.4	
Other private business	0	1.2	4.6	1.4	1.4	
Rest of the world	0	1.3	2.8	1.8	1.5	1.8
Net imputed interest	0	0	5.8	-2.6	-1	3.6
Addenda:						
Net interest	0	2.5	11.8	-5.7	-1.4	-16.9
Plus: Net interest paid by government	0	0	.9	7.5	10.2	15.0
Plus: Interest paid by persons	0	0	-8	.3	.7	-4
Equals: Personal interest income	0	2.4	11.9	2.0	9.4	-2.4

Table 11.—Revisions to Nonfactor Incomes

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Subsidies less current surplus of government enterprises	1.0	14.9	16.9	23.6	22.7	24.4
Subsidies	0	0	.7	.2	.1	1.2
Current surplus	-1.0	-14.9	-16.2	-23.5	-22.6	-23.3
Definitional	-1.0	-14.9	-16.5	-21.7	-22.7	-24.1
Government investment	-1.0	-12.0	-13.4	-18.0	-19.1	-20.7
Federal Government retirement contributions	0	-3.0	-3.0	-3.7	-3.6	-3.5
Statistical	0	0	.4	1.9	0	.8
Indirect business tax and nontax liability	0	0	-2	1.2	14.7	18.5
Business transfer payments	0	-2	.2	.3	-4	-8

owner-occupied units—the same data that lead to upward revisions to PCE for housing services.

Corporate profits with IVA and CCAdj.—Corporate profits with IVA and CCAdj is revised down for all years except for 1980, 1981, 1984, and 1985; the largest downward revisions are for 1993 and 1994 (table 9). Through 1982, the revisions reflect the improved estimates of depreciation, which affect the capital consumption adjustment. The profits before tax component (without adjustments) is revised up for all years beginning with 1983, reflecting upward revisions due to an adjustment to “remove” the effect of amortizing intangible assets (see the section “Changes in methodology”) and to rest-of-the-world profits for all years except 1990; the revisions to rest-of-the-world profits stem from the revisions to the balance of payments accounts. For 1992–94, the revisions to profits before tax primarily reflect the incorporation of revised IRS tabulations of corporate tax return data for 1992 and newly available tabulations for 1993. Revisions to the corporate IVA—revised down \$6.2 billion for 1987 and up \$6.2 billion for 1994—primarily reflect the incorporation of revised commodity weights from the 1987 I-O accounts and, for 1994, revised price data.

Net interest.—Net interest is revised up for 1979–91 and down for 1992–94; the revisions are small for 1979–82 and for 1991 and 1993 (table 10). For 1982–88, rest-of-the-world interest is revised up, based on revisions from the balance of payments accounts, and other private business interest is revised up, reflecting estimates of mortgage interest paid, based on newly available data from the 1991 Residential Finance Survey. For 1984–93,

imputed interest paid by corporate business is revised up, based on the incorporation of data from the 1987 I-O accounts on the share of banking accounted for by nonfederally insured banks. (This share is used to adjust source data that cover only insured banks in order to reflect the activities of all banks.) For 1989–92, monetary interest of sole proprietorships and partnerships is revised down, based on the incorporation of results from the 1988 Taxpayer Compliance Measurement Program, and for 1992 and 1993, monetary interest is revised down, based on revised IRS tabulations of corporate tax return data for 1992 and newly available tabulations for 1993.

Nonfactor incomes.—Nonfactor incomes—subsidies less current surplus of government enterprises, indirect business taxes and nontax liability, and business transfer payments—is revised up for all years (table 11). Indirect business taxes is revised little through 1992; for 1993 and 1994, large upward revisions primarily reflect newly available data for property taxes from Census Bureau quarterly surveys of State and local tax revenues; Federal Government nontaxes, which reinforce the upward revisions, reflect the results

of a more detailed analysis of Federal Government budget data, particularly as related to recent changes in the treatment of credit programs (see the section “Changes in methodology”). Business transfer payments is revised little for all years. Subsidies less current surplus of government enterprises is revised up for all years, primarily reflecting the inclusion of consumption of fixed capital as a deduction in calculating the current surplus as a result of the definitional change relating to investment. The revisions are reinforced by other upward revisions to the surplus of Federal Government enterprises, reflecting the definitional change related to the treatment of retirement programs and a more detailed analysis of the enterprises’ annual reports (see the section “Changes in methodology”).

Consumption of fixed capital (CFC).—CFC—that is, the charge for the using up of private and government fixed capital—is revised up substantially for all years (table 12). The upward revisions stem from the definitional change recognizing government investment and the corresponding inclusion of estimates for consumption of government fixed capital; these revisions more than offset downward revisions to private CFC that result from the new methodology for estimating depreciation and from revisions to the estimates of investment flows (see the section “Changes in methodology”). The new methodology also accounts for most of the revisions to capital consumption allowances (CCA). Other revisions to the CCA reflect revisions to corporate CCA: For 1981–84, the revisions reflect the incorporation

Table 12.—Revisions to Consumption of Fixed Capital
[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Total revision	14.0	57.2	79.7	95.7	104.7	103.5
By source of revision						
Definitional	14.1	78.1	98.7	128.2	133.8	140.1
Government investment	14.1	78.1	98.7	128.2	133.8	140.1
Statistical	-1	-20.8	-19.0	-32.4	-29.1	-36.6
Improved measure of depreciation	-1	-20.8	-19.0	-32.4	-29.1	-36.6
Other	0	0	0	0	0	0
By component						
Private	-1	-20.8	-19.0	-32.4	-29.1	-36.6
Capital consumption allowances	-6	1.7	-15.1	-27.8	-37.7	-43.1
Improved measure of depreciation	-7	-8.8	-14.4	-20.9	-22.4	-24.7
Farm proprietors' income with inventory valuation adjustment	-2	-1.9	-1.4	.2	.5	.9
Rental income of persons	-1.4	-8.5	-13.1	-17.9	-19.2	-21.2
Buildings and equipment owned and used by nonprofit institutions serving individuals .....	.9	1.6	.1	-3.2	-3.7	-4.4
Other .....	.2	10.5	-7	-6.9	-15.3	-18.4
Less: Capital consumption adjustment	-7	22.4	3.9	4.7	-8.8	-6.5
Improved measure of depreciation	-9	11.9	4.6	11.6	6.5	11.9
Other .....	.2	10.5	-7	-6.9	-15.3	-18.4

of newly available IRS tabulations of corporate depreciation from Form 4562 (Depreciation and Amortization); for 1992–94, the revisions reflect revised IRS tabulations of corporate income tax return data for 1992 and newly available tabulations for 1993.

Personal income and its disposition

Personal income is revised up for all years (table 13). The revisions are primarily accounted for by the previously described revisions to the components of national income that are included in personal income—wages and salary disbursements, other labor income, proprietors’ income, and rental income of persons. They also reflect revisions to personal dividend income, personal interest income, transfer payments to persons, and personal contributions for social insurance, all of which are components of personal income but not of national income.

Personal dividend income is revised little through 1988; for 1989–94, several notable upward revisions primarily reflect the revisions to the balance of payments accounts. In addition, the upward revisions are reinforced by downward revisions to the dividend income of private pension plans, reflecting newly available data from the Federal Reserve Board. Dividends received by

Table 13.—Revisions to Personal Income and Its Disposition
[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Personal income	2.3	27.8	75.3	109.9	104.1	48.5
By source of revision						
Definitional						
Statistical	2.3	27.8	75.3	109.9	104.1	48.5
Improved measure of depreciation	1.9	22.3	25.9	34.4	33.0	39.6
Other .....	.4	5.5	49.4	75.5	71.1	8.9
By component						
Wage and salary disbursements	0	.6	11.5	11.6	9.8	-37.9
Other labor income	0	0	25.0	22.6	25.6	21.2
Proprietors' income with inventory valuation and capital consumption adjustments	-1.2	-8	-17.3	-9.2	-21.6	-22.8
Rental income of persons with capital consumption adjustment	3.5	25.7	42.3	86.1	78.4	88.9
Personal dividend income	0	-2	.7	-1.6	5.5	5.3
Personal interest income	0	2.4	11.9	2.0	9.4	-2.4
Transfer payments to persons	0	0	1.1	2.0	-4.7	-7.1
Less: Personal contributions for social insurance	0	0	.1	-3	-1.7	-3.3
Less: Personal tax and nontax payments	0	0	1.7	1.9	3.5	-10.7
Equals: Disposable personal income	2.3	27.7	73.6	107.9	100.6	59.2
Less: Personal outlays	0	21.7	47.2	83.2	76.7	70.0
Personal consumption expenditures	0	17.6	42.3	82.9	75.9	70.3
Interest paid by persons	0	0	-8	.3	.7	-4
Personal transfer payments to rest of the world (net)	0	4.1	5.7	.1	0	-1
Equals: Personal saving	2.3	6.0	26.4	24.7	23.8	-10.8
Addendum:						
Personal saving as a percent of disposable personal income .....	.7	.2	.7	.4	.4	-.3

these plans are netted against dividends paid to persons.

Beginning with 1979, personal interest income is revised up for all years except 1994. Through 1988, the upward revisions are similar to those for net interest and largely stem from the previously described revisions to that component.¹⁴ The differences between the revisions to net interest and those to personal interest income reflect downward revisions to interest received by the Federal Government for 1989–94 and by State and local governments for 1993 and 1994. The downward revisions to Federal Government interest received primarily reflect a more detailed analysis of budget documents, particularly those related to depository institutions and to the Federal Financing Bank, and a more complete accounting of recent changes in the budget treatment of credit programs (see the section “Changes in methodology”). The downward revisions to State and local government interest received primarily reflect the incorporation of newly available data from Census Bureau surveys of State and local government finances.

Transfer payments to persons is unrevised through 1982, revised little for 1983–92, and revised down for 1993 and 1994. For 1993, the revision is due to small revisions to a number of subcomponents, reflecting the incorporation of data from regular sources. For 1994, the revision is primarily accounted for by a downward revision to State and local government transfer payments, reflecting newly available data on payments for medicaid from the Health Care Financing Administration.

Personal contributions for social insurance also is unrevised through 1982, revised little for 1983–92, and is revised down slightly for 1993 and 1994. The downward revisions are accounted for by contributions both to Federal and to State and local social insurance funds, reflecting the incorporation of data from regular sources.

Personal tax and nontax payments is unrevised through 1982, revised up for 1983–93, and revised down for 1994. Through 1993, Federal income taxes account for the pattern of revisions and reflect the incorporation of data from regular sources. For 1994, State and local income taxes also contribute substantially to the downward revision, reflecting newly available Census Bureau quarterly tax revenue data.

Disposable personal income (DPI)—personal income less personal tax and nontax payments—

is revised up for all years. Except for 1994 and to a lesser extent for 1993, the revisions to DPI are essentially the same as those to personal income; the exceptions reflect the revisions to personal tax and nontax payments noted above.

Personal outlays—PCE, interest paid by persons, and personal transfer payments to the rest of the world (net)—is revised little through 1970 and revised up for 1971–94. The upward revisions primarily reflect the previously discussed revisions to PCE; for 1981–1988, they also reflect upward revisions to personal transfer payments to the rest of the world (net) that incorporate revisions to the balance of payments accounts that were not previously incorporated into the NIPA's.¹⁵

Personal saving—the difference between DPI and personal outlays—is revised up for all years except 1983 and 1994; the downward revision is small for 1983, but considerably larger for 1994. The revisions to the personal saving rate—personal saving as a percentage of DPI—follow the same pattern as those to personal saving. The largest upward revisions—0.7 to 0.9 percentage point—are for 1959–64 and for 1987–91. For 1992–94, upward revisions of 0.4 percentage point each for 1992 and 1993 and a downward revision of 0.3 percentage point for 1994 result in a steeper dropoff in the revised saving rate than in the previously published rate.

Government receipts and current expenditures

Federal Government.—Federal Government receipts is unrevised or revised only slightly through 1974, is revised up for 1975–1993, and revised down slightly for 1994 (table 14). Through 1991, the pattern of revisions primarily reflects the revisions to contributions for social insurance, which result from the previously discussed redefinition of the Federal Government's contributions to both civilian and military retirement programs. For 1992, the revision to contributions is reinforced by an upward revision to corporate profits tax accruals. For 1993, the revision to contributions is reinforced by upward revisions to personal taxes and to indirect business taxes and is partly offset by a downward revision to corporate profits tax accruals. For 1994, the upward revision to contributions is more than offset by downward revisions to personal taxes and to corporate profits tax accruals.

15. These revisions were introduced into the balance of payments accounts in the annual revision of 1992. For a discussion of the revised estimates, see Howard Murad, “U.S. International Transactions, First Quarter 1992 and Revised Estimates for 1976–91,” SURVEY 72 (June 1972): 67–77.

14. Personal interest income equals net interest plus interest paid by persons and by government less interest received by government.

Federal Government current expenditures is revised down through 1969, reflecting the definitional change relating to the recognition of government investment.¹⁶ For these years, government investment, which is no longer treated as a current expenditure, is greater than consumption of fixed capital (CFC), which is now included as a current expenditure. For 1970–80, current expenditures is revised up because CFC is greater than investment and because of the redefinition of the Federal Government's contributions to retirement programs. For 1981–93 except for 1986, upward revisions due to the redefinition of contributions more than offset downward revisions due to the recognition of government investment; for 1987–93, the upward revisions are reinforced by upward revisions to net interest, reflecting interest received. For 1994, the two definitional changes and the revision to interest received all contribute to an upward revision.

The Federal Government deficit on a NIPA basis is reduced for 1959–69¹⁷ and 1981–92, and the deficit is increased for 1970–80, 1993, and 1994. For 1993 and 1994, the larger deficits primarily reflect statistical changes. For 1993, current ex-

16. In the government receipts and expenditures account, "government consumption expenditures" is the component of receipts that replaces "government purchases." Compared with purchases, consumption expenditures differs conceptually because of the new treatment of government investment; consumption expenditures includes CFC and excludes gross investment. Because of this redefinition, the line in table 14 showing the effects of the statistical changes on both Federal Government and State and local government expenditures includes the amount of the revision to government gross investment.

17. For several years during the 1960's, the Federal Government had small surpluses, which are revised up slightly.

Table 14.—Revisions to Government Receipts and Expenditures

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Federal						
Receipts	0	11.0	23.6	20.2	9.6	-2.0
Definitional	0	11.0	21.9	15.9	12.1	9.2
Statistical	0	0	1.7	4.3	-2.5	-11.2
Current expenditures	-5.2	10.1	.7	18.5	23.0	28.8
Definitional	-5.2	9.7	-3.8	5.0	9.5	14.1
Statistical	0	.4	4.5	13.5	13.5	14.7
Current surplus or deficit (-), national income and product accounts	5.2	.8	22.9	1.8	-13.3	-30.8
State and local						
Receipts	0	0	.6	1.4	6.1	3.2
Definitional	0	0	0	0	0	0
Statistical	0	0	.6	1.4	6.1	3.2
Current expenditures	-10.1	-24.4	-43.1	-60.1	-62.5	-70.4
Definitional	-10.1	-27.4	-49.0	-70.0	-74.2	-77.1
Statistical	0	3.0	5.9	9.9	11.7	6.7
Current surplus or deficit (-), national income and product accounts	10.1	24.4	43.7	61.5	68.6	73.5
Addenda:						
Current surplus or deficit (-), national income and product accounts without definitional changes	0	3.5	-8.1	-17.7	-21.6	-29.5
Federal	0	-5	-2.8	-9.1	-15.9	-25.9
State and local	0	-3.0	-5.3	-8.5	-5.6	-3.6

Table 15.—Revisions to Rest-of-the-World Transactions

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Receipts from the rest of the world	0	-0.4	12.8	5.7	4.1	-4.7
Exports of goods and services	0	0	1.7	1.3	.9	3.3
Receipts of factor income	0	-4	10.9	4.4	3.1	-7.9
Corporate profits	0	-1.7	1.2	2.6	4.5	2.7
Interest	0	2.1	9.7	1.8	-1.4	-10.6
Other	0	0	0	0	0	0
Capital grants received by the United States (net)	0	0	0	0	0	0
Payments to the rest of the world	0	-4	12.8	5.7	4.1	-4.7
Imports of goods and services	0	0	.8	.6	.6	1.5
Payments of factor income	0	-1.3	6.6	-1.1	-2.2	-10.5
Corporate profits	0	-1.3	-9	-1.7	.2	1.9
Interest	0	0	7.5	.6	-2.4	-12.4
Other	0	0	0	0	0	0
Transfer payments (net)	0	4.6	6.7	.2	1.6	.7
Net foreign investment	0	-3.6	-1.3	6.1	4.1	3.6

penditures are revised up more than receipts; for 1994, current expenditures are revised up, and receipts are revised down.

State and local government.—State and local government receipts is unrevised through 1982, revised little for 1983–92, and revised up for 1993 and 1994. For 1993, an upward revision to the property tax component of indirect business taxes (see the section "Nonfactor incomes") more than offsets a downward revision to corporate profits tax accruals. For 1994, an upward revision to property taxes more than offsets downward revisions to income taxes and to corporate profits tax accruals.

State and local government current expenditures is revised down for all years, primarily reflecting the definitional change recognizing government investment; for State and local governments, investment is greater than depreciation for all years. For 1975 forward, the upward revisions due to statistical changes primarily reflect revisions to the gross investment component of government purchases (see footnote 16).

The State and local government surplus on a NIPA basis is increased for all years. (The revisions have changed the previously published deficits for 1959, 1961, and 1967 to surpluses.) The upward revisions are more than accounted for by lower expenditures, which are due primarily to the definitional change recognizing government investment.

Rest-of-the-world transactions

Receipts from the rest of the world is unrevised through 1975, is revised slightly for 1976–1982, revised up for 1983–93, and revised down for 1994 (table 15). The revisions to exports of goods and services are relatively small; the largest revision is for 1994 (\$3.3 billion). The revisions

to receipts of factor income are small through 1983 and for 1991; for 1984–90, 1992, and 1993, there are sizable upward revisions, and for 1994, there is a sizable downward revision. For 1984–90, these large revisions are primarily accounted for by interest, reflecting the incorporation of balance of payments accounts (BPA's) "counterpart data" compiled by the Bank for International Settlement on banks' claims and liabilities with nonbanks in other reporting countries.¹⁸ For 1992–94, the large revisions to factor income receipts reflect the incorporation of data from the most recent annual revision of the BPA's.

Within payments to the rest of the world, the revisions to imports of goods and services are small. The revisions to payments of factor income are small through 1983 and for 1991 and 1992; for 1984–90, there are sizable upward revisions, and for 1993 and 1994, there are downward revisions. For 1984–90, these large revisions are primarily accounted for by the "counterpart" data. For 1993 and 1994, the revisions reflect the incorporation of data from the most recent annual revision of the BPA's. Net transfer payments is revised up for 1981–88, reflecting the incorporation of revised BPA estimates of personal remittances of the foreign-born population of the United States.¹⁹ The revisions to net foreign investment follow an irregular pattern, but are revised up for 1992–94.

Gross saving and investment

Gross saving—gross private saving and gross government saving—is revised up substantially for all years (table 16). The upward revisions are more than accounted for by government saving and primarily reflect the definitional change recognizing government investment. This change increases gross government saving and gross saving as follows: The current surplus is increased by the reclassification of expenditures for fixed assets and reduced by the addition of consumption of fixed capital (CFC); CFC is also added as a separate component of gross saving. Thus, the net effect is to increase gross saving by the amount of government gross investment.

Gross private saving is revised only slightly through 1971 and, except for a slight upward revision for 1990, revised down for 1972–94. In general, personal saving is revised up, but

Table 16.—Revisions to Gross Saving and Investment

[Billions of dollars]

	1959	1982	1987	1992	1993	1994
Gross saving	29.6	96.5	161.9	182.6	151.1	135.2
Gross private saving .....	.3	-6.8	-3.5	-8.9	-38.0	-47.5
Personal saving	2.3	6.0	26.4	24.7	23.8	-10.8
Undistributed corporate profits with inventory valuation and capital consumption adjustments	-2.0	7.9	-10.8	-5.4	-17.5	-14.9
Corporate consumption of fixed capital	2.1	2.9	8.6	6.2	9.2	8.8
Noncorporate consumption of fixed capital	-2.0	-23.6	-27.5	-38.7	-38.1	-45.4
Gross government saving	29.3	103.3	165.4	191.5	189.1	182.7
Consumption of fixed capital	14.1	78.1	98.8	128.2	133.8	140.0
Current surplus or deficit (-), national income and product accounts	15.3	25.2	66.6	63.3	55.3	42.7
Gross investment	29.3	101.0	170.1	217.3	203.8	197.4
Gross private domestic investment ...	0	-2.3	-2.1	2.1	-10.9	-18.5
Gross government investment	29.3	106.9	173.5	209.1	210.6	212.3
Net foreign investment	0	-3.6	-1.3	6.1	4.1	3.6
Statistical discrepancy	-3	4.5	8.2	34.9	52.8	62.2
Addendum:						
Gross saving as a percentage of gross national product	5.3	2.5	3.0	2.5	1.9	1.6

these upward revisions are more than offset by downward revisions to noncorporate CFC. Net corporate saving—undistributed corporate profits with IVA and CCAdj plus corporate CFC—is revised down for most years, reflecting downward revisions to the CCAdj.

Gross investment is revised up substantially for all years, reflecting the recognition of government investment. Gross private domestic investment is revised down for most years, with sizable downward revisions for 1993 and 1994.

Annual Real GDP and Related Measures

In general, revisions to changes in the real estimates arise from three main sources. First, they reflect the incorporation of newly available and revised source data and of improved methodologies into the current-dollar estimates; the contribution of the current-dollar revision is measured as the revision to the percent change of the current-dollar estimates. Second, they reflect the change in the featured measure of output; this contribution is measured as the difference between the change in the previously published chain-type measure and the change in the previously published fixed-weighted measure. Third, they reflect "other" revisions that result from such sources as revisions to prices and as the interaction of redistributions of current-dollar levels within components; the contribution of the "other" revisions is obtained as a residual.

For 1959–94, the revised chained-dollar estimates of real GDP show an average annual growth

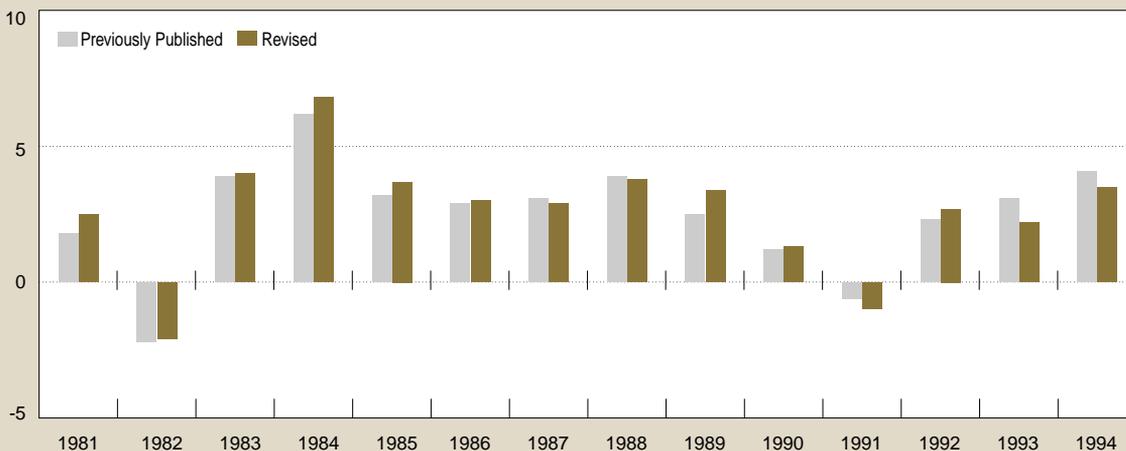
18. For more information, see Christopher L. Bach, "U.S. International Transactions, Revised Estimates for 1984–93," SURVEY 74 (June 1994): 79–85.

19. For more information, see Murad, "U.S. International Transactions," 73.

CHART 1

Real Gross Domestic Product: Change From Preceding Year

Percent



U.S. Department of Commerce, Bureau of Economic Analysis

rate of 3.2 percent, 0.2 percentage point higher than was shown in the previously published fixed (1987) weighted estimates (table 17). As indicated in the columns of the table showing the sources of the revisions, the upward revisions to the growth rates are mainly accounted for by the change in the featured measure. All the major components contribute to the upward revisions to the growth rates for GDP. The growth rates for PCE for durable goods and for nonresidential PDE are revised up the most.

The revisions for the entire 1959–94 period reflect partly offsetting revisions for two subperiods—1959–87 and 1987–94. (The selection of 1987 as the intermediate year reflects the use of fixed (1987) weights as the featured measure in the previously published estimates.) For 1959–87, the average annual growth of real GDP is revised up 0.3 percentage point to 3.4 percent; for 1987–94, the growth rate is revised down 0.1 percentage point to 2.3 percent.

Annual changes.—For 1959–87, the annual, or year-to-year, percent change in real GDP is revised up for 24 years, unrevised for 3 years, and revised down for 2 years (chart 1). The revisions, which are primarily due to the change in the featured measure, average 0.4 percentage point (without regard to sign). Changes for 10 of the years are revised by 0.5 percentage point or more; the largest upward revision is 0.9 percentage point for 1965; the largest downward revision is 0.6 percentage point for 1961.

For 1987–94, the pattern of the revisions to the annual percent changes in real GDP is more mixed: Revised up for 1989, 1990, and 1992 and revised down for 1988, 1991, 1993, and 1994. The revisions for 1987–94 are more than accounted for by revisions to the current-dollar estimates and by the change in the featured measure; these sources of revision are partly offset by the “other” revisions. The largest upward revisions are for 1989 (up 0.9 percentage point to 3.4 percent) and for 1992 (up 0.4 percentage point to 2.7 percent). The largest downward revisions are for 1991 (down 0.4 percentage point to –1.0 percent), for 1993 (down 0.9 percentage point to 2.2 percent), and for 1994 (down 0.6 percentage point to 3.5 percent).

For 1959–94, the pattern of annual accelerations and decelerations in the change in real GDP is revised little for most years. However, the revised estimates show a slowdown in growth from 2.7 percent for 1992 to 2.2 percent for 1993, whereas the previously published estimates showed a pickup from 2.3 percent to 3.1 percent.

The size and direction of the revisions to the percent change in real GDP are largely consistent with the difference between the previously published chained-dollar estimates and the fixed (1987) weighted estimates. The chain-type measure uses weights that allow for the effects of changes in relative prices over time; the previously featured fixed-weighted measure uses a single set of weights over the entire period, which results in a “substitution bias” for periods other than those close to the weight year. Thus, the re-

Table 17.—Gross Domestic Product and Its Major Components: Revisions to Average Annual Rates of Change Over Selected Periods
[Percent]

	Current dollars			Real dollars			Source of real-dollar revision		
	Previously published	Revised	Revision	Previously published ¹	Revised ²	Revision	Current-dollar revision	Change in featured measure ³	Other
1959-94									
Gross domestic product	7.7	7.7	0	3.0	3.2	0.2	0	0.2	0
Personal consumption expenditures	8.0	8.1	.1	3.2	3.4	.2	.1	.1	0
Durable goods	7.8	7.7	-.1	4.5	5.0	.5	-.1	.4	.2
Nondurable goods	6.6	6.7	.1	2.2	2.4	.2	.1	.1	0
Services	9.1	9.2	.1	3.7	3.8	.1	.1	0	0
Gross private domestic investment	7.6	7.5	-.1	3.4	3.7	.3	-.1	.4	0
Fixed investment	7.6	7.5	-.1	3.4	3.6	.2	-.1	.3	0
Nonresidential	8.1	8.0	-.1	4.1	4.3	.2	-.1	.4	-.1
Structures	6.8	6.8	0	2.0	2.0	0	0	0	0
Producers' durable equipment	8.6	8.4	-.2	5.1	5.6	.5	-.2	.7	0
Residential	6.8	6.9	.1	2.0	2.1	.1	.1	.1	0
Change in business inventories									
Net exports of goods and services									
Exports	10.7	10.7	0	6.4	6.8	.4	0	.1	.3
Imports	10.8	10.8	0	6.1	6.0	-.1	0	-.4	.3
Government consumption expenditures and gross investment	7.3	7.3	0	1.9	2.1	.2	0	.1	.1
Federal	6.0	6.0	0	.7	.9	.2	0	.1	.1
National defense									
Nondefense									
State and local	8.6	8.6	0	3.0	3.2	.2	0	.1	.1
Addendum:									
Disposable personal income	7.9	7.9	0	3.2	3.3	.1	0	n.a.	n.a.
1959-87									
Gross domestic product	8.2	8.2	0	3.1	3.4	0.3	0	0.3	0
Personal consumption expenditures	8.4	8.5	.1	3.5	3.7	.2	.1	.1	0
Durable goods	8.3	8.4	.1	4.6	5.4	.8	.1	.7	0
Nondurable goods	7.1	7.2	.1	2.4	2.6	.2	0	.1	.1
Services	9.6	9.7	.1	4.0	4.1	.1	.1	0	0
Gross private domestic investment	8.4	8.4	0	3.4	4.0	.6	0	.7	-.1
Fixed investment	8.5	8.5	0	3.4	4.0	.6	0	.6	0
Nonresidential	8.9	8.9	0	4.0	4.8	.7	0	.8	-.1
Structures	8.3	8.3	0	3.0	3.0	0	0	0	0
Producers' durable equipment	9.1	9.1	0	4.7	5.8	1.1	0	1.2	-.1
Residential	7.7	7.7	0	2.3	2.4	.1	0	.1	0
Change in business inventories									
Net exports of goods and services									
Exports	10.8	10.8	0	5.9	6.3	.5	0	.3	.2
Imports	11.8	11.8	0	6.1	6.1	0	0	-.2	2
Government consumption expenditures and gross investment	8.1	8.1	0	2.2	2.3	.1	0	.1	0
Federal	7.1	7.1	0	1.3	1.4	.1	0	.2	-.1
National defense									
Nondefense									
State and local	9.2	9.2	0	3.1	3.3	.1	0	.1	0
Addendum:									
Disposable personal income	8.4	8.4	0	3.4	3.6	.2	0	n.a.	n.a.
1987-94									
Gross domestic product	5.8	5.7	-.1	2.4	2.3	-.1	-.1	-.0.2	0.2
Personal consumption expenditures	6.1	6.1	0	2.3	2.3	0	0	-.1	.1
Durable goods	5.6	4.9	-.7	4.0	3.1	-.9	-.7	-.5	.3
Nondurable goods	4.7	5.0	.3	1.3	1.7	.4	.3	-.1	.2
Services	7.1	7.1	0	2.4	2.4	0	0	-.1	.1
Gross private domestic investment	4.7	4.5	-.2	3.5	2.6	-.9	-.2	-.7	0
Fixed investment	4.4	4.0	-.4	3.2	2.0	-.1	-.4	-.8	0
Nonresidential	4.9	4.3	-.6	4.4	2.7	-.1	-.6	-.1	0
Structures .....	.9	.6	-.3	1.8	-.1	-.3	-.3	0	0
Producers' durable equipment	6.7	6.0	-.7	6.9	4.9	-.2	-.7	-.4	.1
Residential	3.3	3.4	.1	.4	.6	.2	.1	0	.1
Change in business inventories									
Net exports of goods and services									
Exports	10.2	10.2	0	8.8	8.6	-.2	0	-.8	.6
Imports	7.0	7.0	0	6.1	5.7	-.4	0	-.1	.6
Government consumption expenditures and gross investment	4.2	4.1	-.1	.7	1.1	.4	-.1	0	.5
Federal	1.8	1.8	0	-.1	-.1	.7	0	0	.7
National defense	0	0	0	-.3	-.2	.9	0	0	.9
Nondefense	6.6	6.6	0	2.6	2.9	.3	0	.2	.1
State and local	5.8	5.8	0	2.4	2.9	.5	0	0	.5
Addendum:									
Disposable personal income	6.0	5.9	-.1	2.2	2.0	-.2	-.1	n.a.	n.a.

n.a. Not available.
1. Fixed 1987 weight measure.
2. Chain-type measure.

3. Change in previously published chain-type measure less change in previously published fixed (1987) measure.

Table 18.—Prices of Gross Domestic Product and Its Major Components: Revisions to Average Annual Rates of Change Over the Period 1987–94

[Percent]

	Prices			Source of revision	
	Pre-viously published (1987 weights)	Revised (chain-type weights)	Revision	Change in featured measure ¹	Other
Gross domestic product	3.7	3.4	-0.3	-0.1	-0.2
Personal consumption expenditures	4.0	3.8	-0.2	-0.1	-0.1
Durable goods	2.3	1.7	-0.6	-0.3	-0.3
Nondurable goods	3.4	3.3	-0.1	0	-0.1
Services	4.7	4.5	-0.2	0	-0.2
Gross private domestic investment					
Fixed investment	2.3	2.0	-0.3	-0.3	0
Nonresidential	2.1	1.6	-0.5	-0.4	-0.1
Structures	2.8	2.8	0	0	0
Producers' durable equipment	1.7	1.1	-0.6	-0.6	0
Residential	2.9	2.8	-0.1	0	-0.1
Change in business inventories					
Net exports of goods and services					
Exports	2.4	1.5	-0.9	-0.3	-0.6
Imports	2.3	1.3	-1.0	-0.4	-0.6
Government consumption expenditures and gross investment	3.7	2.9	-0.8	-0.1	-0.7
Federal	3.9	3.1	-0.8	-0.2	-0.6
National defense	4.0	2.9	-1.1	-0.2	-0.9
Nondefense	3.8	3.6	-0.2	-0.1	-0.1
State and local	3.4	2.9	-0.5	0	-0.5
Addendum:					
Gross domestic purchases	3.6	3.4	-0.2	-0.1	-0.1

1. Change in previously published chain-type measure less change in previously published fixed (1987) measure.

visions that are due to the change in the featured measure primarily reflect the elimination of the substitution bias.

Real disposable personal income (DPI).—For 1959–94, the revised estimates of real DPI show an average annual growth rate of 3.3 percent, 0.1 percentage point higher than was shown in the previously published estimates (table 17). For 1959–87, the average annual growth rate is 3.6 percent, 0.2 percentage point higher; for 1987–94, the growth rate is 2.2 percent, 0.2 percentage point lower.

Annual Prices

For 1959–94, the revised chain-type estimates of GDP prices show an average annual increase of 4.4 percent. However, because BEA had determined that using 1987 weights for measuring prices for years before 1982 was inappropriate, no comparison can be made with the previously published estimates.

For 1987–94, the revised chain-type index for GDP prices shows an average annual growth rate of 3.4 percent; the previously published fixed (1987) weighted measure showed a rate of 3.7 percent (table 18). For gross domestic purchases prices, the corresponding growth rates are 3.4 percent and 3.6 percent, respectively. Most of

Table 19.—Prices of Gross Domestic Product and Its Major Components: Revisions to Average Annual Rates of Change Over Selected Periods

[Percent]

	Prices (chain-type)								
	1959–94			1959–87			1987–94		
	Pre-viously published	Revised	Revision	Pre-viously published	Revised	Revision	Pre-viously published	Revised	Revision
Gross domestic product	4.5	4.4	-0.1	4.7	4.7	0	3.6	3.4	-0.2
Personal consumption expenditures	4.5	4.5	0	4.7	4.6	-0.1	3.9	3.8	-0.1
Durable goods	2.7	2.6	-0.1	2.9	2.9	0	2.0	1.7	-0.3
Nondurable goods	4.2	4.2	0	4.4	4.4	0	3.4	3.3	-0.1
Services	5.2	5.1	-0.1	5.3	5.3	0	4.6	4.5	-0.1
Gross private domestic investment									
Fixed investment	3.8	3.8	0	4.3	4.3	0	2.0	2.0	0
Nonresidential	3.4	3.4	0	3.9	3.9	0	1.6	1.6	0
Structures	4.7	4.7	0	5.2	5.2	0	2.8	2.8	0
Producers' durable equipment	2.7	2.7	0	3.1	3.1	0	1.1	1.1	0
Residential	4.7	4.7	0	5.2	5.2	0	2.9	2.8	-0.1
Change in business inventories									
Net exports of goods and services									
Exports	3.9	3.7	-0.2	4.4	4.2	-0.2	2.1	1.5	-0.6
Imports	4.8	4.6	-0.2	5.6	5.4	-0.2	1.9	1.3	-0.6
Government consumption expenditures and gross investment	5.2	5.1	-0.1	5.6	5.7	0.1	3.6	2.9	-0.7
Federal	5.1	5.1	0	5.5	5.6	0.1	3.8	3.1	-0.7
National defense		5.1			5.7		3.8	2.9	-0.9
Nondefense		5.0			5.4		3.7	3.6	-0.1
State and local	5.3	5.2	-0.1	5.8	5.8	0	3.4	2.9	-0.5
Addendum:									
Gross domestic purchases	4.5	4.5	0	4.8	4.8	0	3.5	3.4	-0.1

these differences are due to the introduction of the improved measure of prices.

For all years, the revisions to prices due to the incorporation of newly available and revised source data can be measured by comparing the revised and previously published chain-type price indexes (table 19). For 1959–87, the only significant revision to prices is for exports and imports, reflecting the incorporation of a new price index for semiconductors (see the section “Changes in methodology”). For 1987–94, in addition to price revisions for exports and imports, there also are downward revisions to prices for national defense and for State and local government consumption and investment. These price revisions primarily reflect the definitional change recognizing government investment and the resulting inclusion—as consumption expenditures—of the services of fixed assets, which are measured using consumption of fixed capital. For 1987–94, prices related to consumption of fixed capital increased less than prices for other categories of government consumption and investment.

Annual changes in the chain-type prices are revised only slightly. The largest revisions are for 1994, when the increase in GDP prices is revised down 0.4 percentage point to 2.3 percent, and the increase in gross domestic purchases prices is revised down 0.4 percentage point to 2.2 percent. The revisions for 1994 are largely accounted for by the same components noted above that accounted for the downward revisions for 1987–94. For national defense, the revision primarily reflects the incorporation of regular source data. For State and local government prices, the revision primarily reflects smaller increases in prices related to consumption of fixed capital than in the prices of other categories of government consumption and investment.

Quarterly Real GDP

Revisions to quarterly estimates come about in three major ways: (1) Adjustments to reflect revisions to the annual estimates, (2) incorporation of new and revised source data (including the updating of seasonal factors that are used to indicate quarterly patterns), and (3) changes in the methodology used to prepare the quarterly estimates.

Because of the long time period covered by the comprehensive revision and the correspondingly large number of revised quarterly estimates, the discussion in this section is limited to the impact of revisions on business cycles, as measured

by cyclical peaks and troughs based on real GDP, particularly on the most recent cycles (table 20) and on the most recent quarters (table 21).

For the period beginning with 1959, there is one change in the timing of business cycle peaks and troughs, based on the revised estimates of real GDP. In the previously published estimates, there was a one-quarter contraction in real GDP in the second quarter of 1980; in the revised estimates, real GDP also fell in the third quarter of 1980, so there is a two-quarter contraction with the trough in the third quarter of 1980.

Of the six contractions since 1959, three now have steeper declines, and three now have less steep declines. The largest revision is for the contraction that began in the first quarter of 1960 and ended in the fourth quarter of 1960; the average quarterly percent change (at annual rates) is now –3.2 percent, compared with –1.1 percent in the previously published estimates. Revisions to the average quarterly percent changes for the other contractions are all less than 1 percentage point.

All five complete expansions during the period now have stronger increases; the largest revision is for the two-quarter expansion that began in the third quarter of 1980 and ended in the first quarter of 1981; the average quarterly percent change is now 8.1 percent, compared with 6.9 percent in the previously published estimates.

For the most recent complete expansion, which began in the third quarter of 1982 and ended in the second quarter of 1990, the average quarterly percent change is 3.8 percent, compared with 3.5 percent in the previously published estimates.

Table 20.—Revisions to Cyclical Fluctuations in Real GDP, 1960–95

[Percent change per quarter at annual rate]

	Real GDP			Source of revision		
	Pre-viously published	Revised	Revision	Cur-rent-dollar revision	Change in fea-tured measure	Other
Contractions						
1960:I–1960:IV	-1.1	-3.2	-2.1	0	-1.3	-0.8
1969:III–1970:IV	-3	-6	-3	.2	-3	-2
1973:IV–1975:I	-3.3	-2.9	.4	.5	-3	.2
1980:I–1980:III	-5.0	-4.8	.2	.3	1.0	-1.1
1981:I–1982:III	-1.9	-1.8	.1	0	0	.1
1990:II–1991:I	-2.0	-2.7	-.7	-.7	0	0
Expansions						
1960:IV–1969:III	4.6	5.0	.4	0	.4	0
1970:IV–1973:IV	4.6	5.2	.6	0	.8	-2
1975:I–1980:I	4.0	4.3	.3	-.1	.3	-.1
1980:III–1981:I	6.9	8.1	1.2	.4	1.0	-.2
1982:III–1990:I	3.5	3.8	.3	.1	.1	.1
1991:I–1995:III ¹	3.1	2.5	-.6	-.2	-.5	-.1

1. The expansion that started in the first quarter of 1991 is shown through the third quarter of 1995.

The upward revision reflects both revisions to the current-dollar estimates and the change in the featured measure. For the most recent contraction, which began in the second quarter of 1990 and ended in the first quarter of 1991, the average quarterly percent change is now -2.7 percent, compared with -2.0 percent. The downward revision reflects revisions to the current-dollar estimates.

For the current expansion, which began in the first quarter of 1991, the average quarterly percent change through the third quarter of 1995 is now 2.5 percent, compared with 3.1 percent in the previously published estimates. Large downward revisions begin with the fourth quarter of 1992 and are primarily accounted for by revisions to nonresidential PDE and to PCE for

durable goods, largely reflecting the change in the featured measure.

Of the 19 quarters of the current expansion, the quarter-to-quarter percent change in real GDP is revised down for 14 quarters, is revised up for 4 quarters, and is unrevised for 1 quarter (chart 2 and table 21). Most of the downward revisions are primarily accounted for by the change in the featured measure, and most of the upward revisions are primarily accounted for by revisions to the current-dollar estimates. The revisions for the 19 quarterly percent changes (at annual rates) average 0.9 percentage point (without regard to sign), somewhat larger than the average for past annual NIPA revisions.

Revisions to the quarterly percent change for four quarters of the current expansion are 1.5 percentage points or more; one revision is up, and three are down. The change in the featured meas-

Table 21.—Real Gross Domestic Product: Percent Change From Preceding Quarter in the Revised and Previously Published Estimates

[Percent change at annual rates, based on seasonally adjusted estimates]

	1991				1992				1993				1994				1995		
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III
Gross domestic product:																			
Revised (chain-type)	-2.2	1.7	1.0	1.0	4.7	2.5	3.0	4.3	0	1.7	2.3	4.7	2.5	4.8	3.6	3.2	0.6	0.5	3.2
Previously published (fixed weights)	-2.1	2.2	1.0	.1	3.1	2.4	3.5	5.7	1.2	2.4	2.7	6.3	3.3	4.1	4.0	5.1	2.7	1.3	4.2
Personal consumption expenditures:																			
Revised	-3.1	2.5	.9	-1.0	6.4	2.2	2.9	5.4	.7	2.7	3.8	2.8	2.6	3.6	2.5	3.3	.8	3.4	2.9
Previously published	-2.8	2.1	1.3	-5	5.8	1.7	3.9	5.6	1.6	2.6	3.9	4.0	4.7	1.3	3.1	5.1	1.6	3.4	2.9
Durable goods:																			
Revised	-14.1	1.7	6.1	-4.9	13.3	4.3	9.3	11.0	.8	11.2	7.3	10.2	5.8	4.3	5.6	12.6	-8.7	7.0	9.5
Previously published	-11.1	1.2	9.2	-3.3	15.5	.4	10.0	13.2	3.2	9.8	7.7	15.5	8.8	.4	5.8	20.4	-3.4	3.5	11.7
Nondurable goods:																			
Revised	-2.4	2.3	-.3	-3.4	5.9	-.7	2.8	5.8	-.9	2.3	2.9	1.7	3.8	3.3	4.0	3.2	2.4	1.9	.5
Previously published	-3.0	.8	-.9	-3.3	4.2	-.7	2.7	6.9	-1.6	1.6	2.8	2.4	3.8	2.2	3.3	3.1	2.3	1.9	.1
Services:																			
Revised	-1.0	2.8	.6	1.2	5.4	3.4	1.7	4.0	1.6	1.3	3.6	1.9	1.4	3.6	1.2	1.4	2.1	3.4	2.7
Previously published	-.5	3.0	.7	1.8	4.5	3.4	3.2	3.0	3.1	1.4	3.6	2.0	4.0	1.1	2.2	2.3	2.6	4.2	2.2
Gross private domestic fixed investment:																			
Revised	-15.4	-1.7	.9	.6	9.1	13.3	2.5	9.7	4.9	2.8	7.2	19.5	9.0	8.8	8.8	8.4	8.6	-1.4	6.2
Previously published	-15.8	-1.7	1.3	-.7	5.4	17.0	3.8	11.7	12.3	8.9	11.4	23.0	10.6	8.6	8.6	13.6	14.9	5.0	8.9
Nonresidential structures:																			
Revised	-7.7	-10.0	-22.7	-8.9	2.9	-3.9	-8.1	-4.3	3.5	-5.3	.8	7.5	-11.8	15.7	.2	13.0	9.9	3.4	5.6
Previously published	-6.8	-10.2	-21.1	-10.8	2.9	-1.6	-8.9	-5.5	2.5	.3	.5	3.3	-11.8	20.6	1.6	11.0	11.5	9.0	3.5
Nonresidential producers' durable equipment:																			
Revised	-14.9	.9	6.8	-1.8	3.9	16.9	7.1	11.0	7.1	11.4	6.3	21.7	15.6	4.1	19.3	11.9	17.4	3.7	5.2
Previously published	-15.3	.6	6.5	-3.4	-1.3	22.7	11.0	12.9	20.0	21.6	16.2	27.5	18.6	6.1	18.1	19.6	24.5	11.9	9.7
Residential fixed investment:																			
Revised	-23.4	2.0	16.4	14.7	24.7	22.2	3.3	18.7	2.1	-5.1	13.2	24.3	12.8	12.7	-1.8	-.1	-6.3	-13.3	8.4
Previously published	-24.8	2.2	15.6	15.6	22.4	22.7	.8	23.8	5.3	-7.6	9.4	28.2	10.0	7.0	-6.0	2.3	-3.4	-13.7	10.9
Exports of goods and services:																			
Revised	-1.1	21.0	2.3	13.8	6.3	1.8	2.5	6.0	.4	7.9	-7.9	21.5	-.6	14.8	12.2	15.3	2.6	4.6	8.3
Previously published	-1.1	20.7	.6	13.7	6.1	1.5	5.3	7.2	-1.0	7.7	-3.2	21.7	-3.5	16.6	14.8	20.2	4.8	6.6	10.6
Imports of goods and services:																			
Revised	-12.2	14.7	10.8	5.1	4.1	13.3	1.3	11.6	9.6	14.5	4.9	17.0	7.5	19.1	11.0	9.3	8.7	7.7	1.2
Previously published	-12.2	14.4	10.4	5.4	6.6	13.0	8.4	6.5	11.6	14.9	7.4	16.0	9.5	18.9	15.6	11.4	10.1	9.9	8.6
Government consumption expenditures and gross investment:																			
Revised .....	.9	.4	-2.7	-1.4	2.5	-.3	2.9	1.9	-4.7	.2	1.0	1.5	-4.2	-.8	7.0	-1.4	-1.1	.9	-.4
Previously published	3.0	.5	-3.9	-2.9	1.5	-3.0	3.4	.9	-5.9	1.2	1.1	-.1	-4.9	-1.2	6.7	-4.1	-.7	-.2	3.1
Federal:																			
Revised	2.8	-.1	-7.7	-6.8	-1.4	-1.4	4.9	3.4	-13.1	-4.9	-2.9	-.7	-11.1	-5.3	11.5	-5.9	-6.3	-1.1	-5.5
Previously published	9.3	-1.1	-10.2	-9.5	-1.3	-4.8	8.6	1.1	-15.4	-3.6	-3.0	-5.0	-10.3	-7.9	10.9	-14.4	-3.8	-2.9	4.9
State and local:																			
Revised	-.6	.7	1.2	2.8	5.4	.4	1.4	.9	1.7	3.9	3.8	3.0	.7	2.2	4.2	1.6	2.3	2.1	2.8
Previously published	-1.1	1.6	.9	2.0	3.3	-1.8	.1	.8	.9	4.4	3.7	2.9	-1.4	2.9	4.3	2.3	1.0	2.0	2.1
Addenda:																			
Final sales of domestic product:																			
Revised	-2.8	2.0	-.7	-.1	6.2	1.8	3.0	4.6	-.8	1.5	2.3	4.8	1.2	2.8	4.2	3.6	.7	1.8	3.5
Previously published	-2.4	1.8	-.8	-.2	4.8	1.5	3.5	5.6	.2	2.4	3.2	6.4	2.2	1.5	4.3	5.7	2.6	2.6	4.2
Disposable personal income:																			
Revised	-1.4	3.7	-.8	3.0	5.2	3.2	-3.6	11.9	-8.1	5.2	1.1	5.0	-5.3	10.1	2.1	4.0	3.6	0	3.6
Previously published .....	.8	1.6	-.5	1.9	5.9	2.1	1.7	10.6	-7.4	4.7	.8	4.3	3.4	3.5	3.1	7.5	4.1	-1.1	4.3

ure of real GDP is a major factor in all three of the downward revisions.

For the first quarter of 1992, the increase in real GDP is revised up 1.6 percentage points to 4.7 percent, mostly because of revisions to the current-dollar estimates. The upward revision is accounted for by all major components except PCE for durable goods and Federal Government consumption and investment.

For the fourth quarter of 1993, the increase in real GDP is revised down 1.6 percentage points to 4.7 percent. The downward revision is largely accounted for by PCE for durable goods, non-residential PDE, and residential fixed investment. The revisions to the first two of these components largely reflect the introduction of new seasonal adjustment factors for new automobiles; beginning with 1992, BEA is using seasonal factors developed by the Federal Reserve Board.

For the fourth quarter of 1994, the increase in real GDP is revised down 1.9 percentage points to 3.2 percent. The downward revision is accounted for by the same components that accounted for the downward revision to the fourth quarter of 1993, as well as by exports of goods and services.

The largest revision during the current expansion is to the first quarter of 1995; the increase in real GDP is revised down 2.1 percentage points to 0.6 percent, with about one-half of the revision due to the change in the featured measure and the remainder to revisions to the current-dollar estimates. These downward revisions are wide-

spread among the major components. Largely due to these last two downward revisions, over the last four quarters—from the third quarter of 1994 to the third quarter of 1995—the percent increase in real GDP is 1.9 percent, compared with 3.3 percent in the previously published estimates.

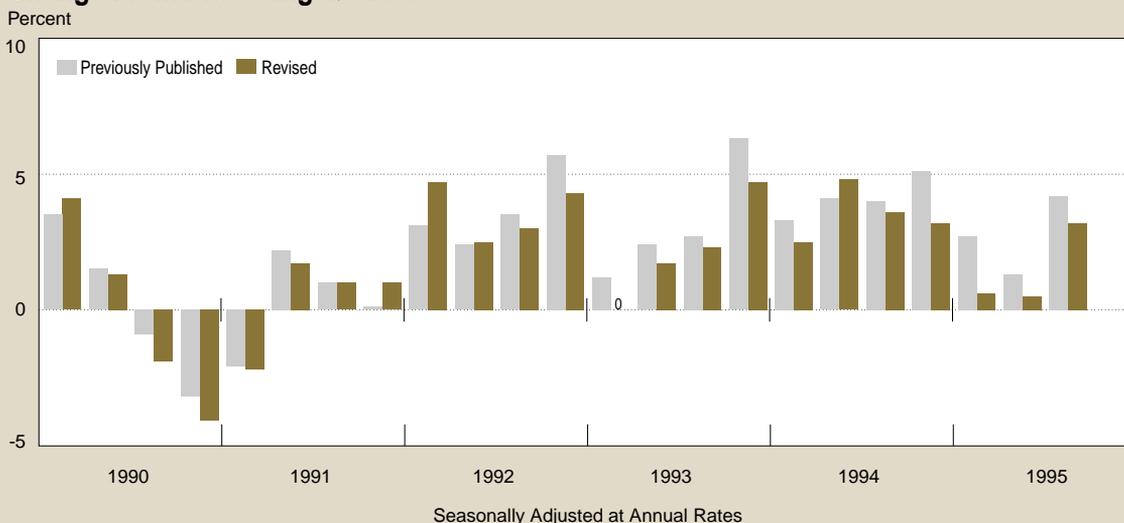
Major Statistical Changes

This section of the article reviews the major sources of revisions that arise from statistical changes—that is, from the incorporation of newly available or revised source data or from the introduction of new and improved methodologies. In this comprehensive revision, the following statistical changes are incorporated:

- Improved chain-type measures of real output and prices that use weights of adjacent years replace fixed-weighted measures that use weights of a single year for all periods. In addition, the base period used to express the new measures is shifted from 1987 to 1992, and chained (1992) dollar estimates are presented for all NIPA series previously shown in constant (1987) dollars.
- Newly available and revised source data that become available less often than annually or that are for periods not covered in the annual NIPA revisions that have taken place since the 1991 comprehensive revision; these data

CHART 2

Real Gross Domestic Product: Change From Preceding Quarter



are referred to as “regular benchmark source data for 1959–92”;

- Newly available and revised source data that become available annually and that are usually included in the annual revisions of the NIPA’s; these data are referred to as “regular source data for 1993–95”;
- Updated seasonal factors; and
- Changes in methodologies—that is, new and improved estimating procedures that frequently use previously unavailable source data.

Improved chain-type measures of real output and prices

The most important improvement in this comprehensive revision is the introduction of an improved methodology for measuring real output and prices. In addition, as previously noted, the base period is shifted from 1987 to 1992; the year 1992 is selected because it is the latest year for which the NIPA estimates will not be revised until the next comprehensive revision. These changes result in revisions to both the real estimates and price indexes for all periods.

The calculation of the improved measures is discussed in detail in the July 1995 SURVEY (see footnote 2). Shifting to the chain-type measures of real output results in the following changes.

First, chained (1992) dollar estimates are presented for all series in the NIPA tables that previously showed estimates in constant (1987) dollars. For most series, these new chained-dollar estimates are calculated (using unrounded numbers) as the product of the chain-type annual-weighted output index—with 1992 equal to 100—and the 1992 current-dollar value of the corresponding series divided by 100.²⁰

Second, because the formula used to calculate the improved measure of real output uses the geometric mean of weights of more than one period, the corresponding chained-dollar estimates are not additive. Consequently, most NIPA tables that show these estimates also show a new line item termed “residual,” whose value is equal

20. The following “real” series continue to be calculated by the procedure in which the current-dollar value of the series is divided by an appropriate implicit price deflator: The chained value of gross national income (table 1.10), gross domestic income (table 1.10), command-basis exports of goods and services and receipts of factor income (table 1.11), gross and net domestic product of nonfinancial corporate business (table 1.16), and disposable personal income (tables 2.1 and 2.9). For the following series, real values are calculated as the difference between chained-dollar series: Change in business inventories (tables 1.2, 1.4, 1.6, 5.3, 5.11, 8.5, 8.7, and 8.9), net exports (tables 1.2, 8.5, and 8.7), command-basis gross national product (table 1.11), foreign travel and other, net (table 2.5), net foreign travel (table 2.7), and nondefense consumption expenditures for durable goods, for nondurable goods, and for Commodity Credit Corporation inventory change (table 3.8).

to the difference between the major aggregate in the table and the sum of the most detailed items presented in that table.

Third, a new table (table 8.2) is added to show the contributions of the major components of gross domestic product (GDP) to the growth in quarterly and annual real GDP. For periods when the residual is small, contributions to growth can be closely approximately using the chained-dollar series. For periods when the residual is large, the contributions data from table 8.2 provide more accurate information.

Fourth, as in the previously published estimates, no chain-type quantity index is shown for the change in business inventory (CBI) components in the NIPA tables. However, BEA now shows chained (1992) dollar CBI series that are calculated from inventory stock series that have been derived using the same chain-type formula that is used to calculate other aggregates.

Fifth, implicit price deflators (IPD’s), which are weighted averages of the most detailed price indexes used in estimating real output, are now calculated as the ratio of current-dollar output to chained-dollar output multiplied by 100. Previously, the IPD’s were calculated as the ratio of current-dollar output to constant-dollar output multiplied by 100. For all but the most recent estimates, the new IPD’s will be very close to the chain-type price indexes because the weights used to aggregate the detailed prices for the two measures will be the same.²¹

Regular benchmark source data for 1959–92

The revised estimates for 1959–92 reflect the incorporation of newly available and revised source data that “regularly” are incorporated in a comprehensive revision.²² The newly available source data incorporated in this comprehensive revision all affect the current-dollar estimates and

21. Beginning with the third quarter of 1994, the revised IPD’s and the revised chain-type price indexes differ because the weights used for the chain-type output and price measures are those for 1994, whereas the weights used for the IPD’s are the chained-dollar weights for each period. (Weights for 1995 are not available; they will be incorporated into the chain-type measures during the next annual NIPA revision.)

In addition, there are also small differences between the IPD’s and the chain-type price indexes for earlier periods because (1) the prices of the CBI components used to calculate chain-type quantity and price indexes differ from the price deflators of the detailed CBI components, (2) the quarterly chain-type output and price indexes are based on annual weights, and (3) both quarterly chain-type output and price indexes are independently adjusted for consistency to the corresponding annual indexes.

22. The usual annual NIPA revision covers the 3 most recent complete years. Thus, if there had been a 1995 annual NIPA revision, estimates for 1992, 1993, and 1994 would have been subject to revision. However, for purposes of discussion in this section, source data for the year 1992 are not considered to be part of the regular source data for an annual revision, because of the extensive use of 1992 Economic Census data, which are only available every 5 years.

include the following: BEA's benchmark 1987 input-output (I-O) tables; selected data from the 1992 Censuses of Agriculture, Mineral Industries, Manufactures, Wholesale Trade, Retail Trade, and Service Industries; the 1990 Census of Housing and the 1991 Residential Finance Survey; more complete data from Census Bureau surveys of State and local governments for fiscal years 1992 and 1993; and the Internal Revenue Service (IRS) Taxpayer Compliance Measurement Program for 1988. The three most important of these sources are the most recent benchmark I-O tables (for 1987), the most recent economic censuses (for 1992), and the 1990 Census of Housing and the related 1991 Residential Finance Survey, each of which is conducted every 10 years.

The 1987 benchmark I-O tables provide the benchmark for the estimates for several major product-side components of GDP—PCE and PDE, for the type of product detail for State and local government consumption expenditures and gross investment—and for parts of several income components.²³ In turn, the 1987 I-O tables are based primarily on the detailed industry statistics collected by the Census Bureau in the 1987 Economic Censuses and as part of the 1987 Censuses of Agriculture and Governments. The I-O accounts also incorporate information on purchases of intermediate goods and services from the assets and expenditures survey, which is conducted as a follow-on survey to several economic censuses.

The detailed industry and product statistics from the 1992 Economic Censuses incorporated into this comprehensive revision update selected elements of the 1987 I-O accounts. The census data not only provide additional detail, but also more accurate information than the annual surveys that cover the same industries. For example, sales and receipts of retail stores are reported for the types of products sold, and manufacturers' shipments are reported by all firms, including up-to-date information for new firms. The additional retail and service data provide for a more accurate distribution of products purchased by persons;²⁴ the additional

product shipments data provide for a more accurate identification of equipment and related parts purchased by business. Other information for 1992 incorporated into this comprehensive revision include mileage and other characteristics from the truck inventory and use survey and drilling expenses from the census of mineral industries.

The 1990 Census of Housing and the 1991 Residential Finance Survey (RFS) provide the basis for the estimates of rental payments for tenant- and owner-occupied dwellings that enter into the calculation of PCE housing services and rental income of persons. The RFS also provides information used for estimating mortgage interest for both net interest and rental income of persons; property taxes paid on residential dwellings, which are deducted in the calculation of rental income; and share of rental income earned by persons (nonbusiness landlords).

The revised estimates for 1959–92 that reflect the incorporation of revisions to previously used source data are the following: BEA's balance of payments accounts, which are revised back to 1976; Department of Agriculture farm income data, which are revised back to 1988; Health Care Financing Administration (HCFA) national health care expenditure accounts, which are revised back to 1985; prices for food and housing beginning with 1978 that reflect Bureau of Labor Statistics (BLS) improvements to the Consumer Price Index (CPI); and revised IRS tabulations of corporate tax returns for 1992. In addition to these revisions, data from the 1987 I-O tables indicated that in several cases it was necessary to revise the NIPA estimates that were based on previous benchmark I-O tables. The most important of these was consumer expenditures at restaurants, which is revised back to 1960.

Regular source data for 1993–95

The revised estimates for 1993–95 reflect the incorporation of newly available and revised source data that became available since the last annual NIPA revision, which was released in July 1994. The most important of the *newly available* regular source data for 1993–95 that affect the current-dollar estimates are the following: IRS tabulations of tax returns for corporations, sole proprietorships, and partnerships for 1993; the Census Bureau annual surveys of manufactures, communications, wholesale trade, and retail trade for 1993, survey of service industries for 1994, and surveys of State and local governments for fiscal years 1993 and 1994; preliminary Federal Government budget data for fiscal year 1995; and

23. The 1987 I-O tables are presented in "Benchmark Input-Output Accounts for the U.S. Economy, 1987," SURVEY 74 (April 1994): 73–115. Several of the estimates from the tables used for this comprehensive revision were revised after the completion of the I-O tables to reflect the definitional and statistical changes incorporated into this comprehensive NIPA revision. In addition to the two definitional changes, the most important statistical changes affecting these subsequent revisions are the improved methodologies for estimating consumption of fixed capital, consumer and business purchases of new autos, and nonresidential structures, as well as the complete incorporation of data from the 1991 Residential Finance Survey.

24. For a description of the estimation of PCE in the I-O accounts, see *Personal Consumption Expenditures, Methodology Paper Series MP-6*: 31–40.

BLS tabulations of wages of employees covered by State unemployment insurance for 1994. The most important newly available price data are the BLS price indexes for hospitals beginning with 1993, BLS prices for physicians beginning with 1994, and BEA prices for semiconductors and for international telecommunications services. The most important *revised* regular source data for 1993–95 include the following: BEA's balance of payments accounts; Department of Agriculture farm income data; Census Bureau monthly surveys of construction, manufacturing, wholesale trade, and retail trade; Census Bureau annual survey of service industries for 1993; Federal Government budget data for fiscal year 1994; and monthly BLS employment, hours, and earnings series. Revised source data for prices are for food and housing for 1993 and 1994, based on BLS improvements to the CPI.

Changes in methodology

Because the availability of new source data and the development of new estimating procedures often go hand in hand, these changes are described as "changes in methodology." This section describes several of the most important changes incorporated into this comprehensive revision.²⁵

Consumer and business purchases of new autos.—Several improvements are incorporated into the revised estimates of the new-automobile components of PCE and PDE that result in sizable downward revisions, beginning with the mid-1980's. For 1994, PCE new autos is revised down \$7.4 billion, and PDE new autos is revised down \$6.6 billion.

Briefly, estimates of total sales of new autos are prepared as the product of unit sales and average expenditures, and these sales are allocated by type of purchaser, based on registrations of both autos and trucks. For this comprehensive revision, unit sales data are revised down for 1985–94 as a result of the reclassification of imported vans and sport-utility vehicles from autos to trucks; in recent years, these revisions are partly offset by upward revisions to the consumer share of unit sales.

Average expenditures, which reflects the average price actually paid, is derived by adding the price of optional equipment, transportation

charges, and taxes to the base price and by subtracting discounts and rebates. The revised estimates of average expenditures reflect several improvements, beginning with 1983. The most important improvement affects the average base price, which is calculated as a weighted average of the base prices of individual models for each nameplate. (For example, a Ford Taurus is a nameplate, and a Taurus GL sedan is a model.) Previously, the average base price of all models of a nameplate was calculated using equal weights for each model's base price. From an analysis of the 16 largest selling nameplates for the 1994 model year—representing almost 40 percent of unit sales—BEA developed weights for base prices using estimates of production by nameplate and model. This analysis showed that the average base prices had been overstated, primarily because the production of the higher priced models of a nameplate tended to be lower than implied in the previously published estimates.

The BEA analysis also showed that estimates of average expenditures for optional equipment were overstated because they did not accurately reflect discounts on option packages and because they included some standard equipment. The inclusion of options not previously priced partly offset this overstatement.

The overstatement of list prices—base prices and options—was about 5 percent. This overstatement percentage is used to adjust overall average list prices for 1994; smaller adjustments are used back to 1983. Average expenditures for 1987–94 are also adjusted for rebates, based on information from a trade source; in the previously published estimates, rebates were assumed to be zero after 1983. (There is no evidence that rebates were used for 1984–86).

Nonresidential structures.—In the 1991 comprehensive revision, the estimates of the principal subcomponents of private nonresidential structures were prepared using a new methodology, based largely on data for 1977 and 1982 from the Census of Construction Industries (CCI) and the Census of Services Industries (CSI). The estimates for other years were interpolated and extrapolated using the monthly value of new construction put in place (VPIP) survey.²⁶ For

25. These methodological changes can be thought of as updating the list of principal source data and methods used to prepare the estimates of GDP that was published as part of the most recent annual NIPA revision; see tables 7 and 8 of "Annual Revision of the U.S. National Income and Product Accounts," SURVEY 74 (July 1994): 28–45. An updated version of these tables will be published at the time of the next annual NIPA revision.

26. Extrapolation is a method of extending estimates from one period forward (or backward) in time to other periods. In simple terms, extrapolation applies a percent change—either the percent change in the indicator series or the percent change in the trend—to the level of the preceding (or following) period. Interpolation is a method of filling in estimates between two periods. Interpolation applies a more complex mathematical formula—there are several in use—to preserve the pattern of the indicator series consistent with the level of the source data viewed as final.

this comprehensive revision, BEA had planned to update these estimates using similar data from the 1987 and 1992 CCI and CSI. However, two differences between the CCI data for 1982 and the CCI data for 1987 and 1992 created comparability problems that were not able to be resolved in the time available. These differences relate to (1) changes to the questions included in the more recent CCI's that are used to classify construction receipts between new construction (including improvements) and maintenance and repair construction and (2) the coverage of firms with no paid employees.

As a consequence of the noncomparability, the methodology introduced in 1991 is revised. For State and local government structures, revised VPIP data are used beginning with 1975. This series is now benchmarked annually to structures data reported in the Census Bureau annual surveys of State and local government finances.

For private nonresidential buildings and for "other" private nonresidential structures, the revised series begins with 1978.²⁷ For 1982, the estimates for these categories are derived using the same "residual" methodology that was used for the previously published estimates; thus, the upward revision to State and local structures is offset by a downward revision to private nonresidential structures. For the "other" category, estimates for 1978–81 are not revised, and estimates for 1983 forward are extrapolated using VPIP survey data for this category. For buildings, estimates for 1986, 1989, and 1992 are prepared using the estimate of new construction from the VPIP survey and an estimate of improvements based on information from the Census Bureau surveys of commercial buildings energy consumption. For all types of buildings except industrial buildings, estimates for other years are prepared by using data from the VPIP survey to interpolate between the 1977, 1982, 1986, 1989, and 1992 estimates and to extrapolate from 1992 forward. For industrial buildings, estimates are prepared using the same methodology that was used for the other types of buildings, but the estimates for 1983–94 are adjusted to reflect the level of expenditures for industrial buildings reported to the Census Bureau in the 1992 Annual Capital Expenditures Survey.²⁸

27. "Other" private nonresidential structures consists of streets, dams, reservoirs, sewer and water facilities, parks, and airfields.

28. The 1992 estimate is based on a special tabulation that was prepared by the Census Bureau and that conformed to the definition of industrial buildings used in the VPIP survey; the estimate was adjusted by BEA to fully reflect expenditures for new plants under construction during 1992 and expenditures by firms with no paid employees.

The effect of the revisions is mixed. State and local government structures is revised up for all years beginning with 1975; the private structures components are revised down for almost every year, beginning with 1978. For 1978–82, the revisions are largely offsetting, and there is little effect on GDP. For the other years, the upward revisions are larger, and GDP is revised up as a result.

Voluntary contributions to thrift savings plans.—Until 1985, voluntary contributions by employees to thrift savings plans, primarily 401(k) plans, were generally not required to be reported on the State unemployment tax returns, which are the primary source data for estimates of private wages and salaries. Beginning in 1985, as a result of a change in Federal unemployment tax law, an increasing number of States began requiring the reporting of these contributions, but because most States did not publicize the change, reporting was incomplete. Because these contributions are classified as wages and salaries in the NIPA's, beginning with 1979, an adjustment to include them is added in this comprehensive revision. The adjustment is estimated using employee contributions to thrift savings plans from Pension and Welfare Benefits Administration (PWBA) tabulations of Form 5500 series (Annual Return/Report of Employee Benefit Plan). The adjustment ranges from less than \$1.0 billion for 1979 to \$14.3 billion for 1985, and after 1987, it tapers to \$9.3 billion for 1993.

Wage accruals less disbursements (WALD).—WALD is a component of the income side of the national income and product account. It is defined as the difference between wages earned, or accrued, and wages paid, or disbursed. In the NIPA's, wages accrued is the appropriate measure for national income, and wages disbursed is the appropriate measure for personal income. The estimates of disbursements are based on BLS tabulations of wages of employees covered by State unemployment insurance (UI). BEA converts annual disbursements data to an accrual basis for national income by estimating WALD, when necessary. Bonus payments are the most common cause of a difference between accruals and disbursements on an annual basis, because many bonuses are typically declared at the end of a year, but not actually paid until the next year.

Until 1992, BEA had usually assumed that the amount of private wages earned during a year and paid the next year was the same from year to year, and the estimate of WALD was zero. In early

1993, reports indicated that a substantial portion of bonus payments that were earned by many employees in the securities industry in 1992 and that typically would have been paid in early 1993 had instead been paid in 1992; as a result, BEA estimated WALD for both 1992 and 1993. When the fourth-quarter 1992 UI tabulations became available, BEA found that the acceleration affected employees in other industries and consequently sharply revised the estimates of WALD.²⁹ BEA also assumed that the acceleration would be a one-time phenomenon. The quarterly UI wage data for 1993—available at the time of the 1994 annual NIPA revision—appeared to confirm this assumption, and no revisions were made to the WALD estimate. However, the 1994 UI wage data, which became available in June 1995, and the data for the first quarter of 1995, which became available in September 1995, indicated that the acceleration was not a one-time phenomenon and that the receipt of bonus payments had also been accelerated for 1993. Based upon an analysis of this additional information, WALD is revised up for 1992 and 1994 and down for 1993; the revisions indicate that fewer bonus payments were accelerated for 1992, more were accelerated for 1993, and more were deferred for 1994 than previously assumed. The revised levels of WALD are -\$15.8 billion for 1992, \$4.6 billion for 1993, and \$14.8 billion for 1994.³⁰

Monthly data on when bonus payments are earned or paid are not available, and monthly WALD must be estimated judgmentally. For 1992 and 1993, BEA is assuming that accelerated payments were made in December and that these payments would have been made during the months of the following first quarter. Deferred payments received in the first quarter are spread throughout the year, because it is assumed that the deferrals arose from larger profit-related bonuses. Until UI wage data are available for the first quarter of 1996, BEA is assuming that the amount of deferral into 1996 will be the same as that into 1995, and WALD is zero.

Employer contributions to pension plans.—Beginning with 1986, the revised estimates of employer contributions to private pension plans are based on PWBA tabulations of Form 5500 series reports. Previously, these estimates were based on IRS tabulations of corporate income tax

data from Form 1120. Estimates for 1983 and earlier years continue to be based on the IRS tabulations; estimates for 1984 and 1985 are interpolated between estimates based on the two sources. The corporate tax return data are no longer used, because comparisons of the two sources indicate that not all pension contributions were reported in the “pension contribution” line of the tax return, and it is not feasible to identify and tabulate contributions reported elsewhere on the Form 1120. To prepare the estimates, BEA adjusts the PWBA tabulations as follows: (1) Estimates are converted to a calendar year cash basis, (2) certain contributions to 401(k) plans are reclassified from employer to employee contributions based on special PWBA tabulations, (3) estimates of contributions of proprietors to their own plans are removed because they are classified as proprietors’ income in the NIPA’s, and (4) contributions to single-employee plans and contributions by not-for-profit organizations are added because they are not fully covered by the PWBA series.

Published PWBA tabulations are available through 1991, and preliminary tabulations for 1992 were prepared for BEA. Estimates for 1993 are extrapolated using changes in pension plan contributions reported on corporate income tax returns; estimates for 1994 are extrapolated using changes in the product of employer contributions to pension plans as a percent of wages, using BLS data on employee costs per hour for pension plans and NIPA wages and salaries. For 1993–95, special adjustments based on publicly available information are also made for “extraordinary” contributions by plans with large, previously unfunded, liabilities.

Tax return misreporting adjustments.—Several changes are introduced into the tax return misreporting adjustments that affect the estimates of wage and salary accruals (and disbursements) and of nonfarm proprietors’ income.³¹ The first change is a revision to the estimates of the “nonfiler” income adjustments for both components. Beginning with 1978, the adjustments are revised to reflect the incorporation of information from newly available Census Bureau “exact-match” files for 1990. These files, based on a match of the annual income supplement to the Current Population Survey (CPS) and indi-

29. For more information, see “Annual Revisions of the U.S. National Income and Product Accounts,” SURVEY 73 (August 1993): 28.

30. A negative WALD indicates that payments are accelerated; that is, wage and salary accruals (earned wages and salaries) are less than wage and salary disbursements (paid wages and salaries). A positive WALD indicates that payments are deferred; that is, accruals are more than disbursements.

31. For a description of previous adjustments, see “Improved Adjustments for Misreporting of Tax Return Information Used to Estimate the National Income and Product Accounts, 1977,” SURVEY 64 (June 1984): 17–25; and “The Comprehensive Revision of the U.S. National Income and Product Accounts: A Review of Revisions and Major Statistical Changes,” SURVEY 71 (December 1991): 39–40.

vidual income tax returns, provide tabulations of persons who did not file an income tax return, but who earned income as evidenced by information they supplied on the CPS. In the previously published estimates, the nonfiler adjustments had been prepared by extrapolating the results of a similar study for 1977.

For wages and salaries, the adjustment is revised down through 1987 and revised up after 1987; the largest revisions (without regard to sign) are about \$3 billion. For nonfarm proprietors' income, the adjustment is revised up for all years; the adjustment grows until 1988, when it reaches \$9.6 billion, and then becomes smaller, reaching about \$6 billion for 1994.

The second change, which affects the estimates of nonfarm proprietors' income beginning with 1983, is the incorporation of audit information from the newly available 1988 Taxpayer Compliance Measurement Program (TCMP) for sole proprietorships. This information updates similar information from a 1985 TCMP for sole proprietorships. It also is used to update the extrapolation of audit information from a 1981 special TCMP for partnerships and to update adjustments for misreported income undetected by the TCMP auditors. In addition, revisions are made to the series used to interpolate and extrapolate the adjustments and to the amount of undetected misreporting. In the 1991 comprehensive revision, the amount was reduced, based on a BEA assumption that compliance provisions of the Tax Reform Act of 1986 would reduce misreporting. In the revised estimates, a smaller reduction is assumed. The net effect of incorporating the new TCMP data is to reduce nonfarm proprietors' income for 1983, 1985–87, and 1991 and to increase it for all other years except for 1988. The largest downward revisions are \$16.1 billion each for 1986 and 1987; the largest upward revision is \$5.4 billion for 1990.

The third change is the introduction of an additional adjustment that eliminates a double-count in previously published estimates of the misreporting adjustments for wages and salaries. This double-count pertains to persons who report as sole proprietors but who were determined to be employees by IRS. BEA had added the misreported wages to wages and salaries, but had not subtracted the corresponding income from nonfarm proprietors' income. The elimination of this double-count reduces proprietors' income beginning with 1973; by 1994, the reduction is \$4.6 billion.

Amortization of intangible assets.—Beginning with 1981, adjustments are introduced that reduce corporate capital consumption allowances and that increase corporate profits before tax in order to account for deductions taken for amortizing purchased intangible assets.³² These deductions arise when a corporation purchases another firm or a line of business and pays more than the value of the *tangible* assets acquired. Deductions to amortize the excess payments are treated in the NIPA's as financial transactions and excluded from current-production measures. The adjustments eliminate the previous misstatement of profits before tax and the overstatement of capital consumption allowances (CCA). Because the adjustment to CCA results in a downward revision to the capital consumption adjustment (CCAdj), profits from current production—that is, profits before tax and IVA and CCAdj—is unaffected by the change.

Consumption of fixed capital (CFC).—The most important change in methodology in terms of the magnitude of the revisions is the implementation of an improved methodology for estimating depreciation, or CFC (table 12). As discussed in the September 1995 SURVEY (see footnote 2), the improved methodology, which affects current-dollar estimates for all years, puts these estimates on a firmer empirical foundation. The CFC estimates are now based on investment flows for about 50 types of assets for about 60 industries. Previously, these flows were divided into "cohorts" representing the retirement pattern around each asset's average service life; a straight-line depreciation pattern was used for each cohort under the assumption that an equal amount of an asset's value is lost each year until the asset is retired. A straight-line depreciation pattern means, for example, that a piece of equipment with a 10-year service life is assumed to lose one-tenth of its initial value each year until it is retired. This assumption, however, is not based on empirical evidence.

The improved methodology reflects the results of studies on the prices of used equipment and structures in resale markets that show that depreciation for most kinds of structures and equipment does not follow a straight-line pattern. In particular, studies of used equipment prices have almost always found that the dollar amount

32. The adjustment is not made for earlier years, because there is no information that indicates that there were any deductions for the amortization of purchased intangible assets for tax purposes. The Omnibus Budget Reconciliation Act of 1993 established standardized procedures for amortizing purchased intangible assets.

lost in the first year is greater than that in the second year, which is, in turn, greater than that in the third year, and so on. Thus, rather than forming a straight-line pattern, the pattern of depreciation is curved, with greater dollar losses in the first year and lesser losses as the equipment gets older; that is, each year, prices of used equipment tend to decrease by an equal percentage rather than by an equal dollar amount.

BEA's revised estimates of private CFC are based on actual empirical profiles for automobiles and computers; the new estimates of government CFC also use the empirical profile for computers. Automobiles and computers are the only major types of assets for which adequate information on the prices of used equipment and structures was available for this comprehensive revision. For the other types of assets, the revised and new government CFC estimates are calculated under the assumption that depreciation occurs at a constant percentage rate.

In addition to the introduction of the improved methodology, the revised private CFC estimates also incorporate two other changes. First, they incorporate the previously mentioned revisions to the investment data; second, the estimates of damage due to the Northridge earthquake of 1994 reflect

revised trade association data on claims paid by insurance companies, which are used to estimate the amount of accidental destruction of property.

Federal Government receipts and current expenditures.—The revised estimates of Federal Government receipts and expenditures reflect improvements in the derivation of these estimates from various Federal Government budget data. BEA prepares these estimates by analyzing the receipts and outlays of each program or agency and classifying the detailed budget receipts and outlays data as NIPA receipts and expenditures components or as transactions not covered by the NIPA's.³³ For this comprehensive revision, the more detailed analysis focused on the following: Credit programs that were revised as a result of the Credit Reform Act of 1992, including the Veterans Administration's Guarantee and Indemnity Program, the Export-Import Bank, and the Family Education Loan Program; the Federal Financing Bank, whose functions were changed as a result of changes in the credit programs; depository insti-

33. The relationship between budget receipts and outlays and NIPA receipts and expenditures is shown in NIPA table 3.18B; a version of this table reflecting this comprehensive revision will appear in a forthcoming issue of the SURVEY (see box below).

Data Availability

Estimates shown in the NIPA tables beginning on page 32, along with estimates for earlier periods (for most tables, back to 1959), are available in electronic form to STAT-USA subscribers (Economic Bulletin Board and Internet site). To subscribe, call STAT-USA on (202) 482-1986.

Estimates are also available on diskette. To obtain an order form indicating their cost and the schedule and cost of related material, write to the National Income and Wealth Division (BE-54), Bureau of Economic Analysis, U.S. Department of Commerce, Washington DC 20230, or call (202) 606-9700.

The following issues of the SURVEY OF CURRENT BUSINESS also provide information about the comprehensive revision:

July 1995:	Preview of BEA's new featured measures of output and prices.
September 1995:	Preview of BEA's new treatment of government investment and new methodology for calculating depreciation.
October 1995:	Preview of new and redesigned tables.
November/ December 1995:	Gross domestic product news release, including selected estimates and a discussion of the major effects of the revision.

Other information related to the NIPA estimates will be released as work is completed. The listing below provides approximate schedules for the release of most of the remaining estimates. A schedule for the revised estimates of reproducible tangible wealth will be announced in next month's SURVEY.

May 1996: *Real inventories, sales, and inventory-sales ratios for manufacturing and trade* (includes chain-weighted quarterly and monthly estimates).

May-June 1996: Additional NIPA tables (1.13, 3.13, 3.15-3.20, 5.3, 6.9C, 6.13C, 8.2, 8.13, 8.19, 8.26, and 9.1-9.6) and missing lines for tables shown in this issue (1.10, 1.16, 5.15, 7.13, 8.9, and 8.11).

June 1996: *Gross domestic product by industry, 1987-94.*

July 1996: *Gross domestic product by industry, 1959-86.*

Fall 1996: NIPA estimates for 1929-58, including annual estimates of real gross domestic product from 1929 and quarterly estimates from 1947. Summary NIPA tables will be published in the SURVEY.

Late 1996: *National Income and Product Accounts of the United States, volume 2, 1959-92.* This volume (and volume 1 below) will contain the complete set of NIPA tables as well as definitions, classifications, and conventions underlying the NIPA's.

Early 1997: *National Income and Product Accounts of the United States, volume 1, 1929-58.*

tutions, whose activities were reorganized by the Financial Institutions Reform, Recovery and Enforcement Act of 1989; and the activities of some of the largest Federal Government enterprises, including the Postal Service, the Power Marketing Administration, and the National Flood Insurance Fund.

The analysis was conducted using detailed U.S. Treasury Department financial reports and annual reports of government enterprises, in addition to budget data on new programs. The revisions reflect various improvements, such as the classification of the accounts of newly off-budget programs that result in the first-time identification of business nontax payments to loan programs of the Veterans Administration; the classification of expenses of new depository institutions as interest paid instead of as a non-NIPA transaction; and a similar reclassification of Postal Service expenditures. The results of the analysis primarily affect the estimates of indirect business taxes and nontaxes, net interest paid, and the current surplus of government enterprises.

Semiconductor prices.—For this comprehensive revision, BEA has prepared quality-adjusted annual price indexes for memory and for microprocessor metal-oxide semiconductor integrated circuits (chips) for 1974–94. These indexes are incorporated into the estimates of exports and imports of semiconductors (in “other capital goods”) beginning with 1981, the first year for which current-dollar values are separately identified in the NIPA’s.³⁴ Previous estimates of exports and imports of semiconductors were based on BLS International Price Program price indexes.

The revised price indexes are constructed from the new BEA indexes, which cover two types of semiconductors that accounted for almost one-third of U.S. production of semiconductors for 1992. The relative importance of these two types of semiconductors in exports and imports varies from year to year. Based on an analysis of the detailed data on exports and imports

of semiconductors, the microprocessor-chip index is assigned somewhat more than one-half the weight in the exports price index, and the memory-chip index is assigned approximately three-fourths the weight in the imports price index. Quarterly estimates are interpolated from the annual indexes using BEA’s price index for personal computers.

The revised price indexes for both exports and imports of semiconductors decline at much sharper rates than the previous indexes. For example, the revised price index for exports of semiconductors declines at an average annual rate of 26.8 percent from 1981 to 1994, while the previous index declined at an average annual rate of 0.9 percent.

The new quality-adjusted semiconductor price indexes are calculated using different methodologies for memory chips and for microprocessor chips. The price index for memory chips is quality adjusted using the price per bit of data storage capacity and the type of memory chip.³⁵ Seven types of memory chips are weighted together to produce a summary price index for memory chips. The price index for microprocessor chips is quality adjusted using a “matched-model” approach. Most of the data used consist of observed prices from major U.S. manufacturers that BEA purchased from the Dataquest Corporation. Some price data are estimated using hedonic regressions that link chip prices to various performance characteristics; this methodology is similar to BEA’s methodology for estimating computer prices.³⁶

The new quality-adjusted indexes are estimated only through 1994; the BLS semiconductor prices for exports and for imports are used beginning with 1995. BLS has increased the frequency of updating the set of semiconductor types sampled in order to better capture the effects of quality change on their prices.

Appendixes A and B follow. 

35. The methodology used to prepare the price indexes for memory chips is an extension of work presented by Ellen Dulberger in “Sources of Price Decline in Computer Processors: Selected Electronic Components,” in Foss, Manser, and Young, eds., *Price Measurements and Their Uses* (Chicago, IL: University of Chicago Press for National Bureau of Economic Research, 1993).

36. For a discussion of hedonic methods, see Jack E. Triplett, “The Economic Interpretation of Hedonic Methods,” SURVEY 66 (January 1986): 36–40.

34. The revised semiconductor price indexes will also be incorporated into BEA’s revised estimates of GDP by industry when they are released later this year (see box on page 26).

Appendix A.—Gross Domestic Product, National Income, and Personal Income; Revised and Previously Published, 1959–94

[Dollar figures are in billions]

Year	Gross domestic product						National income						Personal income					
	Revised	Pre-viously published	Revision			Total revision as percent of previously published	Revised	Pre-viously published	Revision			Total revision as percent of previously published	Revised	Pre-viously published	Revision			Total revision as percent of previously published
			Total	Definitional changes	Statistical changes				Total	Definitional changes	Statistical changes				Total	Definitional changes	Statistical changes	
1959	507.2	494.2	13.0	13.0	0	2.6	410.4	410.1	0.3	0	0.3	0.1	393.5	391.2	2.3	0	2.3	0.6
1960	526.6	513.3	13.3	13.5	-2	2.6	426.2	425.7	.5	0	.5	.1	411.7	409.2	2.5	0	2.5	.6
1961	544.8	531.8	13.0	13.9	-9	2.4	441.2	440.5	.7	0	.7	.2	429.1	426.5	2.6	0	2.6	.6
1962	585.2	571.6	13.6	14.6	-1.0	2.4	475.3	474.5	.8	0	.8	.2	456.1	453.4	2.7	0	2.7	.6
1963	617.4	603.1	14.3	15.5	-1.2	2.4	502.6	501.5	1.1	0	1.1	.2	479.1	476.4	2.7	0	2.7	.6
1964	663.0	648.0	15.0	16.0	-1.0	2.3	540.2	539.1	1.1	0	1.1	.2	513.5	510.7	2.8	0	2.8	.5
1965	719.1	702.7	16.4	16.7	-3	2.3	587.8	586.9	.9	0	.9	.2	555.8	552.9	2.9	0	2.9	.5
1966	787.8	769.8	18.0	17.7	.3	2.3	644.4	643.7	.7	0	.7	.1	604.7	601.7	3.0	0	3.0	.5
1967	833.6	814.3	19.3	19.1	.2	2.4	680.7	679.9	.8	0	.8	.1	649.7	646.5	3.2	0	3.2	.5
1968	910.6	889.3	21.3	20.6	.7	2.4	742.4	741.0	1.4	0	1.4	.2	713.5	709.9	3.6	0	3.6	.5
1969	982.2	959.5	22.7	21.9	.8	2.4	800.9	798.6	2.3	-1	2.4	.3	778.2	773.7	4.5	0	4.5	.6
1970	1,035.6	1,010.7	24.9	23.4	1.5	2.5	836.6	833.5	3.1	-2	3.3	.4	836.1	831.0	5.1	0	5.1	.6
1971	1,125.4	1,097.2	28.2	25.5	2.7	2.6	904.0	899.5	4.5	.7	3.8	.5	898.9	893.5	5.4	0	5.4	.6
1972	1,237.3	1,207.0	30.3	27.4	2.9	2.5	999.2	992.9	6.3	.6	5.7	.6	987.3	980.5	6.8	0	6.8	.7
1973	1,382.6	1,349.6	33.0	29.9	3.1	2.4	1,125.3	1,119.5	5.8	.3	5.5	.5	1,105.6	1,098.7	6.9	0	6.9	.6
1974	1,496.9	1,458.6	38.3	34.9	3.4	2.6	1,206.7	1,198.8	7.9	1.1	6.8	.7	1,213.3	1,205.7	7.6	0	7.6	.6
1975	1,630.6	1,585.9	44.7	39.4	5.3	2.8	1,295.5	1,285.3	10.2	2.6	7.6	.8	1,315.6	1,307.3	8.3	0	8.3	.6
1976	1,819.0	1,768.4	50.6	41.9	8.7	2.9	1,447.5	1,435.5	12.0	3.2	8.8	.8	1,455.4	1,446.3	9.1	0	9.1	.6
1977	2,026.9	1,974.1	52.8	46.4	6.4	2.7	1,616.3	1,609.1	7.2	5.6	1.6	.4	1,611.4	1,601.3	10.1	0	10.1	.6
1978	2,291.4	2,232.7	58.7	49.2	9.5	2.6	1,839.2	1,829.8	9.4	5.3	4.1	.5	1,820.2	1,807.9	12.3	0	12.3	.7
1979	2,557.5	2,488.6	68.9	54.5	14.4	2.8	2,053.3	2,038.9	14.4	6.4	8.0	.7	2,049.7	2,033.1	16.6	0	16.6	.8
1980	2,784.2	2,708.0	76.2	61.5	14.7	2.8	2,216.1	2,198.2	17.9	8.5	9.4	.8	2,285.7	2,265.4	20.3	0	20.3	.9
1981	3,115.9	3,030.6	85.3	68.6	16.7	2.8	2,470.2	2,432.5	37.7	10.3	27.4	1.6	2,560.4	2,534.7	25.7	0	25.7	1.0
1982	3,242.1	3,149.6	92.5	74.1	18.4	2.9	2,569.2	2,522.5	46.7	11.0	35.7	1.9	2,718.7	2,690.9	27.8	0	27.8	1.0
1983	3,514.5	3,405.0	109.5	78.0	31.5	3.2	2,761.4	2,720.8	40.6	11.6	29.0	1.5	2,891.7	2,862.5	29.2	0	29.2	1.0
1984	3,902.4	3,777.2	125.2	88.2	37.0	3.3	3,132.7	3,058.3	74.4	20.6	53.8	2.4	3,205.5	3,154.6	50.9	0	50.9	1.6
1985	4,180.7	4,038.7	142.0	94.3	47.7	3.5	3,351.5	3,268.4	83.1	22.3	60.8	2.5	3,439.6	3,379.8	59.8	0	59.8	1.8
1986	4,422.2	4,268.6	153.6	99.6	54.0	3.6	3,516.5	3,437.9	78.6	22.1	56.5	2.3	3,647.5	3,590.4	57.1	0	57.1	1.6
1987	4,692.3	4,539.9	152.4	104.2	48.2	3.4	3,778.1	3,692.3	85.8	21.9	63.9	2.3	3,877.3	3,802.0	75.3	0	75.3	2.0
1988	5,049.6	4,900.4	149.2	106.6	42.6	3.0	4,108.6	4,002.6	106.0	20.1	85.9	2.6	4,172.8	4,075.9	96.9	0	96.9	2.4
1989	5,438.7	5,250.8	187.9	111.0	76.9	3.6	4,362.1	4,249.5	112.6	19.5	93.1	2.7	4,489.3	4,380.3	109.0	0	109.0	2.5
1990	5,743.8	5,546.1	197.7	114.8	82.9	3.6	4,611.9	4,491.0	120.9	17.3	103.6	2.7	4,791.6	4,673.8	117.8	0	117.8	2.5
1991	5,916.7	5,724.8	191.9	120.3	71.6	3.4	4,719.7	4,608.2	111.5	17.5	94.0	2.4	4,968.5	4,860.3	108.2	0	108.2	2.2
1992	6,244.4	6,020.2	224.2	122.4	101.8	3.7	4,950.8	4,829.5	121.3	15.9	105.4	2.5	5,264.2	5,154.3	109.9	0	109.9	2.1
1993	6,550.2	6,343.3	206.9	123.2	83.7	3.3	5,194.4	5,131.4	63.0	12.1	50.9	1.2	5,479.2	5,375.1	104.1	0	104.1	1.9
1994	6,931.4	6,738.4	193.0	125.1	67.9	2.9	5,495.1	5,458.4	36.7	9.2	27.5	.7	5,750.2	5,701.7	48.5	0	48.5	.9

Appendix B.—Revisions to Summary National Income and Product Accounts

[Billions of dollars]

	1959	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Account 1.—National Income and Product Account														
Compensation of employees	0	11.6	14.8	30.1	42.9	48.6	59.0	52.6	51.4	55.2	53.1	53.7	29.0	3.7
Wage and salary accruals	0	.6	.6	5.3	9.4	11.1	11.5	10.6	11.7	12.5	11.6	15.8	-5.6	-23.1
Disbursements	0	.6	.6	5.3	9.4	11.1	11.5	10.6	11.7	12.5	11.6	11.6	9.8	-37.9
Wage accruals less disbursements	0	0	0	0	0	0	0	0	0	0	0	4.2	-15.4	14.8
Supplements to wages and salaries	0	11.0	14.2	24.8	33.5	37.5	47.6	42.0	39.7	42.7	41.6	37.9	34.6	26.8
Employer contributions for social insurance	0	11.0	11.7	20.6	22.2	22.2	22.6	20.8	18.5	16.3	17.9	15.3	9.0	5.6
Other labor income	0	0	2.6	4.2	11.3	15.3	25.0	21.2	21.2	26.3	23.7	22.6	25.6	21.2
Proprietors' income with inventory valuation and capital consumption adjustments	-1.2	-8	-5.0	1.9	-2.5	-15.9	-17.3	-1.4	-2.3	-2.3	-13.3	-9.2	-21.6	-22.8
Rental income of persons with capital consumption adjustment	3.5	25.7	25.1	27.7	30.4	33.6	42.3	51.4	65.9	75.6	78.9	86.1	78.4	88.9
Corporate profits with inventory valuation and capital consumption adjustments	-2.1	7.7	-4	4.0	1.4	-6	-10.1	-7.8	-6.4	-11.1	-7.8	-3.7	-21.3	-16.2
Corporate profits with inventory valuation adjustment	0	.4	1.5	2.1	5.2	6.4	-5	4.7	5.2	3.5	7.3	9.5	1.5	9.9
Profits before tax	0	4	2.1	3.7	4.9	4.8	5.7	6.8	5.2	6.0	9.0	10.5	1.9	3.7
Profits tax liability	0	0	0	0	0	0	0	0	0	1.8	2.3	3.3	-9.4	-7.2
Profits after tax	0	4	2.0	3.7	4.9	4.8	5.7	6.8	5.2	4.1	6.7	7.2	11.3	10.9
Dividends	0	-2	-4	.5	.4	.4	.8	1.5	4.3	-1.6	3.1	-1.6	5.6	5.8
Undistributed profits	0	.6	2.5	3.1	4.5	4.2	4.9	5.3	.8	5.8	3.6	8.8	5.8	5.0
Inventory valuation adjustment	0	0	-6	-1.5	.3	1.7	-6.2	-2.0	0	-2.5	-1.8	-1.1	-4	6.2
Capital consumption adjustment	-2.1	7.3	-1.8	1.9	-3.7	-7.1	-9.6	-12.5	-11.6	-14.6	-15.1	-13.2	-22.8	-26.1
Net interest	0	2.5	5.9	10.6	11.0	12.9	11.8	11.2	3.9	3.6	.6	-5.7	-1.4	-16.9
National income .....	.3	46.7	40.6	74.4	83.1	78.6	85.8	106.0	112.6	120.9	111.5	121.3	63.0	36.7
Business transfer payments	0	-2	-4	-4	-1	-3	.2	-2	-3	-3	0	.3	-4	-8
To persons	0	0	0	0	0	0	0	0	0	0	0	.2	-7	-9
To the rest of the world	0	-2	-4	-4	-1	-2	.1	-2	-3	-3	0	0	.3	.1
Indirect business tax and nontax liability	0	0	0	0	-3	-8	-2	.2	0	-1.4	-2	1.2	14.7	18.5
Less: Subsidies less current surplus of government enterprises	1.0	14.9	13.9	16.0	15.5	15.4	16.9	17.6	18.8	20.8	23.7	23.6	22.7	24.4
Consumption of fixed capital	14.0	57.2	59.5	60.8	65.0	74.3	79.7	86.2	81.8	90.4	96.6	95.7	104.7	103.5
Private	-1	-20.8	-20.6	-22.3	-22.1	-19.2	-19.0	-18.0	-28.5	-26.9	-26.9	-32.4	-29.1	-36.6
Government	14.1	78.1	80.1	83.1	87.1	93.5	98.7	104.2	110.3	117.3	123.5	128.2	133.8	140.1
General government	13.1	66.1	69.5	70.6	75.3	80.8	85.3	89.8	94.8	100.9	106.4	110.2	114.7	119.4
Government enterprises	1.0	12.0	10.6	12.5	11.9	12.6	13.4	14.4	15.6	16.3	17.1	18.0	19.1	20.7
Gross national income	13.4	88.9	85.7	118.8	132.2	136.5	148.6	174.5	175.5	188.7	184.3	194.9	159.4	133.4
Statistical discrepancy	-3	4.5	26.3	13.2	15.2	20.9	8.2	-20.2	10.5	8.3	7.3	34.9	52.8	62.2
Gross national product	13.1	93.4	112.1	132.0	147.4	157.4	156.8	154.4	186.0	197.1	191.6	229.7	212.2	195.5
Less: Receipts of factor income from the rest of the world	0	-4	1.8	10.6	10.8	10.5	10.9	16.0	11.5	8.9	.5	4.4	3.1	-7.9
Plus: Payments of factor income to the rest of the world	0	-1.3	-9	3.8	5.3	6.7	6.6	10.9	13.3	9.5	.8	-1.1	-2.2	-10.5
GROSS DOMESTIC PRODUCT	13.0	92.5	109.5	125.2	142.0	153.6	152.4	149.2	187.9	197.7	191.9	224.2	206.9	193.0
Personal consumption expenditures	0	17.6	25.9	32.0	37.4	42.1	42.3	53.6	71.7	78.1	72.7	82.9	75.9	70.3
Durable goods	-1	2.8	4.8	7.2	8.2	9.1	13.0	13.9	13.4	8.3	-1.4	-4.2	-7.3	-10.6
Nondurable goods	0	14.5	12.5	10.6	8.2	5.0	2.9	7.3	14.3	16.1	19.8	26.3	29.7	35.4
Services .....	.2	.3	8.6	14.2	21.0	28.0	26.4	32.4	43.9	53.7	54.2	60.7	53.6	45.4
Gross private domestic investment	0	-2.3	.4	-3.3	.6	4.9	-2.1	-19.7	-3.1	-9.2	-8.6	2.1	-10.9	-18.5
Fixed investment	0	-3.7	-2	.3	-1.0	3.9	-.1	-14.3	-1.4	-10.4	-8.1	-1.8	-16.2	-25.8
Nonresidential	0	-3.8	-8	-6	-2.0	2.4	-2.4	-14.8	-1.9	-10.8	-9.7	-3.5	-17.3	-30.4
Structures	0	-3.8	-4	.4	-.1	1.8	.8	-7	-1.0	-8	-1.2	-1.9	-1.6	-2.6
Producers' durable equipment	0	0	-4	-1.0	-1.9	.6	-3.2	-14.1	-.9	-10.0	-8.5	-1.6	-15.7	-27.8
Residential	0	0	.5	.9	1.0	1.5	2.4	.5	.4	.4	1.6	1.8	1.1	4.7
Change in business inventories	0	1.4	.6	-3.6	1.6	1.0	-2.1	-5.3	-1.6	1.1	-5	4.0	5.2	7.3
Net exports of goods and services	0	.1	-3	.7	1.4	1.0	1.0	1.9	-.7	.1	-6	.8	.4	1.8
Exports	0	0	.3	.7	.9	1.5	1.7	3.0	1.3	.2	.7	1.3	.9	3.3
Imports	0	0	.5	0	-.4	.5	.8	1.0	2.0	.1	1.4	.6	.6	1.5
Government consumption expenditures and gross investment	13.0	77.2	83.4	95.8	102.7	105.5	111.3	113.3	119.9	128.7	128.5	138.5	141.5	139.4
Federal	10.1	46.6	52.5	61.7	65.8	67.4	70.8	70.3	75.6	77.1	76.8	79.0	78.5	79.0
National defense	9.3	37.1	40.6	49.6	53.8	55.7	58.3	58.4	60.7	59.1	60.7	61.6	59.5	59.7
Nondefense .....	.7	9.6	11.9	12.1	12.0	11.8	12.4	11.9	15.0	17.9	16.0	17.4	19.0	19.3
State and local	3.0	30.5	30.9	34.1	36.8	38.0	40.6	43.0	44.3	51.7	51.8	59.5	63.1	60.4
GROSS DOMESTIC PRODUCT	13.0	92.5	109.5	125.2	142.0	153.6	152.4	149.2	187.9	197.7	191.9	224.2	206.9	193.0

Appendix B.—Revisions to Summary National Income and Product Accounts—Continued

[Billions of dollars]

	1959	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Account 2.—Personal Income and Outlay Account														
Personal tax and nontax payments	0	0	0.5	0.4	0.9	0.9	1.7	4.3	1.6	1.5	1.1	1.9	3.5	-10.7
Personal outlays	0	21.7	30.4	36.9	42.1	47.1	47.2	59.2	71.8	77.5	72.4	83.2	76.7	70.0
Personal consumption expenditures	0	17.6	25.9	32.0	37.4	42.1	42.3	53.6	71.7	78.1	72.7	82.9	75.9	70.3
Interest paid by persons	0	0	-2	-3	-4	-6	-8	-8	-6	-4	-3	.3	.7	-4
Personal transfer payments to the rest of the world (net)	0	4.1	4.7	5.1	5.1	5.6	5.7	6.4	.7	-2	0	.1	0	.1
Personal saving	2.3	6.0	-1.7	13.7	16.9	9.0	26.4	33.4	35.7	38.7	34.8	24.7	23.8	-10.7
PERSONAL TAXES, OUTLAYS, AND SAVING	2.3	27.8	29.2	50.9	59.8	57.1	75.3	96.9	109.0	117.8	108.2	109.9	104.1	48.5
Wage and salary disbursements	0	.6	.6	5.3	9.4	11.1	11.5	10.6	11.7	12.5	11.5	11.6	9.8	-37.9
Other labor income	0	0	2.6	4.2	11.3	15.3	25.0	21.2	21.2	26.3	23.7	22.6	25.6	21.2
Proprietors' income with inventory valuation and capital consumption adjustments	-1.2	-8	-5.0	1.9	-2.5	-15.9	-17.3	-1.4	-2.3	-2.3	-13.3	-9.2	-21.6	-22.8
Rental income of persons with capital consumption adjustment	3.5	25.7	25.1	27.7	30.4	33.6	42.3	51.4	65.9	75.6	78.9	86.1	78.4	88.9
Personal dividend income	0	-2	-4	.6	.4	.4	.7	1.5	4.4	-1.5	3.1	-1.6	5.5	5.3
Dividends	0	-2	-4	.5	.4	.4	.8	1.5	4.3	-1.6	3.1	-1.6	5.6	5.8
Less: Dividends received by government	0	0	0	0	0	0	0	0	0	0	0	0	.1	.5
Personal interest income	0	2.4	5.7	10.4	10.3	11.6	11.9	12.3	6.3	6.2	4.1	2.0	9.4	-2.4
Net interest	0	2.5	5.9	10.6	11.0	12.9	11.8	11.2	3.9	3.6	.6	-5.7	-1.4	-16.9
Net interest paid by government	0	0	0	0	-3	-8	.9	1.9	3.1	3.0	3.9	7.5	10.2	15.0
Interest paid by persons	0	0	-2	-3	-4	-6	-8	-8	-6	-4	-3	.3	.7	-4
Transfer payments to persons	0	0	.5	.7	.6	.8	1.1	.9	1.0	.2	-2	-2.0	-4.7	-7.1
From business	0	0	0	0	0	0	0	0	0	0	0	.2	-7	-9
From government	0	0	.5	.7	.6	.9	1.2	.9	1.1	.2	-1	-2.2	-4.0	-6.1
Less: Personal contributions for social insurance	0	0	0	-1	-1	0	.1	-3	-6	-1.0	-4	-3	-1.7	-3.3
PERSONAL INCOME	2.3	27.8	29.2	50.9	59.8	57.1	75.3	96.9	109.0	117.8	108.2	109.9	104.1	48.5
Account 3.—Government Receipts and Expenditures Account														
Consumption expenditures	-16.3	-29.7	-33.1	-35.9	-47.2	-58.0	-62.2	-59.6	-62.8	-70.7	-72.0	-70.6	-69.1	-73.0
Transfer payments	0	.6	1.0	1.0	1.4	1.5	1.9	2.1	1.2	.3	-3	-2.1	-2.9	-5.8
To persons	0	0	.5	.7	.6	.9	1.2	.9	1.1	.2	-1	-2.2	-4.0	-6.1
To the rest of the world (net)	0	.6	.5	.3	.8	.6	.8	1.0	.1	.1	-1	.1	1.2	.3
Net interest paid	0	0	0	0	-3	-8	.9	1.9	3.1	3.0	3.9	7.5	10.2	15.0
Less: Dividends received by government	0	0	0	0	0	0	0	0	0	0	0	0	.1	.5
Subsidies less current surplus of government enterprises	1.0	14.9	13.9	16.0	15.5	15.4	16.9	17.6	18.8	20.8	23.7	23.6	22.7	24.4
Less: Wage accruals less disbursements	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Current surplus or deficit (-), national income and product accounts	15.3	25.2	30.3	39.7	53.4	64.2	66.6	62.9	59.2	63.9	65.7	63.2	55.2	42.7
Federal	5.2	.8	5.7	10.9	18.5	23.5	22.9	15.3	8.9	8.8	6.9	1.8	-13.3	-30.8
State and local	10.1	24.4	24.6	28.8	34.9	40.6	43.7	47.5	50.3	55.0	58.8	61.5	68.6	73.5
GOVERNMENT CURRENT EXPENDITURES AND SURPLUS	0	11.0	12.2	20.9	22.7	22.3	24.2	24.9	19.5	17.3	20.8	21.5	16.0	2.9
Personal tax and nontax payments	0	0	.5	.4	.9	.9	1.7	4.3	1.6	1.5	1.1	1.9	3.5	-10.7
Corporate profits tax liability	0	0	0	0	0	0	0	0	0	1.8	2.3	3.3	-9.4	-7.2
Indirect business tax and nontax liability	0	0	0	0	-3	-8	-2	.2	0	-1.4	-2	1.2	14.7	18.5
Contributions for social insurance	0	11.0	11.7	20.5	22.1	22.2	22.6	20.5	18.0	15.4	17.6	15.0	7.3	2.3
Employer	0	11.0	11.7	20.6	22.2	22.2	22.6	20.8	18.5	16.3	17.9	15.3	9.0	5.6
Personal	0	0	0	-1	-1	0	.1	-3	-6	-1.0	-4	-3	-1.7	-3.3
GOVERNMENT RECEIPTS	0	11.0	12.2	20.9	22.7	22.3	24.2	24.9	19.5	17.3	20.8	21.5	16.0	2.9

Appendix B.—Revisions to Summary National Income and Product Accounts—Continued

[Billions of dollars]

	1959	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Account 4.—Foreign Transactions Account														
Exports of goods and services	0	0	0.3	0.7	0.9	1.5	1.7	3.0	1.3	0.2	0.7	1.3	0.9	3.3
Receipts of factor income	0	-4	1.8	10.6	10.8	10.5	10.9	16.0	11.5	8.9	.5	4.4	3.1	-7.9
Capital grants received by the United States (net)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECEIPTS FROM THE REST OF THE WORLD	0	-4	2.1	11.3	11.8	11.9	12.8	19.0	12.8	9.1	1.1	5.7	4.1	-4.7
Imports of goods and services	0	0	.5	0	-4	.5	.8	1.0	2.0	.1	1.4	.6	.6	1.5
Payments of factor income	0	-1.3	-9	3.8	5.3	6.7	6.6	10.9	13.3	9.5	.8	-1.1	-2.2	-10.5
Transfer payments to the rest of the world (net)	0	4.6	4.8	5.0	5.7	6.0	6.7	7.3	.5	-4	-1	.2	1.6	.7
From persons (net)	0	4.1	4.7	5.1	5.1	5.6	5.7	6.4	.7	-2	0	.1	0	.1
From government (net)	0	.6	.5	.3	.8	.6	.8	1.0	.1	.1	-1	.1	1.2	.3
From business	0	-2	-4	-4	-1	-2	.1	-2	-3	-3	0	0	.3	.1
Net foreign investment	0	-3.6	-2.3	2.5	1.2	-1.2	-1.3	-1	-3.1	-1	-8	6.1	4.1	3.6
PAYMENTS TO THE REST OF THE WORLD	0	-4	2.1	11.3	11.8	11.9	12.8	19.0	12.8	9.1	1.1	5.7	4.1	-4.7
Account 5.—Gross Saving and Investment Account														
Gross private domestic investment	0	-2.3	0.4	-3.3	0.6	4.9	-2.1	-19.7	-3.1	-9.2	-8.6	2.1	-10.9	-18.5
Gross government investment	29.3	106.9	116.5	131.7	149.9	163.5	173.5	172.9	182.7	199.4	200.5	209.1	210.6	212.3
Net foreign investment	0	-3.6	-2.3	2.5	1.2	-1.2	-1.3	-1	-3.1	-1	-8	6.1	4.1	3.6
GROSS INVESTMENT	29.3	101.0	114.6	130.9	151.7	167.2	170.1	153.1	176.5	190.1	191.1	217.3	203.8	197.4
Personal saving	2.3	6.0	-1.7	13.7	16.9	9.0	26.4	33.4	35.7	38.7	34.8	24.7	23.8	-10.7
Wage accruals less disbursements (private)	0	0	0	0	0	0	0	0	0	0	0	4.2	-15.4	14.8
Undistributed corporate profits with inventory valuation and capital consumption adjustments	-2.0	7.9	.1	3.5	1.0	-1.2	-10.8	-9.3	-10.7	-11.3	-13.2	-5.4	-17.5	-14.9
Consumption of fixed capital	14.0	57.2	59.5	60.8	65.0	74.3	79.7	86.2	81.8	90.4	96.6	95.7	104.7	103.5
Private	-1	-20.8	-20.6	-22.3	-22.1	-19.2	-19.0	-18.0	-28.5	-26.9	-26.9	-32.4	-29.1	-36.6
Government	14.1	78.1	80.1	83.1	87.1	93.5	98.7	104.2	110.3	117.3	123.5	128.2	133.8	140.1
General government	13.1	66.1	69.5	70.6	75.3	80.8	85.3	89.8	94.8	100.9	106.4	110.2	114.7	119.4
Government enterprises	1.0	12.0	10.6	12.5	11.9	12.6	13.4	14.4	15.6	16.3	17.1	18.0	19.1	20.7
Government current surplus or deficit (-), national income and product accounts	15.3	25.2	30.3	39.7	53.4	64.2	66.6	62.9	59.2	63.9	65.7	63.2	55.2	42.7
Capital grants received by the United States (net)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Statistical discrepancy	-3	4.5	26.3	13.2	15.2	20.9	8.2	-20.2	10.5	8.3	7.3	34.9	52.8	62.2
GROSS SAVING AND STATISTICAL DISCREPANCY	29.3	100.9	114.5	130.8	151.5	167.2	170.0	153.1	176.6	190.1	191.1	217.4	203.7	197.5