

Improved Estimates of the National Income and Product Accounts for 1959–98

Results of the Comprehensive Revision

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ON OCTOBER 28, 1999, the Bureau of Economic Analysis (BEA) released national income and product accounts (NIPA's) estimates beginning with 1959 that reflected the 11th comprehensive revision of the accounts. These estimates incorporate a number of major definitional and statistical improvements that are designed to better measure the evolving U.S. economy.

The major improvements that were introduced in this comprehensive revision were described in previous articles in the *SURVEY OF CURRENT BUSINESS*. The definitional and classificational changes, which were described in an article in the August issue, included the following: Recognition of business and government expenditures for software, including own-account production of software, as investment; reclassification of government employee retirement plans; modified treatment of private noninsured pension plans; reclassification of certain transactions as capital transfers; and redefinition of the value of imputed services of regulated investment companies.¹

The statistical changes, which were described in an article in the October issue, included the following: Incorporation of the 1992 benchmark input-output accounts and the preliminary results of the 1996 annual update of those accounts; improved estimates of the real value of unpriced banking services; and incorporation of geometric-mean-type consumer price indexes.²

In addition, the presentational changes that were made to the NIPA tables to reflect the definitional, classificational, and statistical changes were described in an article in the September issue.³ The November issue included a slightly

1. Brent R. Moulton, Robert P. Parker, and Eugene P. Seskin, "A Preview of the 1999 Comprehensive Revision of the National Income and Product Accounts: Definitional and Classificational Changes," *SURVEY OF CURRENT BUSINESS* 79 (August 1999): 7–20.

2. Brent R. Moulton and Eugene P. Seskin, "A Preview of the 1999 Comprehensive Revision of the National Income and Product Accounts: Statistical Changes," *SURVEY* 79 (October 1999): 6–17.

3. Brent R. Moulton and David F. Sullivan, "A Preview of the 1999 Comprehensive Revision of the National Income and Product Accounts: New and Redesign Tables," *SURVEY* 79 (September 1999): 15–28.

expanded version of the October 28, 1999, news release that presented the revised estimates for the first time.

This article builds on the previous ones and presents a discussion of the major sources of the revisions—that is, the extent to which they are attributable to the various definitional and statistical changes—for each of the major NIPA aggregates and components beginning with 1959.

The most important differences between the revised and the previously published estimates for 1959–98 are the following:

- Current-dollar gross domestic product (GDP) was revised up for all years; for 1998, GDP is revised up \$248.9 billion to \$8,759.9 billion. The upward revisions were primarily accounted for by the definitional change that recognized software as investment.
- The revised estimates of real GDP show an average annual growth rate of 3.4 percent,

0.2 percentage point higher than that shown in the previously published estimates. The upward revision to real GDP growth was primarily attributable to statistical changes to prices and to the recognition of software as investment.

- The upward revisions to the growth of real GDP were concentrated in the period since 1977. For 1959–77, the average annual growth rate was 3.7 percent, the same as in the previously published estimates. For 1977–92, the growth rate of real GDP was revised up 0.3 percentage point to 2.9 percent, and for 1992–98, it was revised up 0.4 percentage point to 3.6 percent (table 1).
- For business cycles as measured by turning points in quarterly real GDP, there were no changes in the timing of cyclical peaks and troughs, but there were revisions to the pace of contractions and expansions. For contrac-

Acknowledgments

Brent R. Moulton, Associate Director for National Income, Expenditures, and Wealth Accounts, supervised the preparation of this comprehensive revision of the national income and product accounts. Karl D. Galbraith, Chief of the Government Division, and Ralph H. Kozlow, Chief of the National Income and Wealth Division, directed major parts of the revision. Robert P. Parker, Chief Statistician, provided technical guidance. Shelby W. Herman and Kali K. Kong—together with Willie J. Abney, Jennifer A. Bennett, Arnold J. Katz, Kurt Kunze, Leonard J. Loebach, Karin E. Moses, Thae S. Park, Claire G. Pitzer, and David F. Sullivan—coordinated and conducted the estimate review process.

Eugene P. Seskin wrote the article describing the revision. Kali K. Kong and Karin E. Moses prepared the tables for the article. Duane G. Hackmann, Sherman J. Hammack, Karl V. Rohrer and Teresa L. Weadock prepared analyses and other review materials for both the article and the news release. Mary Carol Barron, Michael J. Boehm, Sherman J. Hammack, John Sporing, Jr., and Mary D. Young were responsible for developing and operating the computer systems used to compile, check, analyze, and report the final estimates. David F. Sullivan coordinated the presentational improvements and table changes.

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tions, the largest revision was for the most recent one, which began in the second quarter of 1990 and ended in the first quarter of 1991; the average quarterly percent change (at annual rates) is now -1.8 percent, compared with -2.7 percent in the previously published estimates.

- For the current expansion, which began in the first quarter of 1991, the average quarterly percent change through the second quarter of 1999 is now 3.5 percent, compared with 3.1 percent in the previously published estimates.
- For gross domestic purchases prices, the revised estimates show an average annual growth rate of 4.1 percent, 0.1 percentage point lower than the previously published estimates. The revisions to prices primarily reflected statistical changes, including the incorporation of newly available geometric-mean-type consumer price indexes back to 1978, a new implicit price for unpaid banking services, and the calculation of prices for national defense consumption and investment at a more detailed level than in the previously published estimates.

- The revised estimates of real disposable personal income (DPI) show an average annual growth rate of 3.5 percent, 0.2 percentage point higher than in the previously published estimates. The upward revision was largely accounted for by the definitional changes to government employee retirement plans and to capital transfers and by statistical changes to the prices for personal consumption expenditures.
- For the personal saving rate, the revised estimates are substantially higher than the previously published estimates; however, the rate continues to show a two-decade downturn. For 1982-98, the personal saving rate now declines from 10.9 percent to 3.7 percent, compared with the previous decline from 9.0 percent to 0.5 percent (table 2). The higher rate is primarily attributable to definitional changes, particularly the reclassification of government employee retirement plans.
- For the national saving rate, the revised estimates for 1988-98 are considerably higher than the previously published estimates. During this period, the upward revisions

Table 1.—Real Gross Domestic Product

[Percent change from preceding period]

Year	Previously published	Revised	Revision
1960	2.4	2.5	0.1
1961	2.3	2.3	0
1962	6.1	6.0	-1
1963	4.3	4.3	0
1964	5.8	5.8	0
1965	6.4	6.4	0
1966	6.5	6.6	.1
1967	2.5	2.5	0
1968	4.7	4.8	.1
1969	3.0	3.1	.1
1970	.1	.2	.1
1971	3.3	3.1	-.2
1972	5.5	5.3	-.2
1973	5.8	5.7	-.1
1974	-.6	-.3	.3
1975	-.4	-.3	.1
1976	5.4	5.2	-.2
1977	4.7	4.5	-.2
1978	5.4	5.7	.3
1979	2.8	3.4	.6
1980	-.3	0	.3
1981	2.3	2.5	.2
1982	-2.1	-1.9	.2
1983	4.0	4.2	.2
1984	7.0	7.3	.3
1985	3.6	3.9	.3
1986	3.1	3.4	.3
1987	2.9	3.5	.6
1988	3.8	4.2	.4
1989	3.4	3.5	.1
1990	1.2	1.7	.5
1991	-.9	-.2	.7
1992	2.7	3.3	.6
1993	2.3	2.4	.1
1994	3.5	4.0	.5
1995	2.3	2.7	.4
1996	3.4	3.7	.3
1997	3.9	4.5	.6
1998	3.9	4.3	.4

Table 2.—Personal and National Saving Rates

[Percent]

Year	Personal saving rate			National saving rate		
	Pre-viously published	Revised	Revision	Pre-viously published	Revised	Revision
1959	7.2	7.6	0.4	21.3	20.7	-0.6
1960	6.6	7.2	.6	21.4	20.9	-.5
1961	7.7	8.3	.6	21.2	20.7	-.5
1962	7.6	8.3	.7	21.5	21.1	-.4
1963	7.0	7.8	.8	21.7	21.3	-.4
1964	7.9	8.8	.9	21.7	21.4	-.3
1965	7.8	8.6	.8	22.1	21.8	-.3
1966	7.5	8.3	.8	21.6	21.3	-.3
1967	8.7	9.4	.7	20.7	20.4	-.3
1968	7.7	8.4	.7	20.2	20.0	-.2
1969	7.2	7.8	.6	20.5	20.1	-.4
1970	8.5	9.4	.9	18.9	18.6	-.3
1971	8.8	10.0	1.2	18.9	18.6	-.3
1972	7.6	8.9	1.3	19.6	19.3	-.3
1973	9.5	10.5	1.0	21.2	21.1	-.1
1974	9.5	10.7	1.2	19.9	20.0	.1
1975	9.3	10.6	1.3	18.1	18.1	0
1976	7.9	9.4	1.5	18.5	18.6	.1
1977	6.9	8.7	1.8	19.3	19.4	.1
1978	7.5	9.0	1.5	20.6	20.8	.2
1979	7.7	9.2	1.5	20.9	21.0	.1
1980	8.5	10.2	1.7	19.4	19.6	.2
1981	9.4	10.8	1.4	20.7	20.7	0
1982	9.0	10.9	1.9	18.5	19.0	.5
1983	6.7	8.8	2.1	16.6	17.0	.4
1984	8.6	10.6	2.0	19.1	19.4	.3
1985	6.9	9.2	2.3	17.7	18.2	.5
1986	5.9	8.2	2.3	16.2	16.5	.3
1987	5.0	7.3	2.3	16.6	17.0	.4
1988	5.4	7.8	2.4	17.3	18.3	1.0
1989	5.0	7.5	2.5	16.6	17.6	1.0
1990	5.1	7.8	2.7	15.7	16.8	1.1
1991	5.6	8.3	2.7	15.7	16.9	1.2
1992	5.7	8.7	3.0	14.5	15.9	1.4
1993	4.4	7.1	2.7	14.4	15.6	1.2
1994	3.5	6.1	2.6	15.5	16.3	.8
1995	3.4	5.6	2.2	16.3	16.9	.6
1996	2.9	4.8	1.9	16.6	17.2	.6
1997	2.1	4.5	2.4	17.4	18.3	.9
1998	.5	3.7	3.2	17.3	18.8	1.5

averaged 1.0 percentage point. The higher rate is primarily attributable to definitional changes, particularly the recognition of software as investment.

Early next year, BEA will release revised NIPA estimates for 1929–58 that reflect this comprehensive revision. (For information on the availability of the revised estimates, see the box below.)

The first section of this article discusses the annual current-dollar estimates, and the second section discusses the annual estimates of real GDP. The third section discusses the annual price estimates, and the fourth discusses the quarterly estimates of real GDP. The fifth section discusses changes in methodology.

Annual Current-Dollar Estimates

For 1959–98, GDP was revised up for all years, national income was revised down for most years, and personal income was revised up for most years (table 3 and appendix A). Prior to 1995, the revisions to GDP were largely accounted for by the definitional change that recognized software as investment; excluding the definitional and classificational changes, the revisions to GDP were small. Beginning with 1995, the revisions grew as a result of statistical changes that affected personal consumption expenditures (PCE), nonresidential structures, and State and local government consumption expenditures and gross investment.

For national income, the revisions largely resulted from downward revisions to rental income of persons that reflected an improved methodology for estimating the income of persons from the rental of nonfarm nonresidential properties. Downward revisions to net interest were offset in most years by upward revisions to corporate

profits, reflecting the modified treatment of non-insured pension plans. Other sizable revisions within national income included upward revisions to nonfarm proprietors' income, beginning with 1988, and downward revisions to wage and salary accruals for 1996 and 1997 and a large upward revision for 1998. (For further details on these revisions, see the corresponding sections below.)

For personal income, the upward revisions primarily reflected the reclassification of government employee retirement plans (see the section "Personal income and its disposition"). This reclassification raised personal income, but it had no effect on national income, because employer contributions were added to other labor income (a component of both national income

Table 3.—Revisions to Gross Domestic Product, National Income, and Personal Income

	1959	1982	1987	1992	1996	1997	1998
Billions of dollars							
Gross domestic product	0.2	17.1	50.2	74.5	151.6	189.9	248.9
Definitional	–1	19.9	44.1	78.3	123.7	140.9	169.0
Statistical	.3	–2.8	6.0	–3.8	27.9	49.0	80.0
National income	–2.4	1.1	–11.0	3.3	–45.8	–11.6	41.7
Definitional	–2	.4	4.9	8.3	20.3	26.0	39.3
Statistical	–2.2	.7	–15.9	–5.0	–66.1	–37.6	2.4
Personal income	–4	44.3	84.7	134.7	122.2	167.1	232.8
Definitional	2.4	49.7	92.2	97.1	114.2	117.5	123.4
Statistical	–2.8	–5.4	–7.5	37.6	8.0	49.6	109.4
Revision as a percentage of previously published							
Gross domestic product	0	0.5	1.1	1.2	2.0	2.3	2.9
Definitional	0	.6	1.0	1.3	1.6	1.7	2.0
Statistical	0	–1	.1	–1	.4	.6	.9
National income	–6	0	–3	.1	–7	–2	.6
Definitional	–1	0	.1	.3	.3	.4	.6
Statistical	–6	0	–4	–2	–1.0	–6	0
Personal income	–1	1.6	2.2	2.6	1.9	2.5	3.3
Definitional	.6	1.8	2.4	1.9	1.8	1.8	1.7
Statistical	–7	–2	–2	.7	.1	.7	1.6

Availability of Revised Estimates and Related Information

The estimates shown in the NIPA tables beginning on page 44, along with estimates for earlier periods (for most tables, back to 1959), are available on the BEA Web site at <www.bea.doc.gov> and on the STAT-USA Web site at <www.stat-usa.gov>.

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

- August 1999: Definitional and classificational changes
- September 1999: New and redesigned tables
- October 1999: Statistical changes

- November 1999: Reprint of the October 28, 1999, GDP news release

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.

January 2000: Real inventories, sales, and inventory-sales ratios for manufacturing and trade, 1977–98

March 2000: Fixed assets and consumer durable goods (fixed reproducible tangible wealth), 1925–98

March 2000: Revised NIPA estimates, 1929–58

May 2000: Gross product by industry, 1947–98

and personal income) and were subtracted from employer contributions for social insurance (only a component of national income).

The remainder of this section provides additional detail on GDP, national income, other NIPA aggregates, and their major components. Appendix B shows the revisions to the components of the five summary accounts of the NIPA's for 1959 and for 1987–98.

National income and product

GDP.—GDP in current dollars was revised up for all years; the average annual growth rate for 1959–98, at 7.6 percent, was revised up 0.1 percentage point from the previously published estimate. Expressed as a percentage of the level of GDP, the revisions generally increased over time: The revision was less than 0.1 percent of GDP for 1959, but it was 1.2 percent for 1992 and 2.9 percent for 1998. The revisions due to the definitional changes ranged from zero for 1959 to 2.0 percent for 1998. The revisions due to the statistical changes ranged from –0.1 percent for both 1982 and 1992 to 0.9 percent for 1998.

Gross domestic income (GDI) and the statistical discrepancy.—GDI was revised up for all years beginning with 1976. The revisions as a percentage of the level of GDI generally increased over time, peaking at 2.6 percent for 1998. Prior to 1994, the revisions to GDI for most years were similar to those for GDP; the revisions to both mainly reflected the definitional change that recognized software as investment. Within GDI, these revisions primarily affected the consumption of fixed capital. Beginning with 1994, the upward revisions to both GDP and GDI continued to be accounted for mainly by the definitional change for software, but because of statistical changes, the size of the revisions to GDP differed from that to GDI.

The differences between the revisions to GDP and those to GDI are shown as revisions to the statistical discrepancy.⁴ These revisions result almost entirely from statistical changes, because definitional and classificational changes generally result in identical revisions to, or offsetting revisions within, GDP and GDI.

For 1959–98, the revised estimates of the statistical discrepancy averaged (without regard to

sign) 0.6 percent of GDP, 0.1 percentage point larger than in the previously published estimates.

For 1992–98, in the revised estimates, current-dollar GDP increases at an average annual rate of 5.6 percent, 0.2 percentage point less than the increase in GDI. In the previously published estimates, this difference was 0.3 percentage point.

Product-side components

PCE for goods.—PCE for goods was revised up for 1975–88, down for 1989–94, and up for 1995–98 (table 4). For 1988–92, the revisions reflected the incorporation of the results of the 1992 input-output (i-o) accounts.⁵ Beginning with 1993, the revisions reflected the extrapolation of the 1992 i-o account estimates, using revised retail sales data benchmarked to preliminary estimates from the 1997 Census of Retail Trade.⁶ In addition, beginning with 1993, the commodity distribution for most goods was affected by incorporating the results of the 1996 annual update of the i-o accounts.⁷

PCE for durable goods was revised up for 1977–87 and down for 1988–98. For 1977–87, the revisions were to furniture and household

5. The 1992 i-o estimates were used for the benchmarking of PCE, except for the definitional and statistical changes developed after completion of the i-o accounts. See Ann M. Lawson, "Benchmark Input-Output Accounts for the U.S. Economy, 1992," SURVEY 77 (November 1997): 36–82.

6. The extrapolation used the retail-control method; see "Updated Summary NIPA Methodologies," SURVEY 78 (September 1998): 15.

7. See Moulton and Seskin, "Statistical Changes," 9.

Table 4.—Revisions to Personal Consumption Expenditures
[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	0	2.5	10.8	-10.1	21.8	30.7	40.7
Definitional	0	2.4	7.9	7.5	14.8	19.5	29.1
Government employee retirement plans	.1	1.4	2.4	3.6	6.4	7.5	8.6
Imputed services of regulated investment companies	–1	.2	4.1	1.7	5.4	8.8	17.1
Other	0	.8	1.4	2.2	3.0	3.2	3.4
Statistical	0	.1	2.9	-17.6	7.0	11.2	11.6
Source of revision by component							
Durable goods	0	.9	3.0	-17.7	-26.8	-30.1	-26.5
Definitional	0	0	0	0	0	0	0
Statistical	0	.9	3.0	-17.7	-26.8	-30.1	-26.5
Nondurable goods	0	.8	1.3	1.1	34.9	41.1	46.5
Definitional	0	.8	1.3	2.0	2.6	2.7	2.8
Statistical	0	0	0	–9	32.3	38.4	43.7
Services	0	.8	6.5	6.5	13.8	19.7	20.7
Definitional	–1	1.6	6.6	5.5	12.2	16.8	26.3
Government employee retirement plans	0	1.4	2.4	3.6	6.4	7.5	8.6
Imputed services of regulated investment companies	–1	.2	4.1	1.7	5.4	8.8	17.1
Other	0	0	.1	.2	.4	.5	.6
Statistical	.1	–8	–1	1.0	1.6	2.9	–5.6

4. The statistical discrepancy, which measures the difference between GDP and GDI, arises because GDP and GDI are estimated using largely independent source data. See the box "The Statistical Discrepancy" in Robert P. Parker and Eugene P. Seskin, "Annual Revision of the National Income and Product Accounts," SURVEY 77 (August 1997): 19.

equipment and reflected the addition of royalty payments to the estimates of expenditures for records, tapes, and disks.⁸ The downward revisions beginning with 1988 primarily reflected downward revisions to expenditures for furniture and household equipment and for motor vehicles and parts. The revisions to furniture and household equipment were mostly to video and audio equipment and to “other” durable house furnishings. The revisions to motor vehicles and parts were mostly to new autos and reflected an improved methodology for estimating expenditures for new autos that had been introduced in the 1992 I-O estimates. Beginning with 1993, the revised estimates for motor vehicles and parts also reflected a new method for calculating net transactions of used vehicles that incorporated modified retention periods and rates for business-owned vehicles that depended on whether the vehicles were owned, rented, or leased.⁹

PCE for nondurable goods was revised up for all years beginning with 1975. Prior to 1993, the revisions were small, but there were sizable offsetting revisions to some of the subcategories. Revisions through 1987 reflected the reclassification of the food-cost portion of the Special Supplemental Nutrition Program for Women, Infants, and Children (see also the section “**Government consumption expenditures and gross investment**”); this reclassification also affected subsequent years. For 1988–92, the revisions to PCE for nondurable goods were small and primarily reflected benchmarking to the 1992 I-O estimates; there were some sizable offsetting revisions to subcategories. In particular, food expenditures were revised up. Within food, increasingly large upward revisions to “purchased meals and beverages” reflected an improved allocation of receipts for this category between purchases by persons and purchases by business and by government and also reflected improved estimates of the misreporting adjustments for these receipts. Beginning with 1993, nondurable goods was revised up by increasingly large amounts that reached \$46.5 billion for 1998. The revisions were primarily accounted for by food; increasingly large upward revisions to purchased meals and beverages were partly offset

by downward revisions to food purchased for off-premise consumption.

Beginning with 1988, clothing and shoes expenditures were revised down; the revisions were primarily to women’s and children’s clothing and accessories. “Other” nondurable goods was revised down for 1988–93 and up for 1994–98. This pattern reflected the relative magnitudes of offsetting revisions to subcategories: Downward revisions to expenditures for tobacco products, for toilet articles and preparations, and for “cleaning and polishing preparations, and miscellaneous household supplies and paper products” and upward revisions to expenditures for drug preparations and sundries.

PCE for services.—Beginning with 1973, PCE for services was revised up for all years except for 1986. For most years, the revisions largely reflected definitional changes that affected personal business services. In addition, there were a number of sizable offsetting revisions, reflecting benchmarking to the 1992 I-O estimates and the incorporation of newly available and revised source data.

Beginning with 1992, there were sizable downward revisions to housing services, particularly to the imputed space rent for owner-occupied nonfarm dwellings and to rental payments for tenant-occupied dwellings. For owner-occupied nonfarm dwellings, the revisions reflected revised estimates of the effect on space rent per unit of revised estimates of changes in the quality of the owner-occupied housing stock.¹⁰ For tenant-occupied nonfarm, permanent-site housing, the revisions reflected revised expenditures for household utilities; this item is used to remove utility charges, which are recorded separately in household operation services, from estimates of mean gross rent based on the Census Bureau’s American Housing Survey (AHS). For 1996–98, revisions to both owner- and tenant-occupied nonfarm space rent also reflected newly available 1997 AHS data on mean gross rent and the number of tenant-occupied units.

For all years, especially for 1996–98, the upward revisions to household operation services, particularly to electricity services, reflected the addition of commodity taxes to the reported source data.¹¹

8. PCE estimates for this category are benchmarked to I-O values, which are prepared using the commodity-flow method in which these estimates are calculated by adjusting the value of manufacturers’ shipments of records, tapes, and disks for exports and imports, trade and transportation margins, and taxes. Because royalty payments are not directly reported in the source data used for these series, previous I-O estimates did not reflect the full market value of these expenditures.

9. See Moulton and Seskin, “Statistical Changes,” 10–11.

10. Imputed space rent for owner-occupied nonfarm dwellings is space rent per unit times the number of units. Space rent per unit equals net contract rent less consumption of fixed capital on major appliances and furnishings. Net contract rent per unit is interpolated between, and extrapolated from, benchmark values, using the change in the consumer price index for owners’ equivalent rent of primary residence with a judgmental adjustment for changes in the quality of housing.

11. For additional details, see Moulton and Seskin, “Statistical Changes,” 10.

For 1998, the revision to electricity services also reflected the incorporation of data from the Energy Information Administration on residential electricity sales revenue.

Beginning with 1988, transportation services—particularly motor vehicle “repair, greasing, washing, parking, storage, rental, and leasing” services—were revised down; these revisions reflected the incorporation of the 1992 I-O accounts, of newly available data on motor vehicle rental and leasing from the Bureau of Labor Statistics (BLS) Consumer Expenditure Surveys for 1996 and 1997, of revised Census Bureau Service Annual Survey (SAS) data for 1993–97, and of preliminary SAS data for 1998. Airline services were also revised down beginning with 1988, reflecting the incorporation of the 1992 I-O estimates.

Beginning with 1989, there were sizable upward revisions to medical care services, particularly to other professional medical services, reflecting the incorporation of the 1992 I-O accounts, revised SAS data for 1993–97, and preliminary SAS data for 1998.¹² In addition, there were sizable upward revisions to hospitals for 1996–98, particularly to government hospitals; the revisions were based on final fiscal year 1997 and preliminary 1998 Census Bureau data on State and local governments receipts and expenditures. Beginning with 1993, these upward revisions were partly offset by downward revisions to nursing homes, reflecting the incorporation of revised SAS data for 1993–97 and preliminary SAS data for 1998.

Beginning with 1988, recreational services, particularly “commercial participant amusements,” were revised up, reflecting the incorporation of the 1992 I-O accounts, revised SAS data for 1993–97, and preliminary SAS data for 1998.

Beginning with 1991, there were upward revisions to “other services”; prior to 1991, the revisions tended to be smaller and occasionally downward. The revisions primarily reflected revisions to personal business services—mainly to “services furnished without payment by financial intermediaries except life insurance carriers”—as a result of the redefinition of the value of imputed services of regulated investment companies and revisions to “expense for handling life insurance” as a result of the reclassification of government employee retirement plans. In addition, for most years, there were relatively small upward revisions to education and research, reflecting the incorporation of estimates of the expenses of private elementary and secondary schools from the Na-

tional Center for Education Statistics. Beginning with 1978, there were downward revisions to religious and welfare activities that tended to become larger over time, reflecting the removal of program service grants, specific assistance to (or for) members, and benefits paid to individuals from the operating expenses of social welfare organizations and of museums and libraries in the 1982, 1987, and 1992 Censuses of Services Industries.¹³ Beginning with 1988, there were upward revisions to net foreign travel that tended to become larger over time, reflecting the incorporation of the 1992 I-O estimates of ocean passenger fares that were based on data from the 1992 Census of Transportation, Communications, and Utilities.

Nonresidential structures.—In private fixed investment, nonresidential structures was revised up beginning with 1988 (table 5). The largest revisions were to utilities, to mining exploration, shafts, and wells and for 1997 and 1998, to nonresidential buildings. The revisions to utilities reflected the incorporation of 1992 I-O estimates and revised Census Bureau data on the value of construction put in place for electric light and power and for gas structures. The revisions to “mining” reflected the incorporation of 1992 I-O estimates, data from the joint association survey on drilling costs for 1997, and data from the American Petroleum Institute on petroleum drilling beginning with 1996. The revisions to nonresidential buildings reflected the incorporation of revised Census Bureau data on the value of construction put in place.

13. An analysis of reporting instructions for tax-exempt organizations revealed that amounts of gifts and grants were reported as expenses; subsequently, these amounts were removed in the 1992 I-O estimates because these payments are not classified as expenses of nonprofit organizations in the NIPA's.

Table 5.—Revisions to Gross Private Domestic Investment

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	-0.3	15.0	34.3	76.2	110.8	127.7	164.1
Definitional	0	15.4	31.4	60.8	95.1	106.6	123.4
Software	0	15.4	31.4	60.8	95.1	106.6	123.4
Statistical	-3	-4	2.9	15.4	15.7	21.1	40.7
Source of revision by component							
Private fixed investment	0	15.4	31.4	68.2	112.9	126.8	152.2
Nonresidential	0	15.4	31.3	68.2	111.5	125.4	153.1
Structures	0	0	0	3.0	8.1	13.9	25.9
Equipment and software	.1	15.4	31.4	65.2	103.4	111.6	127.2
Residential	0	0	0	-1	1.5	1.3	-9
Change in private inventories	-3	-4	2.9	8.0	-2.1	.9	11.9
Farm	0	0	0	0	.3	-1.5	-6.4
Nonfarm	-2	-5	2.9	8.1	-2.4	2.5	18.2

12. SAS data, unlike retail sales data, have not been benchmarked to the 1997 economic censuses data.

Equipment and software.—In private fixed investment, equipment and software (formerly producers' durable equipment) was revised up for all years. The revisions primarily reflected the recognition of business expenditures for software as investment. In addition, beginning with 1977, certain equipment was reclassified from one product type to another in order to reflect improvements made in classification during the preparation of the 1992 I-O accounts. This reclassification affected the following categories: Instruments; photocopy and related equipment; electrical equipment, not elsewhere classified (n.e.c.); metalworking machinery; special industry equipment, n.e.c.; and agricultural machinery, except tractors. The incorporation of the results of the 1992 I-O accounts also contributed to small upward revisions to equipment, beginning with 1988. Downward revisions to computers and peripheral equipment for 1996–98 primarily reflected an improved allocation of detailed imports and exports on the basis of data from the 1992 I-O accounts and revised estimates for shipments of computers based on preliminary data from the 1997 Census of Manufactures.

Residential fixed investment.—In private fixed investment, revisions to residential structures, beginning with 1988, were very small and mostly upward. For 1998, a sizable downward revision to the subcategory "residential improvements," which reflected the incorporation of newly available Census Bureau data on the value of construction put in place, was partly offset by upward revisions to single-family structures and to brokers' commissions.

Change in private inventories.—Change in private inventories (formerly change in business inventories) is calculated by adjusting inventories reported by businesses on a book-value basis to a current-period replacement-cost basis by removing inventory profits and losses. The inventory valuation adjustment (IVA), which is calculated as the change in private inventories less the change in book values, reflects inventory price changes for firms that value inventory withdrawals at acquisition (historical) cost. Except for 1997 and 1998, revisions to farm inventories were negligible; the downward revisions for those years largely reflected more complete U.S. Department of Agriculture (USDA) data on crop harvests and crop sales.¹⁴

14. The IVA is not needed for farm inventories, because they are measured on a current-market-price basis.

There were both upward and downward revisions to private nonfarm inventories. Prior to 1984, the revisions, which did not exceed \$2.0 billion, primarily reflected the use of economic census data on inventories for construction industries (beginning with 1959) and for mineral industries (beginning with 1977) in place of data on inventories from tabulations of tax returns by the Internal Revenue Service (IRS).¹⁵ Beginning with 1984, the revisions were generally larger and also reflected price revisions as a result of the incorporation of BEA's semiconductor price index, an improved price index for computer parts, and revised commodity weights from the 1992 I-O accounts. Beginning with 1993, preliminary information from the 1997 censuses of wholesale trade and retail trade also contributed to the revisions. Finally, a large upward revision for 1998 primarily reflected new source data for the motor vehicle and the mineral industries.

Net exports of goods and services.—Revisions to net exports of goods and services begin with 1986 and were relatively small (table 6). The revisions were primarily to exports and imports of services and reflected revised estimates from BEA's international transactions accounts (ITA's) that were not previously incorporated into the NIPA's.¹⁶

Government consumption expenditures and gross investment.—Government consumption expenditures and gross investment (hereafter referred to as government consumption and investment) was revised up for all years except for 1974–82 (table 7). This pattern of revisions generally follows that for Federal Government consumption and investment, which was revised up for all years except for 1973–83. The revisions to State and

15. See Moulton and Seskin, "Statistical Changes," 10.

16. The annual revisions of the ITA's are usually published in the July issue of the SURVEY, mostly recently in Christopher L. Bach, "U.S. International Transactions, Revised Estimates for 1982–98," SURVEY 79 (July 1999): 60–74.

Table 6.—Revisions to Net Exports of Goods and Services

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	0	0	-0.2	1.6	2.2	5.1	1.6
Definitional	0	0	0	0	0	0	0
Statistical	0	0	-2	1.6	2.2	5.1	1.6
Source of revision by component							
Exports of goods and services	0	0	-1	-2.6	.4	2.6	7.3
Goods	0	0	0	0	.1	.7	.5
Services	0	0	-1	-2.6	.3	1.9	6.9
Imports of goods and services	0	0	0	-4.4	-1.9	-2.5	5.7
Goods	0	0	0	0	-7	-3.2	-2.0
Services	0	0	0	-4.3	-1.2	.8	7.7

local government consumption and investment were very small prior to 1991; thereafter, there were several large upward revisions, most notably for 1998.

For Federal Government consumption and investment, both national defense and nondefense were revised up; the revisions primarily reflected the recognition of software as investment, which added the general government consumption of fixed capital (CFC) for software to government consumption and added government enterprise expenditures for software to investment.¹⁷ The downward revisions for 1973–83 primarily reflected revised BEA prices that were used to calculate CFC for military aircraft.

17. In addition, general government expenditures for software (both purchased software and own-account production of software) were reclassified from government consumption expenditures to gross government investment.

Table 7.—Revisions to Government Consumption Expenditures and Gross Investment

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	0.5	-0.4	5.1	6.7	16.7	26.4	42.6
Definitional	0	2.1	4.9	10.1	13.9	15.0	16.7
Software	0	4.3	8.7	15.8	23.1	25.5	28.5
Government employee retirement plans	0	-1.4	-2.4	-3.6	-6.4	-7.5	-8.6
Other	0	-8	-1.4	-2.1	-2.8	-3.0	-3.2
Statistical	.5	-2.5	.2	-3.4	2.8	11.4	25.9
Source of revision by component							
Federal	.2	-.4	4.7	6.5	13.2	17.6	18.1
National defense	.3	-2.6	.8	2.7	6.0	6.5	8.2
Consumption expenditures	.2	-4.0	-2.8	-2.8	-1.7	-1.8	-1.6
Definitional	0	-3	-9	-8	-1.5	-1.4	-1.6
Software	0	-3	-9	-8	-1.5	-1.4	-1.6
Statistical	.2	-3.7	-1.9	-2.0	-2	-4	0
Investment	0	1.4	3.6	5.5	7.7	8.3	9.8
Definitional	0	1.4	3.6	5.6	8.1	8.6	9.4
Software	0	1.4	3.6	5.6	8.1	8.6	9.4
Statistical	0	0	0	-1	-4	-3	.4
Nondefense	-.1	2.2	4.0	3.8	7.2	11.0	9.9
Consumption expenditures	-.1	-6	-8	-2.6	-3.9	-1.7	-6.0
Definitional	0	-5	-8	-5	-1.8	-2.4	-3.6
Software	0	-5	-8	-4	-1.7	-2.3	-3.5
Government employee retirement plans	0	0	0	-1	-1	-1	-1
Statistical	-.1	-.1	0	-2.1	-2.1	.7	-2.4
Investment	0	2.8	4.8	6.4	11.1	12.7	15.8
Definitional	0	2.8	4.8	6.7	10.5	12.2	15.1
Software	0	2.8	4.8	6.7	10.5	12.2	15.1
Statistical	0	0	0	-3	.6	.5	.7
State and local	.3	0	.3	.2	3.6	8.8	24.5
Consumption expenditures	.2	-1.1	-2.1	-2.0	1.8	7.1	18.4
Definitional	0	-2.5	-4.2	-7.0	-10.7	-11.9	-13.5
Software	0	-3	-4	-1.4	-1.6	-1.5	-1.8
Government employee retirement plans	0	-1.4	-2.4	-3.5	-6.3	-7.4	-8.5
Other	0	-8	-1.4	-2.1	-2.8	-3.0	-3.2
Statistical	.2	1.4	2.1	5.0	12.5	19.0	31.9
Investment	0	1.2	2.4	2.1	1.7	1.7	6.1
Definitional	0	1.2	2.4	6.1	9.3	9.9	11.0
Software	0	1.2	2.4	6.1	9.3	9.9	11.0
Statistical	0	0	0	-4.0	-7.6	-8.2	-4.9

For State and local government consumption and investment, upward revisions reflected the recognition of software as investment, which added the CFC for software to general government consumption and added government enterprise expenditures for software to investment.¹⁸ These revisions were mostly offset by downward revisions that reflected the reclassification to PCE of the administrative expenses of government employee retirement plans and of the expenditures for certain other programs, such as the Special Supplemental Nutrition Program for Women, Infants, and Children and adoption assistance.¹⁹ Beginning with 1991, the upward revisions also reflected the incorporation of data from newly available Census Bureau surveys of State and local governments; a large revision for 1998 primarily reflected the incorporation of preliminary data from Census Bureau surveys of State governments for fiscal year 1998.

Income-side components

Compensation of employees.—Compensation of employees was revised down for all years except for 1994 and 1998, reflecting downward revisions to supplements to wages and salaries and to wage and salary accruals (table 8).

18. See footnote 17.

19. See Moulton, Parker, and Seskin, "Definitional and Classificational Changes," 15–16.

Table 8.—Revisions to Compensation of Employees

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	-0.2	-1.6	-2.1	-0.1	-13.4	-11.5	30.2
Definitional	-.2	-1.6	-2.8	-2.7	-2.9	-3.1	-3.2
Statistical	0	0	.7	2.6	-10.5	-8.4	33.4
Source of revision by component							
Wage and salary accruals	0	-.5	-2.5	-3.8	-10.3	-8.9	35.6
Definitional	0	0	0	0	0	0	0
Statistical	0	-.5	-2.5	-3.8	-10.3	-8.9	35.6
Supplements to wages and salaries	-.2	-1.1	.4	3.6	-3.2	-2.7	-5.4
Definitional	-.2	-1.6	-2.8	-2.7	-2.9	-3.1	-3.2
Statistical	0	.5	3.2	6.3	-3	.4	-2.2
Employer contributions for social insurance	-3.0	-58.5	-83.4	-94.6	-106.3	-110.6	-114.1
Definitional	-3.0	-58.5	-83.4	-94.0	-104.7	-107.1	-106.1
Government employee retirement plans	-3.0	-58.5	-83.4	-94.0	-104.7	-107.1	-106.1
Statistical	0	0	0	-6	-1.6	-3.5	-8.0
Other labor income	2.8	57.4	83.7	98.2	103.0	108.0	108.8
Definitional	2.8	56.9	80.6	91.3	101.8	104.0	102.9
Government employee retirement plans	3.0	58.5	83.4	94.0	104.7	107.1	106.1
Other	-.2	-1.6	-2.8	-2.7	-2.9	-3.1	-3.2
Statistical	0	.5	3.1	6.9	1.2	4.0	5.9

For supplements, downward revisions to employer contributions for social insurance generally more than offset upward revisions to other labor income (OLI). For both components, the revisions primarily reflected the reclassification of government employee retirement plans, which shifted the contributions made by the governments to these plans from contributions for social insurance to OLI. In addition, within OLI, upward revisions to supplemental unemployment insurance reflected the incorporation of more complete source data and partly offsetting downward revisions reflected the reclassification of directors' fees from OLI to proprietors' income.²⁰

For wage and salary accruals, revisions were relatively small and downward prior to 1996. Larger downward revisions for 1996 and 1997 reflected downward revisions to "wage accruals less disbursements" (WALD) and to rest-of-the-world compensation.²¹ The revisions to WALD resulted from the incorporation of newly available BLS tabulations of wage and salary data on private employees covered by State unemployment insurance; the revisions to rest-of-the-world compensation resulted from revised ITA estimates. For 1998, newly available BLS data were also the major source of a large upward revision to wage and salary accruals.

Proprietors' income with inventory valuation adjustment (IVA) and capital consumption adjustment (CCAdj).—Prior to 1988, proprietors' income with IVA and CCAdj was revised by small amounts except for 1983, when there was a sizable upward revision (table 9). Beginning with 1988, larger upward revisions reflected upward revisions to nonfarm proprietors' income that more than offset downward revisions to farm proprietors' income.

Prior to 1996, the upward revisions to nonfarm proprietors' income primarily reflected an improved adjustment that removes a double-counting of the income of corporate partners.²² Beginning with 1996, the revisions also reflected the incorporation of corrected and newly available IRS tabulations of tax returns for sole

Table 9.—Revisions to Proprietors' Income with Inventory Valuation and Capital Consumption Adjustments

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	-0.1	0.3	-1.2	10.5	17.0	27.4	28.9
Definitional	.2	.5	.6	-.3	-.5	.1	.6
Software	0	.5	.6	-.3	-.5	.1	.6
Other	.2	0	0	0	0	0	0
Statistical	-.3	-.2	-1.8	10.8	17.5	27.3	28.3
Source of revision by component							
Farm	0	-1	-2.5	-4.4	-4.6	-6.0	-3.6
Proprietors' income with inventory valuation adjustment	0	0	-2.3	-4.3	-4.6	-5.8	-3.3
Capital consumption adjustment	0	-1	-2	-1	-1	-2	-4
Nonfarm	0	.3	1.2	15.0	21.7	33.3	32.5
Proprietors' income	.1	.7	1.6	10.3	14.4	18.9	17.6
Inventory valuation adjustment	0	.1	.2	.2	.2	-.1	.2
Capital consumption adjustment	-.3	-.5	-.5	4.5	7.1	14.5	14.7

proprietorships and partnerships for 1996 and 1997.

The downward revisions to farm proprietors' income primarily reflected the use of a new methodology for allocating farm income by legal form—between proprietors and corporations—that is based on USDA definitions rather than on a mixture of USDA and IRS definitions.²³ The revisions also reflected newly incorporated information on farm output, intermediate purchases, subsidies, and factor incomes from USDA.

Rental income of persons with CCAdj.—Rental income of persons with CCAdj was revised down for all years (table 10). The revisions primarily reflected the use of an improved methodology for estimating the income of persons from the rental of nonfarm nonresidential properties.²⁴ Beginning with 1994, the downward revisions also reflected the incorporation of revised and newly available source data from the Census Bureau's

23. See Moulton and Seskin, "Statistical Changes," 10–11.

24. See Moulton and Seskin, "Statistical Changes," 11.

Table 10.—Revisions to Rental Income of Persons with Capital Consumption Adjustment

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	-2.5	-6.9	-9.0	-16.1	-20.5	-28.0	-25.2
Definitional	0	.5	.6	1.0	1.0	1.0	1.0
Private noninsured pension plans	0	.5	.6	1.0	1.0	1.0	1.0
Statistical	-2.5	-7.4	-9.6	-17.1	-21.5	-29.0	-26.2
Source of revision by component							
Rental income of persons	-2.5	-7.0	-9.0	-16.1	-21.0	-28.6	-25.9
Capital consumption adjustment	-.1	0	0	0	.5	.5	.8

20. See Moulton, Parker, and Seskin, "Definitional and Classification Changes," 16–17.

21. WALD is 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. To estimate WALD, BEA converts annual disbursements data based on BLS tabulations of wages and salaries to an accrual basis. WALD consists of BEA estimates of bonus payments that are declared at the end of a year but that are actually paid the next year.

22. For additional details on this adjustment, see Moulton and Seskin, "Statistical Changes," 11.

American housing survey. The downward revisions to rental income were partly offset by downward revisions to mortgage interest paid (which is deducted as a rental expense) that reflected revised data from the Federal Reserve Board's flow-of-funds accounts.

Corporate profits with IVA and CCAdj.—Corporate profits with IVA and CCAdj was revised up for all years except for 1995 (table 11). Profits of domestic financial corporations were revised up for all years; the revisions primarily reflected the modified treatment of private noninsured pension plans,²⁵ the recognition of software as investment, and beginning with 1991, the incorporation of revised source data for interest paid by regulated investment companies.²⁶ Profits of

25. See Moulton, Parker, and Seskin, "Definitional and Classification Changes," 12–13.

26. Profits of regulated investment companies were revised up because estimates of their interest payments, which are subtracted in the calculation of profits, were revised down.

Table 11.—Revisions to Corporate Profits with Inventory Valuation and Capital Consumption Adjustments

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	0.8	17.9	12.1	23.9	3.5	20.0	21.5
Definitional	.3	11.9	20.4	34.1	46.0	51.2	58.6
Software	0	1.9	4.4	11.2	18.5	20.5	24.8
Private noninsured pension plans	.3	9.5	16.0	22.9	27.5	30.7	33.8
Other	0	.5	0	0	0	0	0
Statistical	.5	6.0	-8.3	-10.2	-42.5	-31.2	-37.1
Source of revision by industry							
Domestic industries	.8	12.6	5.7	20.1	-1.0	10.9	17.0
Financial	.4	9.2	17.0	37.7	38.4	42.3	40.7
Nonfinancial	.5	3.3	-11.4	-17.6	-39.4	-31.4	-23.7
Rest of the world	0	5.3	6.4	3.8	4.5	9.1	4.3
Receipts from the rest of the world	0	5.5	7.0	6.9	6.1	10.2	2.6
Less: Payments to the rest of the world	0	.2	.6	3.1	1.7	1.2	-1.7
Source of revision by component							
Profits before tax	.3	18.8	21.0	45.2	46.1	61.5	64.1
Profits tax liability	0	0	0	.1	-2.5	-7.8	.1
Profits after tax	.3	18.8	21.0	45.0	48.6	69.3	64.0
Dividends	-1	9.5	16.2	37.6	35.8	58.6	69.4
Definitional	-2	9.5	16.0	22.9	27.5	30.7	33.8
Private noninsured pension plans	.3	9.5	16.0	22.9	27.5	30.7	33.8
Other	-5	0	0	0	0	0	0
Statistical	.1	0	.2	14.7	8.3	27.9	35.6
Undistributed profits	.5	9.3	4.8	7.4	12.7	10.7	-5.4
Definitional	.5	3.9	5.9	9.5	14.2	18.1	21.6
Software	0	4.1	5.9	9.5	14.2	18.1	21.6
Other	.5	-2	0	0	0	0	0
Statistical	0	5.4	-1.1	-2.1	-1.5	-7.4	-27.0
Inventory valuation adjustment	0	2.4	4.5	4.7	4.3	.5	6.4
Definitional	0	0	0	0	0	0	0
Statistical	0	2.4	4.5	4.7	4.3	.5	6.4
Capital consumption adjustment	.5	-3.3	-13.3	-26.0	-47.0	-42.0	-49.0
Definitional	0	-1.5	-1.5	1.7	4.3	2.4	3.2
Software	0	-2.2	-1.5	1.7	4.3	2.4	3.2
Other	0	.7	0	0	0	0	0
Statistical	.5	-1.8	-11.8	-27.7	-51.3	-44.4	-52.2

domestic nonfinancial corporations were revised down for all years beginning with 1985, primarily reflecting revised estimates of the CCAdj and an improved adjustment to remove foreign earnings of U.S. corporations;²⁷ these downward revisions more than offset upward revisions that reflected the recognition of software as investment. Profits from the rest of the world were revised up beginning with 1982, reflecting revisions to the ITA's (see the section "Foreign transactions").

The CCAdj—the difference between depreciation based on tax return data and consumption of fixed capital (the NIPA estimate of depreciation)—was revised down beginning with 1972; these revisions primarily reflected the addition of software as investment, the adoption of a faster depreciation schedule for personal computers, and beginning with 1986, revisions to the BEA adjustment that removes amortization of intangibles from the tax-return-based measure.²⁸ Beginning with 1973, the corporate IVA was revised up for all years except for 1985 and 1986, reflecting revised commodity weights from the 1992 I-O accounts and revised price data (see the section "Change in private inventories").

Net interest.—Net interest was revised down for all years (table 12). The downward revisions primarily reflected the modified treatment of private noninsured pension plans and the incorporation of revised source data for interest paid by regulated investment companies. Beginning with 1988, the revisions were partly offset by a change in the methodology for adjusting the interest receipts of corporations with "captive" finance

27. For additional details on the improved adjustment to remove foreign earnings of U.S. corporations, see Moulton and Seskin, "Statistical Changes," 11–12.

28. See Moulton and Seskin, "Statistical Changes," 12–13.

Table 12.—Revisions to Net Interest

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	-0.5	-8.6	-10.7	-14.8	-32.3	-19.5	-13.6
Definitional	-5	-10.9	-13.9	-23.8	-23.3	-23.2	-17.7
Private noninsured pension plans	-4	-10.0	-16.6	-23.9	-28.4	-31.7	-34.8
Imputed services of regulated investment companies	-1	.2	4.1	1.8	5.7	9.0	17.3
Other	0	-1.1	-1.4	-1.7	-6	-5	-2
Statistical	0	2.3	3.2	9.0	-9.0	3.7	4.1
Source of revision by component							
Net monetary interest	.7	25.8	49.5	68.7	46.6	53.7	64.4
Definitional	.7	24.1	46.9	56.6	57.6	58.8	59.9
Statistical	0	1.7	2.6	12.1	-11.0	-5.1	4.5
Net imputed interest	-1.2	-34.4	-60.2	-83.5	-78.9	-73.2	-78.0
Definitional	-1.1	-34.9	-60.8	-80.4	-81.0	-82.0	-77.6
Statistical	-1	.5	.6	-3.1	2.1	8.8	-4

subsidiaries.²⁹ The revisions also reflected the incorporation of revised and newly available source data: Beginning with 1982, from the Federal Reserve Board on mortgage debt outstanding; beginning with 1985, from BEA's ITA's; and, beginning with 1996, from IRS tabulations of business tax returns.

Nonfactor incomes.—Nonfactor incomes—which comprises indirect business tax and nontax liability, business transfer payments, and “subsidiaries less current surplus of government enterprises”—was revised down for most years prior to 1985; thereafter, except for no revision for 1992, it was revised up (table 13).

Indirect business taxes was revised up beginning with 1986, primarily reflecting the use of an improved methodology that uses data from the Census Bureau's *Government Finances* survey as the annual source data for estimating most State and local government taxes.³⁰ The revisions for 1996–98 also reflected the incorporation of newly available data from the *Government Finances* survey.

Business transfer payments showed very small revisions beginning with 1985.

“Subsidiaries less current surplus of government enterprises” was revised down for most years. These revisions reflected upward revisions to the current surplus that partly resulted from the recognition of software as investment. Beginning with 1992, the revisions primarily reflected revisions to the Federal current surplus of enterprises, based on newly incorporated source data from agency annual reports.

29. See Moulton and Seskin, “Statistical Changes,” 11.

30. See Moulton and Seskin, “Statistical Changes,” 13.

Table 13.—Revisions to Nonfactor Incomes

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Indirect business tax and nontax liability	0	.3	4.5	5.0	13.6	18.6	21.7
Definitional	0	0	.3	.1	.1	.1	.1
Statistical	0	.3	4.2	4.9	13.5	18.5	21.6
Business transfer payments	0	0	0	-.3	.7	1.8	2.0
Definitional	0	0	0	0	0	0	.0
Statistical	0	0	0	-.3	.7	1.8	2.0
Subsidies less current surplus of government enterprises	0	-3.0	-0.9	-4.7	0.6	-2.9	-6.3
Subsidies	0	-1.4	-1.4	-2.4	-.3	-1.1	1.4
Definitional	0	-1.3	-1.4	-1.7	-.6	-.5	-.2
Statistical	0	-.1	0	-.7	.3	-.6	1.6
Less: Current surplus of government enterprises	0	1.6	-.5	2.4	-.9	1.8	7.6
Definitional	0	2.0	.1	.4	.4	.5	.8
Software	0	.1	.1	.4	.4	.5	.8
Other	0	1.9	0	0	0	0	0
Statistical	0	-.4	-.6	2.0	-1.3	1.3	6.8

Consumption of fixed capital (CFC).—CFC—that is, the charge for the using up of private and government fixed capital—was revised up for all years (table 14). The upward revisions, which increased rapidly over time, primarily reflected the recognition of software as investment; beginning with 1982, they also reflected the improved method for depreciating personal computers. Capital consumption allowances (CCA)—that is, tax-return-based depreciation for corporations and nonfarm proprietorships and BEA estimates of historical-cost depreciation (using consistent service lives) for farm proprietorships, for rental income of persons, and for nonprofit institutions serving individuals—was revised up for all years, primarily reflecting the addition of depreciation for software that was not included in IRS depreciation for corporations and for nonfarm sole proprietors and partners. For 1996–98, the revisions to CCA also reflected revised IRS tabulations of corporate income tax return data for 1996 and newly available tabulations for 1997.

Personal income and its disposition

Personal income was revised up for most years (table 15). The revisions were small prior to 1970; thereafter, they range from \$4.0 billion for 1970 to \$232.8 billion for 1998. The revisions reflected the previously described revisions to the components of national income that are included in personal income—wage and salary disbursements, other labor income, proprietors' income, and rental income of persons—and to the com-

Table 14.—Revisions to Consumption of Fixed Capital

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	0.2	13.2	41.6	75.2	124.4	137.9	158.9
Definitional	0	14.5	34.9	65.4	99.9	111.0	125.7
Software	0	17.1	34.9	65.4	99.9	111.0	125.7
Other	0	-2.6	0	0	0	0	0
Statistical	.2	-1.3	6.7	9.8	24.5	26.9	33.2
Source of revision by component							
Private	-3	12.3	32.6	58.0	97.8	109.0	127.5
Definitional	0	12.2	26.3	50.0	77.2	86.0	98.0
Software	0	12.9	26.3	50.0	77.2	86.0	98.0
Other	0	-.7	0	0	0	0	0
Statistical	-.3	.1	6.3	8.0	20.6	23.0	29.5
Capital consumption allowances	0	9.2	19.3	37.4	59.7	83.5	95.8
Less: Capital consumption adjustment	.3	-3.1	-13.2	-20.6	-38.1	-25.6	-31.6
Government	.5	.9	9.1	17.1	26.6	28.9	31.5
Definitional	0	2.3	8.6	15.4	22.7	25.0	27.7
Software	0	4.2	8.6	15.4	22.7	25.0	27.7
Other	0	-1.9	0	0	0	0	0
Statistical	.5	-1.4	.5	1.7	3.9	3.9	3.8
General government	.5	2.0	7.9	15.3	23.9	25.9	28.2
Government enterprises	0	-1.1	1.2	1.8	2.6	2.9	3.3

ponents of personal income that are derived from related components of national income—personal dividend income and personal interest income. The revisions also resulted from revisions to transfer payments to persons and to personal contributions for social insurance.

The revisions to personal income mostly reflected the reclassification of government employee retirement plans, which raised personal

income by (1) the amount of employer contributions to these plans, which are added to other labor income, (2) dividends and interest received by these plans, which are added to personal dividend income and to personal interest income, and (3) personal contributions to these plans, which are no longer included in personal contributions for social insurance—a component that is deducted in the calculation of personal income.

Table 15.—Revisions to Personal Income and Its Disposition

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	-0.4	44.3	84.7	134.7	122.2	167.1	232.8
Definitional	2.4	49.7	92.2	97.1	114.2	117.5	123.4
Government employee retirement plans	3.0	49.5	88.4	95.4	108.2	107.4	103.4
Imputed services of regulated investment companies	-1	.2	4.1	1.7	5.5	8.8	17.1
Other	-4	0	-3	0	.5	1.3	2.9
Statistical	-2.8	-5.4	-7.5	37.6	8.0	49.6	109.4
Source of revision by component							
Wage and salary disbursements	0	-5	-2.5	-3.8	-4.6	-9	36.1
Other labor income	2.8	57.4	83.7	98.2	103.0	108.0	108.8
Proprietors' income with inventory valuation and capital consumption adjustments	-1	.3	-1.2	10.5	17.0	27.4	28.9
Rental income of persons with capital consumption adjustment	-2.5	-6.9	-9.0	-16.1	-20.5	-28.0	-25.2
Personal dividend income	-1	12.3	21.9	47.4	49.2	73.1	85.2
Definitional	-2	12.3	21.7	35.7	45.4	51.7	55.4
Government employee retirement plans	0	2.8	5.7	12.8	18.0	21.0	21.6
Private noninsured pension plans	.3	9.5	16.0	22.9	27.4	30.7	33.8
Other	-5	0	0	0	0	0	0
Statistical	.1	0	.2	11.7	3.8	21.4	29.8
Personal interest income	.3	22.4	49.7	82.9	91.2	107.6	133.0
Definitional	.4	20.1	46.5	53.5	78.0	81.3	91.1
Government employee retirement plans	.8	29.9	59.0	75.7	101.0	104.2	108.8
Private noninsured pension plans	-3	-9.9	-16.6	-23.9	-28.5	-31.7	-34.8
Imputed services of regulated investment companies	-1	.2	4.1	1.7	5.5	8.8	17.1
Statistical	-1	2.3	3.2	29.4	13.2	26.3	41.9
Transfer payments to persons	-2.8	-53.9	-74.7	-106.5	-139.2	-148.0	-165.4
Less: Personal contributions for social insurance	-1.9	-13.2	-16.9	-21.8	-25.9	-28.1	-31.5
Definitional	-2.0	-13.2	-16.8	-21.6	-25.7	-27.0	-28.9
Government employee retirement plans	-1.9	-12.9	-16.3	-20.8	-24.8	-25.9	-26.8
Other	-1	-3	-5	-8	-9	-1.1	-2.1
Statistical	.1	0	-1	-2	-2	-1.1	-2.6
Less: Personal tax and nontax payments	-1.7	-9.8	-11.2	-14.7	-20.8	-20.7	-25.7
Definitional	-1.7	-9.8	-10.4	-15.2	-22.3	-26.0	-30.6
Capital transfers	-1.8	-10.1	-10.6	-15.9	-23.1	-27.0	-32.6
Other	.1	.3	.2	.7	.8	1.0	2.0
Statistical	0	0	-8	.5	1.5	5.3	4.9
Equals: Disposable personal income	1.3	54.1	95.9	149.5	143.0	187.7	258.3
Definitional	4.1	59.5	102.6	112.3	136.5	143.5	154.0
Government employee retirement plans	3.0	49.5	88.4	95.4	108.2	107.4	103.4
Capital transfers	1.8	10.1	10.6	15.9	23.1	27.0	32.6
Imputed services of regulated investment companies	-1	.2	4.1	1.7	5.5	8.8	17.1
Other	-5	-3	-5	-7	-3	.3	.9
Statistical	-2.8	-5.4	-6.7	37.2	6.5	44.2	104.3
Less: Personal outlays	0	2.8	12.0	-1	29.4	37.6	56.4
Personal consumption expenditures	0	2.5	10.8	-10.1	21.8	30.7	40.7
Interest paid by persons	0	0	0	7.0	6.3	5.2	13.3
Personal transfer payments to the rest of the world (net)	.1	.3	1.2	2.9	1.3	1.7	2.4
Equals: Personal saving	1.3	51.3	83.9	149.6	113.6	150.1	202.0
Definitional	4.1	56.8	94.2	104.1	120.8	123.1	124.0
Government employee retirement plans	2.9	47.8	85.7	91.2	101.1	99.2	94.1
Capital transfers	1.8	10.1	10.4	15.8	23.0	26.8	32.4
Other	-6	-1.1	-1.9	-2.9	-3.3	-2.9	-2.5
Statistical	-2.8	-5.5	-10.3	45.5	-7.2	27.0	78.0
Addenda:							
Net interest	-5	-8.6	-10.7	-14.8	-32.3	-19.5	-13.6
Plus: Net interest paid by government	.8	31.0	60.4	90.8	117.3	121.9	133.3
Definitional	.8	31.0	60.4	77.3	101.4	104.5	108.8
Statistical	0	0	0	13.5	15.9	17.4	24.5
Plus: Interest paid by persons	0	0	0	7.0	6.3	5.2	13.3
Equals: Personal interest income	.3	22.4	49.7	82.9	91.2	107.6	133.0

The reclassification also reduced personal income by the amount of benefits paid by these plans, which are no longer included in government transfer payments to persons. The net effect of the reclassification was to raise personal income for all years.

Personal dividend income was revised up for most years. The revisions largely reflected the modified treatment of private noninsured pension plans and the reclassification of government employee retirement plans. Prior to 1982, the upward revisions were partly offset by downward revisions that reflected the exclusion of distributions of regulated investment companies (mutual funds) that reflect capital gains income. In the 1998 annual NIPA revision, the exclusion had been carried back to 1982; for this comprehensive revision, it will be carried back to 1946.

Personal interest income was revised up for most years. Upward revisions that reflected the inclusion of interest received by government employee retirement plans more than offset downward revisions that reflected the reclassification of dividend and rental income received by private noninsured pension plans from personal interest income to personal dividend income and to rental income of persons, respectively. Personal interest income was revised up while net interest was revised down, because the interest received by government employee retirement plans does not enter into the calculation of net interest.³¹ The revisions to personal interest income also reflected the incorporation of revised and newly available source data for estimating net interest (see the section “**Net interest**”), net interest paid by government (see the section “**Government receipts and expenditures**”), and interest paid by persons (see the section “**Personal outlays**”).

31. Personal interest income equals net interest plus interest paid by persons and by government less interest received by government (see addenda to table 15).

Transfer payments to persons was revised down for all years, primarily because in the reclassification of government employee retirement plans, the benefits from these plans are no longer treated as government transfer payments to persons (table 16).

Personal contributions for social insurance—which is subtracted in the calculation of personal income—was revised down for all years, because personal contributions to government employee retirement plans are no longer included.

Personal tax and nontax payments was revised down for all years, primarily reflecting the reclassification of estate and gift taxes as capital transfers.³²

Disposable personal income (DPI)—personal income less personal tax and nontax payments—was revised up for all years, reflecting the upward revisions to personal income and the downward revisions to personal tax and nontax payments.

Personal outlays—PCE, interest paid by persons, and personal transfer payments to the rest of the world (net)—was revised up for most years, primarily reflecting the revisions to PCE. Beginning with 1989, the revisions to personal outlays also reflect upward revisions to interest paid by persons—primarily reflecting the incorporation of revised data on consumer credit outstanding from the Federal Reserve Board—and to personal transfer payments to the rest of the world (net)—reflecting the reclassification (from the government sector to the personal sector) of government employee retirement payments to nonresident beneficiaries and the incorporation of revised ITA estimates for unilateral current transfers.

Personal saving—the difference between DPI and personal outlays—was revised up for all

32. See Moulton, Parker, and Seskin, “**Definitional and Classificational Changes**,” 13–14.

Table 16.—Revisions to Government Transfer Payments to Persons

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Total revision	-2.8	-54.0	-74.7	-106.5	-139.1	-148.8	-166.0
Definitional	-2.7	-53.7	-74.7	-105.7	-137.3	-147.6	-156.5
Statistical	-1	-3	0	-8	-1.8	-1.2	-9.5
Source of revision by component							
Federal	-1.5	-35.3	-44.8	-59.4	-69.9	-72.6	-83.4
Definitional	-1.5	-35.3	-44.8	-59.1	-69.6	-73.2	-75.3
Government employee retirement plans	-1.5	-35.3	-44.8	-59.1	-69.6	-73.2	-75.3
Statistical	0	0	0	-3	-3	.6	-8.1
State and local	-1.3	-18.7	-29.9	-47.1	-69.2	-76.2	-82.6
Definitional	-1.2	-18.5	-29.8	-46.6	-67.7	-74.4	-81.2
Government employee retirement plans	-1.2	-19.3	-31.2	-48.8	-70.7	-77.6	-84.6
Other	0	.8	1.4	2.2	3.0	3.2	3.4
Statistical	-1	-2	-1	-5	-1.5	-1.8	-1.4

years. The upward revisions were primarily accounted for by the reclassification of government employee retirement plans, which shifts the savings associated with these plans from the government sector to the personal sector; the reclassification of estate and gift taxes as capital transfers also raised personal saving and reduced government saving. The upward revisions to personal saving resulted in corresponding upward revisions to the personal saving rate—personal saving as a percentage of DPI—that ranged from 0.4 percentage point for 1959 to 3.2 percentage points for 1998. Nevertheless, the revised estimates retain the long-term downtrend in the rate that was present in the previously published estimates. For example, previously, the rate fell from a peak of 9.0 percent in 1982 to 0.5 percent in 1998; now, the rate falls from 10.9 percent to 3.7 percent. The large upward revision for 1998 also reflected the unusually large upward revision to wages and salaries (see the section “[Compensation of employees](#)”).

Government current receipts and expenditures

Federal Government.—Federal Government current receipts was revised down for all years ([table 17](#)). The revisions reflected downward re-

visions to contributions for social insurance that resulted from the reclassification of contributions received by Federal Government retirement plans and downward revisions to personal tax and non-tax receipts that resulted from the reclassification of estate and gift taxes as capital transfers. Statistical revisions to current receipts, which began with 1982, were relatively small and downward for most years.

Federal Government current expenditures was revised down for all years. The revisions reflected downward revisions to transfer payments that resulted from the reclassification of benefits paid by Federal employee retirement plans and downward revisions to grants-in-aid to State and local governments that resulted from the reclassification of investment grants as capital transfers. Beginning with 1960, the recognition of software as investment also contributed to the downward revisions because the sum of the amounts of purchased software and own-account compensation and other production costs (reclassified as investment) exceeded the amount of software consumption of fixed capital that was added to consumption expenditures. The downward revisions were partly offset by upward revisions to net interest paid that resulted from

Table 17.—Revisions to Government Current Receipts and Expenditures

(Billions of dollars)

	1959	1982	1987	1992	1996	1997	1998
Federal							
Current receipts	-3.6	-46.8	-67.0	-77.2	-85.6	-92.8	-93.5
Definitional	-3.6	-47.1	-64.9	-76.3	-83.5	-88.0	-92.5
Capital transfers	-1.4	-7.5	-7.2	-11.3	-17.5	-20.6	-25.2
Government employee retirement plans	-2.2	-39.6	-57.7	-65.0	-66.0	-67.5	-67.3
Statistical	0	.3	-2.1	-.9	-2.1	-4.7	-.9
Current expenditures	-4.3	-49.0	-48.0	-60.5	-59.0	-65.0	-67.6
Definitional	-4.4	-44.5	-45.4	-49.1	-59.8	-63.4	-64.2
Capital transfers	-3.1	-14.6	-19.0	-22.4	-28.1	-28.8	-28.8
Government employee retirement plans	-1.3	-27.1	-24.7	-25.2	-28.3	-30.4	-29.6
Software	0	-.9	-1.8	-1.5	-3.5	-4.2	-5.9
Other	0	-1.9	0	0	0	0	0
Statistical	.2	-4.5	-2.6	-11.4	.8	-1.6	-3.4
Current surplus or deficit (-), national income and product accounts	.6	2.1	-19.0	-16.7	-26.5	-27.8	-25.8
State and local							
Current receipts	-6.1	-48.7	-58.9	-72.1	-84.8	-85.2	-77.7
Definitional	-6.1	-48.7	-64.3	-76.7	-97.3	-100.8	-101.8
Capital transfers	-3.5	-16.9	-22.3	-27.0	-33.8	-35.3	-36.2
Government employee retirement plans	-2.7	-31.8	-42.0	-49.8	-63.5	-65.5	-65.6
Statistical	0	0	5.4	4.7	12.5	15.5	24.0
Current expenditures	-3	4.8	12.7	19.1	16.4	21.4	30.7
Definitional	-7	3.3	10.2	.1	-1.7	-5.1	-11.1
Software	0	-.3	-.4	-1.4	-1.7	-1.6	-1.9
Government employee retirement plans	-7	3.6	10.6	1.6	-.1	-3.5	-9.2
Statistical	.4	1.5	2.5	19.0	18.1	26.5	41.9
Current surplus or deficit (-), national income and product accounts	-5.8	-53.6	-71.6	-91.2	-101.2	-106.6	-108.4
Addenda:							
Current surplus or deficit (-), national income and product accounts without definitional changes	-.6	3.2	3.5	-3.9	-8.4	-14.2	-15.3
Federal	-.2	4.7	.5	10.5	-2.8	-3.2	2.5
State and local	-.4	-1.5	3.0	-14.3	-5.6	-10.9	-17.8

the reclassification of interest received by Federal employee retirement plans to personal interest income. Statistical revisions to current receipts were generally small, with upward revisions for 1959–71 and downward revisions for most other years.

Prior to 1984, Federal Government net saving, as measured by the current surplus or deficit on a NIPA basis, was revised up for 14 years, revised down for 9 years, and unrevised for 2 years. Beginning with 1984, Federal net saving was revised down for all years, primarily reflecting the reclassification of government employee retirement plans, which shifted the savings associated with these plans from the government sector to the personal sector.

State and local government.—State and local government current receipts was revised down for all years, reflecting the downward revisions to contributions for social insurance that resulted from the reclassification of contributions received by State and local government retirement plans and the downward revisions to Federal grants-in-aid and to personal tax and nontax receipts that resulted from the reclassification of estate and gift taxes and of investment grants as capital transfers. Beginning with 1985, these downward revisions were partly offset by upward revisions to indirect business tax and nontax accruals, reflecting an improved methodology for estimating State and local government taxes.³³

State and local government current expenditures was revised down for 1959–79 and revised up thereafter. The pattern of revisions reflected the relative magnitude of offsetting revisions over the period: Transfer payments was revised down, reflecting the reclassification of benefits paid by State and local government employee retirement plans; net interest paid was revised up, reflecting the reclassification of interest received by the retirement plans to personal interest income; and dividends received—which is subtracted in the calculation of current expenditures—was revised down, reflecting the reclassification of dividends received by the retirement plans to personal dividend income. Consumption expenditures, the largest component of current expenditures, was revised up for 1959–77, down for 1978–95, and up for 1996–98; large upward revisions for 1997 and 1998 were more than accounted for by the incorporation of newly available source data from the Census Bureau surveys of State and local governments.

33. See Moulton and Seskin, "Statistical Changes," 13.

State and local government net saving, as measured by the current surplus or deficit on a NIPA basis, was revised down for all years. The revisions primarily reflected the reclassification of government employee retirement plans, which shifted the savings associated with these plans from the government sector to the personal sector, and the reclassification of estate and gift taxes.

Foreign transactions

Receipts from the rest of the world was unrevised prior to 1970, had small or no revisions for 1970–81, and had sizable upward revisions thereafter (table 18). The revisions to exports of goods and services, which begin with 1986, were relatively small except for 1998; an upward revision of \$7.3 billion for 1998 primarily reflected the incorporation of revised ITA estimates for exports of services. Upward revisions to income receipts, beginning with 1982, were primarily accounted for by corporate profits, reflecting the incorporation of improved ITA estimates of the current-cost adjustment and of other ITA estimates that were not previously incorporated into the NIPA's.³⁴ In addition, for 1986–98, the revisions to receipts reflected revisions to interest that also reflected the incorporation of revised ITA estimates.

Within payments to the rest of the world, the revisions to imports of goods and services be-

34. See Bach, "U.S. International Transactions," 65–67.

Table 18.—Revisions to Foreign Transactions

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Receipts from the rest of the world	0	5.5	6.7	10.5	10.4	19.7	23.5
Definitional	0	0	0	0	0	0	0
Statistical	0	5.5	6.7	10.5	10.4	19.7	23.5
Source of revision by component							
Exports of goods and services	0	0	–1	–2.6	.4	2.6	7.3
Income receipts	0	5.5	6.9	13.2	10.1	17.1	16.1
Corporate profits	0	5.5	7.0	6.9	6.1	10.2	2.6
Interest	0	0	–3	6.0	3.5	6.3	12.9
Compensation of employees	0	0	.2	.3	.5	.5	.6
Payments to the rest of the world	0	5.5	6.7	10.5	10.4	19.7	23.5
Definitional	0	0	0	0	0	0	0
Statistical	0	5.5	6.7	10.5	10.4	19.7	23.5
Source of revision by component							
Imports of goods and services	0	0	0	–4.4	–1.9	–2.5	5.7
Income payments	0	.1	2.1	.8	4.4	4.9	5.6
Corporate profits	0	.2	.6	3.1	1.7	1.2	–1.7
Interest	0	0	0	–5.8	.4	1.1	4.7
Compensation of employees	0	0	1.5	3.6	2.3	2.5	2.6
Transfer payments (net)	0	–6	.1	2.2	–6	.1	1.0
Net foreign investment ...	0	5.9	4.4	11.8	8.5	17.2	11.1

gan with 1992 and tended to be small except for a downward revision for 1992 and an upward revision for 1998. The revisions primarily reflected the incorporation of revised ITA estimates for imports of services. Beginning with 1982, income payments was revised mostly upward by relatively small amounts except for larger upward revisions for 1995–98. For most years prior to 1995, upward revisions to profits and to compensation more than offset downward revisions to interest. Beginning with 1995, all three of these subcomponents either were revised up or were unrevised; the revisions reflected the incorporation of revised ITA estimates. Prior to 1982, net foreign investment showed small or no revisions; thereafter, there were larger upward revisions, primarily reflecting the upward revisions to net receipts of income.

Gross saving and investment

Gross saving, or national saving—which consists of gross private saving and gross government saving—was revised down by small amounts for 1959–73 and up by larger amounts for 1974–98 (table 19). Upward revisions to gross private saving more than offset downward revisions to gross government saving. The upward revisions were primarily accounted for by the recognition of

software as investment, which added the consumption of fixed capital (CFC) for software to CFC for both the business and government sectors and increased both undistributed corporate profits and the government current surplus or deficit by small amounts.³⁵ (The downward revisions to undistributed corporate profits with IVA and CCADJ primarily reflected the revisions to the CCADJ.) As noted earlier, the revised treatment of government employee retirement plans did not affect national saving, but it raised personal saving (a component of gross private saving) and reduced the government current surplus or deficit (a component of gross government saving) by offsetting amounts. The reclassification of certain transactions as capital transfers reduced gross saving by small amounts. Finally, the large upward revision to wage and salary accruals for 1998 contributed to the upward revisions to personal saving and national saving for that year.

Gross investment—which consists of gross private domestic investment, gross government investment, and net foreign investment—was revised up for all years except 1959. The revisions were primarily to gross private domestic investment and to gross government investment and

35. For details on the effects of this definitional change on specific components, see Moulton, Parker, and Seskin, "Definitional and Classification Changes," 8–11.

Table 19.—Revisions to Gross Saving and Investment

[Billions of dollars]

	1959	1982	1987	1992	1996	1997	1998
Gross saving	-2.7	21.4	30.8	103.1	74.8	115.0	178.0
Definitional	0	19.3	39.6	76.5	120.0	134.3	155.7
Software	0	20.9	42.2	79.2	123.0	137.4	158.9
Other	0	-1.6	-2.6	-2.7	-3.0	-3.2	-3.2
Statistical	-2.7	2.1	-8.8	26.6	-45.2	-19.3	22.3
Gross private saving	1.9	72.0	112.3	193.9	175.9	220.4	280.8
Personal saving	1.3	51.3	83.9	149.6	113.6	150.1	202.0
Undistributed corporate profits with inventory valuation and capital consumption adjustments	1.0	8.4	-4.0	-13.9	-29.9	-30.8	-48.2
Corporate consumption of fixed capital	-5	11.0	29.3	52.7	91.6	102.1	118.6
Noncorporate consumption of fixed capital	.2	1.3	3.2	5.3	6.2	7.0	8.8
Wage accruals less disbursements	0	0	0	0	-5.7	-7.8	-5
Gross government saving	-4.6	-50.6	-81.5	-90.7	-101.1	-105.4	-102.8
Federal	.8	-.3	-14.4	-7.2	-11.9	-11.8	-8.2
Consumption of fixed capital	.2	-2.4	4.6	9.5	14.7	16.0	17.7
Current surplus or deficit (-), national income and product accounts	.6	2.1	-19.0	-16.6	-26.5	-27.7	-25.9
State and local	-5.5	-50.3	-67.1	-83.6	-89.2	-93.7	-94.6
Consumption of fixed capital	.3	3.3	4.4	7.6	11.8	12.9	13.8
Current surplus or deficit (-), national income and product accounts	-5.8	-53.6	-71.6	-91.2	-101.2	-106.6	-108.5
Gross investment	-2	26.4	49.6	102.0	139.8	167.6	206.9
Definitional	0	20.9	42.0	79.1	122.9	137.3	158.8
Software	0	20.9	42.2	79.2	123.0	137.4	158.9
Other	0	0	-2	-1	-1	-1	-2
Statistical	-2	5.5	7.6	22.9	16.9	30.3	48.2
Gross private domestic investment	-3	15.0	34.3	76.2	110.8	127.7	164.1
Gross government investment	0	5.4	10.8	14.0	20.4	22.7	31.7
Net foreign investment	0	5.9	4.4	11.8	8.5	17.2	11.1
Statistical discrepancy	2.4	5.0	18.7	-1.1	65.0	52.6	28.9
Addendum:							
Gross saving as a percentage of gross national product	-6	.5	.4	1.4	.6	.9	1.5

reflected the recognition of software as investment. In addition, beginning with 1982, net foreign investment was revised up by sizable amounts, reflecting the incorporation of improvements to the ITA's that were not previously incorporated into the NIPA's.

Annual Estimates of Real GDP and Real DPI

In general, revisions to real GDP reflect three factors: (1) Revisions to the current-dollar components of GDP for which chained-dollar estimates are prepared by deflation, (2) revisions to the prices used to estimate components of real GDP by deflation, and (3) revisions to the quantities used to estimate components of real GDP by extrapolation or direct valuation. The reference year was shifted to a more recent year, 1996, but because the price and quantity indexes and chained-dollar estimates are measured with chain-type indexes, the change of the reference year does not, by itself, affect the percent changes of these series.

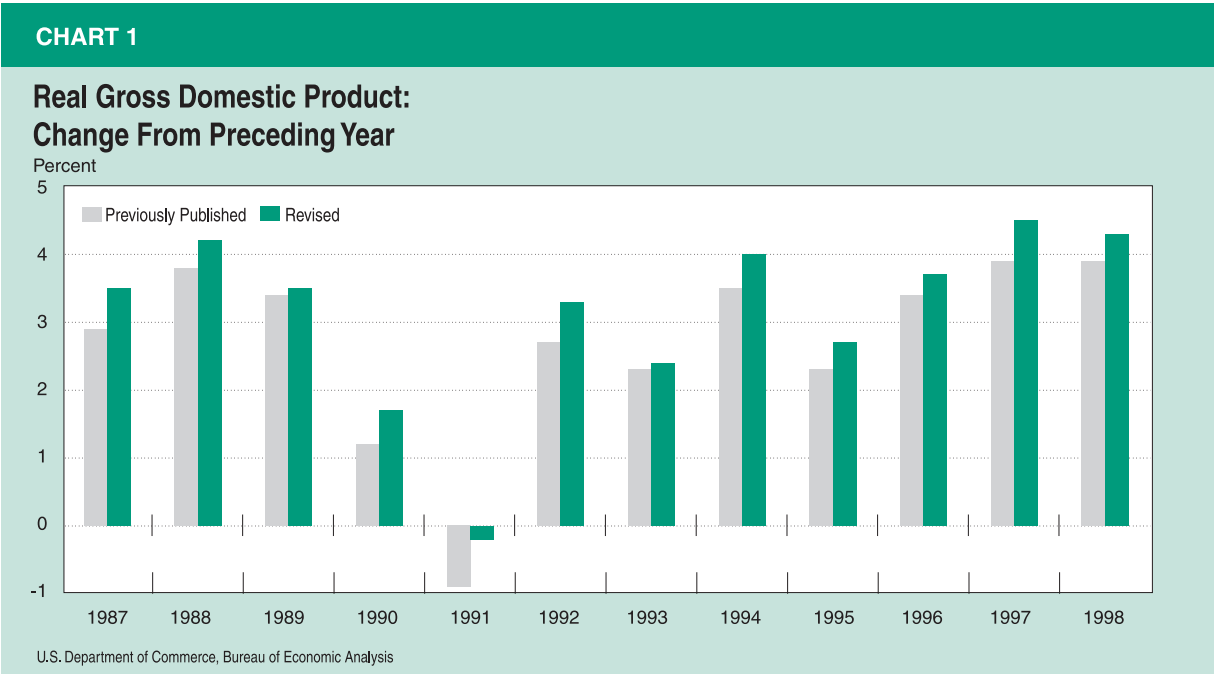
For 1959–98, the revised chained-dollar estimates of real GDP showed an average annual growth rate of 3.4 percent, 0.2 percentage point higher than was shown in the previously published estimates (table 20). The growth rates were revised up for most major components of GDP. The growth rate of equipment and software was revised up the most. The growth rates of PCE for nondurable goods, nonresidential structures, and national defense consumption expenditures

and gross investment were also revised up substantially. The growth rates of PCE for durable goods, residential fixed investment, and imports of goods and services were unrevised.

The revisions to the growth rate of real GDP for the entire 1959–98 period can be divided into three subperiods: 1959–77, 1977–92, and 1992–98. For 1959–77, the growth rate was unrevised at 3.7 percent. For 1977–92, it was revised up 0.3 percentage point to 2.9 percent, reflecting the incorporation of geometric-mean-type CPI's back to 1978 (see the section “Annual Prices”), the recognition of software as investment, and the improved estimates of unpriced banking services.³⁶ For 1992–98, the growth rate was revised up 0.4 percentage point to 3.6 percent, reflecting the increasing importance of software over this period, the improved estimates of unpriced banking services, and the incorporation of newly available source data—including the geometric-mean-type CPI's for 1992–94—that affected the estimates for that period.

Annual changes.—For 1959–91, the annual, or year-to-year, percent changes in real GDP were revised up for 21 of the 33 years; the changes for 1961, 1963–65, and 1967 were unrevised; and the changes for 1962, 1971–73, 1976, and 1977 were revised down (chart 1). Upward revisions of 0.5 percentage point or more were recorded in 4 years (1979, 1987, 1990, and 1991); the largest

36. See Moulton and Seskin, “Statistical Changes,” 16–17.



**Table 20.—Gross Domestic Product and Its Major Components:
Revisions to Average Annual Rates of Change Over Selected Periods**
[Percent]

	Current dollars			Chained dollars		
	Previously published	Revised	Revision	Previously published	Revised	Revision
1959–98						
Gross domestic product	7.5	7.6	0.1	3.2	3.4	0.2
Personal consumption expenditures	7.7	7.8	.1	3.4	3.6	.2
Durable goods	7.5	7.4	–.1	5.2	5.2	0
Nondurable goods	6.4	6.5	.1	2.4	2.7	.3
Services	8.8	8.8	0	3.7	3.9	.2
Gross private domestic investment	7.6	7.9	.3	4.2	4.6	.4
Fixed investment	7.6	7.9	.3	4.1	4.5	.4
Nonresidential	8.0	8.4	.4	4.9	5.4	.5
Structures	6.9	7.2	.3	2.2	2.5	.3
Equipment and software	8.5	9.0	.5	6.3	6.8	.5
Residential	6.8	6.8	0	2.2	2.2	0
Change in private inventories .....	.....	.....	.....	.....	.....	.....
Net exports of goods and services .....	.....	.....	.....	.....	.....	.....
Exports	10.3	10.4	.1	6.9	7.0	.1
Imports	10.5	10.5	0	6.5	6.5	0
Government consumption expenditures and gross investment	6.9	6.9	0	1.9	2.1	.2
Federal	5.4	5.5	.1	.6	.9	.3
National defense	4.8	4.8	0	–.1	.2	.3
Nondefense	7.3	7.5	.2	2.5	2.7	.2
State and local	8.2	8.2	0	3.1	3.2	.1
Addendum:						
Disposable personal income	7.6	7.7	.1	3.3	3.5	.2
1977–92						
Gross domestic product	7.8	7.9	0.1	2.6	2.9	0.3
Personal consumption expenditures	8.3	8.3	0	2.7	3.0	.3
Durable goods	6.8	6.6	–.2	3.5	3.4	–.1
Nondurable goods	6.7	6.7	0	1.8	2.2	.4
Services	9.7	9.7	0	3.1	3.5	.4
Gross private domestic investment	5.4	6.0	.6	1.6	2.3	.7
Fixed investment	5.9	6.3	.4	1.9	2.5	.6
Nonresidential	6.3	6.9	.6	2.7	3.6	.9
Structures	5.6	5.7	.1	1.0	1.1	.1
Equipment and software	6.6	7.5	.9	3.7	4.8	1.1
Residential	4.9	4.9	0	–.1	–.1	0
Change in private inventories .....	.....	.....	.....	.....	.....	.....
Net exports of goods and services .....	.....	.....	.....	.....	.....	.....
Exports	9.7	9.7	0	6.5	6.7	.2
Imports	9.0	9.0	0	5.2	5.2	0
Government consumption expenditures and gross investment	7.7	7.7	0	2.4	2.7	.3
Federal	7.5	7.7	.2	2.4	2.9	.5
National defense	7.6	7.8	.2	2.3	2.9	.6
Nondefense	7.3	7.4	.1	2.5	2.9	.4
State and local	7.8	7.8	0	2.4	2.5	.1
Addendum:						
Disposable personal income	8.2	8.3	.1	2.6	3.1	.5
1992–98						
Gross domestic product	5.3	5.6	0.3	3.2	3.6	0.4
Personal consumption expenditures	5.5	5.6	.1	3.4	3.6	.2
Durable goods	6.8	6.8	0	7.1	7.3	.2
Nondurable goods	3.9	4.4	.5	2.6	3.3	.7
Services	6.0	6.1	.1	3.0	3.1	.1
Gross private domestic investment	9.6	10.0	.4	9.1	9.5	.4
Fixed investment	8.9	9.4	.5	8.4	8.8	.4
Nonresidential	9.0	9.7	.7	9.5	10.1	.6
Structures	6.5	8.0	1.5	3.1	4.3	1.2
Equipment and software	10.1	10.3	.2	12.1	12.2	.1
Residential	8.6	8.5	–.1	5.6	5.3	–.3
Change in private inventories .....	.....	.....	.....	.....	.....	.....
Net exports of goods and services .....	.....	.....	.....	.....	.....	.....
Exports	7.0	7.2	.2	7.5	7.5	0
Imports	8.8	9.0	.2	10.6	10.5	–.1
Government consumption expenditures and gross investment	2.7	3.1	.4	.4	.8	.4
Federal	–.2	.1	.3	–2.5	–2.0	.5
National defense	–1.6	–1.4	.2	–3.7	–3.3	.4
Nondefense	2.9	3.3	.4	0	.6	.6
State and local	4.7	5.1	.4	2.3	2.6	.3
Addendum:						
Disposable personal income	4.6	4.8	.2	2.5	2.8	.3

revision was for 1991, when the change in real GDP was revised from -0.9 percent to -0.2 percent.

For 1992-98, the percent changes in real GDP were revised up for all years. The largest revisions were for 1992 (up 0.6 percentage point to 3.3 percent) and for 1997 (up 0.6 percentage point to 4.5 percent).

Real disposable personal income (DPI).—For 1959-98, the revised estimates of real DPI showed an average annual growth rate of 3.5 percent, 0.2 percentage point higher than was shown in the previously published estimates (table 20). For 1959-92, the average annual growth rate was 3.6 percent, also 0.2 percentage point higher; for 1992-98, the growth rate was 2.8 percent, 0.3 percentage point higher.

Annual Prices

Revisions to the chain-type price indexes result from the incorporation of revised and newly available source data and of revised weights into the chain formula.³⁷

For 1959-98, the revised chain-type estimates for gross domestic purchases prices showed an average annual growth rate of 4.1 percent, 0.1 percentage point lower than the previously published

estimate (table 21). For GDP prices, the revised growth rate was 4.0 percent, 0.2 percentage point lower than the previously published estimate.

For 1959-92, the revised chain-type estimates for gross domestic purchases prices showed an average annual growth rate of 4.5 percent, 0.1 percentage point lower than the previously published estimate. For GDP prices, the average annual growth rate was 4.4 percent 0.2 percentage point lower than the previously published estimate.

For 1992-98, the revised chain-type estimates for gross domestic purchases prices showed an average annual growth rate of 1.8 percent, the same as the previously published estimate. For GDP prices, the average annual growth rate was 1.9 percent, 0.1 percentage point lower than the previously published estimate.

For 1959-92, the largest revisions were to the prices of PCE for nondurable goods and to the prices of national defense. The revisions to the prices of PCE for nondurable goods reflected the incorporation of geometric-mean-type CPI's back to 1978.³⁸ The revisions to the prices of national defense reflected both the incorporation of revised prices that were used to calculate CFC for military aircraft and the calculation of chain-type price indexes at a more detailed level than in the previously published estimates.

37. For a discussion of the new price measures introduced in this comprehensive revision, see Moulton and Seskin, "Statistical Changes," 13-15.

38. See Moulton and Seskin, "Statistical Changes," 16-17.

**Table 21.—Prices of Gross Domestic Product and Its Major Components:
Revisions to Average Annual Rates of Change Over Selected Periods**
[Percent]

	1959-98			1959-92			1992-98		
	Previously published	Revised	Revision	Previously published	Revised	Revision	Previously published	Revised	Revision
Gross domestic product	4.2	4.0	-0.2	4.6	4.4	-0.2	2.0	1.9	-0.1
Personal consumption expenditures	4.2	4.0	-0.2	4.6	4.4	-0.2	2.0	1.9	-0.1
Durable goods	2.2	2.1	-0.1	2.7	2.6	-0.1	-3	-5	-2
Nondurable goods	3.9	3.7	-0.2	4.4	4.2	-0.2	1.2	1.1	-0.1
Services	4.9	4.8	-0.1	5.2	5.1	-0.1	2.9	2.9	0
Gross private domestic investment	3.3	3.2	-0.1	3.8	3.7	-0.1	.5	.5	0
Fixed investment	3.4	3.3	-0.1	3.9	3.8	-0.1	.5	.5	0
Nonresidential	2.9	2.9	0	3.6	3.5	-0.1	-4	-4	0
Structures	4.6	4.6	0	4.8	4.8	0	3.3	3.5	.2
Equipment and software	2.1	2.0	-0.1	2.8	2.7	-0.1	-1.8	-1.6	.2
Residential	4.5	4.5	0	4.8	4.7	-0.1	2.9	3.1	.2
Change in private inventories									
Net exports of goods and services									
Exports	3.2	3.1	-0.1	3.9	3.8	-0.1	-4	-3	.1
Imports	3.8	3.9	.1	4.9	4.8	-0.1	-1.6	-1.4	.2
Government consumption expenditures and gross investment	4.8	4.7	-0.1	5.3	5.2	-0.1	2.3	2.3	0
Federal	4.8	4.6	-0.2	5.2	5.0	-0.2	2.3	2.2	-0.1
National defense	4.8	4.6	-0.2	5.3	5.1	-0.2	2.1	2.0	-0.1
Nondefense	4.7	4.6	-0.1	5.1	5.0	-0.1	2.9	2.7	-0.2
State and local	4.9	4.9	0	5.4	5.3	-0.1	2.3	2.4	.1
Addendum:									
Gross domestic purchases	4.2	4.1	-0.1	4.6	4.5	-0.1	1.8	1.8	0

For 1992–98, the largest revisions were upward to prices of nonresidential structures, of nonresidential equipment and software, of residential structures, and of imports and downward to prices of PCE for durable goods and of Federal nondefense.

Quarterly Real GDP

Revisions to quarterly (and monthly) NIPA estimates reflect the revisions to the annual estimates, the incorporation of new and revised monthly and quarterly source data (including the updating of seasonal factors), and the introduction of changes in methodology.

This section focuses on the impact of revisions on business cycles, as measured by turning points in quarterly real GDP, particularly on the most recent cycles (table 22) and on the most recent quarters (table 23).

For the period beginning with 1959, there are no changes in the timing of business cycle peaks and troughs. Of the six contractions since 1959, all have less steep declines except the contraction that began in the third quarter of 1969; for that contraction, the decline was unrevised. The largest revision was for the contraction that began in the second quarter of 1990; the average quarterly percent change in real GDP (at annual rates) is now –1.8 percent, compared with –2.7 percent in the previously published estimates.

Of the five complete expansions since 1959, two now have stronger increases, two have weaker increases, and one was unrevised. The largest upward revision was for the expansion that began in the third quarter of 1982; the average quarterly percent change is 4.1 percent, compared with 3.8 percent in the previously published estimates.

For the current expansion, which began in the first quarter of 1991, the average quarterly percent change through the second quarter of 1999 is now 3.5 percent, compared with 3.1 percent in the previously published estimates.

Of the 34 quarters of the current expansion, the quarter-to-quarter percent change in real GDP was revised up for 25 quarters and revised down for 9 quarters (chart 2). The revisions averaged 0.5

Table 22.—Revisions to Cyclical Fluctuations in Real GDP, 1960–99

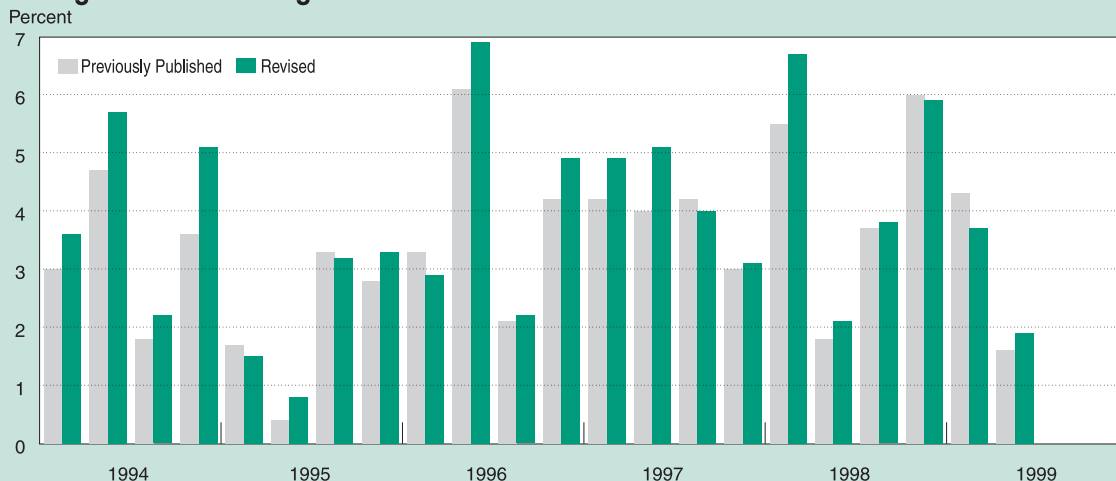
[Percent change per quarter at annual rate]

	Previously published	Revised	Revision
Contractions			
1960:I-1960:IV	-2.4	-2.1	0.3
1969:III-1970:IV	-5	-5	0
1973:IV-1975:I	-3.0	-2.4	.6
1980:I-1980:III	-4.9	-4.2	.7
1981:I-1982:III	-1.8	-1.5	.3
1990:II-1991:I	-2.7	-1.8	.9
Expansions			
1960:IV-1969:III	5.1	5.1	0
1970:IV-1973:IV	5.2	5.1	-.1
1975:I-1980:I	4.2	4.4	.2
1980:III-1981:I	7.9	7.6	-.3
1982:III-1990:II	3.8	4.1	.3
1991:I-1999:II ¹	3.1	3.5	.4

1. The current expansion is shown through the second quarter of 1999.

CHART 2

Real Gross Domestic Product: Change From Preceding Quarter



Seasonally Adjusted at Annual Rates

Table 23.—Real Gross Domestic Product: Percent Change From Preceding Quarter in the Revised and Previously Published Estimates

	Seasonally adjusted at annual rates															
	1991				1992				1993				1994			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	-1.7	2.6	1.3	2.5	4.3	4.0	3.1	5.2	-0.7	2.1	1.5	6.0	3.6	5.7	2.2	5.1
Previously published	-2.1	1.8	1.0	1.0	4.7	2.5	3.0	4.3	.1	2.0	2.1	5.3	3.0	4.7	1.8	3.6
Personal consumption expenditures	-1.4	3.3	1.7	-4	7.1	2.2	3.0	5.6	0	3.6	4.5	3.7	3.9	3.5	3.1	4.1
Previously published	-3.1	2.5	.9	-1.0	6.4	2.2	2.9	5.4	.4	3.4	4.1	2.9	3.8	3.0	2.3	3.2
Durable goods	-13.1	1.3	5.6	-6.3	14.8	2.3	9.4	10.1	1.3	15.2	9.2	12.1	5.3	3.5	4.4	12.4
Previously published	-14.1	1.7	6.1	-4.9	13.3	4.3	9.3	11.0	-7	12.6	8.4	9.6	6.4	3.8	4.3	11.0
Nondurable goods	-3	2.9	.2	-3.0	6.7	-6	2.7	6.5	0	4.4	3.6	2.6	5.0	3.4	3.6	4.3
Previously published	-2.4	2.3	-3	-3.4	5.9	-7	2.8	5.8	-7	3.1	2.7	1.5	5.0	2.1	2.2	2.7
Services	.5	4.0	1.8	2.2	5.9	3.7	1.9	4.2	-3	1.1	4.0	2.6	3.1	3.5	2.5	2.4
Previously published	-1.0	2.8	.6	1.2	5.4	3.4	1.7	4.0	1.3	1.7	4.0	2.3	2.7	3.3	2.0	1.9
Gross private domestic investment	-15.3	-3.1	10.8	17.7	-9.1	30.4	4.7	13.6	10.2	.9	-1.2	23.1	17.4	25.2	-5.8	18.9
Previously published	-10.8	-3.5	16.1	9.7	-2.6	19.5	2.9	7.0	17.4	.3	6.0	22.9	16.8	22.0	-6.1	13.3
Fixed investment	-13.0	-1.7	1.3	1.6	5.8	17.0	6.0	13.3	3.1	6.3	6.3	18.6	5.9	10.2	4.3	10.7
Previously published	-15.4	-1.7	.9	.6	9.1	13.3	2.5	9.7	4.5	8.2	6.6	18.3	3.2	11.9	4.2	7.0
Nonresidential	-9.7	-2.7	-2.8	-2.0	-7	15.8	7.5	11.4	4.1	9.3	4.6	17.2	4.7	8.1	7.3	17.0
Previously published	-12.5	-3.0	-4.0	-4.1	3.6	10.0	2.2	6.2	6.2	12.5	4.9	16.4	.4	9.9	7.7	12.6
Structures	-8.5	-9.9	-23.1	-8.4	-3.9	-6	2.6	3.3	-1.0	-2.0	.5	7.5	-15.4	21.5	-1.0	2.8
Previously published	-7.7	-10.0	-22.7	-8.9	2.9	-3.9	-8.1	-4.3	6.0	5.5	3.4	3.3	-14.8	21.1	-1.1	2.3
Equipment and software	-10.3	.7	7.6	.8	.6	22.9	9.5	14.5	6.1	13.6	6.0	20.8	12.5	4.0	10.3	22.1
Previously published	-14.9	.9	6.8	-1.8	3.9	16.9	7.1	11.0	6.4	15.6	5.5	22.3	7.0	5.9	11.4	16.9
Residential	-23.0	1.8	15.3	13.4	27.4	20.4	2.0	18.8	.4	-1.4	11.1	22.6	9.1	15.7	-3.0	-4.4
Previously published	-23.4	2.0	16.4	14.7	24.7	22.2	3.3	18.7	.6	-1.6	10.8	23.1	10.0	16.6	-3.1	-5.0
Change in private inventories																
Net exports of goods and services																
Exports	-1.0	21.5	2.7	15.0	4.1	2.1	2.3	6.9	-1.1	7.8	-8.0	21.7	1.6	17.3	10.0	14.1
Previously published	-1.1	21.0	2.3	13.8	6.3	1.8	2.5	6.0	-1.2	8.2	-8.1	21.9	-1.8	17.7	10.6	14.7
Imports	-11.3	14.8	11.2	5.0	1.2	12.5	1.6	10.2	9.8	12.0	3.9	16.8	7.9	18.9	12.0	10.0
Previously published	-12.3	14.7	10.8	5.1	4.1	13.3	1.3	11.6	7.6	12.4	3.8	17.7	7.6	19.0	13.1	9.9
Government consumption expenditures and gross investment	1.9	1.3	-1.6	-1.6	3.2	-5	2.1	.1	-5.0	.4	0	1.1	-3.9	.7	8.0	-3.6
Previously published	.9	.4	-2.7	-1.4	2.5	-3	2.9	1.9	-6.9	1.0	-8	1.3	-4.0	.4	8.2	-3.8
Federal	3.2	.6	-6.8	-7.6	.6	-4	4.9	.5	-12.5	-5.0	-2.3	-1.1	-11.1	-4.1	13.9	-11.6
Previously published	2.8	-1	-7.7	-6.8	-1.4	-4.4	4.9	3.4	-15.4	-3.3	-4.9	-1	-10.7	-4.9	13.3	-11.3
State and local	.8	1.9	2.5	3.0	5.2	-5	.1	-2	.8	4.3	1.7	2.6	1.1	3.9	4.4	1.9
Previously published	-6	.7	1.2	2.8	5.4	.4	1.4	.9	-3	4.0	2.1	2.3	.7	4.0	5.1	1.2
Addenda:																
Final sales of domestic product	-1.3	2.7	.1	.5	6.5	2.4	3.3	5.1	-1.7	2.9	2.6	5.5	2.0	3.6	3.9	3.9
Previously published	-2.8	2.0	-7	-1	6.2	1.8	3.0	4.6	-1.5	3.1	2.2	4.8	1.2	3.4	3.3	2.7
Disposable personal income	.7	3.1	1.4	1.1	7.6	2.9	.1	7.5	-7.4	5.7	.3	5.4	-3.1	6.8	3.1	5.5
Previously published	-1.6	3.5	-1	.9	5.3	2.9	0	7.8	-7.7	7.3	1.1	4.8	-4.3	6.8	2.9	4.8

	Seasonally adjusted at annual rates															
	1995				1996				1997				1998			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	1.5	0.8	3.2	3.3	2.9	6.9	2.2	4.9	4.9	5.1	4.0	3.1	6.7	2.1	3.8	5.9
Previously published	1.7	.4	3.3	2.8	3.3	6.1	2.1	4.2	4.2	4.0	4.2	3.0	5.5	1.8	3.7	6.0
Personal consumption expenditures	1.5	4.0	3.2	2.7	3.3	4.5	2.2	3.2	4.9	1.8	6.6	3.4	5.6	6.1	3.9	4.6
Previously published	1.9	3.4	2.6	2.3	3.7	4.7	1.8	2.9	4.3	1.6	6.2	2.8	6.1	6.1	4.1	5.0
Durable goods	-2.7	5.0	9.5	3.4	4.1	13.0	-1.5	5.0	10.9	-1.5	20.2	5.0	16.9	11.2	4.1	20.4
Previously published	-1.0	5.9	8.3	4.8	5.8	12.7	-1.9	7.2	12.3	-1.5	16.8	3.1	15.8	11.2	2.4	24.5
Nondurable goods	2.1	2.9	1.7	3.4	2.4	4.2	2.2	4.0	3.8	-2	5.7	.3	5.8	6.7	2.4	5.0
Previously published	2.3	1.6	.7	2.0	2.2	4.8	1.2	2.9	3.6	-2	5.1	-4	7.4	5.3	2.1	4.2
Services	2.0	4.3	2.8	2.2	3.7	3.0	2.9	2.4	4.3	3.5	4.5	4.6	3.3	4.8	4.7	1.5
Previously published	2.3	3.8	2.4	1.9	4.0	3.0	3.0	2.0	3.1	3.2	4.7	4.3	3.5	5.4	5.4	1.7
Gross private domestic investment	4.2	-11.1	-3.3	12.5	7.1	22.5	16.5	.7	14.0	22.0	1.0	8.0	33.4	-4.7	10.4	11.5
Previously published	4.3	-11.9	.6	9.3	9.8	18.0	18.0	-7	15.3	20.3	1.5	8.9	28.3	-4.5	7.9	9.0
Fixed investment	9.2	-2.5	4.5	9.6	12.0	13.9	9.6	6.2	7.9	8.6	12.0	4.1	23.4	12.5	2.0	13.8
Previously published	8.2	.3	3.4	7.3	12.0	13.3	9.3	5.1	5.9	11.8	12.0	3.6	20.4	13.4	2.2	13.2
Nonresidential	16.0	2.5	2.6	9.5	13.1	11.6	13.6	10.0	9.6	9.9	16.0	3.2	26.7	12.1	0	15.3
Previously published	16.0	6.9	.9	6.1	13.1	11.0	14.2	8.8	7.0	14.0	17.0	1.8	22.2	12.8	-7	14.6
Structures	8.8	5.8	-3	-8	10.8	10.5	7.5	23.0	8.0	-4.0	11.2	4.3	5.7	7.1	-6.6	5.8
Previously published	10.7	5.1	-4	-3.8	6.4	7.4	8.9	24.5	3.9	-6.2	12.4	.9	-4.9	-2.3	.2	6.0
Equipment and software	18.4	1.5	3.6	13.1	14.0	12.0	15.7	5.9	10.1	15.2	17.7	2.8	34.7	13.8	2.4	18.6
Previously published	18.1	7.6	1.4	10.1	15.7	12.3	16.2	3.2	8.3	22.8	18.8	2.2	34.3	18.8	-1.0	17.8
Residential	-7.7	-15.6	10.1	9.7	8.8	20.6	-1.0	-4.1	3.0	4.7	.6	6.6	14.0	13.6	8.0	9.8
Previously published	-8.8	-15.0	10.1	10.6	9.3	19.5	-1.7	-3.9	3.1	6.1	-4	8.2	15.6	15.0	9.9	10.0
Change in private inventories																
Net exports of goods and services																
Exports	7.2	4.4	17.9	9.9	2.3	6.9	3.5	29.0	8.8	16.2	11.5	1.8	-1.5	-4.0	-1.7	16.1
Previously published	9.2	5.4	17.8	10.2	3.7	5.8	2.1	32.0	8.3	15.5	10.6	4.4	-2.8	-7.7	-2.8	19.7
Imports	8.8	6.2	1.2	3.9	10.8	13.3	14.4	6.3	15.5	19.1	17.6	5.2	14.4	13.0	5.2	10.8
Previously published	9.8	7.2	2.0	3.5	13.1	13.5	13.6	7.0	18.6	17.9	13.5	6.3	15.7	9.3	2.3	12.0
Government consumption expenditures and gross investment	.8	1.9	-9	-4.8	3.3	7.5	-2.3	2.5	1.7	5.7	1.7	-1	-1.0	6.0	1.3	2.9
Previously published	.1	1.2	-8	-4.1	3.2	7.1	-1.6	0	2.1	2.1	1.4	.1	-1.9	3.7	1.5	3.3
Federal	-1.4	.2	-2.8	-16.1	9.6	8.7	-7.7	-1.3	-2.8	9.9	-1.3	-4.2	-9.8	11.9	-2.3	3.9
Previously published	-2.6	-2.0	-2.6	-14.7	8.0	8.1	-4.7	-6.3	-2.7	3.6	-1.2	-2.1	-8.8	7.3	-1.4	7.3
State and local	2.3	3.0	.3	2.8	-3	6.9	1.1	4.9	4.4	3.4	3.5	2.4	4.1	3.0	3.3	2.3
Previously published	1.8	3.2	.4	2.8	.5	6.5	.3	3.8	4.9	1.3	2.9	1.3	2.1	1.8	3.1	1.3
Addenda:																
Final sales of domestic product	2.2	2.3	4.4	2.9	3.6	5.7	1.2	5.8	4.0	3.1	5.8	2.4	5.1	5.1	2.4	6.2
Previously published	2.2	2.3	3.7	2.5	3.6	5.4	.9	5.1	2.9	2.7	5.8	2.1	4.3	4.6	2.8	6.6
Disposable personal income	1.6	-4	2.8	2.9	2.7	2.1	4.6	1.7	4.4	4.2	3.6	4.3	4.0	3.8	4.5	4.8
Previously published	2.6	-6	2.7	3.9	2.9	2.1	4.4	1.3	3.3	2.9	2.4	2.9	4.0	2.6	3.2	4.3

percentage point (at annual rates, without regard to sign).

In the current expansion, the two largest quarterly revisions were 1.5 percentage points: For the fourth quarter of 1991, the increase was revised up to 2.5 percent, primarily reflecting the upward revision to the current-dollar estimate for the change in private nonfarm inventories; for the fourth quarter of 1994, the increase was revised up to 5.1 percent, primarily reflecting upward revisions to the current-dollar estimates for equipment and software and for the change in private nonfarm inventories.

Changes in Methodology

Comprehensive revisions provide the opportunity to introduce new and improved methodologies. Most of the methodological changes that were introduced in this comprehensive revision were described in the October SURVEY article on statistical changes; an additional change is described in this section. In addition, the definitional change that recognized software as investment required the development of methodologies to prepare these estimates. The methodology for the annual estimates was described in a "Technical Note" in the August SURVEY article on definitional and classificational changes;³⁹ the methodology for the quarterly estimates is described in this section.

New deflator for imputed unpriced services of regulated investment companies

Beginning with 1959, the imputed value of unpriced services of regulated investment companies—that is, mutual funds—has been redefined to equal operating expenses.⁴⁰ Under the new definition, operating expenses of regulated investment companies are measured as the amount reported on their Federal income tax return as "total deductions" plus BEA estimates of implicit charges by security dealers and of the imputed value of unpriced services charged by other financial intermediaries.

Accordingly, the methodology for estimating the real value of unpriced services has been changed. "Total deductions" and unpriced services charged by other financial intermediaries are now deflated with a composite index prepared

from the producer price index and the employment cost index; the reference-year value of the implicit charges by security dealers is extrapolated by the number of orders placed by regulated investment companies. Previously, the real value of the unpriced services was estimated by extrapolating the reference-year value by the hours worked by employees of regulated investment companies with no adjustment for changes in the productivity of these employees.

The change in methodology mostly affects PCE because these services are predominantly furnished to persons, but it also has a small effect on State and local government consumption expenditures.

Methodology for quarterly software estimates

Like most of the components of GDP, the annual estimates of software are based on source data that are more comprehensive and reliable than those available for the quarterly estimates.⁴¹ The quarterly estimates are prepared by interpolating and extrapolating the annual levels, using as indicators source data whose changes are similar to the changes in the annual estimates and—when such indicator series are not available—using mathematical techniques that generate smooth quarterly changes or using judgmental trends. More detailed information about the annual and quarterly estimates of software will be posted early next year on BEA's Web site at <www.bea.doc.gov>.

Current-dollar investment estimates.—Table 24 summarizes the source data used as indicators for calculating the quarterly estimates of current-dollar software investment.

Purchased software.—The source data used for prepackaged and custom software are essentially identical. For 1959–75, quarterly estimates for both types of software were prepared using interpolation without an indicator series. For 1976–87, the indicator series for both types of software was unemployment insurance (UI) wage and salary data for SIC 7372 (computer programming services and prepackaged software). For 1988–98, the indicator series for custom and for prepackaged software were UI data for SIC 7371 (computer programming services) and SIC 7372 (prepackaged software), respectively.⁴² For 1999, these UI

39. See Moulton, Parker, and Seskin, "Definitional and Classificational Changes," 17–20.

40. See Moulton, Parker, and Seskin, "Definitional and Classificational Changes," 14.

41. See Moulton, Parker, and Seskin, "Definitional and Classificational Changes," 17–20.

42. Beginning with 1988, the UI wage and salary data reflected a change introduced in the 1987 SIC that created separate industries for custom and prepackaged software.

series were used to extrapolate the quarterly estimates; until the *UI* series become available, a judgmental trend is used. (*UI* wage and salary data are available with a two-quarter lag for the advance and the preliminary current-quarterly estimates and with a one-quarter lag for the final current-quarterly estimates.)

Own-account software.—Beginning with 1959, a lagged three-quarter moving average of private fixed investment in computers and peripheral equipment was used as the indicator series for business software and for State and local government software. A lagged three-quarter moving average of Federal Government investment in computers and peripheral equipment was used as the indicator series for Federal Government software.

Price estimates.—Table 25 summarizes the source data used as indicators for calculating the quarterly estimates of software prices. Real quarterly software investment at the most detailed level was derived by deflation—that is, by dividing the current-dollar quarterly investment flows by price indexes.⁴³

Prepackaged software.—For 1959–96, this price index was prepared by interpolation without an indicator series. For 1997, the indicator series was

a quarterly version of BEA’s matched-model price index for prepackaged software, which was linked to the producer price index (*PPI*) for “prepackaged software—applications software” (*PPI* 73722) that BLS began publishing in December 1997; this *PPI* was used as the indicator series thereafter.

Custom software.—Beginning with 1959, this price index was prepared using as the indicator series a weighted average (25 percent prepackaged software and 75 percent business own-account software) of the percent changes in the price indexes for prepackaged software and for business own-account software (described next).

Business own-account software.—This price index was prepared using as the indicator series a weighted average of price indexes for intermediate inputs, for compensation of computer programmers, and for compensation of computer systems analysts. For all quarters, the intermediate inputs price index was based primarily on detailed *PPI* estimates. For 1959–79, the price indexes for compensation of computer programmers and of systems analysts were estimated without an indicator series. Beginning with 1980, the employment cost index for “total compensation, all workers, private industry” was used as the indicator series. The compensation price indexes and the intermediate inputs price index were combined using a Fisher chain-type

43. Aggregate measures of software, such as “all business” or “all government” were calculated using the Fisher index-number formula.

Table 24.—Indicator Series for Quarterly Estimates of Current-Dollar Software Investment

Software type	1959-75	1976-87	1988-98	1999
Prepackaged	Interpolated without an indicator series.	Wages in SIC 7372 (1972); eight-quarter moving average lag (BLS: Wages of workers covered by State unemployment insurance).	Wages in SIC 7372 (1987); eight-quarter moving average lag (BLS: Wages of workers covered by State unemployment insurance).	Wages in SIC 7372 (1987); eight-quarter moving average lag (BLS: Wages of workers covered by State unemployment insurance). ¹
Custom	Interpolated without an indicator series.	Wages in SIC 7372 (1972); eight-quarter moving average lag (BLS: Wages of workers covered by State unemployment insurance).	Wages in SIC 7371 (1987); eight-quarter moving average lag (BLS: Wages of workers covered by State unemployment insurance).	Wages in SIC 7371 (1987); eight-quarter moving average lag (BLS: Wages of workers covered by State unemployment insurance). ¹
Business own-account	NIPA current-dollar private fixed investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar private fixed investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar private fixed investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar private fixed investment, computers and peripheral equipment; three-quarter moving average lag.
Federal own-account	NIPA current-dollar Federal Government gross investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar Federal Government gross investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar Federal Government gross investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar Federal Government gross investment, computers and peripheral equipment; three-quarter moving average lag.
State and local own-account	NIPA current-dollar private fixed investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar private fixed investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar private fixed investment, computers and peripheral equipment; three-quarter moving average lag.	NIPA current-dollar private fixed investment, computers and peripheral equipment; three-quarter moving average lag.

1. Current-quarterly wages are projected based on previous quarters' wages.
BLS Bureau of Labor Statistics
SIC Standard Industrial Classification

formula to calculate the indicator series for the business own-account software price index.

Government own-account software.—Separate price indexes for Federal Government and for State and local government own-account software were calculated using the same methodology as that used for business, but using different compensation price indexes. For Federal Government own-account software, an adjusted NIPA price index for Federal nondefense compensation was used to estimate the programmer and systems analyst price indexes.⁴⁴ For State and local government own-account software, the NIPA price index for compensation of State and local government noneducation employees was used.

Consumption of fixed capital (CFC) and business incomes.—Quarterly estimates of CFC for each

software category were calculated as the product of quarterly estimates of real CFC—derived by interpolating annual estimates without an indicator series—and quarterly software price indexes. Estimates for the current quarters were prepared as the product of judgmental projections of real CFC and the current-quarterly software prices described earlier. Real CFC was calculated separately for total investment, for business and government investment, and within government, for Federal Government defense and nondefense and for State and local government. In addition, separate estimates were prepared for Federal Government enterprises, for State and local government enterprises, and for nonprofit institutions serving individuals. For capital consumption allowances and the other adjustments to business incomes, separate estimates were not prepared; the CFC's for these components were assumed to change quarterly in a manner similar to the components of which they are a part.

Appendixes A and B follow. 

Table 25.—Indicator Series for Quarterly Estimates of Software Prices

Software type	1959-79	1980-96	1997	1998-99
Prepackaged	Interpolated without an indicator series.	Interpolated without an indicator series.	BEA monthly matched-model index.	Producer price index 73722 (all applications software).
Custom	Prepackaged software index and business own-account software index.	Prepackaged software index and business own-account software index.	Prepackaged software index and business own-account software index.	Prepackaged software index and business own-account software index.
Business own-account	BEA own-account software intermediate inputs index; compensation interpolated without an indicator series.	BEA own-account software intermediate inputs index and BLS employee compensation index, all workers, private industry.	BEA own-account software intermediate inputs index and BLS employee compensation index, all workers, private industry.	BEA own-account software intermediate inputs index and BLS employee compensation index, all workers, private industry.
Federal own-account	BEA own-account software intermediate inputs index and Federal Government nondefense compensation price index.	BEA own-account software intermediate inputs index and Federal Government nondefense compensation price index.	BEA own-account software intermediate inputs index and Federal Government nondefense compensation price index.	BEA own-account software intermediate inputs index and Federal Government nondefense compensation price index.
State and local own-account	BEA own-account software intermediate inputs index and State and local government noneducation compensation price index.	BEA own-account software intermediate inputs index and State and local government noneducation compensation price index.	BEA own-account software intermediate inputs index and State and local government noneducation compensation price index.	BEA own-account software intermediate inputs index and State and local government noneducation compensation price index.

Appendix A.—Gross Domestic Product, 1959–98

[Dollar figures are in billions]

Year	Revised	Previously published	Revision			Total revision as a percentage of previously published
			Total	Definitional changes	Statistical changes	
1959	507.4	507.2	0.2	-0.1	0.3	0
1960	527.4	526.6	.8	.1	.7	.2
1961	545.7	544.8	.9	0	.9	.2
1962	586.5	585.2	1.3	.3	1.0	.2
1963	618.7	617.4	1.3	.4	.9	.2
1964	664.4	663.0	1.3	.6	.7	.2
1965	720.1	719.1	1.0	.4	.6	.1
1966	789.3	787.8	1.5	.6	.9	.2
1967	834.1	833.6	.5	0	.5	.1
1968	911.5	910.6	.9	0	.9	.1
1969	985.3	982.2	3.1	2.4	.7	.3
1970	1,039.7	1,035.6	4.0	3.0	1.0	.4
1971	1,128.6	1,125.4	3.2	2.2	1.0	.3
1972	1,240.4	1,237.3	3.1	2.8	.3	.3
1973	1,385.5	1,382.6	2.9	4.2	-1.3	.2
1974	1,501.0	1,496.9	4.1	5.2	-1.1	.3
1975	1,635.2	1,630.6	4.5	6.1	-1.6	.3
1976	1,823.9	1,819.0	5.0	6.3	-1.3	.3
1977	2,031.4	2,026.9	4.5	7.1	-2.6	.2
1978	2,295.9	2,291.4	4.5	8.5	-4.0	.2
1979	2,566.4	2,557.5	8.9	11.6	-2.7	.3
1980	2,795.6	2,784.2	11.3	13.3	-2.0	.4
1981	3,131.3	3,115.9	15.4	16.8	-1.4	.5
1982	3,259.2	3,242.1	17.1	19.9	-2.8	.5
1983	3,534.9	3,514.5	20.4	22.9	-2.5	.6
1984	3,932.7	3,902.4	30.3	29.7	.6	.8
1985	4,213.0	4,180.7	32.4	34.3	-1.9	.8
1986	4,452.9	4,422.2	30.7	30.9	-.2	.7
1987	4,742.5	4,692.3	50.2	44.1	6.0	1.1
1988	5,108.3	5,049.6	58.7	49.2	9.5	1.2
1989	5,489.1	5,438.7	50.4	53.8	-3.4	.9
1990	5,803.2	5,743.8	59.4	58.0	1.4	1.0
1991	5,986.2	5,916.7	69.5	68.8	.7	1.2
1992	6,318.9	6,244.4	74.5	78.3	-3.8	1.2
1993	6,642.3	6,558.1	84.2	90.6	-6.4	1.3
1994	7,054.3	6,947.0	107.3	99.2	8.1	1.5
1995	7,400.5	7,269.6	130.9	109.8	21.1	1.8
1996	7,813.2	7,661.6	151.6	123.7	27.9	2.0
1997	8,300.8	8,110.9	189.9	140.9	49.0	2.3
1998	8,759.9	8,511.0	248.9	169.0	80.0	2.9

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

[Billions of dollars]

	1959	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	Account 1.—National Income and Product Account												
Compensation of employees	-2	-2.1	-1	-6	-1.8	-3.0	-1	-5	4.2	-6.4	-13.4	-11.5	30.2
Wage and salary accruals	0	-2.5	-9	-1.3	-2.9	-3.4	-3.8	-2.4	.3	-8	-10.3	-8.9	35.6
Disbursements	0	-2.5	-9	-1.3	-2.9	-3.4	-3.8	-4.4	-4.0	-3.8	-4.6	-9	36.1
Wage accruals less disbursement	0	0	0	0	0	0	0	2.0	4.3	3.0	-5.7	-7.8	-5
Supplements to wages and salaries	-2	.4	.8	.7	1.2	.3	3.6	2.0	3.9	-5.6	-3.2	-2.7	-5.4
Employer contributions for social insurance	-3.0	-83.4	-84.0	-86.7	-88.1	-92.6	-94.6	-95.7	-98.6	-100.8	-106.3	-110.6	-114.1
Other labor income	2.8	83.7	84.8	87.4	89.4	92.9	98.2	97.7	102.5	95.4	103.0	108.0	108.8
Proprietors' income with inventory valuation and capital consumption adjustments	-1	-1.2	3.5	4.4	7.0	7.7	10.5	11.0	5.0	9.6	17.0	27.4	28.9
Rental income of persons with capital consumption adjustment	-2.5	-9.0	-11.0	-11.2	-11.9	-11.5	-16.1	-14.8	-14.1	-15.8	-20.5	-28.0	-25.2
Corporate profits with inventory valuation and capital consumption adjustments	.8	12.1	21.4	14.2	10.3	18.9	23.9	16.9	2.0	-4.1	3.5	20.0	21.5
Corporate profits with inventory valuation adjustment	.3	25.5	34.8	29.8	30.4	42.9	49.9	49.5	41.9	37.2	50.4	62.0	70.5
Profits before tax	.3	21.0	27.6	28.6	29.8	41.9	45.2	45.0	38.3	32.9	46.1	61.5	64.1
Profits tax liability	0	0	.2	.2	.1	.2	.1	.2	.1	0	-2.5	-7.8	.1
Profits after tax	.3	21.0	27.5	28.5	29.7	41.8	45.0	44.8	38.2	32.9	48.6	69.3	64.0
Dividends	-1	16.2	18.5	20.6	21.7	31.2	37.6	45.5	52.5	48.9	35.8	58.6	69.4
Undistributed profits	.5	4.8	8.9	7.8	8.0	10.5	7.4	-7	-14.3	-16.0	12.7	10.7	-5.4
Inventory valuation adjustment	0	4.5	7.1	1.2	.6	.9	4.7	4.5	3.7	4.3	4.3	.5	6.4
Capital consumption adjustment	.5	-13.3	-13.3	-15.4	-20.1	-24.0	-26.0	-32.7	-39.9	-41.3	-47.0	-42.0	-49.0
Net interest	-5	-10.7	-9.5	-13.5	-14.9	-18.2	-14.8	-28.2	-31.8	-30.8	-32.3	-19.5	-13.6
National income	-2.4	-11.0	4.3	-6.7	-11.2	-6.1	3.3	-15.7	-34.6	-47.5	-45.8	-11.6	41.7
Business transfer payments	0	0	-1	-5	-4	-4	-3	-4	.3	.6	.6	1.8	2.0
To persons	0	0	0	0	0	0	0	0	0	0	0	.7	.6
To the rest of the world	0	.1	-1	-5	-4	-4	-3	-3	.3	.6	.7	1.0	1.4
Indirect business tax and nontax liability	0	4.5	7.1	6.0	4.7	4.2	5.0	7.6	6.8	13.4	13.6	18.6	21.7
Less: Subsidies less current surplus of government enterprises	0	-9	-1.1	-1.6	0	-2.1	-4.7	-1.5	-1.4	-2.9	.6	-2.9	-6.3
Consumption of fixed capital	.2	41.6	46.7	53.3	61.0	69.2	75.2	85.7	98.2	111.4	124.4	137.9	158.9
Private	-3	32.6	35.8	40.4	46.4	52.7	58.0	66.4	76.7	87.1	97.8	109.0	127.5
Government	.5	9.1	10.8	12.9	14.5	16.5	17.1	19.2	21.5	24.3	26.6	28.9	31.5
General government	.5	7.9	9.6	11.5	13.0	14.8	15.3	17.2	19.3	21.9	23.9	25.9	28.2
Government enterprises	0	1.2	1.2	1.3	1.6	1.7	1.8	2.0	2.3	2.5	2.6	2.9	3.3
Gross national income	-2.2	36.1	59.0	53.5	54.1	68.9	87.9	78.7	72.0	80.8	92.2	149.5	230.6
Less: Income receipts from the rest of the world	0	6.9	7.1	8.2	10.8	11.5	13.2	3.6	7.8	7.1	10.1	17.1	16.1
Plus: Income payments to the rest of the world	0	2.1	1.7	2.0	2.9	2.5	.8	-2.0	-8	4.3	4.4	4.9	5.6
Gross domestic income	-2.2	31.3	53.6	47.3	46.3	60.0	75.5	73.1	63.4	77.9	86.5	137.2	220.0
Statistical discrepancy	2.4	18.7	5.1	3.1	13.2	9.5	-1.1	11.2	43.9	53.0	65.0	52.6	28.9
GROSS DOMESTIC PRODUCT	.2	50.2	58.7	50.4	59.4	69.5	74.5	84.2	107.3	130.9	151.6	189.9	248.9
Personal consumption expenditures	0	10.8	6.9	1.9	-7.8	-3.9	-10.1	-4.5	-6	15.1	21.8	30.7	40.7
Durable goods	0	3.0	-8	-5.0	-8.9	-12.2	-17.7	-16.8	-18.7	-21.3	-26.8	-30.1	-26.5
Nondurable goods	0	1.3	1.8	1.6	.8	1.2	1.1	4.5	9.6	23.7	34.9	41.1	46.5
Services	0	6.5	5.9	5.4	.3	7.1	6.5	7.7	8.5	12.8	13.8	19.7	20.7
Gross private domestic investment	-3	34.3	47.2	43.7	62.0	64.0	76.2	78.9	89.2	100.6	110.8	127.7	164.1
Fixed investment	0	31.4	39.6	47.7	55.6	61.9	68.2	78.3	88.0	98.2	112.9	126.8	152.2
Nonresidential	0	31.3	37.8	47.2	54.4	61.6	68.2	78.1	88.0	97.4	111.5	125.4	153.1
Structures	0	0	.3	1.1	1.7	1.7	3.0	3.0	3.0	3.3	8.1	13.9	25.9
Equipment and software	.1	31.4	37.5	46.1	52.7	59.8	65.2	75.1	85.0	94.1	103.4	111.6	127.2
Residential	0	0	1.7	.5	1.1	.3	-1	.2	0	.8	1.5	1.3	-9
Change in private inventories	-3	2.9	7.6	-4.0	6.5	2.1	8.0	.6	1.4	2.3	-2.1	.9	11.9
Net exports of goods and services	0	-2	-2	-3	-1	-2	1.6	.2	3.8	-4	2.2	5.1	1.6
Exports	0	-1	-3	-3	-1	-2	-2.6	-6	3.9	-8	.4	2.6	7.3
Imports	0	0	0	0	0	0	-4.4	-8	0	-5	-1.9	-2.5	5.7
Government consumption expenditures and gross investment	.5	5.1	4.9	5.1	5.3	9.6	6.7	9.6	14.9	15.6	16.7	26.4	42.6
Federal	.2	4.7	5.3	5.4	4.8	4.8	6.5	9.0	10.9	12.4	13.2	17.6	18.1
National defense	.3	.8	1.9	2.6	1.8	1.0	2.7	4.2	5.9	6.2	6.0	6.5	8.2
Nondefense	-1	4.0	3.5	2.6	3.2	3.8	3.8	4.7	4.9	6.2	7.2	11.0	9.9
State and local	.3	.3	-4	-2	.4	4.7	.2	.7	4.0	3.2	3.6	8.8	24.5
GROSS DOMESTIC PRODUCT	.2	50.2	58.7	50.4	59.4	69.5	74.5	84.2	107.3	130.9	151.6	189.9	248.9

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

[Billions of dollars]

	1959	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	Account 2.—Personal Income and Outlay Account												
Personal tax and nontax payments	-1.7	-11.2	-12.3	-11.4	-15.2	-14.3	-14.7	-15.4	-16.5	-16.7	-20.8	-20.7	-25.7
Personal outlays	0	12.0	8.4	7.7	1.2	5.8	-1	3.8	7.8	23.0	29.4	37.6	56.4
Personal consumption expenditures	0	10.8	6.9	1.9	-7.8	-3.9	-10.1	-4.5	-6	15.1	21.8	30.7	40.7
Interest paid by persons	0	0	0	4.0	6.9	7.0	7.0	7.2	7.0	7.1	6.3	5.2	13.3
Personal transfer payments to the rest of the world (net)	.1	1.2	1.5	1.8	2.1	2.6	2.9	1.1	1.4	.8	1.3	1.7	2.4
Personal saving	1.3	83.9	97.1	107.0	121.0	128.2	149.6	140.5	138.7	122.6	113.6	150.1	202.0
PERSONAL TAXES, OUTLAYS, AND SAVING	-4	84.7	93.2	103.4	107.0	119.8	134.7	129.0	130.1	128.8	122.2	167.1	232.8
Wage and salary disbursements	0	-2.5	-9	-1.3	-2.9	-3.4	-3.8	-4.4	-4.0	-3.8	-4.6	-9	36.1
Other labor income	2.8	83.7	84.8	87.4	89.4	92.9	98.2	97.7	102.5	95.4	103.0	108.0	108.8
Proprietors' income with inventory valuation and capital consumption adjustments	-1	-1.2	3.5	4.4	7.0	7.7	10.5	11.0	5.0	9.6	17.0	27.4	28.9
Rental income of persons with capital consumption adjustment	-2.5	-9.0	-11.0	-11.2	-11.9	-11.5	-16.1	-14.8	-14.1	-15.8	-20.5	-28.0	-25.2
Personal dividend income	-1	21.9	25.2	28.5	30.5	40.6	47.4	55.9	63.7	61.2	49.2	73.1	85.2
Dividends	-1	16.2	18.5	20.6	21.7	31.2	37.6	45.5	52.5	48.9	35.8	58.6	69.4
Less: Dividends received by government	0	-5.7	-6.7	-7.9	-8.8	-9.3	-9.9	-10.3	-11.2	-12.2	-13.4	-14.5	-15.8
Personal interest income	.3	49.7	55.0	62.0	68.0	72.6	82.9	74.5	74.3	87.6	91.2	107.6	133.0
Net interest	-5	-10.7	-9.5	-13.5	-14.9	-18.2	-14.8	-28.2	-31.8	-30.8	-32.3	-19.5	-13.6
Net interest paid by government	.8	60.4	64.6	71.5	76.1	83.7	90.8	95.5	99.1	111.3	117.3	121.9	133.3
Interest paid by persons	0	0	0	4.0	6.9	7.0	7.0	7.2	7.0	7.1	6.3	5.2	13.3
Transfer payments to persons	-2.8	-74.7	-80.7	-85.6	-93.4	-100.0	-106.5	-113.4	-120.8	-130.0	-139.2	-148.0	-165.4
From business	0	0	0	0	0	0	0	0	0	0	0	.7	.6
From government	-2.8	-74.7	-80.7	-85.7	-93.4	-100.0	-106.5	-113.3	-120.8	-130.0	-139.1	-148.8	-166.0
Less: Personal contributions for social insurance	-1.9	-16.9	-17.4	-19.2	-20.2	-20.7	-21.8	-22.5	-23.4	-24.8	-25.9	-28.1	-31.5
PERSONAL INCOME	-4	84.7	93.2	103.4	107.0	119.8	134.7	129.0	130.1	128.8	122.2	167.1	232.8
	Account 3.—Government Receipts and Expenditures Account												
Consumption expenditures	.5	-5.7	-8.4	-9.8	-11.0	-10.2	-7.3	-6.8	-4.7	-4.2	-3.7	3.7	10.8
Transfer payments	-2.8	-75.7	-81.8	-86.7	-96.7	-101.0	-106.9	-113.9	-121.9	-131.6	-141.7	-151.5	-168.8
To persons	-2.8	-74.7	-80.7	-85.7	-93.4	-100.0	-106.5	-113.3	-120.8	-130.0	-139.1	-148.8	-166.0
To the rest of the world (net)	0	-1.0	-1.1	-1.0	-3.3	-1.1	-4	-6	-1.1	-1.6	-2.6	-2.7	-2.8
Net interest paid	.8	60.4	64.6	71.5	76.1	83.7	90.8	95.5	99.1	111.3	117.3	121.9	133.3
Less: Dividends received by government	0	-5.7	-6.7	-7.9	-8.8	-9.3	-9.9	-10.3	-11.2	-12.2	-13.4	-14.5	-15.8
Subsidies less current surplus of government enterprises	0	-9	-1.1	-1.6	0	-2.1	-4.7	-1.5	-1.4	-2.9	.6	-2.9	-6.3
Less: Wage accruals less disbursements	0	0	0	0	0	0	0	0	0	0	0	0	0
Current surplus or deficit (-), national income and product accounts	-5.2	-90.6	-86.4	-92.4	-95.8	-102.9	-107.9	-109.5	-113.9	-114.0	-127.7	-134.4	-134.3
Federal	.6	-19.0	-16.1	-16.6	-18.3	-19.3	-16.6	-23.4	-25.6	-17.6	-26.5	-27.7	-25.9
State and local	-5.8	-71.6	-70.3	-75.8	-77.5	-83.6	-91.2	-85.9	-88.2	-96.4	-101.2	-106.6	-108.5
GOVERNMENT CURRENT EXPENDITURES AND SURPLUS	-6.7	-106.9	-106.4	-111.2	-118.7	-123.2	-126.2	-125.8	-131.7	-129.0	-141.9	-148.7	-149.4
Personal tax and nontax payments	-1.7	-11.2	-12.3	-11.4	-15.2	-14.3	-14.7	-15.4	-16.5	-16.7	-20.8	-20.7	-25.7
Corporate profits tax liability	0	0	.2	.2	.1	.2	.1	.2	.1	0	-2.5	-7.8	.1
Indirect business tax and nontax liability	0	4.5	7.1	6.0	4.7	4.2	5.0	7.6	6.8	13.4	13.6	18.6	21.7
Contributions for social insurance	-5.0	-100.2	-101.3	-106.0	-108.4	-113.3	-116.4	-118.2	-122.1	-125.7	-132.2	-138.8	-145.6
Employer	-3.0	-83.4	-84.0	-86.7	-88.1	-92.6	-94.6	-95.7	-98.6	-100.8	-106.3	-110.6	-114.1
Personal	-1.9	-16.9	-17.4	-19.2	-20.2	-20.7	-21.8	-22.5	-23.4	-24.8	-25.9	-28.1	-31.5
GOVERNMENT CURRENT RECEIPTS	-6.7	-106.9	-106.4	-111.2	-118.7	-123.2	-126.2	-125.8	-131.7	-129.0	-141.9	-148.7	-149.4

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

[Billions of dollars]

	1959	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	Account 4.—Foreign Transactions Account												
Exports of goods and services	0	–1	–3	–3	–1	–2	–2.6	–6	3.9	–8	.4	2.6	7.3
Income receipts	0	6.9	7.1	8.2	10.8	11.5	13.2	3.6	7.8	7.1	10.1	17.1	16.1
RECEIPTS FROM THE REST OF THE WORLD	0	6.7	6.8	7.9	10.7	11.4	10.5	3.1	11.6	6.2	10.4	19.7	23.5
Imports of goods and services	0	0	0	0	0	0	–4.4	–8	0	–5	–1.9	–2.5	5.7
Income payments	0	2.1	1.7	2.0	2.9	2.5	.8	–2.0	–8	4.3	4.4	4.9	5.6
Transfer payments to the rest of the world (net)	0	.1	.3	.2	–1.6	1.1	2.2	.2	.7	–2	–6	.1	1.0
From persons (net)	.1	1.2	1.5	1.8	2.1	2.6	2.9	1.1	1.4	.8	1.3	1.7	2.4
From government (net)	0	–1.0	–1.1	–1.0	–3.3	–1.1	–4	–6	–1.1	–1.6	–2.6	–2.7	–2.8
From business	0	.1	–1	–5	–4	–4	–3	–3	.3	.6	.7	1.0	1.4
Net foreign investment	0	4.4	4.9	5.7	9.4	7.6	11.8	5.7	11.7	2.6	8.5	17.2	11.1
PAYMENTS TO THE REST OF THE WORLD	0	6.7	6.8	7.9	10.7	11.4	10.5	3.1	11.6	6.2	10.4	19.7	23.5
	Account 5.—Gross Saving and Investment Account												
Gross private domestic investment	–3	34.3	47.2	43.7	62.0	64.0	76.2	78.9	89.2	100.6	110.8	127.7	164.1
Gross government investment	0	10.8	13.3	15.0	16.4	19.8	14.0	16.4	19.7	19.9	20.4	22.7	31.7
Net foreign investment	0	4.4	4.9	5.7	9.4	7.6	11.8	5.7	11.7	2.6	8.5	17.2	11.1
GROSS INVESTMENT	–2	49.6	65.3	64.4	87.7	91.4	102.0	101.1	120.6	123.1	139.8	167.6	206.9
Personal saving	1.3	83.9	97.1	107.0	121.0	128.2	149.6	140.5	138.7	122.6	113.6	150.1	202.0
Wage accruals less disbursements (private)	0	0	0	0	0	0	0	2.0	4.3	3.0	–5.7	–7.8	–5
Undistributed corporate profits with inventory valuation and capital consumption adjustments	1.0	–4.0	2.8	–6.5	–11.5	–12.6	–13.9	–28.9	–50.6	–53.0	–29.9	–30.8	–48.2
Consumption of fixed capital	.2	41.6	46.7	53.3	61.0	69.2	75.2	85.7	98.2	111.4	124.4	137.9	158.9
Private	–3	32.6	35.8	40.4	46.4	52.7	58.0	66.4	76.7	87.1	97.8	109.0	127.5
Government	.5	9.1	10.8	12.9	14.5	16.5	17.1	19.2	21.5	24.3	26.6	28.9	31.5
General government	.5	7.9	9.6	11.5	13.0	14.8	15.3	17.2	19.3	21.9	23.9	25.9	28.2
Government enterprises	0	1.2	1.2	1.3	1.6	1.7	1.8	2.0	2.3	2.5	2.6	2.9	3.3
Government current surplus or deficit (–), national income and product accounts	–5.2	–90.6	–86.4	–92.4	–95.8	–102.9	–107.9	–109.5	–113.9	–114.0	–127.7	–134.4	–134.3
Statistical discrepancy	2.4	18.7	5.1	3.1	13.2	9.5	–1.1	11.2	43.9	53.0	65.0	52.6	28.9
GROSS SAVING AND STATISTICAL DISCREPANCY	–2	49.6	65.3	64.4	87.7	91.4	102.0	101.1	120.6	123.1	139.8	167.6	206.9