

Alternative Measures of Change in Real Output and Prices, Quarterly Estimates for 1959–92

By Allan H. Young

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THIS ARTICLE presents quarterly estimates of the alternative measures of change in real output and prices that BEA introduced in April 1992.¹ It also updates the annual estimates for 1988–90 to incorporate the results of the annual revision of the national income and product accounts (NIPA's) in July 1992 and extends the annual estimates to 1991.² The alternative measures, which supplement BEA's featured fixed-weighted measures, are especially useful for studies of long-term economic growth, for comparisons of business cycles, and for gauging the effect of changes in the economy's relative price structure on the measurement of real gross domestic product (GDP). Beginning with the May issue of the SURVEY OF CURRENT BUSINESS, BEA will publish current quarterly estimates of the alternative measures in the regular presentation of the preliminary and final NIPA estimates.

BEA's featured measure of real GDP is a fixed-weighted measure in which quantities in all periods are weighted with 1987 prices.³ The ad-

vantages of this type of measure are the following: (1) The index number formula itself is simple; (2) any two, or in fact any number of, periods can be compared on a consistent basis; and (3) the index may be stated in terms of real dollars (by using only the numerator of the formula). The third advantage makes it possible to "add up" the components of real output and to compute for each component the "real dollar share" of GDP and the "real dollar contribution" to the change in GDP.

The disadvantage of the fixed-weighted measure lies in the fact that it assumes the relative price structure of the economy does not change. It provides a good approximation for real growth in the economy as long as the change in the relative price structure remains fairly small, which is likely to be true over fairly short time periods. For longer periods, however, larger changes in price structure have taken place in the U.S. economy. The two alternative measures are designed to allow for changes over time in the relative price structure. For this reason, they provide a better basis for assessing long-term growth in the economy and for comparing business cycles.

The alternative measures also provide a way to monitor the extent to which changes in the relative price structure since 1987 are affecting the measurement of real GDP. If the difference between the 1987-weighted index and the alternatives becomes large and prolonged, the alternative indexes will be more appropriate than the 1987-weighted index for analysis of the most recent periods.⁴ BEA will discuss such differences in

1. See Allan H. Young, "Alternative Measures of Change in Real Output and Prices," SURVEY OF CURRENT BUSINESS 72 (April 1992): 32–48. Also see Jack E. Triplett, "Economic Theory and BEA's Alternative Quantity and Price Indexes," SURVEY 72 (April 1992): 49–52.

2. Estimates of the annual and quarterly alternative output and price measures for 1959–87 are available in U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts of the United States: Volume 2, 1959–88* (Washington, DC: U.S. Government Printing Office, September 1992). Order information is on the preceding page.

3. In this article, in order to facilitate comparisons with the alternative measures, BEA's featured measure of real GDP is shown as a fixed-weighted

The quantity and price measures presented in this article were prepared using a newly developed database that contains detailed current-dollar and price-index components and a refined algorithm for computing these measures. Beginning with 1987, there are some differences between the fixed-weighted price indexes that are calculated using these procedures and the fixed-weighted indexes that are presently shown in the national income and product accounts (NIPA's). See the headnote to the "Selected NIPA Tables" in this issue for information about these differences and how they will be incorporated into the NIPA tables.

quantity index in which the weights are 1987 prices. This index, divided by 100 and multiplied by the 1987 value of current-dollar GDP, is equal to real GDP in constant 1987 dollars—the form in which real GDP is customarily presented in the NIPA charts and tables. Percentage changes in these two forms of real GDP are identical.

4. As described in the article in the April 1992 SURVEY, BEA plans to introduce a fixed-weighted quantity index that is calculated using 1992 prices as a third alternative following the 1993 annual NIPA revision. This index will provide an advance indication of how the fixed-weighted index will be affected by the updating of the price weights in the next comprehensive revision. If changes in the relative price structure since 1987 become an important

the "Business Situation," the lead article in the SURVEY.

The first section of this article provides a summary description of the annual alternative measures for real GDP, explains the calculation of the quarterly values for these measures, and compares the quarterly measures of real GDP; the second section briefly describes and compares the GDP price measures.

Tables 1 and 2, at the end of this article, present the annual and quarterly estimates of the fixed-weighted and alternative quantity and price measures for 1988–92. Table 1 presents the index numbers for gross domestic product and its major components and for other selected aggregates, and table 2 presents percent changes for these series.

Real GDP Measures

Summary description of the annual alternative measures

Unlike the fixed-weighted measure, the two alternative measures of real GDP are not based on the price weights of a single base year. In one of

factor, this third alternative, like those presented in this article, would be more appropriate than the 1987-weighted index for analysis of the most recent periods. (None of the alternative indexes will indicate the extent to which measured growth may be affected by revised source data and changes in methodology in subsequent annual revisions or in the comprehensive revision. Such effects can be as large as or larger than the effect of the choice of price weights.)

Table A.—Number of Detailed Components Used in Calculating Alternative Measures of Real GDP and GDP Prices, Selected Years

	Annual estimates					Quarterly estimates				
	1959	1972	1977	1987	1991	1959	1972	1977	1987	1991
Gross domestic product	765	992	2,260	2,678	1,088	585	818	829	1,061	1,061
Personal consumption expenditures	197	197	200	203	203	197	197	200	203	203
Durable goods	32	32	34	34	34	32	32	34	34	34
Nondurable goods	63	63	63	63	63	63	63	63	63	63
Services	102	102	103	106	106	102	102	103	106	106
Gross private domestic investment	346	348	1,603	1,831	241	166	174	174	214	214
Fixed investment	219	221	455	683	105	68	70	70	96	96
Nonresidential	201	203	437	665	87	59	61	61	87	87
Structures	18	20	20	20	20	18	20	20	20	20
Producers' durable equipment	183	183	417	645	67	41	41	41	67	67
Residential	18	18	18	18	18	9	9	9	9	9
Change in business inventories	127	127	1,148	1,148	136	98	104	104	118	118
Net exports of goods and services	51	83	91	278	278	51	83	89	278	278
Exports	25	42	48	135	135	25	42	46	135	135
Merchandise	5	11	11	98	98	5	11	11	98	98
Services	20	31	37	37	37	20	31	35	37	37
Imports	26	41	43	143	143	26	41	43	143	143
Merchandise	5	13	13	113	113	5	13	13	113	113
Services	21	28	30	30	30	21	28	30	30	30
Government purchases	171	364	366	366	366	171	364	366	366	366
Federal	68	261	261	261	261	68	261	261	261	261
National defense .....	.....	191	191	191	191	.....	191	191	191	191
Nondefense .....	.....	70	70	70	70	.....	70	70	70	70
State and local	103	103	105	105	105	103	103	105	105	105

NOTE.—For more information on the system of components, including the decrease in the number of components after 1987, see Allan H. Young, "Alternative Measures of Change in Real Output and Prices," SURVEY 72 (April 1992): 41. In the 1993 annual NIPA revision, 1987-level annual detail will be available through 1991. The chain-type annual-weighted indexes will use the 1987 detail through 1991; the benchmark-years-weighted indexes based on weight years 1987 and 1992 will use the level shown for 1991 in the table.

the alternative measures, the *chain-type annual-weighted quantity index*, the weights change each year; in the other, the *benchmark-years-weighted quantity index*, the weights change each benchmark year—that is, at about 5-year intervals. These alternative indexes use the Fisher Ideal index formula to provide a measure of change between two periods.⁵

Chain-type annual-weighted quantity index.—For this alternative, a Fisher Ideal quantity index is used to calculate the change from year $t - 1$ to year t . Thus, the annual change is provided by the geometric mean of the year t values of two fixed-weighted quantity indexes, one of which uses prices of year $t - 1$ as weights and the other, prices of year t as weights. Annual changes computed in this manner are "chained" (multiplied) together to form a time series.⁶

Benchmark-years-weighted quantity index.—For this alternative, the Fisher Ideal index formula is adapted to use weights from pairs of adjacent benchmark years. (Benchmark years are used as weighting periods because, for components of GDP that incorporate information from the quinquennial economic censuses, the benchmark-year price and quantity estimates are considered to be more accurate than those for other years.) For each pair of benchmark years and for the interval between them, two fixed-weighted quantity indexes are computed: One with the prices of the first benchmark year as weights, and the other with the prices of the second benchmark year as weights. The geometric mean of these indexes is the benchmark-years-weighted quantity index. For example, for each year between the benchmark years of 1982 and 1987, the benchmark-years-weighted quantity index is the geometric mean of the fixed-weighted quantity index that uses 1982 prices as weights and the fixed-weighted quantity index that uses 1987 prices as weights.⁷ For years beyond the most recent benchmark year, the benchmark-years-weighted quantity index is calculated as the geometric mean of the fixed-weighted quantity

5. A Fisher Ideal quantity index is the geometric mean of a Laspeyres and a Paasche quantity index. The Laspeyres quantity index uses the prices of the first of the two periods being compared to weight quantities. The Paasche quantity index uses the prices of the second period. Given that the Fisher Ideal index is a geometric mean, the change in the Fisher Ideal index falls between the changes in the Paasche and Laspeyres indexes.

6. For example, if the percent change from year 1 to year 2 is 4.0 percent and from year 2 to year 3 is 5.0 percent, the annual changes are chained together as follows: Year 1 = 1.00, year 2 = 1.00 × 1.04, and year 3 = 1.00 × 1.04 × 1.05.

7. Except for statistical and definitional revisions, the former index corresponds to the fixed-weighted GDP measure used before the comprehensive revision in 1991. The latter index is the presently featured fixed-weighted GDP measure.

index that uses prices of the most recent benchmark year and the fixed-weighted quantity index that uses prices of the most recent year.⁸ Thus, at present, the index for years beyond 1987 is calculated using 1987 and 1991 prices. When prices for 1992—the next benchmark year—become available during the 1993 annual NIPA revision, the benchmark-years-weighted quantity index for the third quarter of 1987 forward will be recalculated using prices for 1987 and 1992. A year later, when prices for 1993 become available, the index will be extended to 1993 using 1992 prices as those of the most recent benchmark year and 1993 prices as those of the most recent year.

Quarterly alternative measures

The procedure for calculating the quarterly alternative measures is similar to that for the annual measures. For the chain-type annual-weighted index, the quarterly quantity indexes use the annual prices for adjacent years as weights. (Annual prices rather than quarterly prices are used as weights because annual prices are more stable and contain less statistical noise than quarterly prices.) The calculation of the quarterly values are “centered” between adjacent years—that is, price weights for year $t - 1$ and year t provide the basis for calculating the quarterly values of the

chain-type index for the third and fourth quarters of year $t - 1$ and for the first and second quarters of year t .

For the benchmark-years-weighted index, the quarterly quantity indexes use the annual prices for adjacent benchmark years as weights. These calculations are also centered—for example, the quarterly fixed-weighted quantity indexes that use 1982 and 1987 prices as weights are used to calculate the benchmark-years index from the third quarter of 1982 to the second quarter of 1987.

Because the calculation of the annual alternative measures is carried out in more detail than that for the quarterly measures, the quarterly measures are adjusted so that the annual average of the four quarterly values equals the corresponding annual measure. The number of detailed components in the quarterly and annual calculations is shown in [table A](#).

Most recent estimates.—For the chain-type annual-weighted index, the most recent quarterly values are calculated using annual prices for only the most recently available year as weights. For the benchmark-years-weighted index, the most recent quarterly values are calculated using the annual prices for the most recent benchmark year and for the most recently available year as weights. Each year, when more recent annual prices become available, the index is recalculated for the period since the most recent benchmark year. [Table B](#) illustrates the approaches used for the two alternative indexes,

Table B.—Price Weights for Most Recent Estimates

Following annual NIPA revision in:	Price weights for quarterly estimates are from the years shown ¹																															
	1990		1991				1992				1993				1994				1995				1996									
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I									
A. Chain-type annual-weighted index																																
1992.....	1990, 1991				1991																											
1993.....					1991, 1992								1992																			
1994.....					“								1992, 1993				1993															
1995.....					“								“				1993, 1994				1994											
B. Benchmark-years-weighted index																																
1992.....	1987, 1992												1987, 1991																			
1993.....													1992																			
1994.....													1992, 1993																			
1995.....													1992, 1994																			

NOTE.—The solid vertical lines indicate points from which the quarterly estimates are “centered,” as described in the text. The dotted vertical lines indicate quarters through which price weights introduced in a given annual NIPA revision extend. Annual revisions usually coincide with the release of estimates for the second quarter of the year. Therefore, the annual price weights introduced in an annual revision will be used only through the first quarter of the following year. Note that the price weights for recent years are subject to revision in subsequent annual NIPA revisions.

1. For clarification, consider the following two examples:

(a) For the chain-type annual-weighted index, following the annual NIPA revision in 1992, the estimates for the third quarter of 1990 through the second quarter of 1991 are calculated using price weights from 1990 and 1991.

(b) For the benchmark-years-weighted index, following the annual NIPA revision in 1994, the estimates for the third quarter of 1992 through the first quarter of 1995 will be calculated using price weights from 1992 (the most recent benchmark year) and 1993 (the most recently available year).

Table C.—Fixed-Weighted and Alternative Quantity Indexes for Gross Domestic Product and Percent Change from Preceding Period

	Index numbers (1987=100)			Percent				Index numbers (1987=100)			Percent		
	Fixed-weighted index	Chain-type annual weighted index	Benchmark years-weighted index	Fixed-weighted index	Chain-type annual weighted index	Benchmark years-weighted index		Fixed-weighted index	Chain-type annual weighted index	Benchmark years-weighted index	Fixed-weighted index	Chain-type annual weighted index	Benchmark years-weighted index
1959	42.5	39.2	38.8	5.5	.....	.....	1972: I	66.9	64.2	63.8	8.3	8.0	9.1
1960	43.4	40.1	39.7	2.2	2.3	2.3	II	68.1	65.3	64.9	7.1	6.9	7.0
1961	44.6	41.0	40.7	2.7	2.4	2.3	III	68.9	66.2	65.8	4.8	6.0	5.7
1962	46.9	43.5	43.2	5.2	6.1	6.2	IV	69.9	67.2	66.8	6.5	5.8	6.2
1963	48.8	45.4	45.1	4.1	4.3	4.4	1973: I	71.7	69.1	68.7	10.2	12.0	11.6
1964	51.6	48.1	47.8	5.6	5.9	5.9	II	72.0	69.6	69.1	1.8	3.1	2.3
1965	54.4	51.2	50.8	5.5	6.4	6.3	III	71.9	69.3	68.9	-4	-1.9	-9
1966	57.6	54.5	54.1	5.9	6.5	6.5	IV	72.4	70.4	69.7	3.1	6.3	4.9
1967	59.1	55.9	55.5	2.6	2.6	2.7	1974: I	71.8	69.4	68.9	-3.6	-5.5	-4.8
1968	61.6	58.5	58.0	4.2	4.6	4.5	II	72.0	69.6	69.0	1.0	1.5	.8
1969	63.3	60.3	59.8	2.7	3.1	3.0	III	71.3	69.1	68.6	-3.4	-3.3	-2.3
1970	63.3	60.3	59.8	0	-1	0	IV	71.1	68.6	68.2	-1.6	-2.4	-2.4
1971	65.1	62.3	61.8	2.9	3.4	3.4	1975: I	69.5	67.2	66.6	-8.7	-8.3	-9.2
1972	68.4	65.7	65.3	5.1	5.5	5.7	II	70.3	67.9	67.3	4.7	4.6	4.4
1973	72.0	69.6	69.1	5.2	5.9	5.8	III	71.6	69.5	68.8	7.7	9.2	9.2
1974	71.5	69.2	68.7	-6	-6	-6	IV	72.5	70.3	69.6	5.3	4.8	4.7
1975	71.0	68.7	68.1	-8	-7	-9	1976: I	73.9	71.8	71.1	8.0	8.7	9.3
1976	74.5	72.4	71.8	4.9	5.3	5.5	II	74.2	72.2	71.6	1.5	2.3	2.5
1977	77.8	76.0	75.5	4.5	4.9	5.2	III	74.5	72.5	71.9	1.4	1.6	1.8
1978	81.6	79.9	79.4	4.8	5.2	5.2	IV	75.3	73.2	72.7	4.2	4.0	4.4
1979	83.6	82.2	81.7	2.5	2.8	2.9	1977: I	76.4	74.2	73.8	6.0	5.5	6.1
1980	83.2	82.0	81.7	-5	-2	0	II	77.6	75.8	75.3	6.9	9.2	8.9
1981	84.7	84.0	83.9	1.8	2.5	2.7	III	78.7	77.0	76.6	5.7	6.5	6.8
1982	82.8	82.2	82.3	-2.2	-2.2	-1.9	IV	78.6	76.9	76.4	-8	-9	-9
1983	86.1	85.3	85.5	3.9	3.8	3.9	1978: I	79.1	77.2	76.7	2.8	1.9	1.1
1984	91.4	91.3	91.2	6.2	7.0	6.7	II	81.7	80.1	79.5	13.5	15.9	15.9
1985	94.3	94.3	94.2	3.2	3.2	3.3	III	82.3	80.7	80.3	3.1	3.1	3.7
1986	97.0	97.0	96.9	2.9	2.9	2.9	IV	83.3	81.7	81.3	4.8	4.9	5.3
1987	100.0	100.0	100.0	3.1	3.1	3.2	1979: I	83.3	81.9	81.2	.1	1.1	-7
1988	103.9	103.9	103.8	3.9	3.9	3.8	II	83.4	81.9	81.4	.4	-1	1.1
1989	106.6	106.6	106.4	2.5	2.6	2.5	III	83.9	82.4	82.0	2.5	2.4	3.3
1990	107.4	107.4	107.3	.8	.8	.8	IV	84.0	82.5	82.3	.7	.7	1.1
1991	106.2	106.2	106.0	-1.2	-1.1	-1.2	1980: I	84.4	82.9	82.7	1.7	1.6	2.0
1992	108.4	108.2	108.2	2.1	1.9	2.0	II	82.2	81.1	80.7	-9.9	-8.3	-9.3
1959: I	42.0	.....	.....	5.2	.....	.....	III	82.2	81.2	80.8	.1	.6	.7
II	42.7	.....	.....	7.0	.....	.....	IV	83.9	82.9	82.6	8.3	8.4	9.0
III	42.5	39.3	39.0	-1.4	.....	.....	1981: I	85.0	84.4	84.2	5.6	7.4	7.8
IV	42.8	39.5	39.2	2.3	1.9	2.0	II	84.7	83.9	83.8	-1.7	-2.1	-1.9
1960: I	43.5	40.4	40.0	7.4	9.7	9.1	III	85.1	84.5	84.4	2.1	3.0	2.9
II	43.4	40.1	39.8	-1.0	-2.6	-2.5	IV	83.8	83.4	83.3	-6.2	-5.2	-5.1
III	43.5	40.2	39.8	.4	.3	.3	1982: I	82.7	82.4	82.4	-4.9	-5.7	-4.3
IV	43.2	39.7	39.3	-2.5	-4.8	-4.7	II	83.1	82.5	82.5	1.6	1.6	.8
1961: I	43.6	39.9	39.5	3.4	2.2	2.2	III	82.7	82.0	82.1	-1.8	-2.7	-2.2
II	44.2	40.7	40.3	5.9	7.8	7.7	IV	82.8	81.9	82.2	.6	-2	.4
III	44.8	41.4	41.0	6.0	7.2	7.1	1983: I	83.3	82.6	82.8	2.6	3.5	3.3
IV	45.7	42.2	41.9	8.4	8.8	8.8	II	85.6	84.8	85.0	11.3	10.9	11.0
1962: I	46.3	43.0	42.6	5.4	7.2	7.4	III	86.9	86.1	86.3	6.1	6.2	6.3
II	46.8	43.4	43.1	4.2	4.3	4.3	IV	88.4	87.6	87.8	7.0	7.4	7.1
III	47.2	43.8	43.5	3.2	3.8	3.9	1984: I	90.1	89.7	89.8	7.9	10.0	9.3
IV	47.1	43.9	43.5	-4	.4	.4	II	91.3	91.2	91.1	5.4	6.6	6.0
1963: I	47.8	44.5	44.1	5.9	5.7	5.7	III	91.8	91.8	91.7	2.2	2.8	2.6
II	48.4	45.0	44.7	5.4	4.9	4.9	IV	92.4	92.4	92.3	2.7	2.6	2.4
III	49.3	45.9	45.6	7.1	7.7	8.6	1985: I	93.0	93.1	92.9	2.7	2.8	2.9
IV	49.7	46.3	45.9	3.1	3.3	3.1	II	93.7	93.7	93.6	3.2	2.8	3.0
1964: I	50.9	47.4	47.1	10.4	10.3	10.2	III	94.9	95.0	94.8	5.2	5.5	5.1
II	51.3	47.9	47.5	3.3	4.3	4.1	IV	95.5	95.3	95.4	2.3	1.4	2.8
III	51.9	48.5	48.1	4.8	5.2	5.0	1986: I	96.7	96.5	96.7	5.4	5.1	5.5
IV	52.1	48.7	48.3	1.1	1.3	1.4	II	96.6	96.5	96.6	-3	.3	-5
1965: I	53.1	49.9	49.5	8.0	10.6	10.3	III	97.2	97.2	96.9	2.3	3.0	1.4
II	53.8	50.6	50.1	5.5	5.3	5.3	IV	97.5	97.6	97.3	1.3	1.6	1.5
III	54.7	51.5	51.1	7.2	7.6	7.6	1987: I	98.2	98.4	98.2	3.0	3.2	3.6
IV	56.0	52.8	52.3	9.7	10.5	10.4	II	99.5	99.4	99.5	5.1	4.1	5.4
1966: I	57.2	54.1	53.6	8.6	10.1	10.1	III	100.4	100.4	100.5	4.0	3.9	4.1
II	57.3	54.2	53.7	.7	.8	.9	IV	101.9	101.8	101.9	5.9	6.0	5.9
III	57.8	54.7	54.2	3.9	3.8	3.8	1988: I	102.5	102.5	102.5	2.6	2.6	2.3
IV	58.2	55.1	54.7	2.2	3.2	3.7	II	103.6	103.6	103.5	4.3	4.4	4.1
1967: I	58.5	55.5	55.0	2.6	2.3	2.4	III	104.3	104.2	104.2	2.5	2.4	2.5
II	58.8	55.6	55.2	1.8	.8	.8	IV	105.3	105.3	105.2	3.9	4.1	3.8
III	59.5	56.2	55.8	4.6	4.4	4.7	1989: I	106.1	106.1	106.0	3.2	3.4	3.2
IV	59.8	56.5	56.1	2.3	2.4	2.3	II	106.6	106.6	106.4	1.8	1.7	1.7
1968: I	60.6	57.5	57.1	5.6	7.4	7.1	III	106.6	106.6	106.4	0	0	0
II	61.6	58.5	58.0	6.7	6.8	6.7	IV	107.0	107.0	106.8	1.5	1.5	1.4
III	62.0	59.0	58.5	2.9	3.5	3.3	1990: I	107.7	107.7	107.6	2.8	2.7	2.8
IV	62.2	59.0	58.5	.7	.6	.3	II	108.0	107.9	107.8	1.0	.9	1.0
1969: I	63.1	60.1	59.6	6.2	7.1	7.2	III	107.5	107.5	107.4	-1.6	-1.6	-1.5
II	63.2	60.3	59.7	.4	1.2	1.2	IV	106.5	106.5	106.3	-3.9	-3.6	-3.8
III	63.5	60.6	60.1	2.3	2.1	2.2	1991: I	105.7	105.7	105.5	-3.0	-3.0	-3.0
IV	63.3	60.3	59.8	-1.3	-1.7	-1.6	II	106.1	106.1	106.0	1.7	1.5	1.6
1970: I	63.2	60.1	59.6	-1.0	-1.4	-1.3	III	106.4	106.4	106.3	1.2	1.1	1.1
II	63.0	60.1	59.6	-1.2	-2	-2	IV	106.6	106.5	106.4	.6	.5	.5
III	63.8	60.7	60.2	5.1	4.4	4.4	1992: I	107.4	107.2	107.1	2.9	2.6	2.8
IV	63.3	60.1	59.7	-3.0	-3.8	-3.7	II	107.8	107.6	107.5	1.5	1.5	1.5
1971: I	64.8	61.7	61.2	9.6	11.1	11.1	III	108.7	108.5	108.4	3.4	3.2	3.3
II	64.9	62.0	61.5	.6	1.9	1.7	IV	109.9	109.6	109.6	4.7	4.3	4.5
III	65.2	62.5	62.0	2.5	3.3	3.4							
IV	65.6	63.0	62.4	2.0	2.8	2.6							

including a modification to the above scheme for the benchmark-years-weighted index that is necessary in the benchmark and following year.

Comparison of the quarterly real GDP measures

The trends in the quarterly real GDP measures reflect those in the annual measures that were described in the April 1992 SURVEY article. From the business cycle peak in the first quarter of 1960 to 1987, the alternative indexes increase 14 to 16 percent more than the featured measure: The fixed-weighted index increases 129.9 percent, the chain-type annual-weighted index increases 147.5 percent, and the benchmark-years-weighted index increases 150.0 percent. In contrast, from 1987 to the fourth quarter of 1992, the alternative indexes increase 3 percent less than the featured measure: The fixed-weighted index increases 9.9 percent, and both alternative indexes increase 9.6 percent. Over the complete period from the first quarter of 1960 to the fourth quarter of 1992, the alternative indexes increase 12 to 14 percent more than the fixed-weighted index: The fixed-weighted index increases 152.6 percent, the chain-type index increases 171.3 percent, and the benchmark-years index increases 174.0 percent.

The largest differences between the quarterly changes in the alternative indexes and those in the fixed-weighted index are more than 2.0 percentage points at an annual rate (table C). In the 1960's, such differences occurred in one or both of the alternatives in four quarters. In the 1970's, such differences occurred in three quarters. In the fourth quarter of 1973, the difference was 3.2 percentage points for the chain-type index. After 1984, there are no differences larger than 1.0 percentage point.

An analysis of the sources of the differences between changes in the fixed-weighted index and changes in the alternative indexes requires further work. It is clear, however, that changes in the prices and quantities of computers and peripheral equipment are a major source of the differences over both long periods and from quarter to quarter. The output of computers and peripheral equipment has increased much more rapidly than that of other components of GDP, and computer prices have declined very rapidly. As a result, the output of computers received a higher valuation in the alternative indexes, which reflect the higher prices in earlier years, than in the fixed-weighted index, which reflects the relatively lower price in 1987. The effect of the higher valuation of computers in the alternative indexes is largest in producers' durable equipment. Also affected are

personal consumption expenditures, government purchases, exports, and imports.

Cyclical comparisons.—The timing of the business cycle peaks and troughs in real GDP is the same for the alternative indexes as for the fixed-weighted index.

The alternative indexes are particularly useful for measuring the amplitude of business cycle contractions and expansions. Generally, the amplitudes of cyclical contractions and expansions in earlier years have been reduced as the fixed-weighted measure has been rebased to a more recent year in each subsequent comprehensive revision. This phenomenon has occurred because the prices of the components of real GDP that are cyclically sensitive tend either to decline or to increase more slowly than the prices of the components that are not, with the consequence that the weight of the cyclically sensitive components—including computers and peripheral equipment—has become smaller in each rebasing.

Table D shows the amplitudes of cyclical contractions and expansions measured with the fixed-weighted index and the alternative indexes. In 1960 and in 1969–70, the cyclical contractions in the alternative indexes are about twice as large as those in the fixed-weighted index. In the 1973–75 contraction, the alternative indexes decline somewhat more than the fixed-weighted index. However, in 1980, the expected pattern does not hold, and in 1981–82, the results are

Table D.—Cyclical Comparisons of Fixed-Weighted and Alternative Output Measures

	Number of quarters	Percent change		
		Fixed 1987 weights	Chain- type annual weights	Bench- mark- years weights
Contractions:				
1960:I-1960:IV	3	-0.7	-1.7	-1.8
1969:III-1970:IV	5	-.3	-.8	-.7
1973:IV-1975:I	5	-4.0	-4.5	-4.4
1980:I-1980:II	1	-2.6	-2.2	-2.4
1981:I-1982:III	6	-2.7	-2.8	-2.5
1990:II-1991:I	3	-2.1	-2.0	-2.1
Expansions:				
1960:IV-1969:III	35	47.0	52.6	52.9
1970:IV-1973:IV	12	14.4	17.1	16.8
1975:I-1980:I	20	21.4	23.4	24.2
1980:II-1981:I	3	3.4	4.1	4.3
1982:III-1990:II	31	30.6	31.6	31.3
1991:I-1992:IV ¹	7	4.0	3.7	3.9
Cycles (peak to peak):				
1960:I-1969:III	38	46.0	50.0	50.3
1969:III-1973:IV	17	14.0	16.2	16.0
1973:IV-1980:I	25	16.6	17.8	18.7
1980:I-1981:II	4	.7	1.8	1.8
1981:I-1990:II	37	27.1	27.8	28.0
1990:II-1992:IV ¹	10	1.8	1.6	1.7
Addendum:				
1960:I-1992:IV ¹	131	152.6	171.3	174.0

1. The fourth quarter of 1992 is the most recent quarter for which data are available.

Table E.—Fixed-Weighted and Alternative Price Indexes for Gross Domestic Product and Percent Change from Preceding Period

	Index numbers (1987=100)			Percent				Index numbers (1987=100)			Percent		
	Fixed-weighted index	Chain-type annual weighted index	Benchmark years-weighted index	Fixed-weighted index	Chain-type annual weighted index	Benchmark years-weighted index		Fixed-weighted index	Chain-type annual weighted index	Benchmark years-weighted index	Fixed-weighted index	Chain-type annual weighted index	Benchmark years-weighted index
1959		27.8	28.0				1972: I	39.9	40.2		6.3	6.5	
1960		28.2	28.4		1.5	1.4	II	40.2	40.4		2.6	2.6	
1961		28.5	28.8		1.2	1.1	III	40.6	40.9		3.8	4.7	
1962		28.9	29.1		1.3	1.3	IV	41.1	41.4		5.1	4.7	
1963		29.3	29.5		1.2	1.2	1973: I	41.6	41.9		5.1	4.8	
1964		29.7	29.9		1.4	1.3	II	42.3	42.6		6.9	6.8	
1965		30.2	30.4		1.9	1.9	III	43.1	43.4		7.8	7.9	
1966		31.1	31.3		2.8	2.9	IV	43.9	44.1		7.5	7.1	
1967		32.1	32.3		3.2	3.2	1974: I	44.7	45.0		8.0	8.0	
1968		33.5	33.7		4.4	4.3	II	45.6	45.9		8.5	8.2	
1969		35.1	35.2		4.7	4.7	III	47.0	47.2		12.5	12.5	
1970		36.9	37.1		5.3	5.3	IV	48.4	48.7		12.6	12.7	
1971		38.8	39.0		5.0	5.0	1975: I	49.6	49.9		10.3	10.5	
1972		40.5	40.7		4.3	4.5	II	50.3	50.5		5.8	4.8	
1973		42.7	43.0		5.6	5.5	III	51.3	51.5		7.6	7.9	
1974		46.5	46.7		8.8	8.6	IV	52.2	52.4		7.2	7.3	
1975		50.9	51.1		9.4	9.4	1976: I	52.7	53.0		4.6	4.5	
1976		53.8	54.1		5.8	5.9	II	53.3	53.6		4.7	4.9	
1977		57.3	57.6		6.4	6.5	III	54.1	54.4		5.7	5.8	
1978		61.5	61.4		7.5	6.6	IV	55.1	55.3		7.3	7.5	
1979		66.7	66.6		8.4	8.4	1977: I	55.9	56.2		6.2	6.7	
1980		72.7	72.7		9.0	9.2	II	56.8	57.2		6.9	7.0	
1981		79.4	79.3		9.2	9.1	III	57.6	58.0		5.8	5.9	
1982	84.8	84.4	84.3		6.3	6.4	IV	58.6	58.9		7.1	6.1	
1983	88.1	87.9	87.7	3.9	4.1	4.1	1978: I	59.7	59.8		7.3	5.9	
1984	91.1	91.1	90.9	3.4	3.6	3.6	II	60.9	60.9		8.7	7.6	
1985	94.3	94.4	94.2	3.5	3.6	3.6	III	62.1	61.9		7.8	7.1	
1986	97.0	97.0	96.9	2.8	2.7	2.9	IV	63.4	63.2		8.6	8.3	
1987	100.0	100.0	100.0	3.1	3.1	3.2	1979: I	64.6	64.4		8.0	8.3	
1988	104.0	103.9	103.9	4.0	3.9	3.9	II	66.1	65.9		9.4	9.5	
1989	108.6	108.5	108.5	4.5	4.4	4.4	III	67.4	67.3		8.1	8.5	
1990	113.6	113.2	113.4	4.6	4.4	4.5	IV	68.7	68.6		8.3	8.2	
1991	118.1	117.8	117.9	4.0	4.0	4.0	1980: I	70.3	70.3		9.6	9.9	
1992	121.6	121.1	121.3	2.9	2.9	2.9	II	71.8	71.8		8.9	8.9	
1959: I							III	73.4	73.3		9.1	9.1	
II							IV	75.4	75.3		11.1	11.1	
1960: I		27.8	28.1				1981: I	77.2	77.1		10.1	9.7	
II		27.9	28.2		1.5	1.3	II	78.6	78.4		7.3	7.2	
1961: I		28.0	28.2		1.0	1.0	III	80.2	80.0		8.3	8.3	
II		28.1	28.4		1.8	1.9	IV	81.7	81.5		7.7	7.8	
1962: I		28.3	28.5		2.0	1.9	1982: I	83.4	82.8		5.7	5.9	
II		28.4	28.6		1.7	1.6	II	84.3	83.9	4.3	5.1	5.3	
1963: I		28.4	28.7		.8	.7	III	85.4	85.1	5.3	5.9	5.7	
II		28.5	28.7		.8	.8	IV	86.3	86.0	4.1	4.6	4.5	
1964: I		28.6	28.8		1.1	.9	1983: I	87.0	86.7	3.6	3.4	3.3	
II		28.6	28.8		.8	.9	II	87.7	87.5	3.1	3.6	3.3	
1965: I		28.8	29.0		2.0	1.8	III	88.5	88.3	3.7	3.7	3.8	
II		28.9	29.1		1.2	1.3	IV	89.3	89.2	3.8	3.9	3.8	
1966: I		28.9	29.1		1.0	1.1	1984: I	90.0	90.0	3.3	3.9	3.8	
II		29.1	29.3		1.8	1.9	II	90.6	90.7	2.7	3.0	2.8	
1967: I		29.1	29.4		1.0	1.2	III	91.4	91.5	3.6	3.8	3.7	
II		29.2	29.4		.7	.8	IV	92.3	92.3	3.7	3.2	3.6	
1968: I		29.2	29.5		.8	.6	1985: I	93.2	93.2	3.9	4.3	4.0	
II		29.4	29.6		2.2	2.1	II	93.9	94.0	3.3	3.3	3.3	
1969: I		29.5	29.7		1.1	1.1	III	94.6	94.7	3.0	3.2	3.3	
II		29.6	29.8		1.4	1.3	IV	95.5	95.6	3.8	3.7	4.1	
1970: I		29.7	29.9		1.6	1.5	1986: I	96.0	96.1	2.2	2.0	2.3	
II		29.9	30.1		2.1	2.0	II	96.6	96.6	2.4	2.1	2.3	
1971: I		30.0	30.2		1.9	1.8	III	97.3	97.2	2.8	2.8	2.9	
II		30.1	30.3		1.9	1.8	IV	98.0	98.0	3.1	3.0	3.0	
1972: I		30.3	30.5		2.1	2.4	1987: I	98.9	98.8	3.4	3.6	3.6	
II		30.5	30.7		2.3	2.3	II	99.5	99.5	2.8	2.9	3.0	
1973: I		30.7	30.9		2.6	2.5	III	100.4	100.4	3.3	3.3	3.3	
II		31.0	31.2		4.0	3.9	IV	101.3	101.3	3.7	3.7	3.6	
1974: I		31.2	31.4		3.1	3.2	1988: I	102.2	102.1	3.7	3.5	3.6	
II		31.5	31.7		3.6	3.7	II	103.3	103.3	4.5	4.5	4.5	
1975: I		31.7	31.9		2.5	2.6	III	104.7	104.6	5.4	5.4	5.5	
II		31.9	32.1		2.3	2.5	IV	105.6	105.6	3.7	3.7	3.7	
1976: I		32.2	32.4		3.8	3.8	1989: I	106.9	106.9	5.0	5.0	4.9	
II		32.5	32.8		4.7	4.6	II	108.2	108.1	4.8	4.6	4.6	
1977: I		32.9	33.1		4.9	4.5	III	109.2	109.1	3.8	3.7	3.7	
II		33.3	33.5		4.5	4.4	IV	110.2	110.0	3.7	3.6	3.6	
1978: I		33.6	33.8		4.0	3.7	1990: I	111.7	111.4	5.6	5.1	5.4	
II		34.1	34.3		5.5	5.6	II	112.9	112.7	4.6	4.7	4.7	
1979: I		34.4	34.6		3.7	3.8	III	113.9	113.9	4.8	4.6	4.7	
II		34.8	35.0		4.7	4.7	IV	115.4	115.0	4.0	3.7	3.8	
1980: I		35.3	35.5		5.9	5.9	1991: I	116.8	116.4	4.9	5.0	4.9	
II		35.7	35.9		5.0	4.9	II	117.8	117.4	3.5	3.7	3.6	
1981: I		36.3	36.5		6.3	6.2	III	118.6	118.3	2.9	2.9	2.9	
II		36.8	37.0		6.1	6.1	IV	119.3	119.0	2.4	2.4	2.4	
1982: I		37.1	37.3		3.1	3.1	1992: I	120.3	120.0	3.4	3.5	3.4	
II		37.6	37.8		5.4	5.4	II	121.2	120.8	2.9	2.8	2.8	
1983: I		38.1	38.3		5.8	5.9	III	121.9	121.4	2.2	1.9	2.1	
II		38.6	38.8		5.5	5.5	IV	122.9	122.3	3.4	3.1	3.2	
1984: I		39.0	39.2		4.0	4.1							
II		39.3	39.6		3.3	3.4							

mixed. In each of the complete expansions, the alternative indexes increase at a faster rate than the fixed-weighted index.

In the current business cycle, the differences between the fixed-weighted index and the alternative indexes are small. The chain-type annual-weighted index decreases somewhat less than the other indexes in the contraction following the peak in the second quarter of 1990. Both alternative indexes increase somewhat less than the fixed-weighted index following the trough in the first quarter of 1991. In the fourth quarter of 1992, the fixed-weighted index was up 1.8 percent from the second-quarter 1990 peak; the chain-type index was up 1.6 percent, and the benchmark-years index was up 1.7 percent.

GDP Price Measures

The featured measure of GDP prices is the GDP price index with 1987 quantity weights. The two alternative measures of GDP prices are the *chain-type annual-weighted price index* and the *benchmark-years-weighted price index*. On both a quarterly and an annual basis, these price indexes are analogues to the alternative quantity indexes, with the variables for price and quantity simply reversed in the index formulas.

The fixed-weighted price indexes for several components of GDP—producers' durable equipment, exports, and imports—and for total GDP and other aggregates containing these components are not shown in the NIPA tables for years

before 1982, because the use of the relative quantity structure in 1987 to measure price change for those years is inappropriate. Before 1982, the combination of the high level and very rapid decline of the price index for computers and the large 1987 quantity weight for computers results in either declines or very small increases in the fixed-weighted price indexes for these series.⁹

The quarterly alternative GDP price indexes are like the corresponding quantity indexes in that they increase more rapidly than the fixed-weighted index before 1987 and less rapidly after 1987. From the first quarter of 1982 to 1987, the alternative indexes increase 5 percent more than the fixed-weighted index: The fixed-weighted index increases 19.9 percent, the chain-type annual-weighted index increases 20.8 percent, and the benchmark-years-weighted index increases 20.9 percent. From 1987 to the fourth quarter of 1992, the alternative indexes increase 1 to 3 percent less than the fixed-weighted index: The fixed-weighted index increases 22.8 percent, the chain-type index increases 22.2 percent, and the benchmark-years index increases 22.5 percent. The largest differences between the quarterly changes in the alternative indexes and those in the fixed-weighted index are between 0.5 and 1.0 percentage point at an annual rate (table E).

Tables 1 and 2 follow. 

9. Rates of change in the annual fixed-weighted GDP price index for periods before 1982 are shown for illustrative purposes in tables C and D in the article in the April 1992 SURVEY.

Table 1.—Fixed-Weighted and Alternative Quantity and Price Indexes for Gross Domestic Product
[Index numbers, 1987=100]

	1988	1989	1990	1991	1992	Seasonally adjusted																			
						1988				1989				1990				1991				1992			
						I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product:																									
Quantity indexes:																									
Fixed 1987 weights	103.9	106.6	107.4	106.2	108.4	102.5	103.6	104.3	105.3	106.1	106.6	106.6	107.0	107.7	108.0	107.5	106.5	105.7	106.1	106.4	106.6	107.4	107.8	108.7	109.9
Chain-type annual weights	103.9	106.6	107.4	106.2	108.2	102.5	103.6	104.2	105.3	106.1	106.6	106.6	107.0	107.7	107.9	107.5	106.5	105.7	106.1	106.4	106.5	107.2	107.6	108.5	109.6
Benchmark-years weights	103.8	106.4	107.3	106.0	108.2	102.5	103.5	104.2	105.2	106.0	106.4	106.4	106.8	107.6	107.8	107.4	106.3	105.5	106.0	106.3	106.4	107.1	107.5	108.4	109.6
Price indexes:																									
Fixed 1987 weights	104.0	108.6	113.6	118.1	121.6	102.2	103.3	104.7	105.6	106.9	108.2	109.2	110.2	111.7	112.9	114.3	115.4	116.8	117.8	118.6	119.3	120.3	121.2	121.9	122.9
Chain-type annual weights	103.9	108.5	113.2	117.8	121.1	102.1	103.3	104.6	105.6	106.9	108.1	109.1	110.0	111.4	112.7	113.9	115.0	116.4	117.4	118.3	119.0	120.0	120.8	121.4	122.3
Benchmark-years weights	103.9	108.5	113.4	117.9	121.3	102.2	103.3	104.7	105.6	106.9	108.1	109.1	110.1	111.5	112.8	114.1	115.2	116.6	117.6	118.5	119.1	120.2	121.0	121.6	122.6
Personal consumption expenditures:																									
Quantity indexes:																									
Fixed 1987 weights	103.6	105.6	106.8	106.2	108.6	102.5	103.1	103.9	104.9	105.0	105.2	106.0	106.2	106.8	106.8	107.3	106.4	105.6	106.1	106.5	106.4	107.8	107.7	108.7	110.1
Chain-type annual weights	103.6	105.5	106.7	106.1	108.4	102.5	103.1	103.9	104.9	104.9	105.2	105.9	106.2	106.7	106.7	107.2	106.3	105.5	106.1	106.4	106.4	107.6	107.6	108.5	109.8
Benchmark-years weights	103.5	105.5	106.6	106.0	108.3	102.4	103.1	103.8	104.8	104.8	105.1	105.8	106.0	106.6	106.6	107.1	106.2	105.4	106.0	106.3	106.3	107.5	107.5	108.5	109.8
Price indexes:																									
Fixed 1987 weights	104.3	109.5	115.3	120.4	124.3	102.3	103.6	105.0	106.2	107.5	109.1	110.0	111.2	113.0	114.2	116.0	117.9	118.9	119.9	120.8	121.8	122.9	123.9	124.7	125.7
Chain-type annual weights	104.2	109.4	115.1	120.1	123.9	102.3	103.6	104.9	106.1	107.5	109.0	109.9	111.1	112.8	114.1	115.8	117.6	118.6	119.6	120.5	121.5	122.5	123.6	124.3	125.3
Benchmark-years weights	104.2	109.4	115.1	120.2	124.1	102.3	103.6	104.9	106.1	107.5	109.0	110.0	111.1	112.8	114.1	115.9	117.7	118.7	119.7	120.6	121.6	122.6	123.7	124.5	125.4
Durable goods:																									
Quantity indexes:																									
Fixed 1987 weights	106.2	109.2	108.8	102.7	108.8	105.3	105.7	105.0	108.8	107.8	109.0	111.6	108.2	112.3	108.8	108.4	105.7	102.0	101.9	103.9	103.1	107.1	106.5	108.9	112.5
Chain-type annual weights	106.2	109.0	108.5	102.1	107.8	105.3	105.7	104.9	108.7	107.7	108.9	111.5	108.0	112.1	108.5	108.1	105.3	101.5	101.3	103.1	102.3	106.2	105.6	108.0	111.4
Benchmark-years weights	106.0	108.9	108.4	102.1	108.0	105.2	105.6	104.8	108.6	107.6	108.8	111.4	107.9	112.0	108.4	108.0	105.2	101.5	101.3	103.2	102.4	106.3	105.8	108.1	111.6
Price indexes:																									
Fixed 1987 weights	102.0	104.5	106.3	108.9	111.4	100.9	101.5	102.4	103.3	103.8	104.2	104.8	105.2	105.9	106.1	106.4	106.9	107.8	108.5	109.5	109.8	110.3	111.3	111.8	112.2
Chain-type annual weights	102.0	104.4	106.0	108.3	110.5	100.9	101.5	102.4	103.2	103.7	104.1	104.6	105.1	105.6	105.8	106.1	106.5	107.2	107.9	108.8	109.1	109.5	110.4	110.8	111.2
Benchmark-years weights	101.9	104.2	105.9	108.2	110.6	100.9	101.4	102.2	103.1	103.6	104.0	104.5	104.9	105.5	105.7	105.9	106.4	107.2	107.9	108.8	109.1	109.6	110.5	111.0	111.3
Nondurable goods:																									
Quantity indexes:																									
Fixed 1987 weights	102.4	104.0	104.5	103.1	104.3	101.2	102.0	102.8	103.5	103.7	103.5	104.1	104.7	104.7	104.6	104.7	104.0	103.2	103.5	103.3	102.4	103.8	103.4	104.0	105.8
Chain-type annual weights	102.4	103.9	104.4	103.0	104.1	101.2	102.0	102.7	103.5	103.6	103.5	104.0	104.7	104.6	104.4	104.7	103.9	103.0	103.4	103.2	102.3	103.7	103.3	103.9	105.5
Benchmark-years weights	102.3	103.9	104.3	102.9	104.1	101.2	101.9	102.7	103.4	103.6	103.4	104.0	104.6	104.5	104.4	104.6	103.9	103.0	103.3	103.2	102.2	103.6	103.2	103.8	105.5
Price indexes:																									
Fixed 1987 weights	103.8	109.5	116.2	120.5	123.0	101.8	103.0	104.6	105.7	107.1	109.7	110.1	111.0	113.7	114.6	116.9	119.8	119.8	120.3	120.5	121.3	121.8	122.7	123.5	124.0
Chain-type annual weights	103.8	109.4	116.0	120.2	122.7	101.8	103.0	104.5	105.7	107.0	109.6	110.0	110.9	113.5	114.4	116.7	119.4	119.5	120.0	120.3	121.0	121.6	122.4	123.2	123.7
Benchmark-years weights	103.8	109.4	116.1	120.3	122.8	101.8	103.0	104.5	105.7	107.0	109.6	110.0	110.9	113.5	114.4	116.8	119.5	119.5	120.1	120.3	121.1	121.6	122.5	123.2	123.8
Services:																									
Quantity indexes:																									
Fixed 1987 weights	103.7	105.7	107.8	108.9	111.2	102.6	103.2	104.3	104.9	105.1	105.4	105.8	106.6	106.7	107.7	108.5	108.1	108.0	108.8	109.1	109.8	110.4	110.7	111.6	112.1
Chain-type annual weights	103.7	105.7	107.7	108.8	111.1	102.6	103.2	104.3	104.9	105.0	105.3	105.7	106.6	106.7	107.7	108.5	108.0	107.9	108.7	109.0	109.7	110.2	110.6	111.4	112.0
Benchmark-years weights	103.7	105.6	107.7	108.8	111.0	102.6	103.2	104.2	104.8	105.0	105.3	105.7	106.5	106.7	107.6	108.4	107.9	107.9	108.7	109.0	109.6	110.2	110.6	111.4	112.0
Price indexes:																									
Fixed 1987 weights	105.1	110.7	116.9	123.1	128.2	103.0	104.5	105.9	107.2	108.7	109.9	111.3	112.8	114.3	116.0	117.8	119.5	121.2	122.5	123.8	125.1	126.6	127.7	128.7	130.0
Chain-type annual weights	105.1	110.6	116.8	122.9	127.9	103.0	104.5	105.9	107.2	108.7	109.9	111.2	112.8	114.2	115.9	117.7	119.4	121.0	122.3	123.6	124.8	126.3	127.5	128.4	129.6
Benchmark-years weights	105.1	110.6	116.8	123.0	128.0	102.9	104.5	105.8	107.2	108.7	109.9	111.2	112.8	114.2	115.9	117.7	119.4	121.0	122.3	123.6	124.9	126.4	127.5	128.5	129.7
Gross private domestic investment:																									

Table 1.—Fixed-Weighted and Alternative Quantity and Price Indexes for Gross Domestic Product—Continued

[Index numbers, 1987=100]

	1988	1989	1990	1991	1992	Seasonally adjusted																			
						1988				1989				1990				1991				1992			
						I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Exports of goods and services:																									
Quantity indexes:																									
Fixed 1987 weights	115.9	129.6	140.1	148.2	157.5	111.9	114.6	116.5	120.4	124.9	129.7	129.9	134.0	137.4	139.8	139.7	143.6	141.8	147.3	149.5	154.2	155.3	154.8	158.2	161.6
Chain-type annual weights	115.7	129.3	139.3	146.6	154.9	111.8	114.5	116.3	120.1	124.7	129.4	129.6	133.4	136.9	138.9	138.7	142.7	140.4	145.7	148.0	152.4	153.4	155.3	158.4	
Benchmark-years weights	115.6	129.3	139.6	147.2	156.0	111.8	114.4	116.2	120.0	124.7	129.4	129.7	133.6	137.0	139.2	139.0	143.0	140.8	146.3	148.5	153.1	154.2	153.4	156.6	159.8
Price indexes:																									
Fixed 1987 weights	105.7	108.2	110.1	112.4	113.7	103.0	105.6	107.1	107.0	108.1	108.4	108.0	108.1	108.9	109.3	110.4	111.8	112.5	112.4	112.1	112.8	112.9	113.5	114.0	114.3
Chain-type annual weights	105.5	108.0	109.9	112.1	113.1	102.9	105.4	106.9	106.9	107.9	108.2	107.9	107.9	108.7	109.1	110.2	111.6	112.2	112.1	111.8	112.3	112.5	113.0	113.4	113.6
Benchmark-years weights	105.3	107.6	109.4	111.7	112.8	102.8	105.1	106.6	106.5	107.6	107.9	107.5	107.5	108.3	108.6	109.7	111.2	111.8	111.6	111.4	111.9	112.1	112.6	113.1	113.3
Imports of goods and services:																									
Quantity indexes:																									
Fixed 1987 weights	103.7	107.6	110.8	110.7	121.3	102.7	101.6	103.7	106.7	105.4	106.9	108.6	109.5	110.2	111.6	112.0	109.5	105.3	109.2	113.6	114.8	115.7	119.8	124.0	125.7
Chain-type annual weights	103.5	107.0	110.0	108.6	117.6	102.6	101.5	103.6	106.4	105.0	106.4	107.9	108.7	109.4	110.9	111.2	108.5	103.6	107.4	111.3	112.2	112.9	116.4	119.8	121.4
Benchmark-years weights	103.5	106.9	109.9	109.1	118.8	102.7	101.5	103.5	106.4	104.9	106.3	107.8	108.7	109.3	110.8	111.1	108.6	104.0	107.7	111.8	112.9	113.7	117.5	121.2	122.9
Price indexes:																									
Fixed 1987 weights	105.4	108.5	112.5	113.7	114.6	104.0	106.0	105.0	106.5	108.3	109.4	107.8	108.6	110.6	109.1	112.3	118.2	115.2	112.9	112.8	113.9	113.0	114.4	115.9	115.2
Chain-type annual weights	105.2	108.3	112.2	112.6	113.0	103.9	105.9	104.8	106.2	108.0	109.3	107.6	108.4	110.4	108.7	111.9	117.9	114.4	111.9	112.6	112.4	111.6	112.8	114.2	113.5
Benchmark-years weights	105.0	107.8	111.5	112.1	112.8	103.8	105.6	104.6	105.9	107.6	108.7	107.1	107.8	109.7	108.0	111.2	116.9	113.7	111.4	111.1	112.1	111.2	112.5	114.0	113.3
Government purchases:																									
Quantity indexes:																									
Fixed 1987 weights	100.6	102.6	105.5	106.7	106.4	100.2	100.5	100.2	101.5	101.0	102.4	103.5	103.5	105.1	105.4	104.9	106.5	107.2	107.3	106.7	105.8	106.3	106.0	107.0	106.3
Chain-type annual weights	100.6	102.6	105.5	106.6	106.1	100.1	100.3	100.2	101.6	101.1	102.4	103.5	103.5	105.1	105.3	104.9	106.6	107.2	107.0	106.4	105.6	106.1	105.8	106.7	105.9
Benchmark-years weights	100.6	102.5	105.3	106.5	106.1	100.2	100.4	100.2	101.5	101.0	102.3	103.3	103.4	105.0	105.2	104.8	106.4	107.0	107.0	106.4	105.6	106.0	105.7	106.7	105.9
Price indexes:																									
Fixed 1987 weights	103.7	107.9	112.5	116.5	119.8	102.4	103.3	104.1	104.8	106.7	107.6	108.2	109.1	110.8	111.7	113.0	114.4	115.5	116.0	116.8	117.6	118.5	119.5	120.2	121.2
Chain-type annual weights	103.6	107.8	112.2	116.1	119.2	102.4	103.3	104.0	104.8	106.6	107.5	108.1	109.0	110.6	111.5	112.7	114.0	115.1	115.7	116.5	117.1	118.0	118.9	119.5	120.4
Benchmark-years weights	103.6	107.8	112.3	116.2	119.4	102.4	103.3	104.1	104.8	106.6	107.5	108.1	109.0	110.6	111.5	112.8	114.1	115.2	115.7	116.5	117.2	118.1	119.1	119.7	120.6
Federal:																									
Quantity indexes:																									
Fixed 1987 weights	98.0	97.7	99.7	100.9	97.6	98.7	98.0	97.1	98.3	96.1	97.9	99.1	97.7	99.6	100.1	98.3	100.6	102.4	102.3	100.6	98.2	97.5	96.8	98.6	97.4
Chain-type annual weights	97.9	97.8	99.5	100.5	97.2	98.4	97.7	97.0	98.5	96.3	98.0	99.0	97.7	99.4	99.8	98.2	100.8	102.3	101.6	100.1	97.8	97.2	96.5	98.2	96.8
Benchmark-years weights	97.9	97.5	99.3	100.3	97.0	98.6	97.9	97.0	98.3	96.1	97.7	98.8	97.4	99.3	99.7	97.9	100.4	102.0	101.6	100.0	97.7	97.0	96.3	98.0	96.7
Price indexes:																									
Fixed 1987 weights	102.8	107.0	112.0	116.5	121.3	101.9	102.6	103.0	103.7	106.0	106.7	107.2	108.2	110.3	111.1	112.6	113.8	115.5	115.7	116.7	118.1	119.8	120.6	121.7	123.0
Chain-type annual weights	102.7	106.7	111.3	115.7	120.0	101.9	102.6	102.8	103.5	105.8	106.4	106.8	107.7	109.8	110.6	111.9	112.9	114.6	115.0	116.0	117.0	118.9	119.6	120.4	121.3
Benchmark-years weights	102.7	106.8	111.5	115.8	120.4	101.9	102.5	103.0	103.6	105.9	106.4	106.9	107.8	109.8	110.8	112.1	113.2	114.9	115.2	116.1	117.3	119.1	119.8	120.8	121.8
National defense:																									
Quantity indexes:																									
Fixed 1987 weights	98.3	96.3	97.0	96.8	90.7	99.6	98.3	97.4	97.8	94.7	96.0	98.2	96.4	97.6	97.6	95.0	97.9	99.9	98.5	96.1	92.8	90.9	89.8	91.5	90.8
Chain-type annual weights	98.2	96.1	96.4	95.8	89.8	99.5	98.2	97.4	97.8	94.6	95.8	97.8	96.0	97.0	96.8	94.3	97.5	99.3	97.2	95.0	91.9	90.3	89.1	90.6	89.5
Benchmark-years weights	98.2	96.0	96.4	96.0	90.0	99.5	98.1	97.3	97.7	94.6	95.6	97.7	95.9	97.0	96.9	94.3	97.4	99.3	97.5	95.2	92.0	90.3	89.1	90.7	89.8
Price indexes:																									
Fixed 1987 weights	103.1	107.1	112.2	116.5	121.7	102.1	102.9	103.4	103.9	106.3	106.8	107.1	108.3	110.5	111.3	112.9	114.2	115.5	115.5	116.6	118.3	120.0	120.9	122.1	123.6
Chain-type annual weights	103.0	106.9	111.5	115.7	120.4	102.1	102.8	103.3	103.9	106.2	106.6	106.9	107.8	110.0	110.8	112.1	113.3	114.6	114.9	115.9	117.3	119.0	119.8	120.9	121.8
Benchmark-years weights	102.8	106.5	111.4	115.5	120.4	101.9	102.6	103.1	103.5	105.8	106.3	106.5	107.5	109.6	110.6	112.0	113.2	114.5	114.6	115.6	117.2	118.8	119.7	120.8	122.0
Nondefense:																									
Quantity indexes:																									
Fixed 1987 weights	97.1	102.0	108.0	113.6	119.1	95.7	97.0	96.0	99.8	100.5	103.9	101.8	101.9	106.0	108.0	108.7	109.3	110.1	114.3	114.8	115.4	118.1	119.1		

Table 2.—Percent Change From Preceding Period in Selected Series
[Percent]

	1988	1989	1990	1991	1992	Seasonally adjusted at annual rates																			
						1988				1989				1990				1991				1992			
						I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product:																									
Quantity indexes:																									
Fixed 1987 weights	3.9	2.5	.8	-1.2	2.1	2.6	4.3	2.5	3.9	3.2	1.8	0	1.5	2.8	1.0	-1.6	-3.9	-3.0	1.7	1.2	.6	2.9	1.5	3.4	4.7
Chain-type annual weights	3.9	2.6	.8	-1.1	1.9	2.6	4.4	2.4	4.1	3.4	1.7	0	1.5	2.7	.9	-1.6	-3.6	-3.0	1.5	1.1	.5	2.6	1.5	3.2	4.3
Benchmark-years weights	3.8	2.5	.8	-1.2	2.0	2.3	4.1	2.5	3.8	3.2	1.7	0	1.4	2.8	1.0	-1.5	-3.8	-3.0	1.6	1.1	.5	2.8	1.5	3.3	4.5
Price indexes:																									
Fixed 1987 weights	4.0	4.5	4.6	4.0	2.9	3.7	4.5	5.4	3.7	5.0	4.8	3.8	3.7	5.6	4.6	4.8	4.0	4.9	3.5	2.9	2.4	3.4	2.9	2.2	3.4
Chain-type annual weights	3.9	4.4	4.4	4.0	2.9	3.5	4.5	5.4	3.7	5.0	4.6	3.7	3.6	5.1	4.7	4.6	3.7	5.0	3.7	2.9	2.4	3.5	2.8	1.9	3.1
Benchmark-years weights	3.9	4.4	4.5	4.0	2.9	3.6	4.5	5.5	3.7	4.9	4.6	3.7	3.6	5.4	4.7	4.7	3.8	4.9	3.6	2.9	2.4	3.4	2.8	2.1	3.2
Personal consumption expenditures:																									
Quantity indexes:																									
Fixed 1987 weights	3.6	1.9	1.2	-6	2.3	7.1	2.5	2.9	4.1	.1	1.1	2.9	.8	2.2	.1	1.7	-3.1	-3.0	2.0	1.5	-3	5.1	-1	3.7	5.1
Chain-type annual weights	3.6	1.9	1.1	-6	2.2	7.1	2.5	2.9	4.1	0	1.0	2.8	.9	2.0	.2	1.7	-3.1	-3.0	1.9	1.3	-2	4.7	-1	3.5	4.7
Benchmark-years weights	3.5	1.9	1.1	-6	2.2	6.9	2.5	2.9	4.0	.1	1.0	2.9	.8	2.2	.1	1.7	-3.1	-3.0	1.9	1.4	-2	4.9	0	3.6	4.9
Price indexes:																									
Fixed 1987 weights	4.3	5.0	5.3	4.4	3.2	2.7	5.2	5.3	4.6	5.2	5.9	3.5	4.4	6.5	4.5	6.4	6.8	3.5	3.4	3.1	3.2	3.5	3.4	2.6	3.0
Chain-type annual weights	4.2	4.9	5.2	4.3	3.2	2.7	5.2	5.3	4.6	5.1	5.9	3.4	4.4	6.2	4.5	6.2	6.5	3.4	3.4	3.1	3.2	3.5	3.4	2.6	3.0
Benchmark-years weights	4.2	4.9	5.2	4.4	3.2	2.6	5.2	5.3	4.7	5.1	5.9	3.5	4.3	6.3	4.5	6.3	6.7	3.4	3.4	3.1	3.2	3.5	3.4	2.6	3.0
Durable goods:																									
Quantity indexes:																									
Fixed 1987 weights	6.2	2.8	-3	-5.6	5.9	21.7	1.7	-2.9	15.3	-3.6	4.7	9.8	-11.7	16.2	-12.0	-1.4	-9.8	-13.0	-7	8.1	-3.1	16.5	-2.1	9.4	14.0
Chain-type annual weights	6.2	2.7	-5	-5.9	5.6	21.6	1.7	-2.9	15.3	-3.8	4.6	9.8	-11.8	15.8	-12.2	-1.4	-10.1	-13.5	-9	7.4	-3.1	16.1	-2.2	9.1	13.3
Benchmark-years weights	6.0	2.7	-5	-5.8	5.8	21.4	1.5	-2.9	15.3	-3.7	4.5	9.9	-12.0	16.0	-12.2	-1.4	-10.0	-13.4	-8	7.8	-3.1	16.4	-2.2	9.3	13.6
Price indexes:																									
Fixed 1987 weights	2.0	2.4	1.7	2.5	2.3	-4	2.4	3.4	3.4	2.0	1.6	2.3	1.7	2.5	.9	1.0	1.9	3.4	3.0	3.6	1.2	1.8	3.6	1.8	1.4
Chain-type annual weights	2.0	2.3	1.6	2.1	2.0	-5	2.4	3.3	3.3	2.0	1.5	2.2	1.6	2.2	.8	.9	1.5	2.9	2.7	3.2	.9	1.6	3.3	1.5	1.4
Benchmark-years weights	1.9	2.3	1.6	2.2	2.2	-7	2.2	3.2	3.3	2.0	1.4	2.2	1.5	2.2	.8	.9	1.6	3.0	2.8	3.4	1.0	1.7	3.5	1.7	1.4
Nondurable goods:																									
Quantity indexes:																									
Fixed 1987 weights	2.4	1.6	.5	-1.3	1.1	3.6	3.0	3.3	2.9	.5	-4	2.2	2.4	-2	-5	.8	-2.8	-3.2	1.3	-6	-3.5	5.5	-1.5	2.5	6.8
Chain-type annual weights	2.4	1.6	.4	-1.4	1.1	3.5	3.0	3.1	2.9	.4	-5	2.2	2.4	-4	-4	.8	-2.8	-3.3	1.3	-6	-3.5	5.4	-1.6	2.4	6.4
Benchmark-years weights	2.3	1.5	.4	-1.4	1.1	3.4	2.9	3.1	2.9	.5	-5	2.1	2.4	-3	-4	.8	-2.8	-3.3	1.2	-6	-3.5	5.5	-1.6	2.5	6.6
Price indexes:																									
Fixed 1987 weights	3.8	5.5	6.2	3.6	2.1	1.3	5.0	6.0	4.5	5.3	10.1	1.6	3.3	9.9	3.2	8.5	10.1	0	1.8	.8	2.5	1.8	2.9	2.5	1.9
Chain-type annual weights	3.8	5.4	6.1	3.6	2.1	1.3	5.0	5.9	4.5	5.2	10.0	1.5	3.3	9.6	3.4	8.2	9.6	.2	1.8	.9	2.4	2.0	2.8	2.4	1.7
Benchmark-years weights	3.8	5.4	6.1	3.6	2.1	1.3	5.0	5.9	4.5	5.2	10.0	1.5	3.2	9.7	3.3	8.4	9.9	0	1.8	.9	2.4	1.9	2.8	2.5	1.8
Services:																									
Quantity indexes:																									
Fixed 1987 weights	3.7	1.9	1.9	1.1	2.1	6.0	2.5	4.2	2.2	.8	1.1	1.7	3.3	.3	3.7	3.1	-1.6	-3	3.0	1.2	2.3	2.2	1.2	3.1	2.1
Chain-type annual weights	3.7	1.9	1.9	1.0	2.1	5.9	2.5	4.2	2.3	.6	1.1	1.6	3.3	.5	3.7	2.9	-1.6	-3	2.9	1.2	2.3	2.1	1.5	3.0	2.0
Benchmark-years weights	3.7	1.9	1.9	1.0	2.1	5.8	2.4	4.1	2.2	.7	1.1	1.6	3.1	.6	3.6	3.0	-1.7	-3	3.0	1.2	2.4	2.1	1.4	3.0	2.1
Price indexes:																									
Fixed 1987 weights	5.1	5.3	5.6	5.3	4.1	4.3	6.1	5.4	5.0	5.9	4.5	5.0	5.7	5.3	6.1	6.4	6.0	5.7	4.4	4.4	4.1	4.9	3.7	2.9	4.1
Chain-type annual weights	5.1	5.3	5.6	5.3	4.1	4.3	6.1	5.4	5.0	5.8	4.5	4.9	5.8	5.1	6.1	6.2	5.8	5.5	4.5	4.3	4.1	4.8	3.7	2.8	4.1
Benchmark-years weights	5.1	5.3	5.6	5.3	4.1	4.2	6.0	5.4	5.1	5.8	4.5	4.9	5.7	5.3	6.1	6.3	5.9	5.6	4.4	4.3	4.1	4.9	3.7	2.9	4.1
Gross private domestic investment:																									
Quantity indexes:																									
Fixed 1987 weights	3.2	1.4	-5.7	-10.6	7.8	-17.3	6.8	6.8	1.4	9.4	-4.1	-12.2	.3	-3.3	3.8	-13.3	-29.9	-18.5	2.2	14.6	2.9	-4.6	29.5	6.5	10.4
Chain-type annual weights	3.0	1.7	-5.9	-11.1	6.5	-17.2	7.4	5.6	2.3	10.9	-4.2	-12.6	-1	-3.3	4.2	-14.1	-30.3	-19.0	2.2	12.4	2.3	-6.8	29.6	4.3	10.5
Benchmark-years weights	3.1	1.2	-5.8	-10.9	7.1	-18.1	6.2	6.5	1.6	9.0	-4.0	-12.8	.3	-3.4	4.2	-13.4	-30.2	-19.0	2.1	13.5	2.6	-5.8	29.6	5.4	10.4
Price indexes:																									
Fixed 1987 weights																									
Chain-type annual weights																									
Benchmark-years weights																									
Fixed investment:																									
Quantity indexes:																									
Fixed 1987 weights	4.2	.1	-2.8	-8.5	5.5	2.1	8.7	2.8	2.9	-1.3	-2.2	-2.3	-4.4	5.9	-9.2	-2.9	-13.1	-18.7	-8	1.0	-1.2	7.4	15.2	2.3	13.8
Chain-type annual weights	4.2	-1	-3.0	-9.1	4.3	1.8	8.7	2.8																	

[Percent]

	1988	1989	1990	1991	1992	Seasonally adjusted at annual rates																				
						1988				1989				1990				1991				1992				
						I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	
Exports of goods and services:																										
Quantity indexes:																										
Fixed 1987 weights	15.8	11.9	8.1	5.8	6.3	23.6	10.3	6.8	14.0	15.7	16.3	.8	13.1	10.7	7.0	-2	11.6	-5.0	16.6	6.2	13.3	2.9	-1.4	9.2	8.9	-2.6
Chain-type annual weights	15.7	11.8	7.7	5.3	5.6	23.7	10.1	6.5	13.8	16.2	15.8	.7	12.4	10.7	6.1	-7	12.0	-6.3	16.2	6.3	12.6	2.7	-2.7	8.1	8.2	-5.7
Benchmark-years weights	15.6	11.9	7.9	5.5	6.0	22.6	9.9	6.5	13.7	16.5	15.9	.8	12.7	10.5	6.7	-6	11.7	-5.9	16.6	6.2	12.9	2.8	-2.1	8.6	8.6	-6.6
Price indexes:																										
Fixed 1987 weights	5.7	2.4	1.8	2.1	1.1	5.2	10.1	6.0	-4	4.2	1.3	-1.4	.1	3.1	1.5	4.1	5.3	2.3	-4	-8	2.3	.6	2.0	1.7	1.0	1.9
Chain-type annual weights	5.5	2.3	1.8	2.0	.9	4.9	9.7	5.7	0	3.9	1.3	-1.3	.1	3.0	1.4	4.1	5.2	2.3	-6	-9	1.7	.9	1.6	1.4	9	
Benchmark-years weights	5.3	2.2	1.7	2.0	1.0	4.7	9.2	5.5	-1	3.9	1.2	-1.4	0	2.9	1.3	4.1	5.3	2.2	-5	-8	2.0	.7	1.8	1.6	1.0	1.0
Imports of goods and services:																										
Quantity indexes:																										
Fixed 1987 weights	3.7	3.7	3.0	-1	9.6	-1.2	-4.0	8.7	11.7	-4.8	5.8	6.5	3.3	2.6	5.1	1.5	-8.5	-14.6	15.6	17.1	4.2	3.5	14.7	14.8	5.7	-2.6
Chain-type annual weights	3.5	3.4	2.8	-1.2	8.3	-1.1	-4.4	8.7	11.4	-5.2	5.5	5.5	3.1	2.6	5.6	1.0	-9.3	-16.7	15.1	15.4	3.6	2.4	13.0	12.0	5.5	-5.7
Benchmark-years weights	3.5	3.3	2.8	-8	8.9	-1.8	-4.5	8.3	11.4	-5.4	5.5	5.7	3.3	2.3	5.3	1.2	-8.8	-16.0	15.2	16.3	3.9	2.9	13.9	13.4	5.6	-5.6
Price indexes:																										
Fixed 1987 weights	5.4	3.0	3.7	1.0	.8	4.8	8.1	-3.9	5.8	6.9	4.2	-5.6	3.1	7.4	-5.4	12.5	22.5	-9.7	-7.7	-4	3.7	-3.0	4.9	5.6	-2.6	-4.7
Chain-type annual weights	5.2	3.0	3.6	.3	4	4.6	8.0	-4.0	5.2	7.0	4.8	-5.8	3.0	7.7	-6.2	12.5	23.1	-11.5	-8.3	-1.3	3.0	-2.9	4.4	5.2	-2.3	-2.3
Benchmark-years weights	5.0	2.7	3.4	.6	.6	4.1	7.5	-4.1	5.1	6.6	4.2	-5.8	2.7	7.1	-5.8	12.2	22.4	-10.6	-8.0	-8	3.4	-2.9	4.6	5.4	-2.5	-2.5
Government purchases:																										
Quantity indexes:																										
Fixed 1987 weights	.6	2.0	2.8	1.2	-3	-4.1	.9	-9	5.0	-1.6	5.3	4.5	.2	6.4	1.1	-2.0	6.1	2.8	.2	-2.3	-3.0	1.7	-1.2	3.8	-2.6	-2.6
Chain-type annual weights	.6	2.1	2.8	1.0	-4	-4.4	.7	-4	5.4	-1.7	5.2	4.1	.3	6.0	.9	-1.5	6.4	2.4	-8	-1.9	-3.0	1.7	-1.1	3.6	-2.9	-2.9
Benchmark-years weights	.6	1.9	2.8	1.1	-4	-4.1	.7	-8	5.1	-1.7	5.0	4.3	.3	6.2	1.0	-1.8	6.2	2.5	-3	-2.1	-3.0	1.7	-1.2	3.7	-2.8	-2.8
Price indexes:																										
Fixed 1987 weights	3.7	4.1	4.3	3.5	2.9	6.0	3.5	3.0	2.9	7.2	3.3	2.4	3.4	6.5	3.0	4.9	5.0	3.9	1.7	3.0	2.6	3.1	3.5	2.4	3.4	3.4
Chain-type annual weights	3.6	4.0	4.1	3.5	2.7	5.9	3.5	2.9	2.9	7.2	3.2	2.4	3.2	6.3	3.1	4.6	4.6	4.0	1.9	2.9	2.1	3.1	3.3	2.0	2.7	2.7
Benchmark-years weights	3.6	4.0	4.2	3.5	2.8	5.6	3.4	3.2	2.9	7.1	3.2	2.3	3.3	6.3	3.3	4.7	4.7	3.9	1.7	2.9	2.3	3.1	3.4	2.2	3.1	3.1
Federal:																										
Quantity indexes:																										
Fixed 1987 weights	-2.0	-3	2.0	1.2	-3.3	-11.6	-2.6	-3.7	5.1	-8.5	7.6	5.0	-5.5	8.0	2.1	-7.2	9.9	7.2	-3	-6.5	-9.0	-3.0	-2.7	7.5	-4.7	-4.7
Chain-type annual weights	-2.1	-1	1.8	.9	-3.3	-12.3	-2.9	-2.7	6.1	-8.7	7.6	4.1	-5.3	7.3	1.3	-6.3	11.0	6.4	-2.9	-5.6	-8.9	-2.6	-2.7	7.0	-5.7	-5.7
Benchmark-years weights	-2.1	-4	1.8	1.0	-3.3	-11.7	-3.0	-3.5	5.4	-8.6	7.0	4.5	-5.3	7.6	1.7	-6.7	10.2	6.5	-1.4	-6.1	-9.0	-2.8	-2.7	7.2	-5.2	-5.2
Price indexes:																										
Fixed 1987 weights	2.8	4.1	4.6	4.0	4.1	7.0	2.8	1.3	2.7	9.5	2.4	1.8	3.7	8.4	2.8	5.4	4.6	5.8	.9	3.5	4.8	6.0	2.8	3.6	4.3	4.3
Chain-type annual weights	2.7	3.9	4.3	3.9	3.8	6.8	2.7	.9	2.6	9.5	2.1	1.7	3.3	8.0	3.0	4.5	3.6	6.3	1.4	3.4	3.7	6.5	2.3	2.9	2.8	2.8
Benchmark-years weights	2.7	3.9	4.4	3.9	3.9	6.4	2.6	1.6	2.4	9.2	2.1	1.6	3.5	7.8	3.4	4.9	3.8	6.1	1.0	3.3	4.1	6.2	2.5	3.3	3.3	3.5
National defense:																										
Quantity indexes:																										
Fixed 1987 weights	-1.7	-2.0	.7	-2	-6.3	-5.6	-5.0	-3.4	1.6	-12.0	5.5	9.6	-7.3	4.9	.3	-10.5	12.8	8.7	-5.6	-9.4	-13.0	-7.7	-5.2	8.3	-3.5	-3.5
Chain-type annual weights	-1.8	-2.2	.3	-6	-6.3	-5.7	-5.3	-3.0	1.7	-12.4	5.0	8.6	-7.0	4.1	-9	-10.0	14.6	7.4	-8.3	-8.4	-12.6	-6.9	-5.5	7.2	-4.7	-4.7
Benchmark-years weights	-1.8	-2.2	.5	-4	-6.3	-6.0	-5.5	-3.4	1.7	-12.0	4.5	8.9	-7.2	4.8	-5	-10.3	13.5	8.0	-7.0	-8.9	-12.8	-7.3	-5.3	7.7	-4.1	-4.1
Price indexes:																										
Fixed 1987 weights	3.1	3.9	4.8	3.8	4.5	7.4	3.2	2.1	1.9	9.5	1.8	1.4	4.2	8.6	2.9	5.8	4.7	4.5	.2	3.8	6.2	5.6	3.2	4.1	4.9	4.9
Chain-type annual weights	3.0	3.8	4.4	3.7	4.1	7.1	3.1	2.0	2.0	9.4	1.4	1.2	3.6	8.2	3.0	4.8	4.3	4.8	.9	3.7	4.7	6.1	2.6	3.6	3.2	3.2
Benchmark-years weights	2.8	3.7	4.5	3.7	4.2	6.4	2.7	2.0	1.6	9.4	1.7	1.0	3.8	8.0	3.6	5.3	4.3	4.6	.4	3.7	5.3	5.8	2.9	3.9	4.1	4.1
Nondefense:																										
Quantity indexes:																										
Fixed 1987 weights	-2.9	5.1	5.8	5.2	4.8	-28.3	5.5	-4.4	17.2	3.1	14.0	-8.0	.8	17.0	7.5	2.8	2.0	2.8	16.6	1.5	2.3	9.7	3.3	5.5	-7.6	-7.6
Chain-type annual weights	-3.2	6.5	6.1	5.2	4.5	-30.4	5.4	-1.6	21.4	3.8	15.2	-8.0	.1	17.1	7.9	5.0	1.8	3.7	13.7	2.2	1.0	8.8	4.4	6.4	-7.8	-7.8
Benchmark-years weights	-2.8	5.3	5.9	5.1	4.7	-27.6	5.5	-3.8	17.9	2.7	14.4	-7.7	.6	16.4	8.0	3.7	1.6	2.6	15.6	1.9	1.6	9.2	3.9	6.0	-7.7	-7.7
Price indexes:																										
Fixed 1987 weights	2.0	4.6	4.2	4.9	3.1	5.8	1.8	-1.3	5.2	9.4	4.3	3.4	2.2	7.6	2.4	3.9	4.3	10.1	3.2	2.6	.5	7.3	1.5	2.1	2.2	2.2
Chain-type annual weights	1.7	4.4	4.1	4.6	3.0	5.9	1.4	-2.5	4.6	9.7	4.4	3.1	2.4	7.3	3.1	3.9	2.0	10.7	2.7	2.5	1.2	7.5	1.3	1.1	1.9	1.9
Benchmark-years weights	2.6	4.6	4.1	4.6	3.0	6.2	2.3	.4	5.0	8.9	3.6	3.4	2.5	7.2	3.0	3.8	2.7	10.5	2.8	2.3	.6	7.4	1.4	1.6	2.0	2.0
State and local:																										
Quantity indexes:																										
Fixed 1987 weights	2.6	3.7	3.4	1.2	1.7	2.0	3.5	1.3	4.9	3.6	3.7	4.1	4.4	5.2	.4	1.9	3.5	-1	.6	.9	1.4	5.1	-2	1.4	-1.1	-1.1
Chain-type annual weights	2.6	3.7	3.4	1.1	1.6	2.1	3.5	1.3	4.9	3.5	3.6	4.1	4.5	5.2	.6	1.9	3.4	-3	.6	.7	1.3	4.7	-1	1.4	-1.1	-1.1
Benchmark-years weights	2.6	3.7	3.4	1.1	1.7	2.1	3.5	1.3	4.8	3.6	3.6	4.2	4.4	5.2	.6	1.8	3.4	-2	.6	.8	1.3	4.9	-2	1.4	-1.1	-1.1
Price indexes:																										
Fixed 1987 weights	4.3	4.1	4.0	3.1	1.9	5.2	4.1	4.3	3.1	5.5	4.0	2.9	3.2	5.1	3.2	4.5	5.3	2.4	2.3	2.6	.9	.8	4.0	1.4	2.8	2.8
Chain-type annual weights	4.3	4.1	4.0	3.1	1.9	5.2	4.1	4.3	3.1	5.6	4.0	2.9	3.2	5.1	3.1	4.6	5.3	2.4	2.2	2.6	.9	.8	4.0	1.4	2.7	2.7
Benchmark-years weights	4.3	4.1	4.0	3.1	1.9	5.1	4.0	4.3	3.2	5.5	4.0	2.8	3.2	5.1	3.1	4.6	5.3	2.4	2.2	2.6	.9	.8	4.0	1.4	2.7	2.7
Addenda:																										
Final sales of domestic product:																										
Quantity indexes:																										
Fixed 1987 weights	4.1	2.3	1.3	-8	1.8	6.3	4.6	1.9	4.1	1.5	2.2															