

# News

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Bureau of Labor Statistics

Washington, D.C. 20212

Historical, technical  
information: (202) 523-9261  
Current data : (202) 523-1221 or 1208  
Media contact: (202) 523-1913

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## PRODUCTIVITY AND COSTS First Quarter 1988

The Bureau of Labor Statistics of the U.S. Department of Labor today reported productivity results --as measured by output per hour of all persons-- for the first quarter of 1988. Based on preliminary data, the seasonally adjusted annual rates of productivity change in the first quarter were:

- 0.8 percent in the business sector,
- 0.9 percent in the nonfarm business sector,
- 2.9 percent in manufacturing,
- 2.6 percent in durable goods manufacturing, and
- 3.7 percent in nondurable goods manufacturing.

First-quarter measures are summarized in table A and appear in detail in tables 1 through 5. Productivity rose in all sectors in the first quarter, but gains were strongest in manufacturing.

### Business

Productivity increased at a 0.8 percent annual rate during the first quarter of 1988 in the business sector, as output rose 2.5 percent and hours of all persons engaged in the sector increased 1.7 percent (seasonally adjusted annual rates). During the fourth quarter of 1987, productivity had declined 1.5 percent, as output grew 4.0 percent and hours increased 5.6 percent (table 1). Compared with the first quarter of 1987, productivity rose 1.3 percent.

Hourly compensation increased 3.5 percent during the first quarter of 1988, compared with a 3.2 percent rise in the fourth quarter of 1987. This measure includes wages and salaries, supplements, employer contributions to employee-benefit plans, and taxes. Unit labor costs, which reflect changes in hourly compensation and productivity, increased at a 2.7 percent annual rate during the first quarter, compared with a 4.7 percent increase in the fourth quarter of last year.

Real hourly compensation, which takes into account changes in the Consumer Price Index for All Urban Consumers (CPI-U), increased at a 0.1 percent annual rate in the first quarter, compared with a 0.5 percent decline in the fourth quarter of 1987. No increases were recorded in this measure in 1987.

Table A. Productivity and costs: Preliminary first quarter 1988 measures  
(Seasonally adjusted annual rates)

Sector	Productivity	Output	Hours	Hourly compensation	Real hourly compensation	Unit labor costs
Percent change from preceding quarter						
Business	0.8	2.5	1.7	3.5	0.1	2.7
Nonfarm business	0.9	2.7	1.7	3.4	0.0	2.4
Manufacturing	2.9	4.3	1.3	3.9	0.5	1.0
Durable	2.6	3.1	0.4	5.0	1.5	2.3
Nondurable	3.7	6.5	2.6	2.4	-1.0	-1.3
Percent change from same quarter a year ago						
Business	1.3	3.9	2.6	3.4	-0.5	2.1
Nonfarm business	1.4	4.1	2.6	3.4	-0.5	2.0
Manufacturing	3.4	6.0	2.5	2.3	-1.6	-1.1
Durable	3.4	5.7	2.2	2.5	-1.4	-0.9
Nondurable	3.4	6.6	3.0	2.2	-1.7	-1.3

The implicit price deflator for the business sector, which reflects changes in unit labor costs and unit nonlabor payments, increased a modest 1.2 percent in the first quarter.

#### Nonfarm business

Productivity increased 0.9 percent in the nonfarm business sector during the first quarter of 1988, as output rose 2.7 percent and hours of all persons increased 1.7 percent. As in the more comprehensive business sector reported above, the first-quarter increase in productivity followed a quarter of decline. (During the fourth quarter of 1987, productivity fell 1.0 percent in this sector (table 2).) Over the past 4 quarters, productivity increased 1.4 percent.

Hourly compensation increased 3.4 percent in the first quarter, but was unchanged when the rise in the CPI-U was taken into account. Unit labor costs rose 2.4 percent, compared with a 4.5 percent rise during the fourth quarter of 1987.

The implicit price deflator for the nonfarm business sector rose 1.1 percent in the first quarter, compared with a 1.9 percent rise one quarter earlier.

## Manufacturing

Productivity increased at a 2.9 percent seasonally adjusted annual rate in manufacturing in the first quarter of 1988, as output rose 4.3 percent and hours of all persons increased 1.3 percent (seasonally adjusted annual rates). Manufacturing productivity increased 3.4 percent between the first quarters of 1987 and 1988.

As in the business sector, manufacturing productivity growth was greater in the first quarter of 1988 than in the fourth quarter of 1987 (table 3). Productivity, output, and hours of labor input all advanced faster in the nondurable goods industries than in durable goods (tables 4 and 5). While output increased in both subsectors, the increase in hours occurred mainly in nondurables.

Hourly compensation of all manufacturing workers increased 3.9 percent during the first quarter, with faster gains recorded for producers of durable goods than of nondurables. Real hourly compensation for the whole sector rose 0.5 percent when the increase in consumer prices was taken into account. Unit labor costs increased at a 1.0 percent annual rate, compared with a 1.4 percent increase during the fourth quarter of 1987.

### Fourth quarter measures for nonfinancial corporations

Fourth-quarter 1987 measures of productivity and costs also were announced today for the nonfinancial corporate sector, together with revised annual movements (tables B and C). Output per all-employee hour declined 1.0 percent from the third to the fourth quarter of 1987, as output increased 3.5 percent and all-employee hours increased 4.6 percent (seasonally adjusted annual rates). Productivity declined for the first and last quarters of 1987, but rose during the second and third quarters (table 6).

Table B. Productivity and costs for nonfinancial corporations:  
Fourth quarter 1987  
(Seasonally adjusted annual rates)

Period	Productivity	Output	Hours	Hourly compensation	Real hourly compensation	Unit labor costs	Unit profits	Implicit price deflator
		Percent change from preceding quarter						
1987 IV	-1.0	3.5	4.6	3.3	-0.4	4.3	-13.4	1.7
		Percent change from preceding year						
1987 IV	0.0	3.4	3.4	2.1	-2.3	2.1	7.3	2.7

Table C. Nonfinancial corporations: Previous and revised 1987 annual change in productivity and related measures (Percent change)

Measure	Productivity	Output	Hours	Hourly compensation	Real hourly compensation	Unit labor costs	Unit profits	Implicit price deflator
Previous	0.4	2.7	2.3	2.1	-1.5	1.7	6.5	2.3
Revised	0.3	2.6	2.3	2.1	-1.5	1.8	5.2	2.3

Hourly compensation increased 3.3 percent in the fourth quarter, but declined 0.4 percent when the rise in the CPI-U was taken into account. (Real hourly compensation declined in all quarters of 1987.) Unit labor costs rose 4.3 percent, unit nonlabor costs increased 1.6 percent, and unit profits fell at a 13.4 percent annual rate. The implicit deflator for nonfinancial corporate output rose 1.7 percent during the fourth quarter.

#### Next release date

The next release of Productivity and Costs is scheduled for **10:00 AM EDT, Monday, June 6, 1988**. Released at that time will be first-quarter measures for nonfinancial corporations and revised measures for business, nonfarm business, and manufacturing.

## TECHNICAL NOTES

Business sector output is equal to gross national product in constant 1982 dollars, less the rest-of-the-world sector, general government, output of nonprofit institutions, output of paid employees of private households, rental value of owner-occupied dwellings, and the statistical discrepancy in computing the national income accounts. Corresponding exclusions are also made in labor inputs. Business output accounted for 80 percent of gross national product in 1987. The nonfarm business sector, which also excludes farming, accounted for about 78 percent of gross national product in 1987.

Total manufacturing measures are computed by summing series prepared for the durable and nondurables goods sectors.

The durable sector includes the following 2-digit SIC industries: Primary metals; fabricated metal products; nonelectrical machinery; electrical machinery; transportation equipment; instruments; lumber and lumber products; furniture and fixtures; stone, clay, and glass products; and miscellaneous manufactures. The nondurable sector includes these 2-digit SIC industries: Textile mill products, apparel products, leather and leather products, printing and publishing, chemical and chemical products, petroleum products, rubber and plastic products, food, and tobacco products.

Manufacturing output accounted for about 22 percent of gross national product in 1987.

Nonfinancial corporate output is equal to gross national product in constant 1982 dollars, less the rest-of-the-world sector, general government, unincorporated business, output of nonprofit institutions, output of paid employees of private households, rental value of owner-occupied dwellings, the output of corporations engaged in banking, finance, stock and commodity trading, and credit and insurance agencies, and the statistical discrepancy in computing the national income accounts. Nonfinancial corporate output accounted for about 59 percent of gross national product in 1987.

The productivity and associated cost measures in this news release describe the relationship between output in real terms and the labor time involved in its production. They show the changes from period to period in the amount of goods and services produced per hour. Although these measures relate output to hours of all persons engaged in a sector, they do not measure the specific contribution of labor, capital, or any other factor of production. Rather, they reflect the joint effects of many influences, including changes in technology; capital investment; level of output; utilization of capacity, energy, and materials; the organization of production; managerial skill; and the characteristics and effort of the work force.

Table 1. Business sector: Productivity, hourly compensation, unit labor cost, and prices, seasonally adjusted

Year and quarter		Output per hour of all persons	Output	Hours of all persons	Compensation per hour(1)	Real compensation per hour(2)	Unit labor cost	Unit non-labor payments(3)	Implicit price deflator(4)
-----									
Indexes 1977=100									
1987	I	109.7	130.2	118.7	185.8	100.7	169.4	166.0	168.2
	II	110.1	131.1	119.1	187.3	100.3	170.2	168.6	169.6
	III	111.3	133.1	119.6	189.1	100.3	169.8	172.2	170.7
	IV	r110.9	r134.4	121.2	r190.6	100.2	r171.8	r170.8	r171.4
	ANNUAL	r110.5	r132.2	119.7	188.2	100.4	r170.3	r169.4	170.0
1988	I	111.1	135.3	121.7	192.2	100.2	173.0	170.2	172.0
-----									
Percent change from previous quarter at annual rate(5)									
1987	I	0.5	3.5	3.0	1.4	-3.8	0.9	9.0	3.7
	II	1.4	3.0	1.6	3.3	-1.5	1.8	6.4	3.4
	III	4.7	6.3	1.5	3.8	0.0	-0.9	8.8	2.5
	IV	r-1.5	r4.0	5.6	r3.2	-0.5	r4.7	r-3.2	r1.8
	ANNUAL	r0.9	r3.3	2.4	2.9	-0.7	r2.0	r3.4	2.5
1988	I	0.8	2.5	1.7	3.5	0.1	2.7	-1.4	1.2
-----									
Percent change from corresponding quarter of previous year									
1987	I	0.2	2.3	2.1	2.8	0.6	2.7	1.8	2.3
	II	0.4	2.8	2.5	2.8	-1.0	2.4	2.8	2.6
	III	1.6	3.9	2.3	3.0	-1.1	1.4	3.9	2.3
	IV	r1.3	r4.2	2.9	2.9	-1.5	r1.6	r5.1	r2.8
	ANNUAL	r0.9	r3.3	2.4	2.9	-0.7	r2.0	r3.4	2.5
1988	I	1.3	3.9	2.6	3.4	-0.5	2.1	2.5	2.2
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See footnotes following table 6.  
r=revised

May 2, 1988  
Source: Bureau of Labor Statistics

Table 2. Nonfarm business sector: Productivity, hourly compensation, unit labor cost, and prices, seasonally adjusted

Year and quarter	Output per hour of all persons	Output	Hours of all persons	Compensation per hour(1)	Real compensation per hour(2)	Unit labor cost	Unit non-labor payments(3)	Implicit price deflator(4)
----- Indexes 1977=100								
1987	I	107.6	129.7	120.6	184.9	100.2	171.8	170.3
	II	108.0	130.7	121.1	186.3	99.7	172.5	171.4
	III	109.1	132.7	121.7	187.9	99.7	172.2	172.5
	IV	r108.8	r134.1	123.2	189.5	99.6	r174.1	r171.8
	ANNUAL	r108.4	r131.8	121.6	187.1	99.8	r172.7	r170.4
1988	I	109.1	135.0	123.7	191.1	99.7	175.2	171.3
----- Percent change from previous quarter at annual rate(5)								
1987	I	0.4	3.8	3.4	1.1	-4.1	0.8	8.8
	II	1.4	3.2	1.7	3.0	-1.8	1.5	4.6
	III	4.2	6.3	2.0	3.6	-0.3	-0.6	9.3
	IV	r-1.0	r4.2	r5.2	r3.5	r-0.1	r4.5	r-2.7
	ANNUAL	r0.8	r3.4	2.6	2.8	-0.8	r2.0	r3.1
1988	I	0.9	2.7	1.7	3.4	0.0	2.4	-1.3
----- Percent change from corresponding quarter of previous year								
1987	I	-0.1	2.2	2.3	2.7	0.4	2.8	1.6
	II	0.3	2.9	2.6	2.7	-1.1	2.4	2.4
	III	1.5	4.0	2.5	2.9	-1.2	1.4	3.6
	IV	r1.3	r4.4	3.1	2.8	-1.6	r1.5	r4.9
	ANNUAL	r0.8	r3.4	2.6	2.8	-0.8	r2.0	r3.1
1988	I	1.4	4.1	2.6	3.4	-0.5	2.0	2.3

See footnotes following table 6.  
r=revised

May 2, 1988  
Source: Bureau of Labor Statistics

Table 3. Manufacturing sector: Productivity, hourly compensation, and unit labor cost, seasonally adjusted

Year and quarter	Output per hour of all persons	Output (6)	Hours of all persons	Compensation per hour(1)	Real compensation per hour(2)	Unit labor cost	
-----							
Indexes 1977=100							
1987	I	130.8	128.4	98.1	183.9	99.6	140.5
	II	132.9	129.9	97.7	184.8	98.9	139.0
	III	134.1	132.3	98.7	185.4	98.3	138.2
	IV	r134.3	r134.7	100.3	186.3	r97.9	r138.7
	ANNUAL	r133.1	131.3	98.7	185.1	98.7	139.1
1988	I	135.3	136.1	100.6	188.1	98.1	139.0
-----							
Percent change from previous quarter at annual rate(5)							
1987	I	3.2	4.0	0.8	-1.0	-6.1	-4.1
	II	6.4	4.7	-1.6	2.0	-2.7	-4.2
	III	3.7	7.6	3.8	1.3	-2.4	-2.3
	IV	r0.7	r7.5	r6.7	2.1	-1.5	r1.4
	ANNUAL	3.3	4.3	r1.0	1.3	-2.2	-1.9
1988	I	2.9	4.3	1.3	3.9	0.5	1.0
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Percent change from corresponding quarter of previous year							
1987	I	2.5	2.5	0.0	1.6	-0.7	-1.0
	II	3.5	3.7	0.2	1.5	-2.3	-2.0
	III	3.7	5.0	1.2	1.2	-2.9	-2.4
	IV	r3.5	r5.9	2.4	1.1	-3.2	r-2.3
	ANNUAL	3.3	4.3	r1.0	1.3	-2.2	-1.9
1988	I	3.4	6.0	2.5	2.3	-1.6	-1.1
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See footnotes following table 6.  
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May 2, 1988  
Source: Bureau of Labor Statistics



Table 4. Durable manufacturing sector: Productivity, hourly compensation, and unit labor cost, seasonally adjusted

Year and quarter	Output per hour of all persons	Output (6)	Hours of all persons	Compensation per hour(1)	Real compensation per hour(2)	Unit labor cost	
----- Indexes 1977=100 -----							
1987	I	139.9	136.9	97.8	182.2	98.7	130.2
	II	141.7	137.8	97.2	182.9	98.0	129.1
	III	143.0	140.1	98.0	183.4	97.3	128.3
	IV	r143.8	r143.6	r99.8	184.4	97.0	r128.3
	ANNUAL	142.1	139.6	98.2	183.3	97.8	129.0
1988	I	144.7	144.6	100.0	186.7	97.3	129.0
----- Percent change from previous quarter at annual rate(5) -----							
1987	I	4.5	4.5	0.0	-1.9	-6.9	-6.1
	II	5.3	2.8	-2.4	1.6	-3.1	-3.5
	III	3.6	7.0	3.3	1.1	-2.6	-2.4
	IV	r2.3	r10.1	7.7	2.2	-1.4	r-0.1
	ANNUAL	3.9	4.1	0.2	r1.0	-2.5	-2.7
1988	I	2.6	3.1	0.4	5.0	1.5	2.3
----- Percent change from corresponding quarter of previous year -----							
1987	I	3.4	2.4	-0.9	1.3	-1.0	-2.1
	II	4.2	3.4	-0.7	1.2	-2.5	-2.9
	III	4.0	4.5	0.5	1.0	-3.0	-2.8
	IV	r3.9	r6.1	2.1	0.7	-3.5	r-3.1
	ANNUAL	3.9	4.1	0.2	r1.0	-2.5	-2.7
1988	I	3.4	5.7	2.2	2.5	-1.4	-0.9

See footnotes following table 6.

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Source: Bureau of Labor Statistics

Table 5. Nondurable manufacturing sector: Productivity, hourly compensation, and unit labor cost, seasonally adjusted

Year and quarter	Output per hour of all persons	Output (6)	Hours of all persons	Compensation per hour(1)	Real compensation per hour(2)	Unit labor cost	
-----							
Indexes 1977=100							
1987	I	117.4	115.8	98.6	186.9	101.3	159.1
	II	119.9	118.1	98.5	188.2	100.8	156.9
	III	121.1	120.6	99.6	189.0	100.3	156.1
	IV	r120.4	r121.5	100.9	189.8	99.8	r157.6
	ANNUAL	119.7	r119.0	99.4	188.4	100.5	r157.4
1988	I	121.5	123.4	101.6	190.9	99.5	157.1
-----							
Percent change from previous quarter at annual rate(5)							
1987	I	1.1	3.1	1.9	0.7	-4.5	-0.5
	II	8.7	8.2	-0.5	2.8	-1.9	-5.4
	III	3.9	8.8	4.7	1.7	-2.0	-2.1
	IV	r-2.3	r3.0	5.4	r1.6	-1.9	r4.0
	ANNUAL	2.5	4.6	2.0	2.0	-1.6	-0.5
1988	I	3.7	6.5	2.6	2.4	-1.0	-1.3
-----							
Percent change from corresponding quarter of previous year							
1987	I	1.3	2.7	1.4	2.3	0.0	1.0
	II	2.5	4.1	1.6	2.1	-1.7	-0.4
	III	3.5	5.9	2.3	1.7	-2.4	-1.7
	IV	r2.8	r5.7	r2.9	1.7	-2.6	r-1.0
	ANNUAL	2.5	4.6	2.0	2.0	-1.6	-0.5
1988	I	3.4	6.6	3.0	2.2	-1.7	-1.3
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See footnotes following table 6.  
r=revised

May 2, 1988  
Source: Bureau of Labor Statistics

Table 6. Nonfinancial corporations: Productivity, hourly compensation, unit labor cost, unit profits, and prices, seasonally adjusted

Year and quarter	Output per all-employee hour	Output	Employee hours	Hourly compensation (1)	Real hourly compensation(2)	Unit labor cost	Unit non-labor cost(7)	Total unit cost (8)	Unit profits (9)	Implicit price deflator (4)	
-----											
Indexes 1977=100											
1986	I	109.8	129.1	117.6	177.2	98.2	161.5	180.7	166.3	129.7	161.9
	II	109.7	128.8	117.4	178.4	99.2	162.6	180.6	167.2	129.5	162.7
	III	109.9	129.3	117.6	179.5	99.2	163.2	184.2	168.5	130.6	164.0
	IV	110.5	130.4	118.0	181.0	99.4	163.8	183.2	168.7	127.7	163.8
	ANNUAL	109.9	129.4	117.7	178.9	98.9	162.8	182.2	167.7	129.3	163.1
1987	I	109.7	130.9	119.3	180.8	98.0	164.8	184.1	169.7	132.2	165.2
	II	109.9	131.6	119.8	182.0	97.5	165.6	186.6	170.9	132.9	166.3
	III	110.8	133.7	120.6	183.3	97.2	165.5	187.3	171.0	142.1	167.5
	IV	110.5	134.8	122.0	184.8	97.1	167.2	188.0	172.5	137.0	168.2
	ANNUAL	r110.2	r132.7	120.5	182.7	97.5	r165.8	r186.5	r171.0	r136.1	166.8
-----											
Percent change from previous quarter at annual rate(5)											
1986	I	3.3	4.4	1.0	-3.5	1.8	0.1	3.0	0.9	3.0	1.1
	II	-0.2	-0.9	-0.6	2.6	4.0	2.9	-0.2	2.0	-0.5	1.8
	III	0.9	1.6	0.7	2.5	0.1	1.5	8.2	3.3	3.3	3.3
	IV	2.1	3.4	1.3	3.5	0.7	1.3	-2.3	0.3	-8.5	-0.5
	ANNUAL	1.6	2.6	1.0	3.5	1.6	1.9	2.2	2.0	-3.4	1.5
1987	I	-2.9	1.5	4.6	-0.5	-5.6	2.5	2.2	2.4	14.7	3.5
	II	0.7	2.2	1.6	2.6	-2.1	2.0	5.4	2.9	2.1	2.8
	III	3.3	6.4	3.0	2.9	-0.9	-0.4	1.5	0.1	30.7	2.8
	IV	-1.0	3.5	4.6	3.3	-0.4	4.3	1.6	3.6	-13.4	1.7
	ANNUAL	r0.3	r2.6	2.3	2.1	-1.5	r1.8	r2.4	r2.0	r5.2	2.3
-----											
Percent change from corresponding quarter of previous year											
1986	I	2.6	4.1	1.4	4.3	1.2	1.6	1.8	1.7	-1.7	1.3
	II	1.8	2.7	0.8	3.9	2.2	2.0	1.0	1.7	-2.1	1.4
	III	0.7	1.5	0.8	3.3	1.6	2.6	3.8	2.9	-8.4	1.7
	IV	1.5	2.1	0.6	3.0	1.7	1.5	2.1	1.6	-0.8	1.4
	ANNUAL	1.6	2.6	1.0	3.5	1.6	1.9	2.2	2.0	-3.4	1.5
1987	I	0.0	1.4	1.5	2.0	-0.2	2.1	1.9	2.0	1.9	2.0
	II	0.2	2.2	2.0	2.0	-1.7	1.8	3.3	2.2	2.6	2.3
	III	0.8	3.4	2.6	2.1	-2.0	1.3	1.7	1.4	8.8	2.1
	IV	0.0	3.4	3.4	2.1	-2.3	2.1	2.7	2.2	7.3	2.7
	ANNUAL	r0.3	r2.6	2.3	2.1	-1.5	r1.8	r2.4	r2.0	r5.2	2.3
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See footnotes following table 6.  
r=revised

May 2, 1988  
Source: Bureau of Labor Statistics

**SOURCE:** Output data from Bureau of Economic Analysis, U.S. Department of Commerce, and the Federal Reserve Board. Compensation and hours data from the Bureau of Labor Statistics, U.S. Department of Labor, and the Bureau of Economic Analysis.

**RELIABILITY:** Productivity and cost measures are regularly revised as more complete information becomes available. The measures are first published 30 days after the close of the reference period; revisions appear 30 days later, and second revisions after an additional 60 days. In the business sector, the probability is 0.95 that the third publication (second revision) of a quarterly index of output per hour of all persons will differ from the initial value by between -2.0 and +2.0 index points. This interval is based on the performance of this measure between the first quarter of 1976 and the second quarter of 1987.

#### **Footnotes, Tables 1-6**

- (1) Wages and salaries of the employees plus employers' contributions for social insurance and private benefit plans. Except for nonfinancial corporations, where there are no self-employed, data also include an estimate of wages, salaries, and supplemental payments for the self-employed.
- (2) Compensation per hour adjusted for changes in the Consumer Price Index for All Urban Consumers.
- (3) Unit nonlabor payments include profits, capital consumption allowances, interest, rental income of persons, and indirect taxes.
- (4) Current dollar gross product divided by constant dollar gross product.
- (5) Quarterly changes: percent change compounded at annual rate from the original data rather than index numbers. Annual changes: percent change between annual average levels.
- (6) Quarterly manufacturing output measures are based on the index of industrial production prepared monthly by the Board of Governors of the Federal Reserve adjusted by BLS to annual manufacturing output levels (gross product originating) from the National Income and Product Accounts prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce.
- (7) Unit nonlabor cost includes capital consumption allowances, interest, rental income of persons, and indirect taxes. For nonfinancial corporations, rental income of persons is zero by definition.
- (8) Total unit cost is the sum of labor and nonlabor costs.
- (9) Unit profits include corporate profits with inventory valuation and capital consumption adjustments.