

News

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MULTIFACTOR PRODUCTIVITY MEASURES, 1986

Private Business, Private Nonfarm Business, and Manufacturing

The Bureau of Labor Statistics of the U.S. Department of Labor today reported multifactor productivity measures--output per unit of combined labor and capital--for 1986. Multifactor productivity increased from 1985 to 1986 at the following rates:

- 1.2 percent in private business, matching the increase in 1985 and marking the fourth consecutive annual increase,
- 0.9 percent in private nonfarm business, a slight acceleration over 1985 and also the fourth consecutive increase and
- 3.1 percent in manufacturing, exceeding 3 percent for the fourth consecutive year.

The 1986 annual changes are summarized in table A; further detail and historical measures are shown in tables 1 through 6.

The change in multifactor productivity reflects the difference between the change in output (production of goods and services) and the change in labor and capital services engaged in the production of the output. It measures the change in output due to factors other than capital and labor services. Some of these factors are new technology, economies of scale, changes in the composition of labor input (as measured by education and experience), capacity utilization rates, and changes in the organization of production.



Table A. Productivity indexes and related measures
Percent change from 1985 to 1986

Item	Private business <u>1/</u>	Private nonfarm business <u>1/</u>	Manu- facturing
Productivity:			
Output per hour of all persons.....	1.9	1.6	3.7
Output per unit of capital services..	0.1	- 0.3	1.6
Multifactor productivity <u>2/</u>	1.2	0.9	3.1
Output.....	3.3	3.2	2.8
Inputs:			
Hours of all persons.....	1.4	1.5	-0.9
Capital services.....	3.2	3.5	1.2
Combined units of labor and capital input <u>3/</u>	2.0	2.2	-0.3
Capital services per hour of all persons (capital-labor ratio)....	1.8	1.9	2.1

1/ Excludes government enterprises.

2/ Output per unit of combined labor and capital input.

3/ Hours of all persons combined with capital service input index, weighted by labor and capital shares.

Private business sector

Multifactor productivity increased 1.2 percent in 1986 in private business, matching the increase in 1985 and marking the fourth consecutive annual increase (table 4). The 1986 increase resulted from a 3.3 percent increase in output and a 2.0 percent increase in combined labor and capital inputs. Separately, hours (labor input) grew 1.4 percent and capital services grew 3.2 percent from 1985 to 1986.

Labor productivity (output per hour of all persons) grew 1.9 percent from 1985 to 1986 in private business.

Capital productivity (the ratio of output to capital services) changed only slightly, increasing 0.1 percent in 1986. The ratio of capital services to hours (capital-labor ratio) increased 1.8 percent in 1986, about the same increase recorded in 1985 (1.9 percent).

Private nonfarm business

Multifactor productivity grew 0.9 percent in 1986 in private nonfarm business. This was a slight acceleration over the 1985 rate of 0.5 percent and, as in the more comprehensive private business sector, was the fourth consecutive annual increase (table 5). Output in private nonfarm business increased 3.2 percent, and combined labor and capital inputs grew at a 2.2 percent rate. Total hours increased 1.5 percent in 1986, compared with a 2.4 percent increase in 1985. Capital services grew at a 3.5 percent annual rate in 1986, less than the 4.3 percent increase in 1985.

The increases in output and hours resulted in an 1.6 percent increase in labor productivity in 1986. Capital productivity fell at an annual rate of 0.3 percent in 1986 compared with a decrease of 0.6 percent in the preceding year.

The increase in the ratio of capital services to hours was 1.9 percent in 1986, about the same as the 1.8 percent increase in 1985.

Manufacturing

In 1986, multifactor productivity in manufacturing grew 3.1 percent, the fourth consecutive annual increase. In all 4 years, multifactor productivity growth exceeded 3.0 percent (table 6). The gain in 1986 resulted from a 2.8 percent increase in the output of goods and a decrease of 0.3 percent in combined labor and capital services. Labor hours declined 0.9 percent in 1986, close to the 1985 decrease of 0.8 percent. This is the fifth year that hours have declined since 1979. Capital services increased 1.2 percent in 1986 compared with a 2.1 percent increase the previous year.

Labor productivity in manufacturing increased 3.7 percent in 1986. This was the seventh consecutive yearly increase and the fourth consecutive gain greater than 3.0 percent.

Capital productivity rose 1.6 percent in 1986 compared with 2.2 percent in the previous year. The ratio of capital services to hours increased 2.1 percent in 1986.

Long-term trends

From 1948 to 1986, multifactor productivity grew at an average annual rate of 1.4 percent in private business; 1.1 percent in private nonfarm business; and 1.9 percent in manufacturing (table B). These long-term rates reflect the difference between the average annual rate of change in labor productivity (output per hour) and the average annual contribution of capital intensity. Hence, the 1.4 percent rate of growth between 1948 and 1986 in multifactor productivity in private business equals the 2.3 percent growth in labor productivity minus the 0.9 percent growth in the contribution of capital intensity. The latter equals the change in the capital-labor ratio multiplied by capital's share of total income; historically, capital's share has been approximately one-third of income.

The magnitude of the well-known post-1973 productivity slowdown is readily apparent in these data. From 1948 to 1973, multifactor productivity grew at an average annual rate of 2.0 percent in private business. Coupled with a 0.9 percent average annual contribution of capital intensity, this resulted in an annual rate of growth of labor productivity of 2.9 percent per year.

From 1973 to 1979, gains in multifactor productivity slowed to only 0.1 percent per year. At the same time, the average annual contribution of capital intensity decreased to 0.5 percent. Labor productivity therefore increased only 0.6 percent per year from 1973 to 1979 in private business. In private nonfarm business, a similar slowdown occurred after 1973.

In manufacturing, the slowdown was less severe than for private business and private nonfarm business. From 1948 to 1973, multifactor productivity increased at an average annual rate of 2.0 percent. The average annual contribution of capital intensity was 0.8 percent, and labor productivity increased 2.7 percent per year. From 1973 to 1979, multifactor productivity grew at an annual rate of only 0.5 percent. However, the contribution of capital intensity did not fall as it had in the overall business sectors, but remained about constant at 0.9 percent per year. This steady contribution of capital intensity helped prevent productivity growth in manufacturing from decreasing as much as it did in the more aggregate sectors.

From 1979 to 1986, a complete recovery of productivity growth occurred in manufacturing while only a partial recovery occurred in private business and private nonfarm business. In manufacturing, multifactor productivity increased 2.6 percent per year and labor productivity 3.5 percent per year. On the other hand, multifactor productivity grew only 0.5 percent per year in private business and 0.3 percent per year in private nonfarm business during this period. As a result, from 1979 to 1986, labor productivity growth in these two sectors remained below the pre-1973 rates though it increased from the low 1973-79 rates.

Table B. Compound annual rates of growth in output per hour of all persons, the contribution of capital intensity, and multifactor productivity, by major sector, 1948 to 1986

Measure	1948-1986	1948-1973	1973-1979	1979-1986
<u>Private business 1/</u>				
Output per hour of all persons	2.3	2.9	0.6	1.4
Contribution of capital intensity <u>2/</u>	0.9	0.9	0.5	0.9
Multifactor productivity <u>3/</u>	1.4	2.0	0.1	0.5
<u>Private nonfarm business 1/</u>				
Output per hour of all persons	1.9	2.5	0.5	1.2
Contribution of capital intensity <u>2/</u>	0.8	0.8	0.6	0.9
Multifactor productivity <u>3/</u>	1.1	1.7	-0.1	0.3
<u>Manufacturing</u>				
Output per hour of all persons	2.7	2.8	1.4	3.5
Contribution of capital intensity <u>2/</u>	0.8	0.8	0.9	0.9
Multifactor productivity <u>3/</u>	1.9	2.0	0.5	2.6

1/ Excludes government enterprises.

2/ Change in capital services per hour times capital's share of current dollar output.

3/ Output per unit of combined labor and capital input.

Source: Tables 1-3.

Summary of Methods

The following note describes the major data sources and the procedures used in deriving RLS multifactor productivity indexes. More detailed information on the methods, limitations, and data sources is in BLS Bulletin 2178, "Trends in Multifactor Productivity, 1948-81."

The multifactor productivity indexes are derived by dividing an output index by an input index which is a weighted average of the hours of all persons and capital services. The output indexes are computed from measures of constant dollar gross domestic product, derived from the national income and product accounts developed by the Bureau of Economic Analysis of the U.S. Department of Commerce.

The capital input series measures the services derived from the stock of physical assets. The assets included are fixed business equipment, structures, inventories, and land. Structures include nonresidential structures and residential capital which is rented out by profit-making firms or persons. Financial assets are excluded as are owner-occupied residential structures. The aggregate capital measures are obtained by weighting each asset type by its respective rental price.

The labor and capital components of the input indexes are combined with weights which represent each component's share of total output. The index uses changing weights where the share in each year is averaged with the preceding year's value.

Data are presented for the private business, private nonfarm business, and manufacturing sectors. The private business sector, which accounts for about 80 percent of the gross national product, includes all activities in the economy with the exception of general government, government enterprises, the rest-of-the world sector, owner-occupied housing, nonprofit institutions, private household employees, and the statistical discrepancy. The private nonfarm business sector also excludes farms but includes agricultural services.

These multifactor productivity measures describe the relationship between output in real terms and the paid labor time and capital services involved in its production. They do not measure the specific contributions of labor, capital, or any other factor of production. Rather, they reflect the joint effects of many influences, including changes in technology; 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. Private Business Sector: Productivity and Related Measures, 1948-86 (1)

Year	Productivity			Output (3)	Inputs			Capital per hour of all persons
	Output per hour of all persons	Output per unit of capital	Multifactor productivity [2]		Hours of All Persons [4]	Capital [5]	Combined units of labor and Capital inputs[6]	
Indexes 1977=100								
1948	46.5	97.0	60.4	38.1	81.8	39.2	63.1	48.0
1949	47.1	93.0	59.9	37.2	79.0	40.0	62.0	50.6
1950	51.1	98.9	64.6	40.8	79.9	41.2	63.2	51.6
1951	53.2	101.5	66.9	43.7	82.2	43.0	65.4	52.4
1952	54.9	101.8	68.3	45.1	82.1	44.3	66.0	53.9
1953	56.9	103.9	70.5	47.2	82.9	45.4	67.0	54.8
1954	57.9	100.2	70.4	46.4	80.1	46.3	65.9	57.8
1955	59.7	103.8	72.7	49.6	83.1	47.8	68.3	57.5
1956	60.5	103.0	73.1	51.1	84.4	49.6	69.8	58.7
1957	62.1	101.3	74.0	51.6	83.1	50.9	69.8	61.3
1958	64.0	97.7	74.5	50.6	79.1	51.8	68.0	65.5
1959	66.2	102.8	77.5	54.3	82.1	52.9	70.2	64.4
1960	67.3	102.1	78.1	55.3	82.2	54.2	70.8	65.9
1961	69.7	102.0	79.9	56.3	80.8	55.2	70.5	68.4
1962	72.3	104.6	82.5	59.3	82.1	56.7	71.9	69.1
1963	75.2	106.3	85.1	62.0	82.5	58.3	72.9	70.7
1964	78.4	109.2	88.3	65.8	83.8	60.2	74.5	71.9
1965	80.8	111.3	90.6	69.9	86.5	62.8	77.2	72.6
1966	82.9	111.3	92.1	73.5	88.6	66.0	79.8	74.5
1967	85.2	108.8	92.9	75.4	88.5	69.4	81.2	78.3
1968	87.6	108.9	94.6	78.8	90.0	72.4	83.4	80.4
1969	87.7	107.1	94.0	81.0	92.4	75.6	86.1	81.9
1970	88.4	101.9	92.9	80.2	90.8	78.7	86.3	86.7
1971	91.3	101.2	94.6	82.4	90.3	81.5	87.1	90.2
1972	94.0	103.8	97.4	87.7	93.2	84.4	90.0	90.6
1973	95.9	105.3	99.1	93.0	96.9	88.3	93.8	91.1
1974	93.8	98.7	95.6	91.2	97.2	92.4	95.5	95.0
1975	95.7	93.8	95.0	89.3	93.2	95.1	93.9	102.1
1976	98.4	97.2	98.0	94.5	96.1	97.2	96.5	101.2
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	100.8	102.0	101.2	105.8	105.0	103.8	104.5	98.8
1979	99.5	99.9	99.7	107.9	108.4	108.0	108.2	99.7
1980	99.2	94.2	97.4	106.6	107.5	113.1	109.4	105.3
1981	100.6	92.4	97.7	108.9	108.2	117.8	111.5	108.8
1982	100.3	86.7	95.3	105.4	105.2	121.7	110.7	115.7
1983	103.1	88.4	97.7	109.9	106.7	124.4	112.6	116.6
1984	105.7	92.8	101.0	119.2	112.8	128.5	118.1	113.9
1985	107.6	92.8	102.2	124.0	115.2	133.6	121.3	116.0
1986	109.7	92.8	103.4	128.1	116.8	138.0	123.8	118.2

See Footnotes Following Table 6.

October 13, 1987

SOURCE: Bureau of Labor Statistics

Table 2. Private Nonfarm Business Sector: Productivity and Related Measures, 1948-86 [1]

Year	Productivity			Output [3]	Inputs			Capital per hour of all persons
	Output per hour of all persons	Output per unit of capital	Multifactor productivity [2]		Hours of all persons [4]	Capital [5]	Combined units of labor and capital inputs[6]	
Indexes 1977=100								
1948	52.6	99.0	65.7	36.9	70.2	37.3	56.2	53.2
1949	53.6	94.9	65.5	36.1	67.3	38.0	55.1	56.5
1950	57.1	100.9	69.8	39.7	69.4	39.3	56.8	56.6
1951	58.9	103.9	71.9	42.8	72.6	41.2	59.5	56.7
1952	60.3	104.0	73.0	44.1	73.2	42.4	60.5	57.9
1953	61.6	106.0	74.5	46.2	75.1	43.6	62.0	58.1
1954	62.5	102.0	74.3	45.3	72.4	44.4	61.0	61.3
1955	64.4	105.7	76.7	48.6	75.4	46.0	63.4	61.0
1956	64.8	104.9	76.8	50.1	77.3	47.8	65.3	61.8
1957	66.1	103.2	77.3	50.8	76.8	49.2	65.7	64.0
1958	67.7	99.3	77.5	49.7	73.4	50.1	64.1	68.2
1959	69.9	104.7	80.6	53.6	76.6	51.2	66.4	66.8
1960	70.7	103.6	80.9	54.4	77.0	52.5	67.3	68.2
1961	73.0	103.4	82.5	55.5	76.1	53.7	67.3	70.6
1962	75.4	106.1	85.0	58.6	77.7	55.2	68.9	71.1
1963	78.1	107.8	87.5	61.3	78.5	56.9	70.1	72.5
1964	81.2	110.9	90.6	65.2	80.3	58.8	72.0	73.2
1965	83.3	112.9	92.6	69.4	83.3	61.5	74.9	73.8
1966	85.0	113.1	93.9	73.3	86.3	64.8	78.0	75.1
1967	86.9	110.2	94.4	75.1	86.4	68.2	79.6	78.8
1968	89.3	110.5	96.1	78.7	88.1	71.2	81.9	80.8
1969	88.9	108.3	95.1	80.8	90.9	74.6	84.9	82.0
1970	89.2	102.8	93.7	79.9	89.6	77.8	85.3	86.8
1971	91.9	101.8	95.2	82.1	89.3	80.6	86.2	90.3
1972	94.7	104.5	97.9	87.4	92.3	83.6	89.3	90.6
1973	96.4	106.0	99.6	92.9	96.3	87.6	93.3	91.0
1974	94.3	99.2	96.0	91.1	96.6	91.9	95.0	95.1
1975	96.0	93.8	95.3	88.9	92.6	94.8	93.4	102.4
1976	98.5	97.3	98.1	94.4	95.8	97.0	96.2	101.3
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	100.8	101.9	101.2	106.0	105.1	104.0	104.7	98.9
1979	99.2	99.0	99.1	107.9	108.8	109.0	108.9	100.1
1980	98.7	93.4	96.9	106.6	108.0	114.1	110.0	105.6
1981	99.6	91.1	96.7	108.4	108.8	119.0	112.2	109.4
1982	99.1	85.1	94.1	104.8	105.7	123.2	111.4	116.5
1983	102.5	87.3	97.0	110.1	107.4	126.1	113.5	117.4
1984	104.7	91.3	99.9	119.3	114.0	130.6	119.4	114.6
1985	105.9	90.8	100.5	123.7	116.8	136.3	123.1	116.7
1986	107.6	90.5	101.4	127.6	118.5	141.0	125.8	119.0

See Footnotes Following Table 6.

October 13, 1987

SOURCE: Bureau of Labor Statistics

Table 3. Manufacturing Sector: Productivity and Related Measures, 1948-86

Year	Productivity			Output [3]	Inputs			
	Output per hour of all persons	Output per unit of capital	Multifactor productivity [2]		Hours of all persons [4]	Capital [5]	Combined units of labor and capital inputs[6]	Capital per hour of all persons
Indexes 1977=100								
1948	46.6	105.0	59.3	37.0	79.4	35.2	62.3	44.4
1949	48.5	98.5	59.7	35.1	72.4	35.6	58.8	49.2
1950	51.1	109.0	64.0	40.0	78.2	36.7	62.5	46.9
1951	53.1	112.6	66.3	44.7	84.2	39.7	67.4	47.2
1952	54.1	111.4	67.0	46.2	85.4	41.5	69.1	48.6
1953	55.3	115.2	68.6	49.6	89.8	43.0	72.3	48.0
1954	56.0	106.3	67.6	46.0	82.1	43.3	68.0	52.7
1955	58.7	113.2	71.2	50.8	86.6	44.9	71.4	51.8
1956	58.3	108.5	69.9	51.3	87.9	47.2	73.3	53.8
1957	59.6	105.5	70.4	51.5	86.5	48.9	73.3	56.5
1958	59.3	95.3	68.0	47.0	79.4	49.3	69.2	62.2
1959	61.9	104.7	72.1	52.4	84.6	50.1	72.6	59.1
1960	62.2	102.5	71.9	52.5	84.4	51.2	73.0	60.7
1961	64.0	101.2	73.0	52.6	82.3	52.0	72.0	63.2
1962	66.7	106.6	76.4	57.1	85.6	53.6	74.8	62.6
1963	71.2	111.8	81.1	61.6	86.5	55.1	75.9	63.7
1964	74.6	116.0	84.7	66.0	88.4	56.9	77.9	64.3
1965	76.6	119.8	87.1	71.7	93.6	59.9	82.3	64.0
1966	77.4	119.8	87.7	77.2	99.7	64.5	88.0	64.6
1967	77.4	110.6	85.5	77.0	99.5	69.6	90.1	70.0
1968	79.8	110.3	87.3	80.9	101.4	73.4	92.7	72.4
1969	80.8	108.3	87.5	83.2	103.0	76.8	95.1	74.6
1970	80.8	98.6	85.2	78.6	97.3	79.7	92.2	82.0
1971	85.3	97.9	88.4	79.9	93.7	81.6	90.4	87.1
1972	89.0	104.2	92.8	87.0	97.8	83.5	93.8	85.4
1973	93.4	111.4	97.9	96.3	103.1	86.4	98.4	85.8
1974	90.6	101.2	93.3	91.7	101.2	90.6	98.3	89.5
1975	92.9	90.1	92.0	84.9	91.4	94.2	92.2	103.1
1976	97.1	96.2	96.8	93.1	93.9	96.7	96.1	100.9
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	101.5	102.1	101.7	106.0	104.4	103.7	104.2	99.4
1979	101.4	99.7	101.0	108.1	106.5	108.4	107.0	101.7
1980	101.4	91.2	98.7	103.2	101.7	113.1	104.5	111.2
1981	103.6	89.2	99.8	104.8	101.1	117.5	105.0	116.2
1982	105.9	81.8	99.2	98.4	92.9	120.3	99.2	129.4
1983	112.0	86.9	105.1	104.7	93.5	120.6	99.7	129.0
1984	118.1	95.7	112.2	117.5	99.5	122.8	104.7	123.5
1985	124.2	97.8	117.0	122.5	98.7	125.3	104.8	127.0
1986	128.8	99.3	120.6	125.9	97.8	126.8	104.4	129.7

See Footnotes Following Table 6.

October 13, 1987

SOURCE: Bureau of Labor Statistics

Table 4. Private Business Sector: Productivity and Related Measures, 1949-86 [1]

Year	Productivity			Output (3)	Inputs			Capital per hour of all persons
	Output per hour of all persons	Output per unit of capital	Multifactor productivity (2)		Hours of all persons (4)	Capital (5)	Combined units of labor and capital inputs(6)	
Percent Change								
1949	1.1	-4.2	-0.8	-2.4	-3.5	1.9	-1.6	5.5
1950	8.6	6.4	7.8	9.8	1.1	3.2	1.8	2.0
1951	4.1	2.7	3.6	7.1	2.9	4.4	3.4	1.4
1952	3.2	0.3	2.2	3.2	0.0	2.9	1.0	2.9
1953	3.7	2.0	3.1	4.7	1.0	2.6	1.5	1.6
1954	1.7	-3.6	-0.1	-1.8	-3.4	1.8	-1.7	5.4
1955	3.1	3.6	3.3	7.0	3.8	3.3	3.6	-0.5
1956	1.4	-0.8	0.6	2.9	1.5	3.7	2.3	2.2
1957	2.7	-1.7	1.1	1.1	-1.6	2.8	-0.1	4.4
1958	3.0	-3.5	0.7	-1.9	-4.8	1.7	-2.6	6.8
1959	3.4	5.2	4.0	7.3	3.9	2.0	3.2	-1.7
1960	1.7	-0.7	0.8	1.7	0.1	2.4	0.9	2.4
1961	3.6	-0.1	2.3	1.9	-1.7	2.0	-0.4	3.7
1962	3.6	2.5	3.2	5.3	1.6	2.7	2.0	1.1
1963	4.0	1.7	3.2	4.6	0.5	2.9	1.4	2.3
1964	4.3	2.7	3.7	6.0	1.6	3.3	2.2	1.6
1965	3.0	1.9	2.6	6.3	3.2	4.3	3.6	1.0
1966	2.7	0.0	1.7	5.2	2.4	5.2	3.4	2.7
1967	2.7	-2.2	0.9	2.7	-0.1	5.0	1.8	5.1
1968	2.8	0.1	1.8	4.5	1.6	4.3	2.6	2.6
1969	0.1	-1.7	-0.6	2.7	2.6	4.5	3.3	1.8
1970	0.8	-4.8	-1.2	-0.9	-1.7	4.1	0.2	5.9
1971	3.3	-0.8	1.8	2.7	-0.5	3.5	0.9	4.1
1972	3.0	2.6	2.9	6.4	3.3	3.6	3.4	0.4
1973	2.0	1.4	1.8	6.0	4.0	4.6	4.2	0.6
1974	-2.1	-6.2	-3.6	-1.9	0.3	4.6	1.8	4.4
1975	2.0	-5.0	-0.5	-2.2	-4.1	3.0	-1.6	7.4
1976	2.8	3.6	3.1	5.9	3.0	2.2	2.7	-0.8
1977	1.6	2.9	2.1	5.8	4.1	2.9	3.7	-1.2
1978	0.8	2.0	1.2	5.8	5.0	3.8	4.5	-1.2
1979	-1.2	-2.1	-1.5	2.0	3.2	4.1	3.6	0.9
1980	-0.4	-5.7	-2.2	-1.2	-0.8	4.7	1.1	5.6
1981	1.4	-1.9	0.3	2.2	0.7	4.1	1.9	3.4
1982	-0.3	-6.3	-2.5	-3.1	-2.8	3.3	-0.7	6.3
1983	2.8	2.0	2.5	4.2	1.4	2.2	1.7	0.8
1984	2.5	5.0	3.4	8.5	5.8	3.3	4.9	-2.3
1985	1.9	0.0	1.2	4.0	2.1	4.0	2.8	1.9
1986	1.9	0.1	1.2	3.3	1.4	3.2	2.0	1.8

See Footnotes Following Table 6.

October 13, 1987

SOURCE: Bureau of Labor Statistics

Table 5. Private Nonfarm Business Sector: Productivity and Related Measures, 1949-86 [1]

Year	Productivity			Output [3]	Inputs			Capital per hour of all persons
	Output per hour of all persons	Output per unit of capital	Multifactor productivity [2]		Hours of all persons [4]	Capital [5]	Combined units of labor and capital inputs[6]	
PERCENT CHANGE								
1949	1.8	-4.2	-0.3	-2.3	-4.1	1.9	-2.0	6.2
1950	6.6	6.4	6.5	9.9	3.1	3.3	3.2	0.2
1951	3.1	2.9	3.0	7.8	4.6	4.7	4.7	0.1
1952	2.3	0.2	1.6	3.2	0.9	3.1	1.6	2.2
1953	2.2	1.9	2.1	4.7	2.5	2.8	2.6	0.3
1954	1.6	-3.8	-0.3	-2.0	-3.5	1.9	-1.7	5.6
1955	3.0	3.6	3.2	7.2	4.1	3.5	3.9	-0.6
1956	0.6	-0.7	0.1	3.1	2.5	3.9	3.0	1.4
1957	1.9	-1.6	0.7	1.3	-0.6	3.0	0.6	3.6
1958	2.5	-3.8	0.2	-2.1	-4.5	1.8	-2.3	6.5
1959	3.3	5.5	4.0	7.8	4.4	2.2	3.6	-2.1
1960	1.1	-1.1	0.3	1.6	0.5	2.7	1.3	2.2
1961	3.2	-0.2	2.0	2.0	-1.2	2.2	0.0	3.4
1962	3.3	2.6	3.0	5.5	2.1	2.9	2.4	0.7
1963	3.7	1.7	2.9	4.7	1.1	3.0	1.8	2.0
1964	3.9	2.8	3.5	6.3	2.3	3.4	2.7	1.1
1965	2.5	1.8	2.3	6.4	3.7	4.5	4.0	0.7
1966	2.0	0.2	1.4	5.6	3.5	5.4	4.2	1.8
1967	2.3	-2.6	0.5	2.5	0.2	5.2	2.0	5.0
1968	2.7	0.2	1.8	4.7	1.9	4.5	2.9	2.5
1969	-0.5	-1.9	-1.0	2.7	3.2	4.7	3.7	1.5
1970	0.4	-5.1	-1.6	-1.1	-1.5	4.3	0.5	5.8
1971	3.0	-0.9	1.7	2.7	-0.3	3.7	1.0	4.0
1972	3.0	2.6	2.9	6.5	3.4	3.8	3.5	0.4
1973	1.8	1.4	1.7	6.2	4.3	4.8	4.5	0.4
1974	-2.2	-6.4	-3.6	-1.9	0.3	4.9	1.8	4.5
1975	1.8	-5.4	-0.7	-2.4	-4.1	3.1	-1.7	7.6
1976	2.6	3.7	3.0	6.1	3.5	2.4	3.1	-1.1
1977	1.5	2.8	2.0	5.9	4.4	3.1	3.9	-1.3
1978	0.8	1.9	1.2	6.0	5.1	4.0	4.7	-1.1
1979	-1.6	-2.8	-2.0	1.8	3.5	4.8	3.9	1.3
1980	-0.5	-5.6	-2.3	-1.2	-0.8	4.7	1.0	5.5
1981	1.0	-2.5	-0.2	1.7	0.8	4.3	2.0	3.5
1982	-0.5	-6.6	-2.7	-3.3	-2.8	3.5	-0.7	6.5
1983	3.4	2.6	3.1	5.0	1.6	2.4	1.9	0.8
1984	2.1	4.6	3.0	8.4	6.1	3.6	5.2	-2.4
1985	1.2	-0.6	0.5	3.7	2.4	4.3	3.1	1.8
1986	1.6	-0.3	0.9	3.2	1.5	3.5	2.2	1.9

See Footnotes Following Table 6.

October 13, 1987

SOURCE: Bureau of Labor Statistics

Table 6. Manufacturing Sector: Productivity and Related Measures, 1949-85

Year	Productivity			Output (3)	Inputs			Capital per hour of all persons
	Output per Hour of all persons	Output per unit of capital	Multifactor productivity (2)		Hours of all persons (4)	Capital (5)	Combined units of labor and capital inputs(6)	
Percent Change								
1949	4.1	-6.2	0.6	-5.1	-8.9	1.1	-5.7	10.9
1950	5.4	10.6	7.2	13.9	8.0	3.0	6.3	-4.6
1951	3.9	3.4	3.7	11.9	7.7	8.3	7.9	0.5
1952	1.9	-1.1	0.9	3.4	1.4	4.6	2.5	3.1
1953	2.1	3.5	2.5	7.3	5.1	3.7	4.7	-1.4
1954	1.4	-7.8	-1.5	-7.3	-8.6	0.5	-5.9	9.9
1955	4.7	6.5	5.3	10.5	5.5	3.7	5.0	-1.7
1956	-0.6	-4.2	-1.7	0.9	1.5	5.3	2.7	3.7
1957	2.1	-2.8	0.6	0.6	-1.5	3.4	0.0	5.0
1958	-0.6	-9.6	-3.3	-8.7	-8.2	1.0	-5.6	10.0
1959	4.5	9.8	6.1	11.4	6.6	1.4	5.0	-4.9
1960	0.5	-2.1	-0.3	0.2	-0.3	2.3	0.5	2.6
1961	2.8	-1.3	1.6	0.2	-2.5	1.5	-1.3	4.1
1962	4.2	5.3	4.6	8.5	4.1	3.1	3.8	-1.0
1963	6.8	4.9	6.2	7.9	1.0	2.9	1.6	1.8
1964	4.8	3.7	4.4	7.1	2.2	3.2	2.5	1.0
1965	2.7	3.2	2.9	8.7	5.9	5.3	5.7	-0.6
1966	1.1	0.0	0.7	7.7	6.5	7.6	6.9	1.0
1967	-0.1	-7.7	-2.6	-0.3	-0.2	8.0	2.4	8.2
1968	3.2	-0.3	2.1	5.1	1.9	5.4	3.0	3.5
1969	1.2	-1.8	0.3	2.8	1.6	4.7	2.5	3.1
1970	0.0	-9.0	-2.6	-5.6	-5.6	3.8	-3.0	9.9
1971	5.6	-0.7	3.8	1.7	-3.7	2.4	-2.0	6.3
1972	4.4	6.5	5.0	8.9	4.3	2.3	3.7	-2.0
1973	4.9	6.9	5.5	10.7	5.5	3.6	4.9	-1.8
1974	-3.0	-9.2	-4.7	-4.8	-1.9	4.8	-0.1	6.8
1975	2.5	-11.0	-1.3	-7.5	-9.7	4.0	-6.2	15.2
1976	4.6	6.9	5.2	9.7	4.9	2.7	4.3	-2.2
1977	3.0	3.9	3.3	7.4	4.3	3.4	4.0	-0.9
1978	1.5	2.1	1.7	6.0	4.4	3.7	4.2	-0.6
1979	-0.1	-2.4	-0.7	2.0	2.1	4.4	2.7	2.3
1980	0.0	-8.5	-2.2	-4.5	-4.5	4.4	-2.4	9.3
1981	2.2	-2.2	1.1	1.6	-0.6	3.9	0.5	4.5
1982	2.2	-8.3	-0.6	-6.1	-8.1	2.3	-5.6	11.4
1983	5.8	6.2	5.9	6.4	0.6	0.3	0.5	-0.4
1984	5.5	10.2	6.8	12.2	6.4	1.9	5.1	-4.3
1985	5.1	2.2	4.2	4.3	-0.8	2.1	0.0	2.9
1986	3.7	1.6	3.1	2.8	-0.9	1.2	-0.3	2.1

See Footnotes Following Table 6.

October 13, 1986

SOURCE: Bureau of Labor Statistics

Footnotes, Tables 1-6

SOURCE: Output data are from Bureau of Economic Analysis (BEA), U.S. Department of Commerce, and the Federal Reserve Board. Compensation and hours data are from the Bureau of Labor Statistics, U.S. Department of Labor, and BEA. Capital measures are based on data supplied by BEA and U.S. Department of Agriculture.

- (1) The private business sector includes all of Gross National Product except the rest-of-world sector, the rental value of owner-occupied real estate, the output arising in nonprofit organizations, the output of paid employees of private households, government, and the statistical discrepancy in preparing the national income accounts. The private nonfarm business sector also excludes farms, but includes agricultural services.
- (2) Output per unit of combined labor and capital inputs.
- (3) Gross Domestic Product originating in the sector, in constant dollars.
- (4) Paid hours of all employees, plus the hours of proprietors and unpaid family workers engaged in the sector.
- (5) A measure of the flow of capital services used in the sector.
- (6) Hours of all persons combined with capital input, using labor and capital shares of output as weights.