

# News

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## MULTIFACTOR PRODUCTIVITY MEASURES

Private Business, Private Nonfarm Business, and Manufacturing Sectors  
Annual Measures for 1982

Productivity as measured by output per unit of combined labor and capital inputs--multifactor productivity-- decreased 1.9 percent in the private business sector in 1982, according to the latest measures announced today by the Bureau of Labor Statistics of the U.S. Department of Labor (table A). Because of a large increase in the amount of capital services per hour--the capital-labor ratio--output per hour, the more familiar productivity measure, declined by only 0.1 percent in this sector. The following tabulation shows the changes in multifactor productivity for 1982 for three sectors covered by the BLS measures:

- 1.9 percent for the private business sector,
- 1.9 percent for the private nonfarm business sector,
- 1.3 percent for the manufacturing sector.

Details are found in tables 1-6.

### Private business sector

Multifactor productivity (which measures the change in output not attributable to changes in capital services and hours) declined 1.9 percent in the private business sector in 1982. This decrease reflected a drop in output of 2.8 percent and a decrease in combined inputs of 1.0 percent. The decrease in combined capital and labor inputs resulted from a 2.4 percent increase in capital services and a 2.8 percent decrease in hours (table 4). These movements also resulted in a 5.3 percent rise in the amount of capital services per hour. The fall in output was the largest annual decline recorded in the series which begins with 1948. The increase in capital services was the smallest since 1976.

Output per hour of all persons declined by only 0.1 percent compared with the 1.9 percent decrease in multifactor productivity. This difference was due to the increase in the amount of capital per hour: The 5.3 percent rise in the capital-labor ratio which when multiplied by capital's share of output indicates that the rise in capital per hour offset 1.8 percentage points of the decline in multifactor productivity. The growth in the capital per hour (capital-labor ratio) was the largest increase since 1975.

Output per unit of capital services (capital productivity) in the private business sector decreased 5.1 percent in 1982. This reflects the falloff in output, coupled with the rise in capital services (2.4 percent).

### Private nonfarm business

Multifactor productivity also fell 1.9 percent in the private nonfarm business sector in 1982 (table 5). Output declined by 2.8 percent and combined inputs of capital services and hours fell 1.0 percent. The decline in the combined input index was the result of a 2.5 percent increase in capital services and a 2.8 percent decrease in hours.

Output per hour of all persons also fell only 0.1 percent in this sector. Again this was a result of a 5.4 percent increase in the capital-labor ratio which resulted in an 1.8 percentage points offset to the multifactor productivity decline.

Output per unit of capital services decreased 5.2 percent in the private nonfarm business sector in 1982. This was a result of the decrease in output (-2.8 percent) combined with the increase in capital services (2.5 percent).

### Manufacturing

Multifactor productivity in the manufacturing sector decreased 1.3 percent in 1982 (table 6). This reflected a decrease in output of 6.9 percent and a decrease in combined inputs of 5.7 percent. Capital services increased 1.6 percent and hours declined 8.0 percent. This was the smallest increase in capital services in the manufacturing sector since 1972 (when it increased 1.4 percent) and the largest decrease in hours since 1975 (when hours decreased 9.7 percent).

Output per hour increased in the manufacturing sector 1.2 percent in 1982. Again this was a result of the increase in the ratio of capital services per hour (10.4 percent) which when multiplied by capital's share resulted in a 2.5 percentage point offset to the multifactor productivity decline.

Output per unit of capital services (capital productivity) fell 8.4 percent in the manufacturing sector in 1982.

### Long-term trends

Revised measures of output, capital services, and hours for 1980 and 1981 resulted in little change in the long-term trends of output per hour, multifactor productivity, and related changes in the capital-labor ratio from the preliminary measures reported in April 1983 (table B).

Productivity measures vary in part because of changes in the economy related to the business cycle. In order to get an approximate measure of secular trends, long-term measures are calculated between periods of peak activity in the business cycle. The year 1981 is used as the last year in this comparison of long-term trends because it is the most recent peak year in the business cycle as designated by the National Bureau of Economic Research.

Table A. Productivity indexes and related measures  
Percent change from 1981 to 1982

Item	Private business <u>1/</u>	Private nonfarm business <u>1/</u>	Manu- facturing
<b>Productivity:</b>			
Output per hour of all persons...	-0.1	-0.1	1.2
Output per unit of capital.....	-5.1	-5.2	-8.4
Multifactor productivity <u>2/</u> .....	-1.9	-1.9	-1.3
Output.....	-2.8	-2.8	-6.9
<b>Inputs:</b>			
Hours of all persons.....	-2.8	-2.8	-8.0
Capital services.....	2.4	2.5	1.6
Combined units of labor and capital input <u>3/</u> .....	-1.0	-1.0	-5.7
Capital services per hour of all persons (capital-labor ratio)	5.3	5.4	10.4

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.

Table B. Preliminary and revised multifactor productivity and related measures, 1980 and 1981

Percent change from previous year

Sector	Multifactor productivity		Capital services per hour of all persons		Output per hour of all persons	
	1980	1981	1980	1981	1980	1981
Private business						
Preliminary	-2.2	1.1	4.4	2.1	-0.8	1.8
Revised	-2.0	1.7	4.5	2.2	-0.5	2.4
Private nonfarm business						
Preliminary	-2.3	0.7	4.2	2.2	-0.9	1.4
Revised	-2.1	1.2	4.3	2.2	-0.7	2.0
Manufacturing						
Preliminary	-2.4	1.4	10.7	5.7	0.2	2.8
Revised	-2.2	2.5	9.8	4.1	0.2	3.5

Growth in output per hour and multifactor productivity showed two distinct patterns between 1948-73 and 1973-81 (table C). Output per hour in private business grew at an average rate of 3.0 percent per year in the first period. This was the result of a 2.0 percent annual growth of multifactor productivity and a 1.0 percent annual growth rate in the contribution of capital services per hour to output per hour. During the following period, 1973-81, output per hour grew at a yearly rate of only 0.8 percent: 0.2 percentage points reflected multifactor productivity growth and 0.6 percentage points came from increased contribution of capital services per hour.

In private nonfarm business, the growth rate of output per hour decreased from 2.5 percent in the 1948-73 period to 0.6 percent in the 1973-81 period. This reflected a decline in multifactor growth from 1.7 percent to 0.1 percent, and a decline in the annual growth of the contribution of capital services per hour from 0.8 percent to 0.5 percent.

The manufacturing output per hour growth rate decreased from 2.9 percent to 1.6 percent annually between the two periods, while multifactor productivity growth declined from 2.2 percent to 0.6 percent. The annual growth rate of the contribution of capital services per hour increased from 0.7 percent in the first period to 1.0 percent in the 1973-81 period. Thus, the decline in multifactor productivity growth was moderated by the increase in the growth of contribution of capital services per hour.

Table C. Revised compound annual rates of growth in output per hour of all persons, the contribution of capital services per hour, and multifactor productivity, by major sector, 1948 to 1981

Measure	1948-1981 (1)	1948-1973 (2)	1973-1981 (3)	Slow-down (2) - (3)
<u>Private business 1/</u>				
Output per hour of all persons	2.5	3.0	0.8	-2.2
Minus: Contribution of capital services per hour to output per hour <u>2/</u>	1.0	1.0	0.6	-0.4
Equals: Multifactor productivity <u>3/</u>	1.5	2.0	0.2	-1.8
<u>Private nonfarm business 1/</u>				
Output per hour of all persons	2.1	2.5	0.6	-1.9
Minus: Contribution of capital services per hour to output per hour <u>2/</u>	0.8	0.8	0.5	-0.3
Equals: Multifactor productivity <u>3/</u>	1.3	1.7	0.1	-1.6
<u>Manufacturing</u>				
Output per hour of all persons	2.6	2.9	1.6	-1.3
Minus: Contribution of capital services per hour to output per hour <u>2/</u>	0.8	0.7	1.0	0.3
Equals: Multifactor productivity <u>3/</u>	1.8	2.2	0.6	-1.6

1/ Excludes government enterprises.

2/ Change in capital per unit of labor weighted by capital's share of total output.

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

Sources: Tables 1-3

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

#### Summary of Methods

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 of 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 labor component (the hours of all persons) of the input indexes is developed from measures of employment and average hours, drawn mainly from the BLS Current Employment Statistics program (the "establishment" survey) and the Current Population Survey (the "household" survey). The establishment survey provides information about employees on nonagricultural payrolls; the household survey about the self-employed, unpaid family workers, and those engaged in agriculture. The BLS has done considerable research on the effects of changes in the composition of the workforce on productivity growth. This work is not included in the measures published today because more research is required.

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 world" sector, owner-occupied housing, nonprofit institutions, and private household employees. The private nonfarm business sector also excludes agriculture but includes agricultural services.

The multifactor productivity measures in the news release 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.

# Trends in Multifactor Productivity, 1948-81

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U.S. Department of Labor  
Raymond J. Donovan, Secretary  
Bureau of Labor Statistics  
Janet L. Norwood, Commissioner  
September 1983

Bulletin 2178

Trends in Multifactor Productivity, 1948-81, BLS Bulletin 2178, has been prepared by the Division of Productivity Research and is now available. This 80-page bulletin contains annual indexes of output per unit of combined labor and capital inputs, output per hour of all persons, and output per unit of capital for the private business, private nonfarm business, and manufacturing sectors. Also included are 6 appendix chapters which explain the data sources and many of the issues dealt with in the computation of these measures. Please call William H. Waldorf, (202) 523-9261, for additional information. BLS Bulletin 2178 can be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (Stock No. 029-001-02758-3), GPO Bookstores, or BLS Regional Offices listed below. The price is \$4.50. Make checks or money orders payable to the Superintendent of Documents.

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Table 1. Private business sector: productivity and related measures, 1948-82 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 services 5/	Combined units of labor and capital inputs 6/	
Indexes 1977=100								
1948	45.3	99.0	60.0	36.8	81.3	37.2	61.3	45.7
1949	46.0	93.5	59.3	36.1	78.6	38.6	60.9	49.2
1950	49.7	98.6	63.6	39.5	79.5	40.1	62.1	50.4
1951	51.2	100.1	65.1	41.8	81.8	41.8	64.3	51.1
1952	52.9	99.3	66.3	43.2	81.8	43.5	65.2	53.2
1953	54.6	100.6	68.0	45.1	82.6	44.9	66.4	54.3
1954	55.6	96.2	67.7	44.3	79.8	46.1	65.5	57.7
1955	57.8	100.9	70.7	47.9	82.9	47.5	67.8	57.3
1956	58.5	100.0	70.9	49.2	84.2	49.2	69.4	58.5
1957	60.0	97.9	71.6	49.7	82.9	50.7	69.4	61.2
1958	61.8	94.3	72.0	48.9	79.0	51.9	67.9	65.6
1959	63.9	99.3	74.9	52.5	82.1	52.9	70.0	64.4
1960	64.8	98.5	75.4	53.3	82.2	54.1	70.7	65.8
1961	67.0	98.0	76.9	54.2	80.9	55.3	70.5	68.4
1962	69.6	101.2	79.7	57.2	82.2	56.6	71.8	68.8
1963	72.2	102.6	82.0	59.7	82.7	58.2	72.9	70.4
1964	75.3	105.2	84.9	63.3	84.0	60.2	74.5	71.6
1965	78.0	107.8	87.6	67.6	86.7	62.7	77.2	72.4
1966	80.4	108.0	89.3	71.3	88.7	66.0	79.9	74.5
1967	82.3	104.9	89.6	72.9	88.6	69.5	81.4	78.5
1968	85.1	105.5	91.7	76.7	90.1	72.7	83.7	80.7
1969	85.3	103.7	91.2	78.9	92.5	76.1	86.5	82.3
1970	86.1	98.5	90.2	78.3	90.9	79.4	86.8	87.4
1971	89.2	98.1	92.2	80.6	90.4	82.2	87.5	91.0
1972	92.3	101.0	95.2	86.0	93.2	85.2	90.4	91.5
1973	94.7	103.0	97.5	91.8	96.9	89.1	94.1	92.0
1974	92.4	96.5	93.8	89.9	97.2	93.1	95.8	95.8
1975	94.5	92.0	93.6	88.0	93.1	95.7	94.0	102.8
1976	97.6	96.1	97.1	93.7	95.9	97.5	96.5	101.6
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	100.6	101.8	101.0	105.5	104.9	103.6	104.4	98.8
1979	99.3	100.3	99.7	107.9	108.6	107.5	108.2	99.0
1980	98.8	95.5	97.7	106.4	107.7	111.4	108.9	103.4
1981	101.2	95.8	99.3	109.8	108.4	114.6	110.5	105.7
1982	101.1	90.9	97.4	106.6	105.4	117.3	109.4	111.3

See footnotes following table 6.



Table 2. Private nonfarm business sector: productivity and related measures, 1948-82 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 services 5/	Combined units of labor and capital inputs 6/	
Indexes 1977=100								
1948	51.2	97.9	64.6	35.6	69.6	36.4	55.2	52.3
1949	52.3	92.7	64.2	34.9	66.8	37.7	54.5	56.4
1950	55.6	98.2	68.1	38.3	69.0	39.0	56.3	56.6
1951	56.6	100.4	69.5	40.8	72.2	40.7	58.8	56.3
1952	58.0	99.6	70.4	42.2	72.8	42.4	60.0	58.2
1953	59.0	100.8	71.4	44.1	74.7	43.7	61.7	58.5
1954	59.9	96.1	71.0	43.2	72.1	44.9	60.9	62.3
1955	62.3	100.9	74.1	46.8	75.1	46.4	63.2	61.8
1956	62.5	100.0	74.0	48.1	77.0	48.1	65.1	62.5
1957	63.6	98.0	74.3	48.7	76.6	49.7	65.6	64.9
1958	65.1	94.0	74.3	47.8	73.4	50.8	64.3	69.3
1959	67.4	99.5	77.5	51.6	76.6	51.9	66.6	67.7
1960	67.9	98.4	77.6	52.3	77.0	53.2	67.4	69.0
1961	70.0	98.0	78.9	53.3	76.1	54.4	67.5	71.4
1962	72.5	101.3	81.7	56.4	77.8	55.7	69.0	71.6
1963	74.9	102.7	83.8	58.9	78.6	57.4	70.3	73.0
1964	77.8	105.6	86.7	62.7	80.5	59.4	72.3	73.7
1965	80.3	108.2	89.2	67.0	83.5	62.0	75.1	74.2
1966	82.2	108.7	90.7	71.0	86.4	65.3	78.3	75.6
1967	83.8	105.3	90.7	72.5	86.5	68.9	79.9	79.6
1968	86.6	106.0	92.9	76.4	88.2	72.1	82.3	81.7
1969	86.4	104.1	92.1	78.7	91.1	75.6	85.4	83.0
1970	86.8	98.6	90.6	77.8	89.7	78.9	85.9	88.0
1971	89.7	98.0	92.4	80.1	89.3	81.8	86.7	91.5
1972	93.0	101.1	95.7	85.8	92.2	84.8	89.7	92.0
1973	95.3	103.2	97.9	91.7	96.2	88.8	93.6	92.3
1974	92.9	96.5	94.1	89.7	96.6	93.0	95.4	96.3
1975	94.7	91.7	93.6	87.6	92.5	95.6	93.6	103.4
1976	97.8	96.1	97.2	93.6	95.7	97.4	96.3	101.8
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	100.6	101.9	101.1	105.7	105.1	103.7	104.6	98.7
1979	99.0	100.1	99.4	108.0	109.0	107.9	108.6	99.0
1980	98.3	95.2	97.3	106.4	108.2	111.7	109.4	103.2
1981	100.2	95.0	98.4	109.3	109.0	115.1	111.1	105.5
1982	100.2	90.0	96.6	106.2	106.0	118.0	110.0	111.2

See footnotes following table 6.

Table 3. Manufacturing sector: productivity and related measures, 1948-82 <sup>1/</sup>

Year	Productivity			Output <u>3/</u>	Inputs			Capital per hour of all persons
	Output per hour of all persons	Output per unit of capital	Multifactor productivity <u>2/</u>		Hours of all persons <u>4/</u>	Capital services <u>5/</u>	Combined units of labor and capital inputs <u>6/</u>	
Indexes 1977=100								
1948	45.1	93.9	56.1	35.8	79.4	38.1	63.8	48.0
1949	46.9	85.6	55.9	33.9	72.4	39.6	60.7	54.8
1950	49.4	94.5	59.9	38.6	78.2	40.9	64.6	52.3
1951	51.1	99.2	62.2	43.0	84.2	43.4	69.2	51.5
1952	52.0	95.5	62.2	44.5	85.4	46.6	71.5	54.5
1953	52.9	98.4	63.5	47.5	89.8	48.3	74.8	53.8
1954	53.7	89.0	62.2	44.1	82.1	49.6	70.9	60.4
1955	56.4	95.6	65.8	48.9	86.6	51.1	74.2	59.0
1956	56.0	92.4	64.8	49.2	87.9	53.3	76.0	60.6
1957	57.1	89.5	65.1	49.5	86.5	55.3	76.0	63.9
1958	56.9	80.4	62.8	45.2	79.4	56.2	72.0	70.8
1959	59.6	89.1	67.0	50.5	84.7	56.7	75.4	66.9
1960	60.0	88.0	67.0	50.7	84.4	57.5	75.6	68.2
1961	61.6	86.9	68.0	50.7	82.3	58.3	74.6	70.9
1962	64.3	92.9	71.5	55.1	85.6	59.2	77.0	69.2
1963	68.9	98.3	76.3	59.6	86.5	60.7	78.2	70.1
1964	72.3	102.3	79.8	63.9	88.4	62.4	80.0	70.6
1965	74.5	107.3	82.8	69.8	93.6	65.1	84.3	69.5
1966	75.3	108.6	83.7	75.1	99.8	69.2	89.8	69.3
1967	75.3	101.1	81.8	75.0	99.6	74.2	91.7	74.5
1968	78.0	101.1	83.7	79.1	101.4	78.2	94.4	77.1
1969	79.3	100.5	84.6	81.7	103.1	81.3	96.6	78.9
1970	79.1	91.8	82.3	77.0	97.3	83.9	93.6	86.2
1971	83.9	92.3	86.0	78.7	93.7	85.2	91.5	90.9
1972	88.2	99.8	91.1	86.2	97.8	86.4	94.7	88.3
1973	93.0	108.2	96.8	95.9	103.2	88.6	99.1	85.9
1974	90.8	99.6	93.0	91.9	101.2	92.2	98.8	91.1
1975	93.4	89.4	92.2	85.4	91.4	95.5	92.6	104.4
1976	97.5	96.1	97.1	93.6	95.9	97.4	96.4	101.5
1977	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1978	100.8	101.5	101.0	105.3	104.5	103.8	104.3	99.3
1979	101.5	99.5	101.0	108.2	106.6	108.8	107.2	102.1
1980	101.7	90.7	98.7	103.5	101.8	114.1	104.8	112.1
1981	105.3	90.2	101.2	106.5	101.2	118.0	105.2	116.7
1982	106.5	82.7	99.9	99.1	93.0	119.9	99.2	128.8

See footnotes following table 6.

Table 4. Private business sector: productivity and related measures, 1948-82 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 services 5/	Combined units of labor and capital inputs 6/	
	Percent change							
1949	1.6	-5.6	-1.1	-1.9	-3.4	3.9	-0.8	7.6
1950	8.2	5.5	7.2	9.4	1.2	3.7	2.1	2.5
1951	2.9	1.5	2.4	5.9	2.9	4.3	3.5	1.4
1952	3.4	-0.8	1.8	3.3	0.0	4.1	1.5	4.2
1953	3.3	1.3	2.6	4.4	1.1	3.1	1.8	2.0
1954	1.7	-4.4	-0.4	-1.8	-3.4	2.7	-1.4	6.3
1955	4.1	4.8	4.4	8.1	3.8	3.1	3.6	-0.7
1956	1.1	-0.9	0.3	2.6	1.5	3.6	2.3	2.0
1957	2.6	-2.0	0.9	1.0	-1.5	3.1	0.1	4.7
1958	3.1	-3.7	0.7	-1.6	-4.6	2.2	-2.3	7.1
1959	3.3	5.3	4.0	7.3	3.9	1.9	3.2	-1.9
1960	1.5	-0.8	0.6	1.6	0.1	2.4	0.9	2.3
1961	3.4	-0.5	1.9	1.7	-1.6	2.2	-0.3	3.8
1962	3.9	3.2	3.6	5.6	1.6	2.3	1.9	0.6
1963	3.8	1.4	2.9	4.4	0.6	2.9	1.4	2.4
1964	4.3	2.5	3.6	6.0	1.6	3.4	2.3	1.7
1965	3.6	2.4	3.1	6.8	3.1	4.3	3.6	1.1
1966	3.1	0.2	1.9	5.5	2.4	5.3	3.5	2.8
1967	2.3	-2.9	0.3	2.2	-0.1	5.3	1.9	5.4
1968	3.4	0.6	2.4	5.2	1.7	4.6	2.7	2.9
1969	0.2	-1.7	-0.5	2.9	2.7	4.7	3.4	2.0
1970	0.9	-5.0	-1.2	-0.8	-1.7	4.3	0.3	6.2
1971	3.6	-0.5	2.2	3.0	-0.6	3.5	0.8	4.1
1972	3.5	3.0	3.3	6.7	3.1	3.6	3.3	0.5
1973	2.6	2.0	2.4	6.6	4.0	4.6	4.2	0.6
1974	-2.4	-6.3	-3.8	-2.1	0.4	4.6	1.8	4.2
1975	2.2	-4.7	-0.2	-2.1	-4.2	2.7	-1.9	7.3
1976	3.3	4.5	3.8	6.5	3.0	1.9	2.6	-1.1
1977	2.4	4.0	3.0	6.7	4.2	2.6	3.6	-1.6
1978	0.6	1.8	1.0	5.5	4.9	3.6	4.4	-1.2
1979	-1.2	-1.4	-1.3	2.2	3.5	3.7	3.6	0.2
1980	-0.5	-4.8	-2.0	-1.4	-0.8	3.6	0.7	4.5
1981	2.4	0.3	1.7	3.2	0.7	2.9	1.5	2.2
1982	-0.1	-5.1	-1.9	-2.8	-2.8	2.4	-1.0	5.3

See footnotes following table 6.

Table 5. Private nonfarm business sector: productivity and related measures, 1948-82 17

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 services 5/	Combined units of labor and capital inputs 6/	
Percent change								
1949	2.2	-5.4	-0.6	-1.9	-4.0	3.6	-1.3	8.0
1950	6.3	6.0	6.2	9.7	3.2	3.5	3.3	0.3
1951	1.9	2.2	2.0	6.6	4.6	4.2	4.5	-0.4
1952	2.5	-0.8	1.3	3.4	0.9	4.2	2.1	3.3
1953	1.7	1.2	1.5	4.4	2.6	3.2	2.8	0.5
1954	1.5	-4.7	-0.6	-2.0	-3.5	2.8	-1.4	6.5
1955	4.0	5.0	4.4	8.4	4.2	3.2	3.8	-0.9
1956	0.3	-0.8	-0.1	2.8	2.5	3.7	3.0	1.1
1957	1.8	-2.0	0.4	1.2	-0.6	3.3	0.8	3.8
1958	2.4	-4.1	0.0	-1.9	-4.3	2.3	-2.0	6.8
1959	3.5	5.9	4.3	8.0	4.4	2.0	3.5	-2.3
1960	0.8	-1.1	0.1	1.4	0.6	2.5	1.3	1.9
1961	3.0	-0.5	1.7	1.8	-1.2	2.3	0.1	3.5
1962	3.6	3.4	3.5	5.9	2.2	2.4	2.3	0.2
1963	3.3	1.4	2.5	4.4	1.1	3.0	1.8	1.9
1964	3.9	2.8	3.5	6.4	2.4	3.5	2.8	1.1
1965	3.1	2.5	2.9	7.0	3.7	4.4	4.0	0.7
1966	2.4	0.5	1.7	5.9	3.4	5.4	4.2	1.9
1967	1.9	-3.1	0.0	2.1	0.2	5.4	2.1	5.2
1968	3.4	0.7	2.4	5.4	2.0	4.7	3.0	2.7
1969	-0.3	-1.8	-0.8	2.9	3.2	4.8	3.8	1.5
1970	0.4	-5.3	-1.6	-1.1	-1.5	4.5	0.5	6.0
1971	3.4	-0.6	2.0	2.9	-0.4	3.6	0.9	4.0
1972	3.7	3.2	3.5	7.0	3.2	3.7	3.4	0.5
1973	2.5	2.1	2.3	6.9	4.3	4.7	4.5	0.4
1974	-2.5	-6.5	-3.9	-2.2	0.4	4.7	1.8	4.3
1975	2.0	-5.0	-0.5	-2.4	-4.3	2.8	-1.9	7.4
1976	3.3	4.9	3.8	6.9	3.5	1.9	2.9	-1.5
1977	2.2	4.0	2.9	6.8	4.5	2.7	3.8	-1.8
1978	0.6	1.9	1.1	5.7	5.1	3.7	4.6	-1.3
1979	-1.6	-1.8	-1.6	2.2	3.8	4.0	3.9	0.2
1980	-0.7	-4.8	-2.1	-1.5	-0.8	3.5	0.7	4.3
1981	2.0	-0.3	1.2	2.7	0.8	3.0	1.5	2.2
1982	-0.1	-5.2	-1.9	-2.8	-2.8	2.5	-1.0	5.4

See footnotes following table 6.

Table 6. Manufacturing sector: productivity and related measures, 1948-82 <sup>1/</sup>

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 services 5/	Combined units of labor and capital inputs 6/	
	Percent change							
1949	4.0	-8.9	-0.4	-5.2	-8.9	4.0	-4.9	14.1
1950	5.4	10.4	7.1	13.9	8.0	3.1	6.3	-4.5
1951	3.4	4.9	3.9	11.4	7.7	6.1	7.2	-1.4
1952	1.8	-3.7	0.0	3.3	1.4	7.3	3.3	5.8
1953	1.7	3.1	2.1	6.9	5.1	3.7	4.7	-1.4
1954	1.6	-9.6	-2.0	-7.2	-8.6	2.7	-5.3	12.3
1955	5.0	7.5	5.8	10.8	5.5	3.1	4.7	-2.3
1956	-0.7	-3.4	-1.6	0.7	1.5	4.3	2.4	2.7
1957	2.1	-3.2	0.4	0.5	-1.5	3.8	0.1	5.4
1958	-0.4	-10.2	-3.4	-8.6	-8.2	1.8	-5.3	10.9
1959	4.8	10.8	6.6	11.7	6.6	0.8	4.8	-5.5
1960	0.7	-1.2	0.1	0.3	-0.3	1.5	0.3	1.8
1961	2.7	-1.2	1.5	0.1	-2.5	1.4	-1.4	4.0
1962	4.3	6.9	5.1	8.6	4.1	1.6	3.3	-2.4
1963	7.2	5.7	6.7	8.3	1.0	2.4	1.5	1.4
1964	4.8	4.2	4.6	7.1	2.2	2.9	2.4	0.6
1965	3.1	4.8	3.7	9.2	5.9	4.2	5.3	-1.6
1966	1.1	1.3	1.2	7.7	6.5	6.3	6.5	-0.2
1967	0.0	-7.0	-2.3	-0.2	-0.2	7.3	2.1	7.5
1968	3.5	0.0	2.4	5.5	1.9	5.4	3.0	3.5
1969	1.7	-0.5	1.0	3.4	1.6	3.9	2.3	2.3
1970	-0.2	-8.7	-2.7	-5.8	-5.6	3.2	-3.2	9.3
1971	6.1	0.6	4.5	2.2	-3.7	1.6	-2.2	5.5
1972	5.0	8.1	6.0	9.6	4.3	1.4	3.4	-2.8
1973	5.4	8.4	6.3	11.2	5.5	2.6	4.6	-2.8
1974	-2.4	-7.9	-3.9	-4.2	-1.9	4.1	-0.3	6.1
1975	2.9	-10.3	-0.9	-7.1	-9.7	3.5	-6.2	14.6
1976	4.4	7.4	5.3	9.6	4.9	2.0	4.1	-2.8
1977	2.5	4.1	3.0	6.9	4.2	2.7	3.8	-1.5
1978	0.8	1.5	1.0	5.3	4.5	3.8	4.3	-0.7
1979	0.7	-2.0	-0.1	2.7	2.0	4.8	2.8	2.7
1980	0.2	-8.8	-2.2	-4.4	-4.5	4.9	-2.2	9.8
1981	3.5	-0.5	2.5	2.9	-0.6	3.4	0.4	4.1
1982	1.2	-8.4	-1.3	-6.9	-8.0	1.6	-5.7	10.4

See footnotes following table 6.

Footnotes, Tables 1-6

SOURCE: Output data from Bureau of Economic Analysis (BEA), 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 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 rental value of real estate occupied by 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.