

News

United States
Department
of Labor



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

USDL 85-405
For Release: 10:00 AM EDT
Thursday, October 3, 1985

MULTIFACTOR PRODUCTIVITY MEASURES

Private Business, Private Nonfarm Business, and Manufacturing Sectors
Annual Measures for 1984

Multifactor productivity--output per unit of combined labor and capital inputs--grew 4.1 percent in 1984 in private business, the Bureau of Labor Statistics of the U.S. Department of Labor reported today (table A). This is the largest increase in multifactor productivity since 1950 when it increased 7.2 percent.

Changes in multifactor productivity measure the difference between the growth in output (the amount of goods and services produced) and the growth in labor and capital engaged in that production. As such, it reflects the effect of such factors as new technology, economies of scale, changes in the composition of the workforce and type of capital, labor management relations, and research and development.

The annual rates of change of multifactor productivity for the three major sectors covered by the BLS measures from 1983 to 1984 are:

4.1 percent for private business,
3.6 percent for private nonfarm business, and
5.2 percent for manufacturing.

Details are given in tables 1-6.

Private business sector

Multifactor productivity increased 4.1 percent in private business from 1983 to 1984 (table 4), compared with an increase of 2.9 percent from 1982 to 1983. This rise, the largest since 1950, reflected an increase in output of 8.9 percent and an increase in combined labor and capital inputs of 4.7 percent. The increase in combined inputs resulted from increases in both hours of all persons (5.5 percent) and capital services (3.3 percent). All five of the principle components of capital services (equipment, structures, rental residential, inventories, and land) increased over the year.

Output per hour of all persons increased 3.3 percent from 1983 to 1984.

Table A. Productivity indexes and related measures
Percent change from 1983 to 1984

| Item | Private business ¹ | Private nonfarm business ¹ | Manu- facturing |
|--|----------------------------------|---|--------------------|
| Productivity: | | | |
| Output per hour of all persons | 3.3 | 2.8 | 3.5 |
| Output per unit of capital services | 5.5 | 5.1 | 9.6 |
| Multifactor productivity ² | 4.1 | 3.6 | 5.2 |
| Output: | 8.9 | 8.7 | 10.5 |
| Inputs: | | | |
| Hours of all persons | 5.5 | 5.8 | 6.7 |
| Capital services | 3.3 | 3.4 | 0.8 |
| Combined units of labor and capital input ³ | 4.7 | 4.9 | 5.0 |
| Capital services per hour of all persons (capital-labor ratio) | -2.1 | -2.2 | -5.5 |
| Contribution of capital services per hour to output per hour ⁴ | -0.8 | -0.8 | -1.7 |

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.

4 Percent change in capital services per hour weighted by capital's share of current dollar output.

Output per unit of capital services (capital productivity) increased 5.5 percent for 1984, which also was the largest rise since 1950. Capital services per hour--the rate of substitution of capital for labor--decreased 2.1 percent from 1983 to 1984; this was the largest decrease in this series.

Private nonfarm business

Multifactor productivity rose 3.6 percent in the private nonfarm business sector in 1984 (table 5). Output increased 8.7 percent and combined inputs increased 4.9 percent. The rise in combined inputs was a result of increases in hours of 5.8 percent and capital services of 3.4 percent. This was the largest growth in capital services since 1981 (4.3 percent) in private nonfarm business. This increase also was reflected in all five of the components of capital in 1984.

Output per hour of all persons increased 2.8 percent in private nonfarm business from 1983 to 1984. The ratio of capital services per hour decreased 2.2 percent, the greatest decline since 1959 when the decline was 2.3 percent.

Output per unit of capital services (capital productivity) rose 5.1 percent in 1984, as compared with a 3.7 percent increase in 1983.

Manufacturing

In manufacturing, multifactor productivity increased 5.2 percent from 1983 to 1984, the largest rise since 1976 when it increased 5.3 percent (table 6). The rise in multifactor productivity reflected an increase of 10.5 percent in output and an increase in combined inputs of 5.0 percent. The rise in combined inputs resulted from an increase in hours of all persons of 6.7 percent and an increase in capital services of 0.8 percent. The increase in capital services in manufacturing was the result of increases in equipment and land and decreases in structures and inventories in 1984.

Output per hour grew 3.5 percent in manufacturing. Output per unit of capital services (capital productivity) increased 9.6 percent in manufacturing in 1984. This was the largest increase since 1950, when it grew 10.4 percent. The capital-labor ratio fell 5.5 percent, equaling the largest previous decline which occurred in 1959.

Long-term trends

Productivity measures vary from year to year 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. Previously, BLS published measures for the 1948-73 period and for 1973-81. The end points of these time periods approximate common stages in the business cycle. With the addition of 1984 measures, a third period has been added to show the results from 1981 forward.

Table B. 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 1984

| Measure | 1948-1984 | 1948-1973 | 1973-1981 | 1981-1984 |
|---|-----------|-----------|-----------|-----------|
| <u>Private business</u> ¹ | | | | |
| Output per hour of all persons | 2.4 | 3.0 | 0.7 | 2.1 |
| Contribution of capital services per hour to output per hour ² | 0.9 | 1.0 | 0.6 | 0.3 |
| Multifactor productivity ³ | 1.5 | 2.0 | 0.1 | 1.8 |
| <u>Private nonfarm business</u> ¹ | | | | |
| Output per hour of all persons | 2.1 | 2.5 | 0.6 | 2.2 |
| Contribution of capital services per hour to output per hour ² | 0.8 | 0.8 | 0.7 | 0.3 |
| Multifactor productivity ³ | 1.3 | 1.7 | -0.1 | 1.9 |
| <u>Manufacturing</u> ¹ | | | | |
| Output per hour of all persons | 2.6 | 2.9 | 1.5 | 3.3 |
| Contribution of capital services per hour to output per hour ² | 0.7 | 0.7 | 1.0 | 0.2 |
| Multifactor productivity ³ | 1.9 | 2.2 | 0.5 | 3.1 |

¹ Excludes government enterprises.

² Change in capital services per hour weighted by capital's share of current dollar output.

³ Output per unit of combined labor and capital inputs.

Source: Tables 1-3.

In the private business and nonfarm business sectors, the growth rate in output per hour for the 1981-84 period had almost returned to the 1948-73 trend rate of growth (table B). In manufacturing, the 1981-84 rate exceeded the historical rate. Multifactor productivity growth also has been increasing faster than the earlier trend rate. The contribution of capital services per hour to the growth in output per hour was at the lowest rate since 1948.

Summary of Methods

The following note briefly describes the major data sources and the procedures used in deriving 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."

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 comprise fixed business equipment, structures, inventories, and land. Structures include nonresidential structures and residential capital which is rented out by profitmaking 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, and private household employees. The private nonfarm business sector also excludes agriculture 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, 1948-84 ^{1/}

| Year | Productivity | | | Output <u>3/</u> | Inputs | | | Capital services per hour |
|------------------|--------------------------------|----------------------------|------------------------------------|---------------------|--------------------------------|----------------------------|--|---------------------------|
| | 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 | 45.3 | 98.9 | 60.0 | 36.8 | 81.3 | 37.2 | 61.3 | 45.8 |
| 1949 | 46.0 | 93.4 | 59.3 | 36.1 | 78.5 | 38.7 | 60.9 | 49.2 |
| 1950 | 49.7 | 98.5 | 63.6 | 39.5 | 79.4 | 40.1 | 62.1 | 50.5 |
| 1951 | 51.2 | 100.0 | 65.1 | 41.8 | 81.8 | 41.8 | 64.3 | 51.2 |
| 1952 | 52.9 | 99.2 | 66.3 | 43.2 | 81.7 | 43.6 | 65.2 | 53.3 |
| 1953 | 54.7 | 100.5 | 68.0 | 45.1 | 82.6 | 44.9 | 66.4 | 54.4 |
| 1954 | 55.6 | 96.1 | 67.7 | 44.3 | 79.8 | 46.1 | 65.5 | 57.8 |
| 1955 | 57.9 | 100.8 | 70.7 | 47.9 | 82.8 | 47.6 | 67.8 | 57.4 |
| 1956 | 58.5 | 99.8 | 70.9 | 49.2 | 84.1 | 49.3 | 69.4 | 58.6 |
| 1957 | 60.0 | 97.8 | 71.6 | 49.7 | 82.8 | 50.8 | 69.4 | 61.3 |
| 1958 | 61.9 | 94.2 | 72.0 | 48.9 | 79.0 | 51.9 | 67.9 | 65.7 |
| 1959 | 63.9 | 99.1 | 74.9 | 52.5 | 82.1 | 52.9 | 70.0 | 64.5 |
| 1960 | 64.8 | 98.4 | 75.4 | 53.3 | 82.2 | 54.1 | 70.7 | 65.9 |
| 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 | 72.3 | 102.6 | 82.0 | 59.7 | 82.6 | 58.2 | 72.8 | 70.4 |
| 1964 | 75.4 | 105.2 | 85.0 | 63.3 | 84.0 | 60.2 | 74.5 | 71.6 |
| 1965 | 78.1 | 107.8 | 87.6 | 67.6 | 86.6 | 62.7 | 77.2 | 72.4 |
| 1966 | 80.5 | 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 | 83.6 | 80.7 |
| 1969 | 85.3 | 103.7 | 91.3 | 78.9 | 92.5 | 76.1 | 86.5 | 82.3 |
| 1970 | 86.1 | 98.5 | 90.2 | 78.3 | 90.8 | 79.4 | 86.7 | 87.4 |
| 1971 | 89.3 | 98.1 | 92.2 | 80.6 | 90.3 | 82.2 | 87.5 | 91.0 |
| 1972 | 92.4 | 101.0 | 95.2 | 86.0 | 93.1 | 85.2 | 90.3 | 91.5 |
| 1973 | 94.8 | 103.0 | 97.5 | 91.8 | 96.8 | 89.1 | 94.1 | 92.0 |
| 1974 | 92.5 | 96.5 | 93.8 | 89.9 | 97.2 | 93.1 | 95.8 | 95.9 |
| 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 | 100.5 | 101.8 | 101.0 | 105.5 | 105.0 | 103.6 | 104.5 | 98.7 |
| 1979 | 99.3 | 100.3 | 99.7 | 107.9 | 108.6 | 107.5 | 108.2 | 98.9 |
| 1980 | 98.7 | 95.6 | 97.6 | 106.4 | 107.8 | 111.4 | 109.0 | 103.3 |
| 1981 | 100.6 | 94.1 | 98.3 | 109.2 | 108.5 | 116.0 | 111.0 | 106.9 |
| 1982 | 100.8 | 89.5 | 96.8 | 106.3 | 105.4 | 118.8 | 109.9 | 112.7 |
| 1983 | 103.7 | 92.3 | 99.6 | 111.1 | 107.2 | 120.4 | 111.6 | 112.3 |
| 1984 | 107.1 | 97.4 | 103.7 | 121.0 | 113.0 | 124.3 | 116.8 | 109.9 |

See footnotes following table 6.

October 3, 1985
SOURCE: Bureau of Labor Statistics

Table 2. Private nonfarm business sector: productivity and related measures, 1948-84 ^{1/}

| Year | Productivity | | | Output <u>3/</u> | Inputs | | | Capital services per hour |
|------------------|--------------------------------|----------------------------|------------------------------------|---------------------|--------------------------------|----------------------------|--|---------------------------|
| | 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 | 51.2 | 97.8 | 64.5 | 35.6 | 69.6 | 36.4 | 55.2 | 52.3 |
| 1949 | 52.3 | 92.6 | 64.1 | 34.9 | 66.8 | 37.7 | 54.5 | 56.5 |
| 1950 | 55.6 | 98.1 | 68.1 | 38.3 | 69.0 | 39.1 | 56.3 | 56.6 |
| 1951 | 56.6 | 100.3 | 69.5 | 40.8 | 72.1 | 40.7 | 58.8 | 56.4 |
| 1952 | 58.0 | 99.5 | 70.4 | 42.2 | 72.8 | 42.4 | 60.0 | 58.3 |
| 1953 | 59.0 | 100.7 | 71.4 | 44.1 | 74.7 | 43.8 | 61.7 | 58.6 |
| 1954 | 59.9 | 96.0 | 71.0 | 43.2 | 72.1 | 45.0 | 60.9 | 62.4 |
| 1955 | 62.3 | 100.8 | 74.1 | 46.8 | 75.1 | 46.5 | 63.2 | 61.9 |
| 1956 | 62.5 | 99.9 | 74.0 | 48.1 | 77.0 | 48.2 | 65.1 | 62.6 |
| 1957 | 63.6 | 97.9 | 74.3 | 48.7 | 76.6 | 49.8 | 65.6 | 65.0 |
| 1958 | 65.2 | 93.9 | 74.3 | 47.8 | 73.3 | 50.9 | 64.3 | 69.4 |
| 1959 | 67.4 | 99.4 | 77.5 | 51.6 | 76.6 | 51.9 | 66.6 | 67.8 |
| 1960 | 68.0 | 98.4 | 77.6 | 52.3 | 77.0 | 53.2 | 67.4 | 69.1 |
| 1961 | 70.0 | 98.0 | 78.9 | 53.3 | 76.1 | 54.4 | 67.5 | 71.5 |
| 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 | 77.9 | 105.6 | 86.7 | 62.7 | 80.5 | 59.4 | 72.2 | 73.8 |
| 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 | 86.3 | 65.3 | 78.2 | 75.7 |
| 1967 | 83.8 | 105.3 | 90.7 | 72.5 | 86.5 | 68.9 | 79.9 | 79.6 |
| 1968 | 86.7 | 106.0 | 92.9 | 76.4 | 88.2 | 72.1 | 82.3 | 81.8 |
| 1969 | 86.4 | 104.1 | 92.1 | 78.7 | 91.0 | 75.6 | 85.4 | 83.0 |
| 1970 | 86.8 | 98.6 | 90.7 | 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 | 91.6 |
| 1972 | 93.0 | 101.1 | 95.7 | 85.8 | 92.2 | 84.8 | 89.6 | 92.0 |
| 1973 | 95.3 | 103.2 | 97.9 | 91.7 | 96.2 | 88.8 | 93.6 | 92.4 |
| 1974 | 92.9 | 96.5 | 94.1 | 89.7 | 96.5 | 93.0 | 95.3 | 96.3 |
| 1975 | 94.8 | 91.7 | 93.6 | 87.6 | 92.4 | 95.6 | 93.5 | 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 | 101.0 | 105.7 | 105.1 | 103.7 | 104.6 | 98.7 |
| 1979 | 99.0 | 100.1 | 99.4 | 108.0 | 109.1 | 107.9 | 108.7 | 98.9 |
| 1980 | 98.2 | 95.2 | 97.2 | 106.4 | 108.4 | 111.7 | 109.5 | 103.1 |
| 1981 | 99.6 | 93.2 | 97.4 | 108.7 | 109.1 | 116.6 | 111.6 | 106.8 |
| 1982 | 99.9 | 88.7 | 95.9 | 105.9 | 106.0 | 119.4 | 110.4 | 112.6 |
| 1983 | 103.5 | 91.9 | 99.4 | 111.3 | 107.6 | 121.1 | 112.0 | 112.6 |
| 1984 | 106.3 | 96.6 | 102.9 | 121.0 | 113.8 | 125.2 | 117.5 | 110.1 |

See footnotes following table 6.

October 3, 1985
SOURCE: Bureau of Labor Statistics

Table 3. Manufacturing business sector: productivity and related measures, 1948-84 ^{1/}

| Year | Productivity | | | Output 3/ | Inputs | | | Capital services per hour |
|------------------|--------------------------------|----------------------------|------------------------------------|--------------|--------------------------------|----------------------------|--|---------------------------|
| | 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 | 93.6 | 56.1 | 35.8 | 79.4 | 38.3 | 63.9 | 48.2 |
| 1949 | 46.9 | 85.3 | 55.9 | 33.9 | 72.4 | 39.8 | 60.8 | 55.0 |
| 1950 | 49.4 | 94.2 | 59.8 | 38.6 | 78.2 | 41.0 | 64.6 | 52.5 |
| 1951 | 51.1 | 98.8 | 62.2 | 43.0 | 84.2 | 43.6 | 69.2 | 51.7 |
| 1952 | 52.1 | 95.1 | 62.1 | 44.5 | 85.4 | 46.7 | 71.6 | 54.7 |
| 1953 | 52.9 | 98.0 | 63.4 | 47.5 | 89.8 | 48.5 | 74.9 | 54.0 |
| 1954 | 53.8 | 88.7 | 62.2 | 44.1 | 82.1 | 49.8 | 70.9 | 60.6 |
| 1955 | 56.4 | 95.3 | 65.8 | 48.9 | 86.6 | 51.3 | 74.3 | 59.2 |
| 1956 | 56.0 | 92.0 | 64.7 | 49.2 | 87.9 | 53.5 | 76.0 | 60.9 |
| 1957 | 57.2 | 89.1 | 65.0 | 49.5 | 86.5 | 55.5 | 76.1 | 64.1 |
| 1958 | 56.9 | 80.1 | 62.8 | 45.2 | 79.4 | 56.4 | 72.0 | 71.1 |
| 1959 | 59.6 | 88.7 | 66.9 | 50.5 | 84.6 | 56.9 | 75.5 | 67.2 |
| 1960 | 60.0 | 87.9 | 67.0 | 50.7 | 84.4 | 57.6 | 75.6 | 68.3 |
| 1961 | 61.6 | 86.9 | 68.0 | 50.7 | 82.3 | 58.3 | 74.5 | 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 | 78.1 | 70.2 |
| 1964 | 72.3 | 102.3 | 79.8 | 63.9 | 88.4 | 62.4 | 80.0 | 70.6 |
| 1965 | 74.6 | 107.3 | 82.8 | 69.8 | 93.6 | 65.1 | 84.3 | 69.5 |
| 1966 | 75.4 | 108.6 | 83.7 | 75.1 | 99.7 | 69.2 | 89.7 | 69.4 |
| 1967 | 75.3 | 101.1 | 81.8 | 75.0 | 99.5 | 74.2 | 91.7 | 74.5 |
| 1968 | 78.0 | 101.1 | 83.8 | 79.1 | 101.4 | 78.2 | 94.4 | 77.1 |
| 1969 | 79.3 | 100.5 | 84.6 | 81.7 | 103.0 | 81.3 | 96.6 | 78.9 |
| 1970 | 79.2 | 91.8 | 82.3 | 77.0 | 97.3 | 83.9 | 93.5 | 86.2 |
| 1971 | 84.0 | 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 | 94.6 | 88.4 |
| 1973 | 93.0 | 108.2 | 96.8 | 95.9 | 103.1 | 88.6 | 99.0 | 85.9 |
| 1974 | 90.8 | 99.6 | 93.1 | 91.9 | 101.2 | 92.2 | 98.7 | 91.1 |
| 1975 | 93.4 | 89.4 | 92.2 | 85.4 | 91.4 | 95.5 | 92.6 | 104.5 |
| 1976 | 97.6 | 96.1 | 97.1 | 93.6 | 95.9 | 97.4 | 96.3 | 101.6 |
| 1977 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1978 | 100.9 | 101.5 | 101.1 | 105.3 | 104.4 | 103.8 | 104.2 | 99.4 |
| 1979 | 101.6 | 99.5 | 101.0 | 108.2 | 106.5 | 108.8 | 107.1 | 102.1 |
| 1980 | 101.7 | 90.7 | 98.8 | 103.5 | 101.7 | 114.1 | 104.8 | 112.2 |
| 1981 | 104.9 | 89.9 | 100.8 | 106.1 | 101.1 | 118.0 | 105.2 | 116.7 |
| 1982 | 107.1 | 82.9 | 100.3 | 99.3 | 92.7 | 119.8 | 99.0 | 129.2 |
| 1983 | 111.6 | 87.6 | 104.9 | 104.4 | 93.5 | 119.2 | 99.5 | 127.5 |
| 1984 | 115.6 | 96.0 | 110.4 | 115.3 | 99.8 | 120.2 | 104.5 | 120.4 |

See footnotes following table 6.

October 3, 1985
SOURCE: Bureau of Labor Statistics

Table 4. Private business sector: productivity and related measures, 1948-84 ^{1/}

| Year | Productivity | | | Output <u>3/</u> | Inputs | | | Capital services per hour |
|----------------|--------------------------------|----------------------------|------------------------------------|---------------------|--------------------------------|----------------------------|--|---------------------------|
| | 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> | |
| 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 | 4.4 | 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 | -4.3 | -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 | -0.7 | 0.7 | 1.6 | 0.1 | 2.3 | 0.9 | 2.2 |
| 1961 | 3.4 | -0.4 | 2.0 | 1.7 | -1.6 | 2.1 | -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 | 3.7 | 6.5 | 3.1 | 1.9 | 2.6 | -1.2 |
| 1977 | 2.4 | 4.0 | 3.0 | 6.7 | 4.2 | 2.6 | 3.6 | -1.6 |
| 1978 | 0.5 | 1.8 | 1.0 | 5.5 | 5.0 | 3.6 | 4.5 | -1.3 |
| 1979 | -1.2 | -1.4 | -1.3 | 2.2 | 3.5 | 3.7 | 3.6 | 0.2 |
| 1980 | -0.6 | -4.8 | -2.0 | -1.3 | -0.8 | 3.6 | 0.7 | 4.4 |
| 1981 | 1.9 | -1.5 | 0.7 | 2.6 | 0.7 | 4.2 | 1.9 | 3.5 |
| 1982 | 0.3 | -4.8 | -1.6 | -2.6 | -2.9 | 2.3 | -1.1 | 5.4 |
| 1983 | 2.8 | 3.1 | 2.9 | 4.5 | 1.6 | 1.4 | 1.5 | -0.3 |
| 1984 | 3.3 | 5.5 | 4.1 | 8.9 | 5.5 | 3.3 | 4.7 | -2.1 |

See footnotes following table 6.

October 3, 1985
SOURCE: Bureau of Labor Statistics

Table 5. Private nonfarm business sector: productivity and related measures, 1948-84 ^{1/}

| Year | Productivity | | | Output <u>3/</u> | Inputs | | | Capital services per hour |
|----------------|--------------------------------|----------------------------|------------------------------------|---------------------|--------------------------------|----------------------------|--|---------------------------|
| | 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> | |
| Percent change | | | | | | | | |
| 1949 | 2.2 | -5.3 | -0.6 | -1.9 | -4.0 | 3.6 | -1.3 | 7.9 |
| 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 | -0.4 | 1.7 | 1.8 | -1.2 | 2.2 | 0.1 | 3.4 |
| 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 | 3.2 | 4.9 | 3.8 | 6.9 | 3.5 | 1.9 | 3.0 | -1.6 |
| 1977 | 2.2 | 4.0 | 2.9 | 6.8 | 4.5 | 2.7 | 3.8 | -1.8 |
| 1978 | 0.6 | 1.9 | 1.0 | 5.7 | 5.1 | 3.7 | 4.6 | -1.3 |
| 1979 | -1.6 | -1.8 | -1.7 | 2.2 | 3.8 | 4.0 | 3.9 | 0.2 |
| 1980 | -0.8 | -4.8 | -2.2 | -1.5 | -0.7 | 3.5 | 0.7 | 4.2 |
| 1981 | 1.5 | -2.1 | 0.2 | 2.2 | 0.7 | 4.3 | 1.9 | 3.6 |
| 1982 | 0.3 | -4.9 | -1.5 | -2.6 | -2.9 | 2.4 | -1.1 | 5.4 |
| 1983 | 3.6 | 3.7 | 3.6 | 5.1 | 1.5 | 1.4 | 1.5 | -0.1 |
| 1984 | 2.8 | 5.1 | 3.6 | 8.7 | 5.8 | 3.4 | 4.9 | -2.2 |

See footnotes following table 6.

October 3, 1985
SOURCE: Bureau of Labor Statistics

Table 6. Manufacturing business sector: productivity and related measures, 1948-84 ^{1/}

| Year | Productivity | | | Output <u>3/</u> | Inputs | | | Capital services per hour |
|------|--------------------------------|----------------------------|------------------------------------|---------------------|--------------------------------|----------------------------|--|---------------------------|
| | 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> | |
| | Percent change | | | | | | | |
| 1949 | 4.0 | -8.8 | -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 | 6.2 | 7.2 | -1.4 |
| 1952 | 1.8 | -3.8 | 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 | 2.8 |
| 1957 | 2.1 | -3.2 | 0.4 | 0.5 | -1.5 | 3.8 | 0.0 | 5.4 |
| 1958 | -0.4 | -10.2 | -3.4 | -8.6 | -8.2 | 1.7 | -5.3 | 10.9 |
| 1959 | 4.8 | 10.8 | 6.6 | 11.7 | 6.6 | 0.8 | 4.8 | -5.5 |
| 1960 | 0.7 | -1.0 | 0.1 | 0.3 | -0.3 | 1.3 | 0.2 | 1.7 |
| 1961 | 2.7 | -1.1 | 1.5 | 0.1 | -2.5 | 1.2 | -1.4 | 3.8 |
| 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 | 4.5 | 7.4 | 5.3 | 9.6 | 4.9 | 2.0 | 4.1 | -2.8 |
| 1977 | 2.5 | 4.1 | 2.9 | 6.9 | 4.3 | 2.7 | 3.8 | -1.6 |
| 1978 | 0.9 | 1.5 | 1.1 | 5.3 | 4.4 | 3.8 | 4.2 | -0.6 |
| 1979 | 0.7 | -2.0 | -0.1 | 2.7 | 2.1 | 4.8 | 2.8 | 2.7 |
| 1980 | 0.2 | -8.8 | -2.2 | -4.4 | -4.5 | 4.9 | -2.2 | 9.9 |
| 1981 | 3.1 | -0.9 | 2.1 | 2.5 | -0.6 | 3.4 | 0.4 | 4.1 |
| 1982 | 2.1 | -7.8 | -0.5 | -6.4 | -8.3 | 1.5 | -5.9 | 10.7 |
| 1983 | 4.3 | 5.7 | 4.7 | 5.2 | 0.9 | -0.5 | 0.5 | -1.3 |
| 1984 | 3.5 | 9.6 | 5.2 | 10.5 | 6.7 | 0.8 | 5.0 | -5.5 |

See footnotes following table 6.

October 3, 1985
SOURCE: Bureau of Labor Statistics

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.

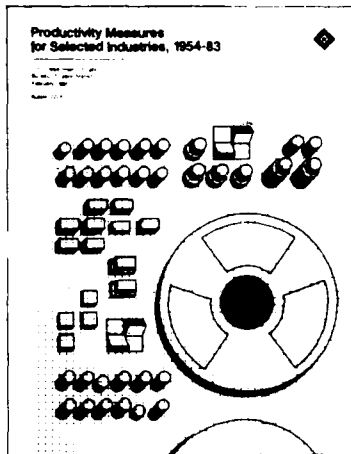
- (1) The private business sector includes all of Gross National Product except the rest-of-world sector, the rental value of owner-occupied real estate, the output arising in nonprofit organizations, the output of paid employees of private households, government, and the statistical discrepancy in preparing 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.

Productivity Reports

from the
Bureau of
Labor Statistics

Productivity Measures for Selected Industries, 1954-83

Bulletin 2224



Updates through 1983 indexes of output per employee hour for the industries currently included in the U.S. Government's program of productivity measurement. Data are presented for 133 industries.

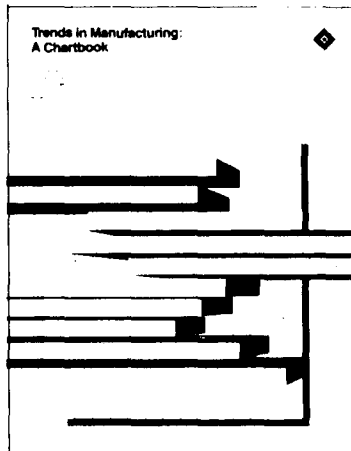
GPO Stock No. 029-001-02833-4

280 pages

Price \$7.50

Trends in Manufacturing: A Chartbook

Bulletin 2219



Charts, tables, and text portray long-term trends in manufacturing output, employment, productivity, related economic indicators, and, wherever possible, comparable international data.

GPO Stock No. 029-001-02835-1



104 pages

Price \$5.00

Where to send order

Publications are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, or the Bureau of Labor Statistics Chicago Regional Office, 9th Floor, Federal Office Building, 230 South Dearborn Street, Chicago, Ill. 60604.

How to pay

- Enclosed is a check or money order payable to Superintendent of Documents.
- Charge to my GPO Account No. _____
- Charge to my  * Account No. _____ Expiration date _____
- Charge to my  * Account No. _____ Expiration date _____

*Available only on orders sent directly to Superintendent of Documents.

Name _____

Organization (if applicable) _____

Street address _____

City, State Zip Code _____