

FEDERAL RESERVE statistical release



G.3 (402)

For Immediate release

CAPACITY UTILIZATION

Manufacturing, Mining, Utilities, and Industrial Materials

September 15, 1988

Capacity utilization in manufacturing, mining, and utilities edged up 0.1 percentage point in August to 83.7 percent. The small increase in the overall operating rate resulted from a substantial rise in the rate for utilities; rates in both manufacturing and mining eased slightly. The increase in the operating rate at utilities reflected the continuing effects of the unusually hot summer. The rate for electric utilities in August, 86.9 percent, was last exceeded in 1979.

Within manufacturing, neither advanced nor primary processing industries showed any change in operating rates in August. The primary processing rate during July and August, 87.8 percent, was slightly higher than at the end of last year and at its highest level since December 1978. Increases in primary metals industries have been a significant contributor to the high operating rates at primary processing industries in recent months. Another source of recent strength in primary processing (as well as in advanced processing) has been the chemical industry. Its utilization rate during July, 88.0 percent, was well above its level at the end of last year and near its high during 1973. Although utilization for advanced processing industries held steady in August, it has risen more than 2 percentage points in the past year. A principal contributor to this increase has been nonelectrical machinery, where utilization slipped back slightly in August, but has climbed nearly 7 percentage points since August 1987.

Utilization at producers of industrial materials edged up 0.1 percentage point in August as a decline at producers of nondurable goods almost offset gains elsewhere. Utilization for energy materials, dominated by the utilities, rose substantially for the third consecutive month.

Capacity Utilization: Summary

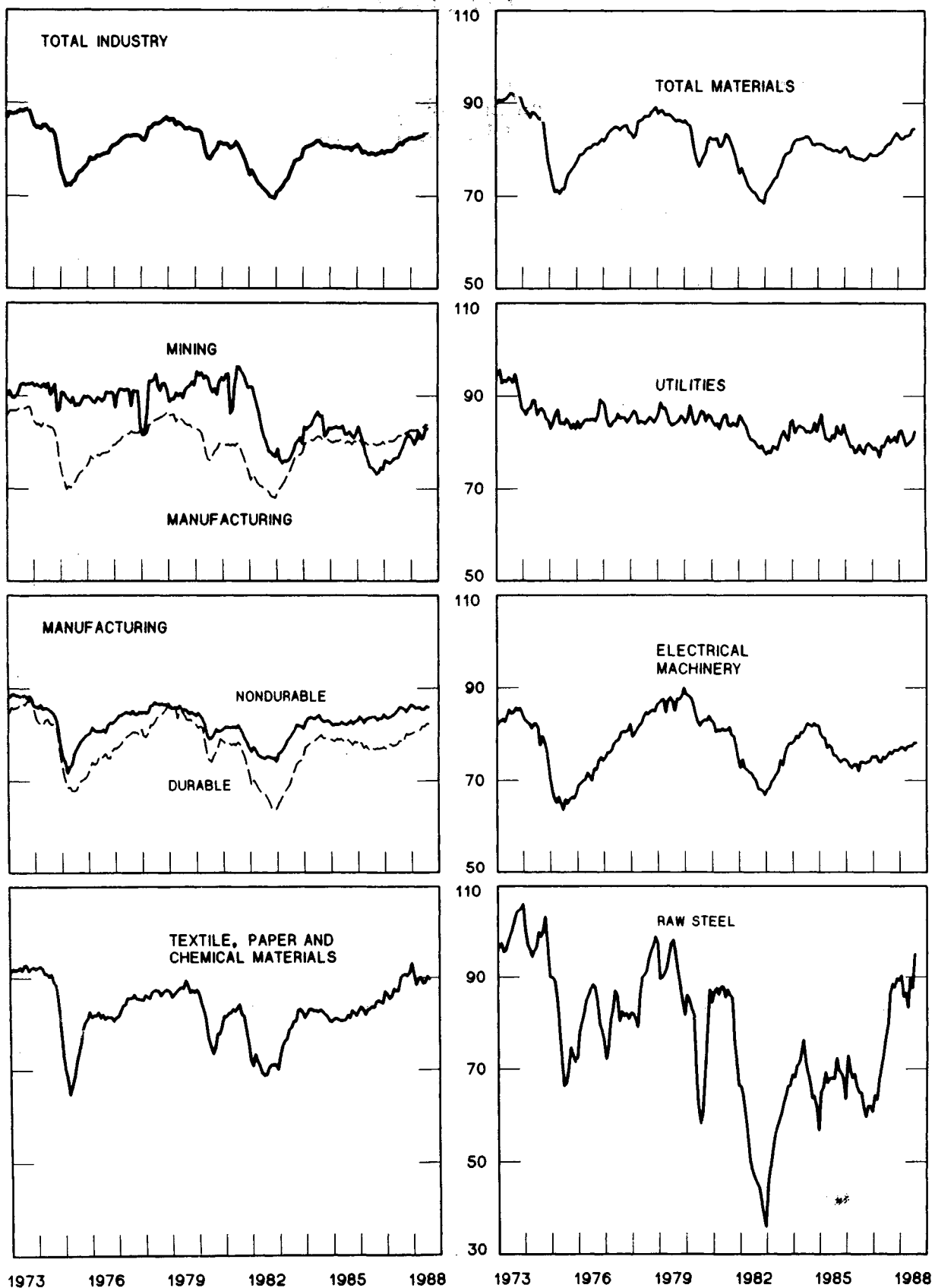
Percent of capacity, seasonally adjusted

| Series | 1973 High | 1975 Low | 1978 -80 High | 1982 Low | 1987 -87 Avg. | 1988 | | | |
|----------------------|--------------|-------------|---------------------|-------------|---------------------|------|------|------|------|
| | | | | | | MAY | JUN | JUL | AUG |
| Total Industry | 88.6 | 72.1 | 86.9 | 69.5 | 81.5 | 82.9 | 83.0 | 83.6 | 83.7 |
| Manufacturing | 87.7 | 69.9 | 86.5 | 68.0 | 80.6 | 83.3 | 83.3 | 83.9 | 83.8 |
| Durable | 87.4 | 67.9 | 86.3 | 63.7 | 78.7 | 81.8 | 81.7 | 82.3 | 82.3 |
| Nondurable | 88.8 | 71.8 | 87.0 | 74.2 | 83.5 | 85.4 | 85.5 | 86.1 | 85.9 |
| Mining | 92.8 | 87.8 | 95.2 | 76.9 | 86.7 | 80.8 | 81.0 | 83.0 | 82.9 |
| Utilities | 95.6 | 82.9 | 88.5 | 78.0 | 86.9 | 79.7 | 80.2 | 80.7 | 82.4 |
| Industrial Materials | 92.0 | 70.5 | 89.1 | 68.5 | 82.2 | 83.0 | 83.2 | 84.4 | 84.5 |

CAPACITY UTILIZATION

AUGUST DATA

SEASONALLY ADJUSTED, PERCENT



MANUFACTURING, MINING AND UTILITIES

Table 1

Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

| Series | 1973 | | 1975 | | 1978 | | 1982 | | 1987 | | 1987 | | 1987 | | 1988 | | 1988 | |
|---------------------------------|-------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|-----|
| | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low | High | Low |
| Total Industry | 88.0 | 72.1 | 80.9 | 69.5 | 81.5 | 81.4 | 82.4 | 82.5 | 82.4 | 82.4 | 82.7 | 82.9 | 83.0 | 83.6 | 83.7 | | | |
| Manufacturing | 87.7 | 69.9 | 80.5 | 68.0 | 80.6 | 81.5 | 82.6 | 82.7 | 82.6 | 82.7 | 82.9 | 83.3 | 83.3 | 83.9 | 83.8 | | | |
| Primary processing | 91.9 | 68.3 | 89.1 | 65.0 | 81.7 | 85.3 | 87.6 | 87.1 | 86.6 | 86.9 | 86.9 | 87.0 | 86.6 | 87.8 | 87.8 | | | |
| Advanced processing | 86.0 | 71.1 | 85.1 | 69.5 | 80.1 | 79.9 | 80.3 | 80.7 | 80.7 | 80.7 | 81.2 | 81.7 | 81.7 | 82.1 | 82.1 | | | |
| Durable manufacturing | 87.4 | 67.9 | 80.3 | 63.7 | 78.7 | 78.6 | 80.1 | 80.3 | 80.5 | 80.6 | 80.9 | 81.8 | 81.7 | 82.3 | 82.3 | | | |
| Stone, clay and glass products | 89.3 | 67.1 | 80.6 | 62.9 | 78.3 | 79.7 | 81.4 | 81.5 | 82.2 | 82.7 | 81.9 | 81.8 | 83.0 | 83.2 | | | | |
| Primary metals | 101.9 | 67.0 | 97.1 | 45.8 | 79.6 | 83.0 | 89.1 | 85.2 | 85.1 | 83.1 | 83.7 | 87.5 | 85.8 | 89.5 | 91.0 | | | |
| Iron and steel, subtotal | 105.8 | 66.6 | 100.3 | 37.6 | 78.0 | 83.4 | 91.0 | 87.3 | 86.8 | 83.2 | 83.5 | 88.0 | 83.0 | 89.5 | | | | |
| Nonferrous metals, subtotal | 95.6 | 62.1 | 91.1 | 60.8 | 81.2 | 82.3 | 85.8 | 82.4 | 82.7 | 84.3 | 84.1 | 86.8 | 89.4 | 89.5 | | | | |
| Fabricated metal products | 85.0 | 64.7 | 87.4 | 61.3 | 77.8 | 77.4 | 80.8 | 81.6 | 81.8 | 82.4 | 82.3 | 82.9 | 83.2 | 84.3 | 84.4 | | | |
| Nonelectrical machinery | 89.3 | 68.2 | 86.0 | 62.9 | 78.1 | 75.1 | 77.8 | 78.5 | 78.7 | 79.0 | 80.1 | 81.4 | 81.7 | 82.1 | 82.0 | | | |
| Electrical machinery | 85.7 | 63.7 | 89.9 | 66.9 | 78.1 | 76.1 | 76.5 | 77.1 | 77.1 | 76.5 | 77.3 | 77.4 | 77.4 | 78.1 | 78.1 | | | |
| Motor vehicles and parts | 97.1 | 52.7 | 93.3 | 47.0 | 78.1 | 77.2 | 77.7 | 77.2 | 76.8 | 79.3 | 80.5 | 83.8 | 83.3 | 81.3 | 81.6 | | | |
| Automobiles | | | 93.3 | 36.6 | | 59.0 | 63.9 | 59.0 | 60.6 | 65.8 | 69.3 | 75.3 | 75.3 | 71.4 | 70.4 | | | |
| Aerospace and misc. trans. eqp. | 77.0 | 69.6 | 87.1 | 70.7 | 77.7 | 89.4 | 87.9 | 88.7 | 88.7 | 87.6 | 86.6 | 86.4 | 86.1 | 87.5 | 86.9 | | | |
| Instruments | 89.2 | 74.9 | 88.9 | 77.8 | 83.0 | 79.8 | 78.5 | 79.7 | 80.0 | 80.0 | 80.2 | 80.3 | 80.9 | 82.2 | 82.6 | | | |
| Other durables | 87.7 | 69.0 | 81.0 | 69.1 | 81.6 | 81.2 | 81.8 | 82.0 | 82.5 | 82.4 | 82.2 | 82.2 | 81.3 | 81.0 | 80.5 | | | |
| Nondurable manufacturing | 88.8 | 71.8 | 87.0 | 74.2 | 83.5 | 85.8 | 86.4 | 86.2 | 85.7 | 85.8 | 85.9 | 85.4 | 85.5 | 86.1 | 85.9 | | | |
| Food and kindred products | 85.8 | 77.6 | 85.1 | 76.5 | 82.2 | 80.3 | 80.3 | 80.7 | 80.9 | 80.2 | 79.6 | 79.7 | 79.8 | 80.3 | | | | |
| Textile mill products | 92.1 | 58.9 | 88.3 | 70.6 | 85.0 | 95.0 | 93.3 | 91.5 | 90.4 | 91.4 | 91.3 | 88.9 | 89.7 | 89.6 | | | | |
| Paper and products | 95.6 | 67.7 | 92.7 | 80.2 | 88.5 | 96.9 | 97.0 | 96.3 | 94.7 | 95.1 | 94.9 | 94.8 | 93.8 | 95.3 | | | | |
| Chemicals and products | 88.8 | 69.2 | 82.9 | 67.6 | 78.9 | 83.9 | 86.5 | 86.3 | 84.7 | 85.0 | 86.2 | 86.1 | 86.6 | 88.0 | | | | |
| Petroleum products | 99.6 | 83.7 | 91.7 | 88.8 | 86.9 | 84.1 | 86.6 | 86.7 | 86.3 | 88.5 | 88.5 | 88.5 | 88.4 | 84.5 | 84.9 | | | |
| Rubber and plastics products | 97.5 | 59.5 | 89.4 | 71.2 | 84.8 | 87.3 | 88.8 | 88.3 | 88.8 | 88.0 | 88.0 | 88.1 | 88.2 | 88.7 | | | | |
| Other nondurables | 86.4 | 72.3 | 92.4 | 78.9 | 86.0 | 87.2 | 86.2 | 86.0 | 86.0 | 86.2 | 86.3 | 85.4 | 85.5 | 85.3 | 85.1 | | | |
| Mining | 92.8 | 87.8 | 95.2 | 76.9 | 86.7 | 78.2 | 81.5 | 80.7 | 79.5 | 80.6 | 82.3 | 80.8 | 81.0 | 83.0 | 82.9 | | | |
| Utilities | 95.6 | 82.9 | 88.5 | 78.0 | 86.9 | 81.3 | 80.0 | 82.4 | 82.6 | 81.0 | 79.3 | 79.7 | 80.2 | 80.7 | 82.4 | | | |
| Electric utilities | 98.7 | 83.0 | 87.6 | 78.2 | 88.0 | 86.3 | 81.4 | 84.3 | 84.4 | 83.2 | 82.2 | 83.5 | 84.4 | 85.0 | 86.9 | | | |

Table 2

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

| Series | OUTPUT | | | | | CAPACITY | | | | | UTILIZATION | | | | |
|---------------------------------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|-------------|---------|---------|---------|---------|
| | 1987 Q4 | 1987 Q3 | 1987 Q2 | 1987 Q1 | 1987 Q2 | 1987 Q4 | 1987 Q3 | 1987 Q2 | 1987 Q1 | 1987 Q2 | 1987 Q4 | 1987 Q3 | 1987 Q2 | 1987 Q1 | 1987 Q2 |
| Total Industry | 128.2 | 131.0 | 133.2 | 134.5 | 136.0 | 160.4 | 161.3 | 162.2 | 163.1 | 164.2 | 79.9 | 81.2 | 82.1 | 82.4 | 82.8 |
| Manufacturing | 133.2 | 135.7 | 138.1 | 139.6 | 141.6 | 165.6 | 166.7 | 167.7 | 168.9 | 170.2 | 80.5 | 81.4 | 82.3 | 82.7 | 83.2 |
| Primary processing | 116.1 | 119.2 | 122.2 | 123.0 | 123.9 | 139.0 | 139.8 | 140.6 | 141.6 | 142.7 | 83.5 | 85.3 | 86.9 | 86.9 | 86.8 |
| Advanced processing | 143.5 | 145.8 | 147.6 | 149.7 | 152.3 | 181.6 | 182.9 | 184.1 | 185.4 | 186.7 | 79.0 | 79.7 | 80.1 | 80.7 | 81.5 |
| Durable manufacturing | 131.4 | 133.7 | 136.9 | 138.4 | 141.0 | 169.3 | 170.2 | 171.1 | 172.0 | 173.0 | 77.6 | 78.5 | 80.0 | 80.4 | 81.5 |
| Stone, clay and glass products | 118.6 | 118.0 | 119.8 | 121.5 | 122.1 | 145.1 | 146.1 | 147.2 | 147.9 | 148.4 | 81.7 | 80.7 | 81.4 | 82.1 | 82.2 |
| Primary metals | 77.3 | 83.7 | 90.5 | 86.0 | 87.3 | 103.3 | 102.6 | 101.8 | 101.6 | 102.0 | 74.8 | 81.6 | 88.8 | 84.7 | 85.7 |
| Iron and steel, subtotal | 66.3 | 73.8 | 81.2 | 76.5 | 75.8 | 92.5 | 91.1 | 89.8 | 89.2 | 89.3 | 71.7 | 81.0 | 90.4 | 85.8 | 84.8 |
| Nonferrous metals, subtotal | 98.0 | 102.2 | 108.0 | 104.1 | 109.1 | 123.7 | 124.1 | 124.6 | 125.1 | 125.8 | 79.2 | 82.4 | 86.7 | 83.2 | 86.8 |
| Fabricated metal products | 109.9 | 110.8 | 114.3 | 117.8 | 119.7 | 141.5 | 142.3 | 143.0 | 143.8 | 144.6 | 77.0 | 77.8 | 79.9 | 81.9 | 82.8 |
| Nonelectrical machinery | 150.6 | 155.4 | 158.7 | 163.7 | 169.6 | 204.1 | 205.4 | 206.7 | 208.0 | 209.3 | 73.8 | 75.7 | 76.8 | 78.7 | 81.0 |
| Electrical machinery | 170.0 | 173.4 | 175.7 | 177.2 | 179.1 | 228.1 | 228.9 | 229.6 | 230.5 | 231.5 | 74.5 | 75.7 | 76.5 | 76.9 | 77.4 |
| Motor vehicles and parts | 109.7 | 108.0 | 113.4 | 110.6 | 117.9 | 140.7 | 141.2 | 141.7 | 142.3 | 142.8 | 78.0 | 76.5 | 80.0 | 77.8 | 82.5 |
| Automobiles | 103.1 | 92.2 | 102.8 | 92.6 | 109.9 | 147.8 | 148.6 | 149.3 | 149.8 | 149.9 | 69.7 | 62.0 | 68.9 | 61.8 | 73.3 |
| Aerospace and misc. trans. eqp. | 152.6 | 152.9 | 152.9 | 153.9 | 151.4 | 171.1 | 172.1 | 173.2 | 174.2 | 175.3 | 89.2 | 88.8 | 88.3 | 88.3 | 86.4 |
| Instruments | 143.1 | 145.2 | 146.7 | 149.0 | 151.5 | 181.6 | 183.3 | 184.9 | 186.6 | 188.3 | 78.8 | 79.2 | 79.3 | 79.9 | 80.5 |
| Other durables | 132.2 | 133.1 | 135.4 | 137.6 | 138.1 | 162.2 | 164.0 | 165.8 | 167.3 | 168.6 | 81.5 | 81.2 | 81.7 | 82.3 | 81.9 |
| Nondurable manufacturing | 135.7 | 138.6 | 139.7 | 141.4 | 142.4 | 160.3 | 161.7 | 163.1 | 164.6 | 166.3 | 84.7 | 85.7 | 85.6 | 85.9 | 85.6 |
| Food and kindred products | 137.0 | 138.9 | 139.0 | 141.4 | 140.9 | 171.6 | 172.8 | 174.1 | 175.4 | 176.8 | 79.9 | 80.4 | 79.8 | 80.6 | 79.7 |
| Textile mill products | 116.5 | 118.8 | 117.4 | 116.2 | 116.0 | 125.7 | 126.1 | 126.6 | 127.5 | 128.9 | 92.7 | 94.2 | 92.8 | 91.1 | 90.0 |
| Paper and products | 141.5 | 148.4 | 148.3 | 149.0 | 149.1 | 152.4 | 153.6 | 154.9 | 156.2 | 157.7 | 92.8 | 96.6 | 95.7 | 95.4 | 94.5 |
| Chemicals and products | 138.2 | 141.8 | 144.6 | 146.6 | 149.5 | 168.7 | 169.6 | 170.5 | 171.7 | 173.2 | 81.9 | 83.6 | 84.8 | 85.3 | 86.3 |
| Petroleum products | 93.0 | 93.5 | 94.7 | 96.9 | 95.9 | 110.1 | 110.5 | 110.8 | 111.1 | 111.4 | 84.4 | 84.6 | 85.4 | 87.2 | 86.1 |
| Rubber and plastics products | 162.7 | 165.7 | 169.1 | 171.7 | 173.4 | 186.3 | 188.8 | 191.3 | 193.9 | 196.8 | 67.3 | 67.8 | 68.4 | 68.5 | 68.1 |
| Other nondurables | 138.4 | 140.7 | 141.4 | 143.0 | 144.5 | 159.6 | 161.8 | 163.9 | 166.2 | 168.6 | 86.7 | 87.0 | 86.3 | 86.1 | 85.7 |
| Mining | 99.0 | 100.7 | 104.3 | 102.5 | 103.3 | 129.7 | 129.0 | 128.4 | 127.7 | 127.0 | 76.3 | 78.0 | 81.2 | 80.3 | 81.4 |
| Utilities | 108.3 | 111.8 | 112.3 | 114.7 | 111.7 | 138.3 | 138.8 | 139.4 | 139.8 | 140.1 | 78.3 | 80.5 | 80.6 | 82.0 | 79.7 |
| Electric utilities | 126.6 | 130.2 | 126.6 | 130.0 | 129.5 | 151.9 | 152.9 | 154.0 | 154.8 | 155.4 | 83.4 | 85.1 | 82.2 | 84.0 | 83.3 |

Note. Data for output are percentages of 1977 output as shown in the Federal Reserve's seasonally adjusted indexes of industrial production. Capacity is also expressed as a percentage of

1977 actual output. Capacity utilization percentages are calculated as ratios of production to capacity.

INDUSTRIAL MATERIALS

Table 3

Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

| Series | 1973 | 1975 | 1978 | 1982 | 1987 | 1987 | 1988 | | | | | | | | | |
|--|-------|------|------|------|------|------|-------|-------|------|------|------|------|------|-------|------|--|
| | High | Low | -80 | Low | -87 | AUG | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | |
| | | | High | | Avg. | | | | | | | | | | | |
| Industrial Materials | 92.0 | 70.5 | 89.1 | 68.5 | 82.2 | 81.1 | 83.6 | 83.0 | 82.3 | 82.4 | 82.9 | 83.0 | 83.2 | 84.4 | 84.5 | |
| Durable goods materials | 91.8 | 64.4 | 89.8 | 60.9 | 79.0 | 76.6 | 80.0 | 79.7 | 79.3 | 79.1 | 79.7 | 80.8 | 80.7 | 81.7 | 81.8 | |
| Metal materials | 99.2 | 67.1 | 93.6 | 45.7 | 77.7 | 77.5 | 86.3 | 80.1 | 79.3 | 78.3 | 79.3 | 82.1 | 80.8 | 84.2 | 85.5 | |
| Raw steel | 106.0 | 66.4 | 98.9 | 36.1 | 80.2 | 86.5 | 89.2 | 90.3 | 85.7 | 86.5 | 83.4 | 89.7 | 87.6 | 95.1 | | |
| Aluminum | 95.7 | 73.0 | 97.4 | 58.8 | 87.3 | 88.6 | 95.8 | 97.1 | 97.9 | 99.2 | 99.5 | 98.8 | 99.5 | 100.8 | | |
| Nondurable goods materials | 91.1 | 66.7 | 88.1 | 70.7 | 83.4 | 88.6 | 90.8 | 88.8 | 87.3 | 88.3 | 88.7 | 87.7 | 87.6 | 89.0 | 88.6 | |
| Textile, paper, and chemical materials | 92.8 | 64.8 | 89.4 | 68.8 | 83.8 | 90.5 | 93.1 | 90.8 | 88.5 | 89.9 | 90.1 | 88.8 | 88.9 | 90.3 | 89.7 | |
| Pulp and paper materials | 98.4 | 70.6 | 97.3 | 79.9 | 91.7 | 99.9 | 101.6 | 100.6 | 97.8 | 97.8 | 98.1 | 98.1 | 97.2 | 98.7 | | |
| Chemical materials | 92.5 | 64.4 | 87.9 | 63.5 | 81.0 | 86.4 | 90.9 | 87.8 | 85.7 | 87.5 | 88.0 | 86.9 | 87.0 | 88.6 | | |
| Energy materials | 94.6 | 86.9 | 94.0 | 82.3 | 89.0 | 84.0 | 84.8 | 84.7 | 84.1 | 84.1 | 84.5 | 83.3 | 84.4 | 86.2 | 86.9 | |

Table 4

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

| Series | OUTPUT | | | | | CAPACITY | | | | | UTILIZATION | | | | |
|---------------------------------------|--------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------------|------|------|------|------|
| | 1987 | 1987 | 1987 | 1988 | 1988 | 1987 | 1987 | 1987 | 1988 | 1988 | 1987 | 1987 | 1987 | 1988 | 1988 |
| | Q2 | Q3 | Q4 | Q1 | Q2 | Q2 | Q3 | Q4 | Q1 | Q2 | Q2 | Q3 | Q4 | Q1 | Q2 |
| Industrial Materials | 116.5 | 119.2 | 122.5 | 122.5 | 124.0 | 146.7 | 147.2 | 147.8 | 148.5 | 149.3 | 79.4 | 81.0 | 82.9 | 82.5 | 83.0 |
| Durable goods materials | 122.9 | 125.7 | 130.3 | 131.5 | 134.2 | 163.1 | 163.9 | 164.7 | 165.7 | 166.8 | 75.4 | 76.7 | 79.1 | 79.4 | 80.4 |
| Metal materials | 77.0 | 83.8 | 91.4 | 86.2 | 88.1 | 110.8 | 109.4 | 108.9 | 108.8 | 109.1 | 70.0 | 76.5 | 84.0 | 79.2 | 80.8 |
| Raw steel | 67.8 | 77.0 | 79.5 | 77.7 | 77.1 | 92.2 | 90.8 | 89.4 | 88.7 | 88.7 | 73.6 | 84.8 | 88.9 | 87.5 | 86.9 |
| Aluminum | 77.8 | 83.6 | 88.4 | 92.5 | 94.8 | 94.9 | 94.4 | 93.9 | 94.3 | 95.5 | 81.9 | 88.6 | 94.1 | 98.1 | 99.2 |
| Nondurable goods materials | 124.0 | 128.2 | 130.1 | 129.4 | 130.5 | 143.8 | 144.7 | 145.6 | 146.8 | 148.3 | 86.2 | 88.6 | 89.3 | 88.1 | 88.0 |
| Textile, paper and chemical materials | 125.1 | 130.5 | 133.0 | 131.6 | 132.6 | 143.4 | 144.4 | 145.4 | 146.7 | 148.5 | 87.2 | 90.4 | 91.5 | 89.7 | 89.3 |
| Pulp and paper materials | 137.7 | 144.6 | 145.1 | 145.7 | 145.9 | 143.9 | 145.1 | 146.2 | 147.6 | 149.2 | 95.7 | 99.6 | 99.2 | 98.7 | 97.8 |
| Chemical materials | 125.3 | 130.2 | 135.5 | 133.5 | 135.7 | 149.8 | 150.9 | 152.0 | 153.5 | 155.4 | 83.6 | 86.3 | 89.1 | 87.0 | 87.3 |
| Energy materials | 98.7 | 100.0 | 102.1 | 100.9 | 100.4 | 120.2 | 120.1 | 119.9 | 119.7 | 119.4 | 82.1 | 83.3 | 85.2 | 84.3 | 84.1 |

Explanatory Notes

Definition. This release contains estimates of output, capacity, and capacity utilization for the nation's factories, mines, and electric and gas utilities. Output data are the Federal Reserve's seasonally adjusted indexes of industrial production, which express output as percentages of 1977 output. The capacity estimates are expressed as percentages of 1977 output as well. Capacity utilization percentages are calculated as ratios of production to capacity. The capacity indexes are based on a variety of data, including capacity data in physical units compiled by trade associations, private and government surveys of capacity growth and utilization rates, and estimates of capital stock growth. The concept of practical capacity is applied, which is defined as the greatest level of output that a plant can maintain within the framework of a realistic work pattern, taking account of normal downtime, and assuming sufficient availability of inputs to operate machinery and equipment in place. When the capacity indexes for individual industries are aggregated—for example to total manufacturing—no explicit account is taken of possible general equilibrium constraints such as emerging industry bottlenecks. Because of the large and heterogeneous database, changes in utilization rates may be more meaningful in the analysis of business conditions than any particular level of these rates.

Groupings. Estimates of capacity and industrial production for manufacturing industries are aggregated to primary processing and advanced processing industries, to durable and nondurable manufacturing industries, and to total manufacturing. The mining, manufacturing, and utilities estimates aggregate to the total index. Primary processing includes textile mill products, paper and products, industrial chemicals, petroleum products, rubber and plastics products, lumber and products, primary metals, fabricated metal products, and stone, clay, and glass products. Advanced processing includes foods, tobacco products, apparel products, printing and publishing, chemical products such as drugs and toiletries, leather and products, furniture and fixtures, machinery, transportation equipment, instruments, miscellaneous manufactures, and government-owned-and-operated ordnance facilities. Industrial materials are items produced and used as inputs by manufacturing plants, mines, and utilities. Industrial materials include many of the items included in the primary processing grouping of manufacturing, as well as some of the output of the advanced processing industries, mines, and utilities—such as iron ore, crude oil, semiconductors, and electricity sold to industry.

Perspective. The historical highs and lows in capacity utilization shown in the tables above are specific to each series and did not all occur in the same month. Industrial plants usually operate at capacity utilization rates that are well below 100 percent; none of the broad aggregate has ever reached 100 percent. For mining, manufacturing, and utilities as a whole, and for total manufacturing, utilization rates as high as 90 percent have been exceeded only in wartime.

Revisions. The first estimates for a month are published about the 17th of the following month. These estimates may revise in each of the next three months as new data become available. After the fourth month no further revisions are undertaken until an annual or benchmark revision. The median of the revisions in the total manufacturing utilization rate between the first and fourth estimate is 0.3 of a percentage point; that is, in about half of the cases, the absolute value of the revision from the first to the fourth estimate is less than 0.3 of a percentage point.

Sources. The basic methodology used to estimate the series is discussed in Richard D. Rad, "Revised Federal Reserve Rates of Capacity Utilization," *Federal Reserve Bulletin*, Vol. 71 (October 1985), pp. 754-66. Revised data for 1984-85 as well as historical utilization rate since 1967 (1948 in the case of manufacturing) are included in the statistical supplement to the September 1986 capacity utilization release. Copies may be obtained from Publications Services, Board of Governors of the Federal Reserve System, Washington, D.C. 20551.

Rounding. Utilization rates are calculated from unrounded capacity and production indexes. Aggregates are derived from unrounded detailed components.

Release schedule for 1988. Approximately 11 a.m. on January 19, February 18, March 17, April 17, May 18, June 16, July 18, August 16, September 15, October 17, November 16, and December 16.