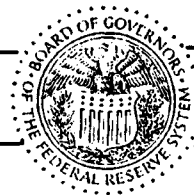


# FEDERAL RESERVE statistical release



G.3 (402)

For release at 9:15 a.m. (EST)  
December 15, 1989

## CAPACITY UTILIZATION Manufacturing, Mining, Utilities, and Industrial Materials

Capacity utilization in manufacturing, mining, and utilities edged down 0.1 percentage point in November to 82.7 percent, its lowest rate since April 1988. The operating rates for both manufacturing and utilities decreased slightly in November while the rate for mining rose for the fifth consecutive month. The uptrend in mining utilization since the spring reflects the return to work of striking coal miners and, more recently, steady output for oil and gas extraction despite declining capacity. Utilization for manufacturing, at 82.7 percent in November, remained well below its September level as a major strike in the aircraft industry lasted throughout most of November.

Within manufacturing, the operating rate for advanced processing industries held steady at 81.4 percent, and the rate for primary processing fell 0.3 percentage point to 85.5 percent. Although the operating rate for advanced processing as a whole was unchanged, the rates for several of its components changed markedly. Utilization for nonelectrical machinery rebounded in November after output in October had been disrupted by the California earthquake. The operating rate for aerospace and miscellaneous transportation equipment also recovered somewhat as a result of the settlement of a strike late in the month. A further slowdown at auto assembly facilities and auto parts manufacturers during November reduced utilization for the motor vehicles and parts industry, despite an increase in truck production. The operating rate for auto assemblies has been below 70 percent for most of the summer and autumn. The lower rate for primary processing resulted from drops in utilization for both primary metals, which has been affected by the slowdown in auto production, and petroleum products. The operating rate for primary metals fell for the third consecutive month to 82.1 percent. Utilization for primary metals has trended down since October 1988, when it reached a peak of 91.9 percent after climbing more than 20 percentage points since the middle of 1986.

Utilization at producers of industrial materials declined 0.3 percentage point in November to 82.9 percent, with the decreases broadly based. The operating rate at producers of metal materials has fallen since August, with declines especially large at aluminum producers, where utilization had averaged near 100 percent for more than a year.

### Capacity Utilization: Summary

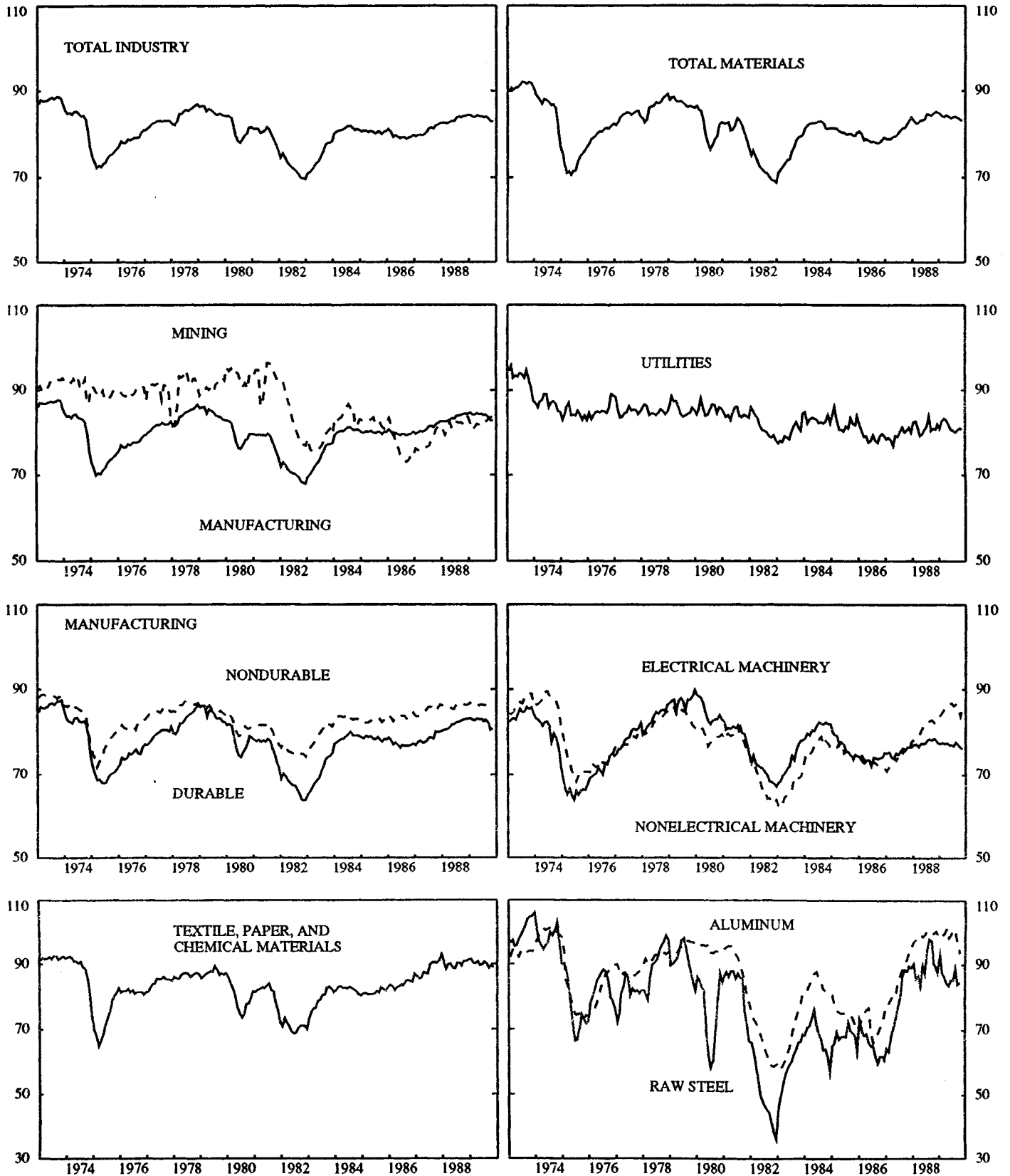
*Percent of capacity, seasonally adjusted*

Series	1973 High	1975 Low	1978 —80 High	1982 Low	1987 —88 Ave.	1989 Aug	Sep	Oct	Nov
Total industry	88.6	72.1	86.9	69.5	81.6	83.9	83.4	82.8	82.7
Manufacturing	87.7	69.9	86.5	68.0	80.7	84.2	83.7	82.8	82.7
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	82.8	82.1	80.4	80.7
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.6	86.2	85.9	86.1	85.6
Mining	92.8	87.8	95.2	76.9	86.5	82.4	83.1	83.5	83.8
Utilities	95.6	82.9	88.5	78.0	86.7	80.0	80.6	81.1	80.9
Materials	92.0	70.5	89.1	68.5	82.3	83.9	83.5	83.2	82.9

# CAPACITY UTILIZATION

SEASONALLY ADJUSTED, PERCENT

NOVEMBER DATA



# MANUFACTURING, MINING AND UTILITIES

Table 1

## Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973	1975	1978	1982	1967	1988	1989								
	High	Low	-80 High	Low	-88 Ave.	Nov	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Total industry	88.6	72.1	86.9	69.5	81.6	84.1	83.8	84.2	84.0	84.0	83.7	83.9	83.4	82.8	82.7
Manufacturing	87.7	69.9	86.5	68.0	80.7	84.4	84.1	84.5	84.3	84.4	84.0	84.2	83.7	82.8	82.7
Primary processing	91.9	68.3	89.1	65.0	82.0	88.1	86.4	86.8	86.2	86.2	86.7	86.6	86.0	85.8	85.5
Advanced processing	86.0	71.1	85.1	69.5	80.2	82.6	83.0	83.5	83.4	83.5	82.9	83.2	82.8	81.4	81.4
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	83.0	82.6	83.0	82.9	82.9	82.4	82.8	82.1	80.4	80.7
Stone, clay & glass prod.	89.3	67.1	86.6	62.9	78.5	83.5	83.6	82.9	82.3	82.2	81.5	82.0	81.1	81.5	
Primary metals	101.9	67.0	97.1	45.8	79.9	90.4	85.6	87.1	84.1	84.0	85.6	86.5	85.3	84.5	82.1
Iron and steel	105.8	66.6	100.3	37.6	79.0	90.2	84.1	85.1	80.8	80.2	82.8	83.2	82.4	82.6	
Nonferrous metals	95.6	62.1	91.1	60.8	81.5	90.7	87.5	89.7	88.6	89.1	89.4	91.0	89.2	87.0	
Fabricated metal products	85.0	64.7	87.4	61.3	78.0	84.8	83.4	82.8	83.7	83.7	83.7	83.5	82.8	82.0	82.0
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.2	82.8	85.5	86.0	86.6	86.8	86.2	86.5	85.8	83.9	85.5
Electrical machinery	85.7	63.7	89.9	66.9	78.1	78.0	77.3	77.4	77.1	77.1	76.7	77.6	77.1	76.4	76.1
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.2	85.5	83.2	84.2	82.5	80.1	75.9	78.4	77.2	75.4	74.9
Autos			93.3	36.6		76.7	72.2	75.2	73.1	69.6	61.8	65.8	70.7	69.8	64.3
Aerosp. & misc. transp. eq.	77.0	69.6	87.1	70.7	78.1	85.6	86.2	86.9	87.3	87.8	88.3	87.8	86.9	77.7	79.1
Instruments	89.2	74.9	88.9	77.8	82.9	83.6	83.1	83.4	83.7	84.1	83.9	82.7	81.7	81.5	81.1
Other durables	87.7	69.0	81.0	69.1	81.6	81.7	79.8	80.7	81.2	81.9	81.7	81.5	81.2	81.1	80.9
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.6	86.4	86.3	86.5	86.2	86.4	86.3	86.2	85.9	86.1	85.6
Foods	85.8	77.6	85.1	76.5	82.1	81.1	80.1	80.6	80.7	80.9	80.4	80.7	80.8	81.2	
Textile mill products	92.1	58.9	88.3	70.6	85.2	88.9	90.1	92.0	92.8	92.8	92.5	92.1	92.0	91.2	
Paper and products	95.6	67.7	92.7	80.2	88.8	93.7	93.2	92.2	91.6	91.3	92.4	92.3	92.4	92.5	
Chemicals and products	88.6	69.2	82.9	67.6	79.3	89.1	88.7	88.3	87.3	87.9	88.8	86.0	86.6	87.4	
Petroleum products	99.6	83.7	91.7	68.8	86.9	84.9	86.5	86.7	86.3	87.2	87.4	86.9	87.3	88.6	87.8
Rubber & plastics prod.	97.5	59.5	89.4	71.2	85.0	87.6	85.4	85.8	86.6	87.0	86.6	86.8	86.5	86.2	
Other nondurables	86.4	72.3	92.4	78.9	86.0	85.7	87.1	87.8	86.9	87.0	86.1	85.9	86.3	85.7	85.2
Mining	92.8	87.8	95.2	76.9	86.5	83.3	81.2	82.0	81.8	81.5	82.1	82.4	83.1	83.5	83.8
Utilities	95.6	82.9	88.5	78.0	86.7	80.8	83.3	82.9	81.8	80.8	80.5	80.0	80.6	81.1	80.9
Electric utilities	98.7	83.0	87.6	78.2	87.9	84.0	86.9	86.8	85.8	84.9	85.0	84.4	85.0	85.4	85.1

Table 2

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	Output					Capacity					Utilization				
	1988 QIII	1988 QIV	1989 QI	1989 QII	1989 QIII	1988 QIII	1988 QIV	1989 QI	1989 QII	1989 QIII	1988 QIII	1988 QIV	1989 QI	1989 QII	1989 QIII
Total industry	138.4	139.9	140.7	141.8	142.2	165.2	166.3	167.5	168.7	169.9	83.8	84.1	84.0	84.1	83.7
Manufacturing	144.0	145.8	147.0	148.3	148.8	171.5	172.8	174.3	175.7	177.2	84.0	84.4	84.4	84.4	84.0
Primary processing	125.9	127.7	127.8	127.6	128.9	143.9	145.2	146.5	147.8	149.1	87.5	87.9	87.3	86.4	86.4
Advanced processing	154.9	156.7	158.6	160.8	161.1	188.1	189.5	191.0	192.6	194.2	82.4	82.7	83.0	83.5	83.0
Durable manufacturing	143.3	145.2	146.0	147.1	147.2	174.0	175.0	176.1	177.4	178.6	82.4	82.9	82.9	83.0	82.4
Stone, clay & glass prod.	122.5	124.4	125.8	124.2	123.1	148.9	149.4	150.0	150.5	151.1	82.2	83.2	83.9	82.5	81.5
Primary metals	91.8	92.3	90.9	88.2	89.6	102.3	102.6	103.1	103.7	104.3	89.7	90.0	88.2	85.1	85.8
Iron and steel	80.2	80.5	79.1	74.4	75.6	89.5	89.6	90.0	90.6	91.3	89.6	89.8	87.9	82.0	82.8
Nonferrous metals	113.7	114.5	113.2	114.4	116.0	126.4	127.1	127.7	128.4	129.0	89.9	90.1	88.6	89.1	89.9
Fabricated metal products	122.1	124.1	124.3	124.4	125.2	145.7	146.9	148.0	149.1	150.2	83.9	84.5	83.9	83.4	83.3
Nonelectrical machinery	174.0	175.7	180.8	186.2	187.1	210.6	211.9	213.5	215.4	217.2	82.6	82.9	84.7	86.5	86.1
Electrical machinery	181.8	182.0	181.4	181.9	182.6	232.5	233.5	234.5	235.6	236.7	78.2	78.0	77.3	77.2	77.1
Motor vehicles and parts	117.5	123.4	122.9	119.3	112.4	143.3	143.8	144.4	145.0	145.7	82.0	85.8	85.1	82.3	77.2
Autos	108.2	116.9	110.6	108.9	99.0	150.1	150.2	150.2	150.0	149.8	72.1	77.8	73.6	72.6	66.1
Aerosp. & misc. transp. eq.	152.0	152.3	153.7	157.1	158.8	176.4	177.5	178.6	179.9	181.1	86.2	85.8	86.0	87.3	87.7
Instruments	157.0	159.8	161.4	164.3	164.3	190.1	191.8	193.9	196.2	198.5	82.6	83.3	83.2	83.7	82.8
Other durables	137.6	139.9	138.5	141.3	142.6	169.9	171.2	172.5	173.8	175.1	81.0	81.7	80.3	81.3	81.5
Nondurable manufacturing	145.0	146.7	148.4	149.9	151.0	168.0	169.8	171.6	173.5	175.3	86.3	86.4	86.5	86.4	86.1
Foods	143.3	145.2	146.1	147.2	148.1	178.2	179.6	181.0	182.4	183.7	80.4	80.8	80.7	80.7	80.6
Textile mill products	116.6	117.4	119.8	123.3	123.3	130.4	131.8	132.7	133.2	133.7	89.4	89.1	90.2	92.5	92.2
Paper and products	151.4	151.4	152.4	150.3	152.9	159.2	160.7	162.3	163.9	165.5	95.1	94.2	93.9	91.7	92.4
Chemicals and products	154.5	157.4	158.9	159.1	161.1	174.9	176.7	178.8	181.1	183.5	88.5	89.1	88.9	87.9	87.8
Petroleum products	94.9	96.4	97.1	97.4	98.1	111.6	111.9	112.1	112.3	112.5	85.0	86.2	86.6	86.7	87.2
Rubber & plastics prod.	175.3	177.3	175.8	180.3	183.2	199.7	202.6	205.5	208.5	211.5	87.8	87.5	85.5	86.5	86.6
Other nondurables	147.2	148.3	152.3	155.3	155.3	170.9	173.3	175.7	178.1	180.4	86.1	85.6	86.7	87.2	86.1
Mining	103.9	104.2	101.8	102.0	102.6	126.3	125.7	125.1	124.7	124.3	82.3	82.9	81.3	81.8	82.5
Utilities	115.1	114.3	116.0	115.7	113.9	140.4	140.7	141.0	141.4	141.7	81.9	81.3	82.3	81.8	80.4
Electric utilities	135.2	132.4	134.4	135.8	134.8	156.1	156.7	157.4	158.2	159.0	86.6	84.5	85.4	85.9	84.8

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	1967	1988	1989								
	High	Low	High	Low	-88 Ave.	Nov	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Materials	92.0	70.5	89.1	68.5	82.3	85.1	83.7	84.2	83.8	83.6	83.7	83.9	83.5	83.2	82.9
Durable goods materials	91.8	64.4	89.8	60.9	79.1	82.7	80.9	81.3	81.0	81.1	81.3	81.7	81.2	80.1	79.7
Metal materials	99.2	67.1	93.6	45.7	77.9	86.9	81.5	83.6	79.8	80.6	82.3	82.7	81.9	81.4	79.1
Raw steel	106.0	66.4	98.9	36.1	80.7	89.3	86.3	84.4	83.7	85.4	85.4	89.0	84.0	84.6	
Aluminum	95.7	73.0	97.4	58.8	87.8	100.5	99.7	101.5	98.4	99.6	101.2	99.9	96.4	93.5	
Nondurable goods materials	91.1	66.7	88.1	70.7	83.6	89.4	88.8	89.2	88.7	88.7	89.2	88.8	87.5	88.3	87.9
Textile, paper, & chem. mat.	92.8	64.8	89.4	68.8	84.1	90.9	90.2	90.7	89.6	89.8	90.6	90.1	88.8	89.6	89.0
Pulp & paper materials	98.4	70.6	97.3	79.9	92.0	96.7	95.3	94.5	93.2	93.7	95.0	95.1	95.2	95.4	
Chemical materials	92.5	64.4	87.9	63.5	81.3	90.5	89.7	90.1	88.4	88.5	89.5	88.6	86.7	87.9	
Energy materials	94.6	86.9	94.0	82.3	88.9	86.2	85.4	86.0	85.5	83.8	83.9	84.3	85.1	85.5	85.3

Table 4

### Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	Output					Capacity					Utilization				
	1988 QIII	1988 QIV	1989 QI	1989 QII	1989 QIII	1988 QIII	1988 QIV	1989 QI	1989 QII	1989 QIII	1988 QIII	1988 QIV	1989 QI	1989 QII	1989 QIII
Materials	126.5	128.0	127.6	127.9	128.5	150.1	150.8	151.7	152.6	153.5	84.3	84.9	84.1	83.9	83.7
Durable goods materials	137.1	139.2	138.6	139.0	140.4	167.9	169.0	170.1	171.3	172.5	81.6	82.4	81.5	81.1	81.4
Metal materials	92.7	94.8	92.3	90.0	91.4	109.5	109.8	110.2	110.6	111.0	84.8	86.3	83.8	81.4	82.3
Raw steel	85.9	79.5	79.8	76.2	78.2	88.9	89.2	89.6	90.2	90.8	96.8	89.1	89.0	84.5	86.1
Aluminum	97.2	97.8	98.5	99.1	98.9	96.7	97.9	98.7	99.2	99.7	100.5	99.9	99.7	99.8	99.2
Nondurable goods materials	132.8	135.4	136.3	137.1	137.9	149.8	151.2	152.7	154.2	155.8	88.6	89.5	89.3	88.9	88.5
Textile, paper, & chem. mat.	135.3	138.1	139.2	139.8	141.1	150.2	151.8	153.5	155.3	157.0	90.0	91.0	90.7	90.0	89.9
Pulp & paper materials	148.9	148.6	148.4	146.1	149.9	150.7	152.3	154.0	155.8	157.6	98.8	97.6	96.4	93.8	95.1
Chemical materials	139.4	144.1	145.4	145.7	146.5	157.4	159.3	161.4	163.7	165.9	88.6	90.5	90.1	89.0	88.3
Energy materials	102.5	102.0	100.7	100.7	99.7	119.0	118.7	118.4	118.3	118.1	86.0	86.0	85.0	85.1	84.4

#### 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 are aggregated to primary 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 aggregates 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 16th 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 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. Raddock, "Revised Federal Reserve Rates of Capacity Utilization," *Federal Reserve Bulletin* Vol. 71 (October 1985), pp. 754-66. Historical utilization rates since 1967 (1948 in the case of manufacturing) are included in the statistical supplement to the October 1987 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 1990.** At 9:15 a.m. on January 17, February 16, March 16, April 17, May 15, June 15, July 17, August 16, September 14, October 17, November 14, and December 14.