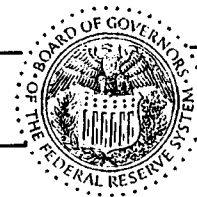


FEDERAL RESERVE statistical release



G.3 (402)

For release at 9:15 a.m. (EDT)
September 15, 1989

CAPACITY UTILIZATION

Manufacturing, Mining, Utilities, and Industrial Materials

Capacity utilization in manufacturing, mining, and utilities was unchanged in August at 83.8 percent. The operating rate for mining jumped 2.0 percentage points in August as a result of a rebound in coal mining, but the increase was partially offset by a weather-related decline in the operating rate for utilities. Utilization for manufacturing edged down in August; although production increased substantially at auto and truck assembly facilities, output elsewhere in manufacturing was about flat.

Within manufacturing, the operating rate for advanced processing industries was unchanged while utilization for primary processing decreased 0.2 percentage point. After having risen steadily from early 1987 into the spring of this year, the operating rate for advanced processing has not increased since April. The major drag on advanced processing this summer has been the automobile industry, where utilization at assembly facilities fell from 75.2 percent in April to 61.8 percent in July. While the operating rate for motor vehicles partially rebounded in August, growth for most other advanced processing industries was lackluster. Utilization in nonelectrical machinery decreased again in August after having peaked in May and June. The operating rate for aerospace and miscellaneous transportation equipment pulled back after exceeding 89 percent in July. Utilization for primary processing industries declined slightly in August to a rate about one-half percentage point below its level of a year ago; it has fluctuated between 86 and 87 percent since February.

Utilization at producers of industrial materials increased 0.2 percentage point in August to 84.0 percent. The increase principally reflects the rise for energy materials resulting from the return to work of most of the striking coal miners. Utilization at producers of nondurable goods materials fell back in August, continuing its erratic pattern since the start of the year.

Capacity Utilization: Summary

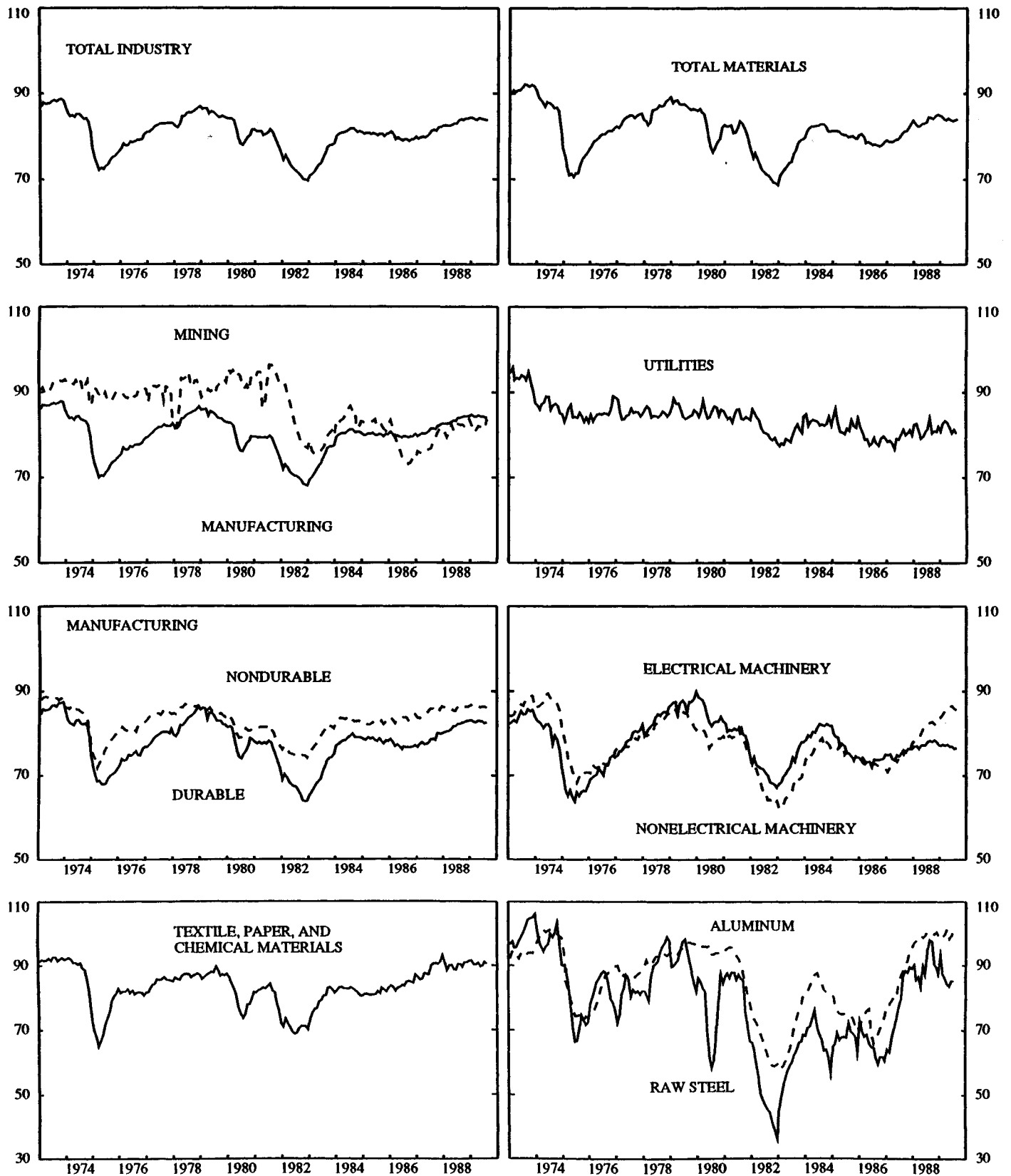
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 —80 High	1982 Low	1967 —88 Ave.	1989 May	Jun	Jul	Aug
Total industry	88.6	72.1	86.9	69.5	81.6	84.0	83.9	83.8	83.8
Manufacturing	87.7	69.9	86.5	68.0	80.7	84.3	84.3	84.1	84.0
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	82.9	82.9	82.4	82.6
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.6	86.2	86.4	86.4	86.1
Mining	92.8	87.8	95.2	76.9	86.5	81.8	81.2	81.6	83.6
Utilities	95.6	82.9	88.5	78.0	86.7	81.8	80.6	81.3	80.4
Materials	92.0	70.5	89.1	68.5	82.3	83.8	83.5	83.8	84.0

CAPACITY UTILIZATION

SEASONALLY ADJUSTED, PERCENT

AUGUST DATA



MANUFACTURING, MINING AND UTILITIES

Table 1

Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1967 -88 Ave.	1988 Aug	1988 Dec	1989 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Total industry	88.6	72.1	86.9	69.5	81.6	83.8	84.3	84.3	83.9	83.8	84.2	84.0	83.9	83.8	83.8
Manufacturing	87.7	69.9	86.5	68.0	80.7	84.0	84.4	84.7	84.3	84.1	84.5	84.3	84.3	84.1	84.0
Primary processing	91.9	68.3	89.1	65.0	82.0	87.4	87.9	88.4	87.0	86.4	86.8	86.2	86.2	87.0	86.8
Advanced processing	86.0	71.1	85.1	69.5	80.2	82.4	82.8	83.1	83.0	83.0	83.5	83.4	83.4	82.8	82.8
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	82.3	83.1	83.2	82.9	82.6	83.0	82.9	82.9	82.4	82.6
Stone, clay & glass prod.	89.3	67.1	86.6	62.9	78.5	82.3	83.6	84.5	83.6	83.6	82.9	82.3	82.4	82.0	
Primary metals	101.9	67.0	97.1	45.8	79.9	88.8	87.6	90.6	88.4	85.6	87.1	84.1	84.0	85.6	85.8
Iron and steel	105.8	66.6	100.3	37.6	79.0	88.2	86.5	91.6	87.9	84.1	85.1	80.8	80.2	82.0	
Nonferrous metals	95.6	62.1	91.1	60.8	81.5	89.6	89.1	89.3	89.0	87.5	89.7	88.6	89.0	90.3	
Fabricated metal products	85.0	64.7	87.4	61.3	78.0	84.0	84.9	84.3	84.1	83.4	82.8	83.7	83.8	84.1	84.1
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.2	82.7	83.7	83.9	84.7	85.5	86.0	86.6	86.6	85.9	85.6
Electrical machinery	85.7	63.7	89.9	66.9	78.1	78.4	77.3	77.3	77.5	77.3	77.4	77.1	77.1	76.5	76.7
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.2	82.0	87.2	86.6	85.4	83.2	84.2	82.5	80.2	75.8	78.4
Autos			93.3	36.6		70.7	79.8	75.7	72.9	72.2	75.2	73.1	69.6	61.8	65.8
Aerosp. & misc. transp. eq.	77.0	69.6	87.1	70.7	78.1	85.8	85.6	85.7	86.2	86.2	86.9	87.3	87.8	89.3	88.4
Instruments	89.2	74.9	88.9	77.8	82.9	82.5	82.7	83.4	83.2	83.1	83.4	83.7	84.0	84.3	84.1
Other durables	87.7	69.0	81.0	69.1	81.6	80.9	82.4	81.7	79.4	79.8	80.7	81.2	81.7	81.5	81.2
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.6	86.4	86.3	86.8	86.3	86.3	86.5	86.2	86.4	86.4	86.1
Foods	85.8	77.6	85.1	76.5	82.1	80.4	81.0	81.2	80.8	80.1	80.6	80.7	80.8	80.5	
Textile mill products	92.1	58.9	88.3	70.6	85.2	89.3	89.1	90.7	89.9	90.1	92.0	92.8	93.3	94.2	
Paper and products	95.6	67.7	92.7	80.2	88.8	94.8	94.1	95.1	93.5	93.2	92.2	91.6	90.9	91.8	
Chemicals and products	88.6	69.2	82.9	67.6	79.3	88.6	89.2	89.3	88.7	88.7	88.3	87.3	87.6	87.7	
Petroleum products	99.6	83.7	91.7	68.8	86.9	86.0	87.5	87.5	85.9	86.5	86.7	86.3	87.1	88.0	87.1
Rubber & plastics prod.	97.5	59.5	89.4	71.2	85.0	87.8	87.2	86.0	85.2	85.4	85.8	86.6	87.1	87.3	
Other nondurables	86.4	72.3	92.4	78.9	86.0	86.1	85.1	86.5	86.6	87.1	87.8	86.9	87.1	86.6	86.6
Mining	92.8	87.8	95.2	76.9	86.5	82.2	83.6	82.2	80.6	81.2	82.0	81.8	81.2	81.6	83.6
Utilities	95.6	82.9	88.5	78.0	86.7	83.9	82.0	80.9	82.6	83.3	82.9	81.8	80.6	81.3	80.4
Electric utilities	98.7	83.0	87.6	78.2	87.9	88.9	84.7	83.4	86.0	86.9	86.8	85.8	84.6	85.6	84.5

Table 2

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	Output					Capacity					Utilization				
	1988 QII	QIII	QIV	1989 QI	QII	1988 QII	QIII	QIV	1989 QI	QII	1988 QII	QIII	QIV	1989 QI	QII
Total industry	136.0	138.4	139.9	140.7	141.8	164.2	165.2	166.3	167.5	168.7	82.8	83.8	84.1	84.0	84.0
Manufacturing	141.5	144.0	145.8	147.0	148.2	170.2	171.5	172.8	174.3	175.7	83.2	84.0	84.4	84.4	84.4
Primary processing	123.9	125.9	127.7	127.8	127.7	142.7	143.9	145.2	146.5	147.8	86.8	87.5	87.9	87.3	86.4
Advanced processing	152.3	154.9	156.7	158.6	160.7	186.7	188.1	189.5	191.0	192.6	81.5	82.4	82.7	83.0	83.4
Durable manufacturing	141.0	143.3	145.2	146.0	147.1	173.0	174.0	175.0	176.1	177.4	81.5	82.4	82.9	82.9	83.0
Stone, clay & glass prod.	122.1	122.5	124.4	125.8	124.3	148.4	148.9	149.4	150.0	150.5	82.2	82.2	83.2	83.9	82.5
Primary metals	87.3	91.8	92.3	90.9	88.2	102.0	102.3	102.6	103.1	103.7	85.7	89.7	90.0	88.2	85.1
Iron and steel	75.8	80.2	80.5	79.1	74.4	89.3	89.5	89.6	90.0	90.6	84.8	89.6	89.8	87.9	82.1
Nonferrous metals	109.1	113.7	114.5	113.2	114.3	125.8	126.4	127.1	127.7	128.4	86.8	89.9	90.1	88.6	89.1
Fabricated metal products	119.7	122.1	124.1	124.3	124.4	144.6	145.7	146.9	148.0	149.1	82.7	83.9	84.5	83.9	83.4
Nonelectrical machinery	169.6	174.0	175.7	180.8	186.1	209.3	210.6	211.9	213.5	215.4	81.0	82.6	82.9	84.7	86.4
Electrical machinery	179.1	181.8	182.0	181.4	181.9	231.5	232.5	233.5	234.5	235.6	77.4	78.2	78.0	77.3	77.2
Motor vehicles and parts	117.9	117.5	123.4	122.9	119.4	142.8	143.3	143.8	144.4	145.0	82.5	82.0	85.8	85.1	82.3
Autos	109.9	108.2	116.9	110.6	108.9	149.9	150.1	150.2	150.2	150.0	73.3	72.1	77.8	73.6	72.6
Aerosp. & misc. transp. eq.	151.5	152.0	152.3	153.7	157.1	175.3	176.4	177.5	178.6	179.9	86.4	86.2	85.8	86.0	87.3
Instruments	151.6	157.0	159.8	161.4	164.3	188.3	190.1	191.8	193.9	196.2	80.5	82.6	83.3	83.2	83.7
Other durables	138.1	137.6	139.9	138.5	141.2	168.6	169.9	171.2	172.5	173.8	81.9	81.0	81.7	80.3	81.2
Nondurable manufacturing	142.3	145.0	146.7	148.4	149.8	166.3	168.0	169.8	171.6	173.5	85.6	86.3	86.4	86.5	86.4
Foods	140.9	143.3	145.2	146.1	147.2	176.8	178.2	179.6	181.0	182.4	79.7	80.4	80.8	80.7	80.7
Textile mill products	115.4	116.6	117.4	119.8	123.5	128.9	130.4	131.8	132.7	133.2	89.5	89.4	89.1	90.2	92.7
Paper and products	149.1	151.4	151.4	152.4	150.1	157.7	159.2	160.7	162.3	163.9	94.5	95.1	94.2	93.9	91.6
Chemicals and products	149.5	154.5	157.4	158.9	159.0	173.2	174.9	176.7	178.8	181.1	86.3	88.5	89.1	88.9	87.8
Petroleum products	95.9	94.9	96.4	97.1	97.3	111.4	111.6	111.9	112.1	112.3	86.1	85.0	86.2	86.6	86.7
Rubber & plastics prod.	173.4	175.3	177.3	175.8	180.3	196.8	199.7	202.6	205.5	208.5	88.1	87.8	87.5	85.5	86.5
Other nondurables	144.5	147.2	148.3	152.3	155.4	168.6	170.9	173.3	175.7	178.1	85.7	86.1	85.6	86.7	87.3
Mining	103.4	103.9	104.2	101.8	101.9	127.0	126.3	125.7	125.1	124.7	81.5	82.3	82.9	81.3	81.7
Utilities	111.9	115.1	114.3	116.0	115.6	140.1	140.4	140.7	141.0	141.4	79.9	81.9	81.3	82.3	81.8
Electric utilities	129.8	135.2	132.4	134.4	135.7	155.4	156.1	156.7	157.4	158.2	83.5	86.6	84.5	85.4	85.8

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 High	1975 Low	1978 —80 High	1982 Low	1967 —88 Ave.	1988 Aug	1988 Dec	1989 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Materials	92.0	70.5	89.1	68.5	82.3	84.3	84.9	84.6	84.0	83.7	84.2	83.8	83.5	83.8	84.0
Durable goods materials	91.8	64.4	89.8	60.9	79.1	81.4	82.1	82.1	81.5	80.9	81.3	81.0	81.1	81.3	81.2
Metal materials	99.2	67.1	93.6	45.7	77.9	83.4	84.6	86.1	83.8	81.5	83.6	79.8	80.7	81.6	81.9
Raw steel	106.0	66.4	98.9	36.1	80.7	98.0	87.6	93.3	87.6	86.3	84.4	83.7	85.4	85.4	
Aluminum	95.7	73.0	97.4	58.8	87.8	100.5	99.4	100.2	99.2	99.7	101.5	98.4	99.6	101.3	
Nondurable goods materials	91.1	66.7	88.1	70.7	83.6	88.8	89.8	90.1	89.0	88.8	89.2	88.7	88.8	89.5	88.9
Textile, paper, & chem. mat.	92.8	64.8	89.4	68.8	84.1	90.3	91.3	91.5	90.3	90.2	90.7	89.6	89.9	91.0	90.4
Pulp & paper materials	98.4	70.6	97.3	79.9	92.0	98.4	98.4	98.1	95.8	95.3	94.5	93.2	92.8	94.1	
Chemical materials	92.5	64.4	87.9	63.5	81.3	89.0	90.7	90.7	89.8	89.7	90.1	88.4	88.5	89.8	
Energy materials	94.6	86.9	94.0	82.3	88.9	86.6	86.5	84.9	84.9	85.4	86.0	85.5	83.7	83.8	85.4

Table 4

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	Output					Capacity					Utilization				
	1988 QII	QIII	QIV	1989 QI	QII	1988 QII	QIII	QIV	1989 QI	QII	1988 QII	QIII	QIV	1989 QI	QII
Materials	124.0	126.5	128.0	127.6	127.9	149.3	150.1	150.8	151.7	152.6	83.0	84.3	84.9	84.1	83.8
Durable goods materials	134.1	137.1	139.2	138.6	139.0	166.8	167.9	169.0	170.1	171.3	80.4	81.6	82.4	81.5	81.1
Metal materials	88.1	92.7	94.8	92.3	90.0	109.1	109.5	109.8	110.2	110.6	80.8	84.8	86.3	83.8	81.4
Raw steel	77.1	85.9	79.5	79.8	76.2	88.7	88.9	89.2	89.6	90.2	86.9	96.8	89.1	89.0	84.5
Aluminum	94.8	97.2	97.8	98.5	99.1	95.5	96.7	97.9	98.7	99.2	99.2	100.5	99.9	99.7	99.8
Nondurable goods materials	130.4	132.8	135.4	136.3	137.1	148.3	149.8	151.2	152.7	154.2	87.9	88.6	89.5	89.3	88.9
Textile, paper, & chem. mat.	132.4	135.3	138.1	139.2	139.8	148.5	150.2	151.8	153.5	155.3	89.2	90.0	91.0	90.7	90.0
Pulp & paper materials	145.9	148.9	148.6	148.4	145.7	149.2	150.7	152.3	154.0	155.8	97.8	98.8	97.6	96.4	93.5
Chemical materials	135.7	139.4	144.1	145.4	145.7	155.4	157.4	159.3	161.4	163.7	87.3	88.6	90.5	90.1	89.0
Energy materials	100.6	102.5	102.0	100.7	100.6	119.4	119.0	118.7	118.4	118.3	84.2	86.0	86.0	85.0	85.1

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 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 1989. At 9:15 a.m. on January 18, February 15, March 16, April 14, May 15, June 15, July 14, August 16, September 15, October 17, November 14, and December 15.