

# FEDERAL RESERVE statistical release



G.3 (402)

## CAPACITY UTILIZATION

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

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

April 14, 1989

Capacity utilization in manufacturing, mining, and utilities declined 0.2 percentage point in March to 84.0 percent. The decrease resulted from a widespread easing at manufacturers and utilities. Utilization for manufacturing fell 0.3 percentage point in March to 84.4 percent, about its average level during the fourth quarter. After having fallen the prior two months, the operating rate for mining rebounded somewhat in March, reflecting an upturn in coal production.

Within manufacturing, utilization for both advanced and primary processing industries declined 0.3 percentage point in March. Nevertheless, the operating rate for primary processing, still at 88.2 percent, remained slightly higher than its fourth-quarter average. Utilization rates in many primary processing industries, such as primary metals, fabricated metals products, and industrial chemicals, have shown little change or small declines in recent months after having risen to high levels during 1988. In contrast, the operating rate for textile mill products has rebounded in the last few months after having decreased throughout much of 1988. Within advanced processing, the utilization rate in the motor vehicle industry declined further in March, reflecting especially large declines in the production of trucks and buses. The operating rate for nonelectrical machinery held steady at 84.7 percent in March, nearly 2 percentage points above its level during the fourth quarter.

Utilization at producers of industrial materials edged down 0.1 percentage point in March to 84.2 percent. Increases in operating rates for energy and nondurables goods materials were more than offset by the decrease for durable goods materials, which reflected a drop in output of auto parts and other auto-related materials.

### Capacity Utilization: Summary

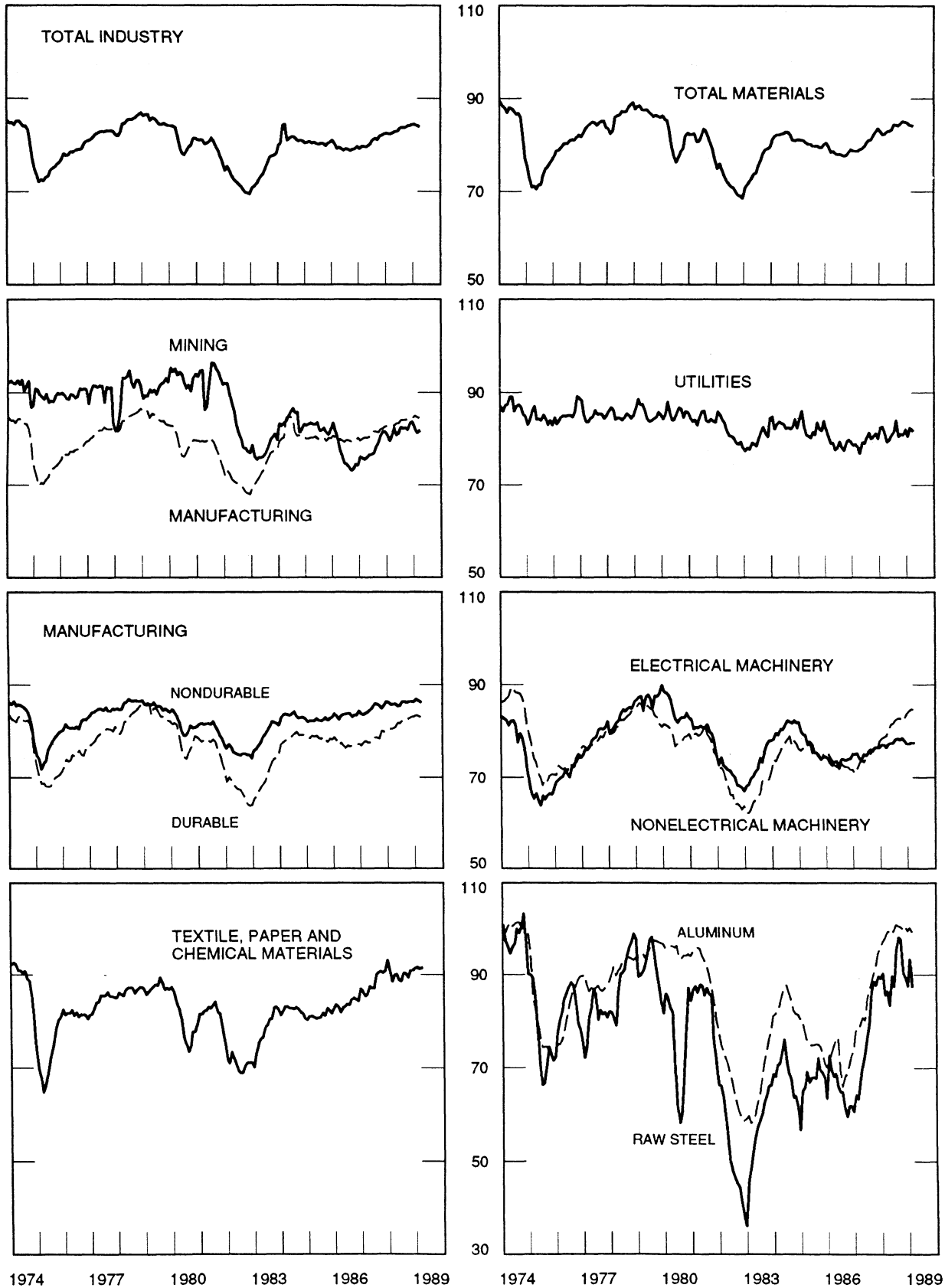
Percent of capacity, seasonally adjusted

Series	1973 high	1975 Low	1978 -80 high	1982 Low	1987 -88 Avg.	1988 1989			
						DEC	JAN	FEB	MAR
<b>Total Industry</b>	88.6	72.1	80.9	69.5	81.6	84.3	84.4	84.2	84.0
Manufacturing	87.7	69.9	80.5	68.0	80.7	84.4	84.9	84.7	84.4
Durable	87.4	67.9	80.3	63.7	78.8	83.1	83.4	83.3	83.0
Nondurable	88.3	71.8	87.0	74.2	83.6	86.3	86.9	86.6	86.3
Mining	92.8	87.8	95.2	78.9	86.5	83.6	82.3	81.2	81.0
Utilities	95.6	82.9	88.5	78.0	86.7	82.0	80.5	82.3	81.8
<b>Industrial Materials</b>	92.0	70.5	89.1	68.5	82.3	84.9	84.8	84.3	84.2

# CAPACITY UTILIZATION

MARCH DATA

SEASONALLY ADJUSTED, PERCENT



# MANUFACTURING, MINING AND UTILITIES

Table 1

## Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973	1975	1978	1982	1967	1988										
	High	Low	-80	Low	-88	Mar	1988							1989		
			High		Ave.		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Total index	88.6	72.1	86.9	69.5	81.6	82.4	83.7	83.8	83.7	84.0	84.1	84.3	84.4	84.2	84.0	
Manufacturing	87.7	69.9	86.5	68.0	80.7	82.7	84.0	84.0	84.0	84.3	84.4	84.4	84.9	84.7	84.4	
Primary processing	91.9	68.3	89.1	65.0	82.0	86.9	87.8	87.4	87.2	87.9	88.1	87.9	88.7	88.5	88.2	
Advanced processing	86.0	71.1	85.1	69.5	80.2	80.7	82.2	82.4	82.4	82.6	82.6	82.8	83.2	83.1	82.8	
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	80.6	82.3	82.3	82.5	82.8	83.0	83.1	83.4	83.3	83.0	
Stone, clay, glass & conc. prod.	89.3	67.1	86.6	62.9	78.5	82.7	82.1	82.3	82.2	82.6	83.5	83.6	84.6	84.7		
Primary metals	101.9	67.0	97.1	45.8	79.9	83.7	89.5	88.8	90.9	91.9	90.4	87.6	90.9	89.0	88.9	
Iron and steel	105.8	66.6	100.3	37.6	79.0	83.2	89.7	88.2	90.9	92.8	90.2	86.5	92.2	89.1		
Nonferrous metals	95.6	62.1	91.1	60.8	81.5	84.3	89.3	89.6	90.9	90.7	90.7	89.1	89.2	88.9		
Fabricated metal products	85.0	64.7	87.4	61.3	78.0	82.4	83.8	84.0	84.1	83.7	84.8	84.9	84.6	84.4	84.1	
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.2	79.0	82.4	82.7	82.8	82.2	82.8	83.7	84.3	84.7	84.7	
Electrical machinery	85.7	63.7	89.9	66.9	78.1	76.5	78.2	78.4	78.1	78.5	78.0	77.3	77.3	77.5	77.5	
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.2	79.3	81.5	82.0	82.6	84.7	85.5	87.2	86.6	85.4	82.4	
Autos			93.3	36.6		65.8	71.4	70.7	74.2	77.0	76.7	79.8	75.7	72.9	71.7	
Aerospace and misc. transp. eq	77.0	69.6	87.1	70.7	78.1	87.6	86.7	85.8	85.9	86.2	85.6	85.6	85.9	86.5	87.3	
Instruments	89.2	74.9	88.9	77.8	82.9	80.0	82.5	82.5	82.8	83.6	83.6	82.7	83.6	83.6	83.2	
Other durables	87.7	69.0	81.0	69.1	81.6	82.4	81.4	80.9	80.7	81.2	81.7	82.4	82.3	81.8	81.6	
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.6	85.8	86.4	86.4	86.2	86.4	86.4	86.3	86.9	86.6	86.3	
Foods	85.8	77.6	85.1	76.5	82.1	80.2	80.6	80.4	80.1	80.4	81.1	81.0	81.3	81.1		
Textile mill products	92.1	58.9	88.3	70.6	85.2	91.4	90.2	89.3	88.8	89.1	88.9	89.1	91.6	90.4		
Paper and products	95.6	67.7	92.7	80.2	88.8	95.1	95.9	94.8	94.5	94.7	93.7	94.1	95.1	93.8		
Chemicals and products	88.6	69.2	82.9	67.6	79.3	85.0	88.1	88.6	88.7	89.0	89.1	89.2	89.3	88.9		
Petroleum products	99.6	83.7	91.7	68.8	86.9	88.5	85.2	86.0	83.9	86.1	84.9	87.5	87.5	88.6	86.4	
Rubber and plastics products	97.5	59.5	89.4	71.2	85.0	88.4	88.3	87.8	87.3	87.7	87.6	87.2	86.5	85.5		
Other nondurables	86.4	72.3	92.4	78.9	86.0	86.2	85.8	86.1	86.3	86.0	85.7	85.1	86.3	86.4	86.1	
Mining	92.8	87.8	95.2	76.9	86.5	80.6	82.5	82.2	82.3	81.9	83.3	83.6	82.3	81.2	81.6	
Utilities	95.6	82.9	88.5	78.0	86.7	81.0	81.5	83.9	80.4	81.0	80.8	82.0	80.5	82.3	81.8	
Electric utilities	98.7	83.0	87.6	78.2	87.9	83.2	86.4	88.9	84.6	84.9	84.0	84.7	82.9	84.9	84.3	

Table 2

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	Output					Capacity					Utilization				
	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988
Total index	134.5	136.0	138.4	139.9	141.0	163.1	164.2	165.2	166.3	167.5	82.4	82.8	83.8	84.1	84.2
Manufacturing	139.6	141.5	144.0	145.8	147.5	168.9	170.2	171.5	172.8	174.3	82.7	83.2	84.0	84.4	84.6
Primary processing	123.0	123.9	125.9	127.7	128.8	141.6	142.7	143.9	145.2	146.5	86.9	86.8	87.5	87.9	88.5
Advanced processing	149.7	152.3	154.9	156.7	158.6	185.4	186.7	188.1	189.5	191.0	80.7	81.5	82.4	82.7	83.0
Durable manufacturing	138.4	141.0	143.3	145.2	146.7	172.0	173.0	174.0	175.0	176.1	80.4	81.5	82.4	82.9	83.3
Stone, clay, glass & conc. prod.	121.5	122.1	122.5	124.4		147.9	148.4	148.9	149.4		82.1	82.2	82.2	83.2	
Primary metals	86.0	87.3	91.8	92.3	92.4	101.6	102.0	102.3	102.6	103.1	84.7	85.7	89.7	90.0	89.6
Iron and steel	76.5	75.8	80.2	80.5		89.2	89.3	89.5	89.6		85.8	84.8	89.6	89.8	
Nonferrous metals	104.1	109.1	113.7	114.5		125.1	125.8	126.4	127.1		83.2	86.8	89.9	90.1	
Fabricated metal products	117.8	119.7	122.1	124.1	124.9	143.8	144.6	145.7	146.9	148.1	81.9	82.7	83.9	84.5	84.3
Nonelectrical machinery	163.7	169.6	174.0	175.7	180.5	208.0	209.3	210.6	211.9	213.5	78.7	81.0	82.6	82.9	84.5
Electrical machinery	177.2	179.1	181.8	182.0	181.6	230.5	231.5	232.5	233.5	234.5	76.9	77.4	78.2	78.0	77.4
Motor vehicles and parts	110.6	117.9	117.5	123.4	122.4	142.3	142.8	143.3	143.8	144.4	77.8	82.5	82.0	85.8	84.8
Autos	92.6	109.9	108.2	116.9	110.3	149.8	149.9	150.1	150.2	150.2	61.8	73.3	72.1	77.8	73.5
Aerospace and misc. transp. eq	153.9	151.5	152.0	152.3	154.6	174.2	175.3	176.4	177.5	178.6	88.3	86.4	86.2	85.8	86.6
Instruments	149.0	151.6	157.0	159.8	161.8	186.6	188.3	190.1	191.8	193.9	79.9	80.5	82.6	83.3	83.5
Other durables	137.8	138.1	137.6	139.9	141.3	167.3	168.6	169.9	171.2	172.5	82.3	81.9	81.0	81.7	81.9
Nondurable manufacturing	141.4	142.3	145.0	146.7	148.6	164.6	166.3	168.0	169.8	171.6	85.9	85.6	86.3	86.4	86.6
Foods	141.4	140.9	143.3	145.2		175.4	176.8	178.2	179.6		80.6	79.7	80.4	80.8	
Textile mill products	116.2	115.4	116.6	117.4		127.5	128.9	130.4	131.8		91.1	89.5	89.4	89.1	
Paper and products	149.0	149.1	151.4	151.4		156.2	157.7	159.3	160.8		95.4	94.5	95.1	94.2	
Chemicals and products	146.6	149.5	154.5	157.4		171.7	173.2	174.9	176.7		85.3	86.3	88.5	89.1	
Petroleum products	96.9	95.9	94.9	96.4	98.1	111.1	111.4	111.6	111.9	112.1	87.2	86.1	85.0	86.2	87.5
Rubber and plastics products	171.7	173.4	175.3	177.3		193.9	196.8	199.7	202.6		88.5	88.1	87.8	87.5	
Other nondurables	143.0	144.5	147.2	148.3	151.5	166.2	168.6	170.9	173.3	175.7	86.1	85.7	86.1	85.6	86.3
Mining	102.5	103.4	103.9	104.2	102.3	127.7	127.0	126.3	125.7	125.1	80.3	81.5	82.3	82.9	81.7
Utilities	114.7	111.9	115.1	114.3	115.0	139.8	140.1	140.4	140.7	141.0	82.0	79.9	81.9	81.3	81.6
Electric utilities	130.0	129.8	135.2	132.4		154.8	155.4	156.1	156.7	157.4	84.0	83.5	86.6	84.5	84.1

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	Monthly, seasonally adjusted, percent of capacity														
	1973 high	1975 low	1978 -80 high	1982 low	1987 -88 avg	1988 max	1988						1989		
							JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Industrial Materials	92.0	70.5	89.1	68.5	82.3	82.4	84.4	84.3	84.1	84.7	85.1	84.9	84.8	84.3	84.2
Durable goods materials	91.8	64.4	89.0	60.9	79.1	79.1	81.7	81.4	81.9	82.4	82.7	82.1	82.4	81.7	81.3
Metal materials	99.2	67.1	93.0	45.7	77.9	78.3	84.9	83.4	86.0	87.3	86.9	84.6	86.3	85.0	84.8
Raw steel	106.0	66.4	98.9	36.1	80.7	86.5	95.1	98.0	97.5	90.4	89.3	87.6	93.3	87.6	
Aluminum	95.7	73.0	97.4	58.8	87.8	99.2	100.8	100.5	100.3	99.8	100.5	99.4	100.2	99.2	
Nondurable goods materials	91.1	66.7	88.1	70.7	83.6	88.3	88.9	88.8	88.2	89.3	89.4	89.8	90.2	89.8	89.9
Textile, paper, and chemical materials	92.8	64.8	89.4	68.8	84.1	89.9	90.4	90.3	89.4	90.9	90.9	91.3	91.6	91.2	91.4
Pulp and paper materials	98.4	70.6	97.3	79.9	92.0	97.8	100.0	98.4	97.9	97.8	96.7	98.4	98.1	96.2	
Chemical materials	92.5	64.4	87.9	63.5	81.3	87.5	88.8	89.0	88.0	90.2	90.5	90.7	90.7	90.8	
Energy materials	94.6	86.9	94.0	82.3	88.9	84.1	86.2	86.6	85.3	85.3	86.2	86.5	84.6	84.8	85.2

Table 4

### Output, Capacity, and Capacity Utilization Quarterly, seasonally adjusted

Series	OUTPUT				1989	CAPACITY				1989	UTILIZATION				1989
	1988	1988	1988	1988		1988	1988	1988	1988		1988	1988	1988	1988	
	Q1	Q2	Q3	Q4	Q1	Q1	Q2	Q3	Q4	Q1	Q1	Q2	Q3	Q4	Q1
Industrial Materials	122.5	124.0	126.5	128.0	128.1	148.5	149.3	150.1	150.8	151.7	82.5	83.0	84.3	84.9	84.4
Durable goods materials	131.5	134.1	137.1	139.2	139.2	165.7	166.8	167.9	169.0	170.1	79.4	80.4	81.6	82.4	81.8
Metal materials	86.2	88.1	92.7	94.8	94.1	108.8	109.1	109.5	109.8	110.2	79.2	80.8	84.8	86.3	85.4
Raw steel	77.7	77.1	85.9	79.5		88.7	88.7	88.9	89.2		87.5	86.9	96.8	89.1	
Aluminum	92.5	94.8	97.2	97.8		94.3	95.5	96.7	97.9		98.1	99.2	100.5	99.9	
Nondurable goods materials	129.4	130.4	132.8	135.4	137.4	146.8	148.3	149.8	151.2	152.7	86.1	87.9	88.6	89.5	90.0
Textile, paper and chemical materials	131.6	132.4	135.3	138.1	140.3	146.7	148.5	150.2	151.8	153.5	89.7	89.2	90.0	91.0	91.4
Pulp and paper materials	145.7	145.9	148.9	148.6		147.6	149.2	150.7	152.3		98.7	97.8	98.8	97.6	
Chemical materials	133.5	135.7	139.4	144.1		153.5	155.4	157.4	159.3		87.0	87.3	88.6	90.5	
Energy materials	100.9	100.6	102.5	102.0	100.5	119.7	119.4	119.0	118.7	118.4	84.3	84.2	86.0	86.0	84.9

#### 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 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 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-dock, "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 rates 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 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.