

# FEDERAL RESERVE statistical release



G.3 (402)

For Immediate release

## CAPACITY UTILIZATION

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

July 18, 1988

Capacity utilization in manufacturing, mining, and utilities rose 0.2 percentage point in June to 83.1 percent. Operating rates rose at both mines and utilities, but held steady, on average, for manufacturing. A slight increase in utilization for advanced processing industries offset a small decline in primary processing.

Utilization rates for most manufacturing industries changed only slightly in June. The average operating rate for durable goods manufacturers increased again in June, with the largest advance coming in electrical machinery. Utilization at primary metals producers continued to be relatively high in June, declining slightly, but staying above 87 percent. Utilization at nondurable manufacturers eased again in June, continuing its trend since the start of the year. The June decrease was led by a 1.0 percentage point drop in petroleum refining. Utilization for the petroleum products industry has fallen substantially in each of the past two months, in part, reflecting production cutbacks as the result of fires at some refineries.

Utilization at producers of industrial materials rose 0.3 percentage point in June to 83.7 percent, its highest level since March 1980. Most of the gain resulted from a jump in operating rates at energy materials industries, reflecting last month's step-up in activities at utilities as well as smaller increases for coal mining and oil and gas extraction. The operating rate for energy materials industries remains, however, well below its 1967-87 average of 89.0 percent. In contrast, utilization rates in nondurable goods materials and in basic metal materials such as raw steel and aluminum have been well above their long run average since last fall.

### Capacity Utilization: Summary

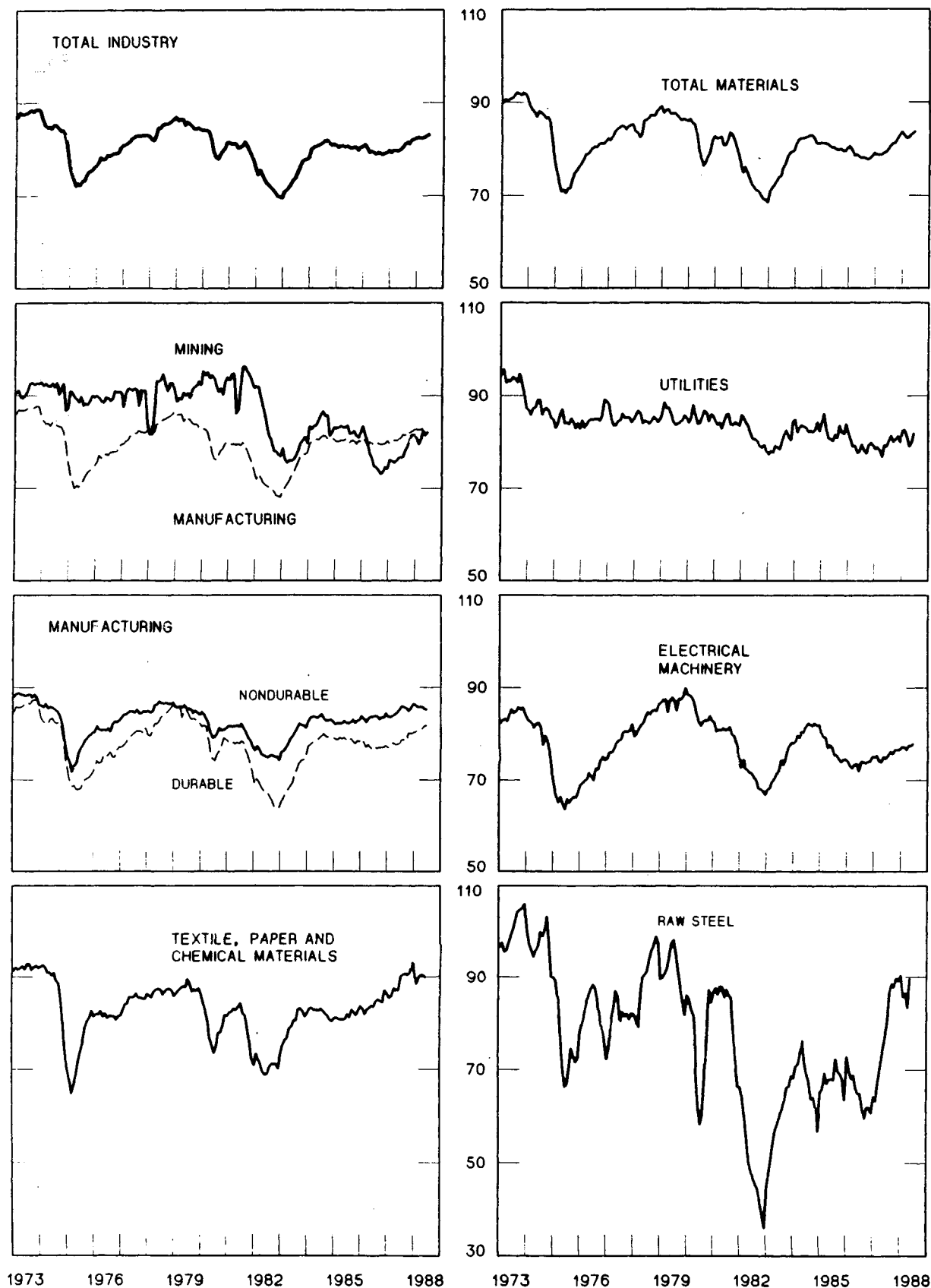
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1967 -87 Avg.	1988			
						MAR	APR	MAY	JUN
<b>Total Industry</b>	88.6	72.1	86.9	69.5	81.5	82.4	82.6	82.9	83.1
<b>Manufacturing</b>	87.7	69.9	86.5	68.0	80.6	82.7	82.9	83.2	83.2
Durable	87.4	67.9	86.3	63.7	78.7	80.6	80.9	81.6	81.7
Nondurable	88.8	71.8	87.0	74.2	83.5	85.8	85.8	85.4	85.2
<b>Mining</b>	92.8	87.8	95.2	76.9	86.7	80.6	82.4	81.4	82.1
<b>Utilities</b>	95.6	82.9	88.5	78.0	86.9	81.0	79.1	79.8	81.8
<b>Industrial Materials</b>	92.0	70.5	89.1	68.5	82.2	82.4	83.0	83.4	83.7

# CAPACITY UTILIZATION

JUNE DATA

SEASONALLY ADJUSTED, PERCENT



# MANUFACTURING, MINING AND UTILITIES

Table 1

## Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973	1975	1978	1982	1967	1987	1987						1988					
	High	Low	High	Low	Avg.	JUN	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN			
<b>Total Industry</b>	88.6	72.1	86.9	69.5	81.5	80.3	81.9	82.1	82.4	82.5	82.4	82.4	82.6	82.9	83.1			
<b>Manufacturing</b>	87.7	69.9	86.5	68.0	80.6	80.8	82.0	82.2	82.6	82.7	82.6	82.7	82.9	83.2	83.2			
Primary processing	91.9	68.3	89.1	65.0	81.7	84.0	86.2	87.0	87.6	87.1	86.6	86.9	86.9	87.0	86.8			
Advanced processing	86.0	71.1	85.1	69.5	80.1	79.2	80.1	80.0	80.3	80.7	80.7	80.7	81.1	81.5	81.6			
<b>Durable manufacturing</b>	87.4	67.9	86.3	63.7	78.7	77.8	80.1	79.9	80.1	80.3	80.5	80.6	80.9	81.6	81.7			
Stone, clay and glass products	89.3	67.1	86.6	62.9	78.3	81.1	81.0	81.9	81.4	81.5	82.2	82.7	81.9	82.0				
Primary metals	101.9	67.0	97.1	45.8	79.6	76.4	88.8	88.6	89.1	85.2	85.1	83.7	83.8	87.4	87.2			
Iron and steel, subtotal	105.8	66.6	100.3	37.6	78.6	74.2	90.9	88.8	91.6	87.3	86.6	83.2	83.5	88.1				
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.2	79.5	85.9	88.3	85.8	82.4	82.7	84.3	84.3	86.3				
Fabricated metal products	85.0	64.7	87.4	61.3	77.8	78.4	79.5	79.4	80.8	81.6	81.8	82.4	82.4	82.8	83.1			
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.1	74.2	76.6	76.1	77.8	78.5	78.7	79.0	79.6	80.6	80.8			
Electrical machinery	85.7	63.7	89.9	66.9	78.1	74.7	76.5	76.5	76.5	77.1	77.1	76.5	77.4	77.4	77.8			
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.1	76.2	82.0	80.4	77.7	77.2	76.8	79.3	80.5	83.7	83.4			
Automobiles			93.3	36.6		67.4	72.5	70.2	63.9	59.0	60.6	65.8	69.3	75.3	75.3			
Aerospace and misc. trans. eqp.	77.0	69.6	87.1	70.7	77.7	88.9	88.9	88.2	87.9	88.7	88.7	87.6	86.7	86.5	86.6			
Instruments	89.2	74.9	88.9	77.8	83.0	79.3	79.6	79.9	78.5	79.7	80.0	80.0	80.7	80.2	80.2			
Other durables	87.7	69.0	81.0	69.1	81.6	81.9	81.2	82.0	81.8	82.0	82.5	82.4	82.4	82.3	82.0			
<b>Nondurable manufacturing</b>	88.8	71.8	87.0	74.2	83.5	85.2	84.9	85.6	86.4	86.2	85.7	85.8	85.8	85.4	85.2			
Food and kindred products	85.8	77.6	85.1	76.5	82.2	80.1	79.5	79.8	80.3	80.7	80.9	80.2	79.2	79.4				
Textile mill products	92.1	58.9	88.3	70.6	85.0	93.1	92.4	92.7	93.3	91.5	90.4	91.4	91.8	90.7				
Paper and products	95.6	67.7	92.7	80.2	88.5	93.3	94.5	95.8	97.0	96.3	94.7	95.1	94.9	95.0				
Chemicals and products	88.6	69.2	82.9	67.6	78.9	82.4	83.1	84.7	86.5	86.3	84.7	85.0	86.0	86.2				
Petroleum products	99.6	83.7	91.7	68.8	86.9	83.7	85.5	84.2	86.6	86.7	86.3	88.5	88.4	85.5	84.5			
Rubber and plastics products	97.5	59.5	89.4	71.2	84.8	88.4	87.5	88.8	88.8	88.3	88.8	88.4	88.1	87.3				
Other nondurables	86.4	72.3	92.4	78.9	86.0	87.5	86.2	86.4	86.2	86.0	86.0	86.2	86.2	85.5	85.3			
<b>Mining</b>	92.8	87.8	95.2	76.9	86.7	76.6	80.6	81.5	81.5	80.7	79.5	80.6	82.4	81.4	82.1			
<b>Utilities</b>	95.6	82.9	88.5	78.0	86.9	79.0	80.5	81.2	80.0	82.4	82.6	81.0	79.1	79.8	81.8			
Electric utilities	98.7	83.0	87.6	78.2	88.0	84.6	82.5	82.8	81.4	84.3	84.4	83.2	82.1	82.8	85.4			

Table 2

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987	Q3	Q4	1988	Q2	1987	Q3	Q4	1988	Q2	1987	Q3	Q4	1988	Q2
<b>Total Industry</b>	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	82.9
<b>Manufacturing</b>	133.2	135.7	138.1	139.6	141.4	165.6	166.7	167.7	168.9	170.2	80.5	81.4	82.3	82.7	83.1
Primary processing	116.1	119.2	122.2	123.0	124.0	139.0	139.8	140.6	141.6	142.7	83.5	85.3	86.9	86.9	86.9
Advanced processing	134.5	145.8	147.6	149.7	151.8	181.6	182.9	184.1	185.4	186.7	79.0	79.7	80.1	80.7	81.4
<b>Durable manufacturing</b>	131.4	133.7	136.9	138.4	140.9	169.3	170.2	171.1	172.0	173.0	77.6	78.5	80.0	80.4	81.4
Stone, clay and glass products	118.6	118.0	119.8	121.5		145.1	146.1	147.2	147.9		81.7	80.7	81.4	82.1	
Primary metals	77.3	83.7	90.5	86.0	87.8	103.3	102.6	101.8	101.6	102.0	74.8	81.6	88.8	84.7	86.1
Iron and steel, subtotal	66.3	73.8	81.2	76.5		92.5	91.1	89.8	89.2		71.7	81.0	90.4	85.8	
Nonferrous metals, subtotal	98.0	102.2	108.0	104.1		123.7	124.1	124.6	125.1		79.2	82.4	86.7	83.2	
Fabricated metal products	109.9	110.8	114.3	117.8	119.7	141.5	142.3	143.0	143.8	144.6	77.6	77.8	79.9	81.9	82.7
Nonelectrical machinery	150.6	155.4	158.7	163.7	168.2	204.1	205.4	206.7	208.0	209.3	73.8	75.7	76.8	78.7	80.4
Electrical machinery	170.0	173.4	175.7	177.2	179.5	228.1	228.9	229.6	230.5	231.5	74.5	75.7	76.5	76.9	77.5
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	82.6
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	151.8	171.1	172.1	173.2	174.2	175.3	89.2	88.8	88.3	88.3	86.6
Instruments	143.1	145.2	146.7	149.0	151.4	181.6	183.3	184.9	186.6	188.3	78.8	79.2	79.3	79.9	80.4
Other durables	132.2	133.1	135.4	137.8	138.7	162.2	164.0	165.8	167.3	168.6	81.5	81.2	81.7	82.3	82.2
<b>Nondurable manufacturing</b>	135.7	138.6	139.7	141.4	142.1	160.3	161.7	163.1	164.6	166.3	84.7	85.7	85.6	85.9	85.5
Food and kindred products	137.0	138.9	139.0	141.4		171.6	172.8	174.1	175.4		79.9	80.4	79.8	80.6	
Textile mill products	116.5	118.8	117.4	116.2		125.7	126.1	126.6	127.5		92.7	94.2	92.8	91.1	
Paper and products	141.5	148.4	148.3	149.0		152.4	153.6	154.9	156.2		92.8	96.6	95.7	95.4	
Chemicals and products	138.2	141.8	144.6	146.6		168.7	169.6	170.5	171.7		81.9	83.6	84.8	85.3	
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		186.3	188.8	191.3	193.9		87.3	87.8	88.4	88.5	
Other nondurables	138.4	140.7	141.4	143.0	144.4	159.6	161.8	163.9	166.2	168.6	86.7	87.0	86.3	86.1	85.6
<b>Mining</b>	99.0	100.7	104.3	102.5	104.1	129.7	129.0	128.4	127.7	127.0	76.3	78.0	81.2	80.3	82.0
<b>Utilities</b>	108.3	111.8	112.3	114.7	112.4	138.3	138.8	139.4	139.8	140.1	78.3	80.5	80.6	82.0	80.2
Electric utilities	126.6	130.2	126.6	130.0	129.7	151.9	152.9	154.0	154.8	155.4	83.4	85.1	82.2	84.0	83.4

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	1987	1987						1988					
	High	Low	-80	Low	-87	JUN	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN			
Industrial Materials	92.0	70.5	89.1	68.5	82.2	79.8	82.1	82.9	83.6	83.0	82.3	82.4	83.0	83.4	83.7			
Durable goods materials	91.8	64.4	89.8	60.9	79.0	75.9	78.3	79.0	80.0	79.7	79.3	79.1	79.8	80.7	80.8			
Metal materials	99.2	67.1	93.6	45.7	77.7	71.5	82.4	83.3	86.3	80.1	79.3	78.3	79.2	82.0	82.0			
Raw steel	106.0	66.4	98.9	36.1	80.2	76.7	87.8	89.7	89.2	90.3	85.7	86.5	83.4	89.7				
Aluminum	95.7	73.0	97.4	58.8	87.3	84.7	91.8	94.8	95.8	97.1	97.9	99.2	99.5	98.8				
Nondurable goods materials	91.1	66.7	88.1	70.7	83.4	86.1	88.2	89.0	90.8	88.8	87.3	86.3	88.8	89.0	88.7			
Textile, paper, and chemical materials	92.8	64.8	89.4	68.8	83.8	87.1	90.4	91.0	93.1	90.8	88.5	89.9	90.4	90.3	89.9			
Pulp and paper materials	98.4	70.6	97.3	79.9	91.7	96.3	97.4	98.7	101.6	100.6	97.8	97.8	98.1	98.7				
Chemical materials	92.5	64.4	87.9	63.5	81.0	83.1	88.0	88.6	90.9	87.8	85.7	87.5	88.2	88.3				
Energy materials	94.6	86.9	94.0	82.3	89.0	82.8	84.9	85.7	84.8	84.7	84.1	84.1	84.5	84.0	85.7			

Table 4

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987	Q3	Q4	1988	Q1	Q2	1987	Q3	Q4	1988	Q1	Q2	1987	Q3	Q4
Industrial Materials	116.5	119.2	122.5	122.5	124.4	146.7	147.2	147.8	148.5	149.3	79.4	81.0	82.9	82.5	83.4
Durable goods materials	122.9	125.7	130.3	131.5	134.1	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	88.4	110.0	109.4	108.9	108.8	109.1	70.0	76.5	84.0	79.2	81.1
Raw steel	67.8	77.0	79.5	77.7		92.2	90.8	89.4	88.7		73.6	84.8	88.9	87.5	
Aluminum	77.8	83.6	88.4	92.5		94.9	94.4	93.9	94.3		81.9	88.6	94.1	98.1	
Nondurable goods materials	124.0	128.2	130.1	129.4	131.7	143.8	144.7	145.6	146.8	148.3	86.2	88.6	89.3	88.1	88.8
Textile, paper and chemical materials	125.1	130.5	133.0	131.6	133.9	143.4	144.4	145.4	146.7	148.5	87.2	90.4	91.5	89.7	90.2
Pulp and paper materials	137.7	144.6	145.1	145.7		143.9	145.1	146.2	147.6		95.7	99.6	99.2	98.7	
Chemical materials	125.3	130.2	135.5	133.5		149.8	150.9	152.0	153.5		83.6	86.3	89.1	87.0	
Energy materials	98.7	100.0	102.1	100.9	101.2	120.2	120.1	119.9	119.7	119.4	82.1	83.3	85.2	84.3	84.7

### 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. 754-86. 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 1988.** Approximately 11 a.m. on January 19, February 18, March 17, April 17, May 18, June 16, July 18, August 16, September 16, October 17, November 16, and December 16.