

# FEDERAL RESERVE statistical release



G.3 (402)

For Immediate release

## CAPACITY UTILIZATION

Manufacturing, Mining, Utilities, and Industrial Materials

December 14, 1988

9:15 a.m.

Capacity utilization in manufacturing, mining, and utilities increased 0.2 percentage point in November to 84.2 percent, the highest level since November 1979. The operating rate in manufacturing and utilities both rose 0.2 percentage point in November; the gain in mining was 0.6 percentage point.

Within manufacturing, utilization for primary processing industries rose 0.4 percentage point in November; the rate for advanced processing increased only 0.2 percentage point. The operating rate for primary metals industries continued its recent upturn, reaching its highest level since December 1978. Since August, most of the rise in utilization for primary metals has come from increased production of steel mill products. Among advanced processing industries, both fabricated metal products and motor vehicles and parts showed operating rate gains of nearly a percentage point in November. The rise in fabricated metals reflects widespread gains while the increase in motor vehicles and parts was related to higher truck production.

Utilization at producers of industrial materials increased 0.4 percentage point in November to 84.8 percent. Gains were especially strong at producers of energy materials owing to a significant rise in coal production.

### Capacity Utilization: Summary

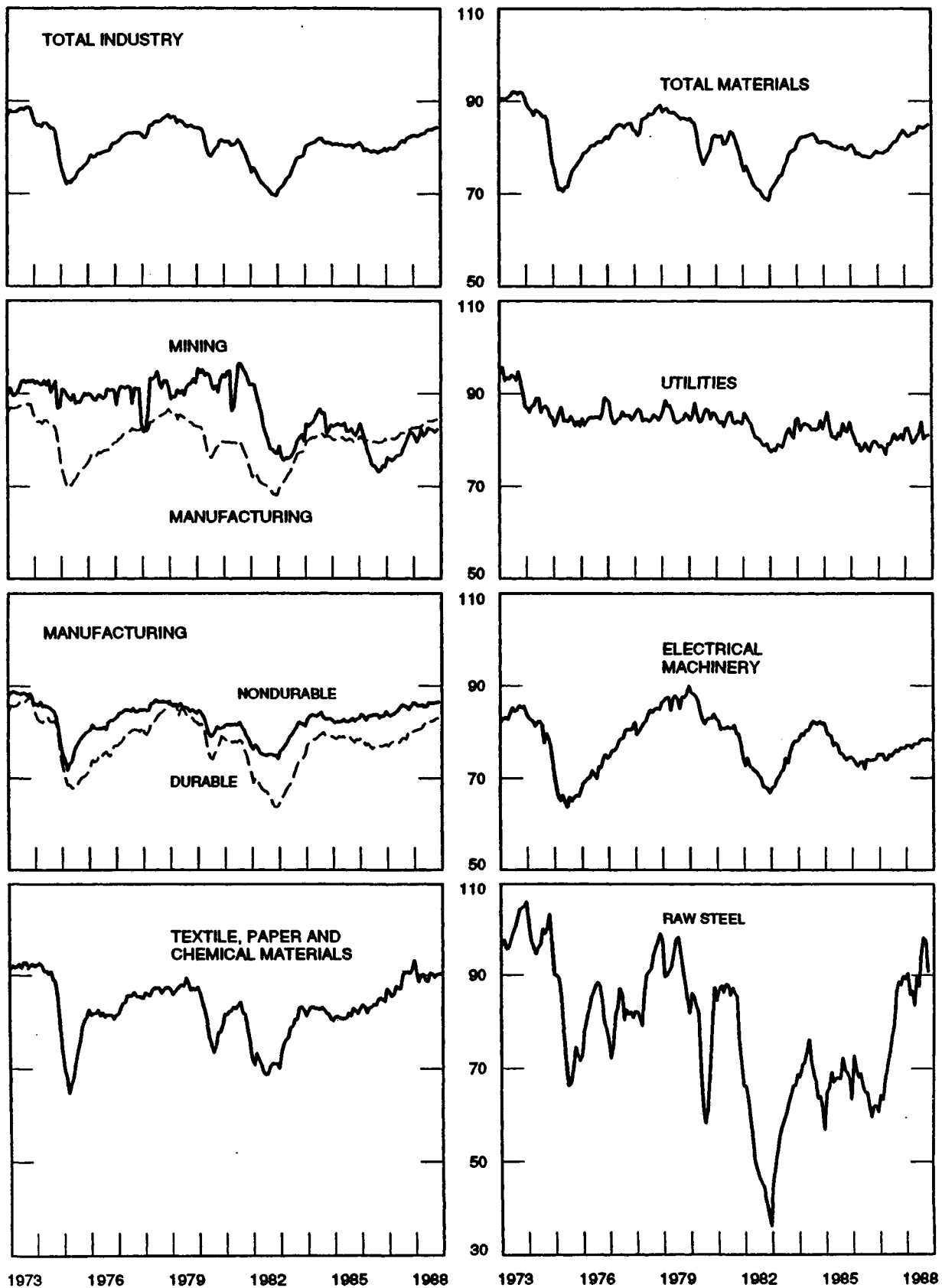
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1987 -87 Avg.	1988			
						AUG	SEP	OCT	NOV
<b>Total Industry</b>	88.6	72.1	86.9	69.5	81.5	83.8	83.7	84.0	84.2
Manufacturing	87.7	69.9	86.5	68.0	80.6	84.0	84.0	84.3	84.5
Durable	87.4	67.9	86.3	63.7	78.7	82.3	82.5	82.9	83.1
Nondurable	88.8	71.8	87.0	74.2	83.5	86.4	86.2	86.4	86.5
Mining	92.8	87.8	95.2	76.9	86.7	82.2	82.2	81.6	82.2
Utilities	95.6	82.9	88.5	78.0	86.9	83.9	80.3	80.8	81.0
<b>Industrial Materials</b>	92.0	70.5	89.1	68.5	82.2	84.3	84.1	84.4	84.8

# CAPACITY UTILIZATION

NOVEMBER DATA

SEASONALLY ADJUSTED, PERCENT



# MANUFACTURING, MINING AND UTILITIES

Table 1

## Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Monthly, seasonally adjusted, percent of capacity																
Series	1973	1975	1978	1982	1987	1987	1988									
	High	Low	-80 high	Low	-87 Avg.	NOV	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	
Total Industry	88.6	72.1	86.9	69.5	81.5	82.1	82.4	82.7	82.9	83.0	83.7	83.8	83.7	84.0	84.2	
Manufacturing	87.7	69.9	86.5	68.0	80.6	82.2	82.7	82.9	83.3	83.3	84.0	84.0	84.0	84.3	84.5	
Primary processing	91.9	68.3	89.1	65.0	81.7	87.0	86.9	86.9	87.0	86.6	87.8	87.4	87.2	87.6	88.0	
Advanced processing	86.0	71.1	85.1	69.5	80.1	80.0	80.7	81.2	81.7	81.7	82.2	82.4	82.5	82.7	82.9	
Durable manufacturing	87.4	67.9	86.3	63.7	78.7	79.9	80.6	80.9	81.8	81.7	82.3	82.3	82.5	82.9	83.1	
Stone, clay and glass products	89.3	67.1	86.6	62.9	78.3	81.9	82.7	81.9	81.8	83.0	82.1	82.3	82.4	82.1		
Primary metals	101.9	67.0	97.1	45.8	79.6	88.6	83.7	83.7	87.5	85.8	89.5	88.8	90.9	92.0	92.4	
Iron and steel, subtotal	105.8	66.6	100.3	37.6	78.6	88.8	83.2	83.5	88.0	83.0	89.7	88.2	90.9	93.4		
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.2	88.3	84.3	84.1	86.8	89.5	89.3	89.6	90.8	90.0		
Fabricated metal products	85.0	64.7	87.4	61.3	77.8	79.4	82.4	82.3	82.9	83.1	83.8	84.0	84.1	84.2	85.0	
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.1	76.1	79.0	80.1	81.4	81.6	82.4	82.7	82.9	82.9	83.1	
Electrical machinery	85.7	63.7	89.9	66.9	78.1	76.5	76.5	77.3	77.4	77.4	78.2	78.4	78.1	78.5	78.3	
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.1	80.4	79.3	80.5	83.8	83.3	81.5	82.0	82.6	84.5	85.4	
Automobiles			93.3	36.6		70.2	65.8	69.3	75.3	75.3	71.4	70.7	74.2	77.0	76.7	
Aerospace and misc. trans. eqp.	77.0	69.6	87.1	70.7	77.7	88.2	87.6	86.6	86.4	86.2	86.7	85.8	85.8	85.8	85.9	
Instruments	89.2	74.9	88.9	77.8	83.0	79.9	80.0	80.2	80.3	81.0	82.5	82.5	82.9	83.2	83.2	
Other durables	87.7	69.0	81.0	69.1	81.6	82.0	82.4	82.2	82.2	81.3	81.4	80.9	80.7	81.0	81.0	
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.5	85.6	85.8	85.9	85.4	85.5	86.4	86.4	86.2	86.4	86.5	
Food and kindred products	85.8	77.6	85.1	76.5	82.2	79.8	80.2	79.6	79.7	79.7	80.6	80.4	80.1	80.6		
Textile mill products	92.1	58.9	88.3	70.6	85.0	92.7	91.4	91.3	88.9	88.3	90.2	89.3	88.4	87.7		
Paper and products	95.6	67.7	92.7	80.2	88.5	95.8	95.1	94.9	94.8	93.9	95.9	94.8	94.4	94.8		
Chemicals and products	88.6	69.2	82.9	67.6	78.9	84.7	85.0	86.2	86.1	86.7	88.1	88.6	88.8	89.1		
Petroleum products	99.6	83.7	91.7	68.8	86.9	84.2	88.5	88.5	85.5	84.4	85.2	86.0	83.8	86.1	84.3	
Rubber and plastics products	97.5	59.5	89.4	71.2	84.8	88.8	88.4	88.0	88.1	88.2	88.3	87.8	87.3	87.3		
Other nondurables	86.4	72.3	92.4	78.9	86.0	86.4	86.2	86.3	85.4	85.6	85.8	86.1	86.4	86.2	85.9	
Mining	92.8	87.8	95.2	76.9	86.7	81.5	80.6	82.3	80.8	81.2	82.5	82.2	82.2	81.6	82.2	
Utilities	95.6	82.9	88.5	78.0	86.9	81.2	81.0	79.3	79.7	80.8	81.5	83.9	80.3	80.8	81.0	
Electric utilities	98.7	83.0	87.6	78.2	88.0	82.8	83.2	82.2	83.5	84.9	86.4	88.9	84.4	84.6	84.8	

Table 2

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT 1988					CAPACITY 1988					UTILIZATION 1988				
	Q3	Q4	Q1	Q2	Q3	Q3	Q4	Q1	Q2	Q3	Q3	Q4	Q1	Q2	Q3
Total Industry	131.0	133.2	134.5	136.0	138.4	161.3	162.2	163.1	164.2	165.2	81.2	82.1	82.4	82.8	83.8
Manufacturing	135.7	138.1	139.6	141.5	144.0	166.7	167.7	168.9	170.2	171.5	81.4	82.3	82.7	83.2	84.0
Primary processing	119.2	122.2	123.0	123.9	125.8	139.8	140.6	141.6	142.7	143.9	85.3	86.9	86.9	86.8	87.4
Advanced processing	145.8	147.6	149.7	152.3	154.9	182.9	184.1	185.4	186.7	188.1	79.7	80.1	80.7	81.5	82.4
Durable manufacturing	133.7	136.9	138.4	141.0	143.3	170.2	171.1	172.0	173.0	174.0	78.5	80.0	80.4	81.5	82.4
Stone, clay and glass products	118.0	119.8	121.5	122.1	122.5	146.1	147.2	147.9	148.4	148.9	80.7	81.4	82.1	82.2	82.3
Primary metals	83.7	90.5	86.0	87.3	91.8	102.6	101.8	101.6	102.0	102.3	81.6	88.8	84.7	85.7	89.7
Iron and steel, subtotal	73.8	81.2	76.5	75.8	80.2	91.1	89.8	89.2	89.3	89.5	81.0	90.4	85.8	84.8	89.6
Nonferrous metals, subtotal	102.2	108.0	104.1	109.1	113.7	124.1	124.6	125.1	125.8	126.4	82.4	86.7	83.2	86.8	89.9
Fabricated metal products	110.8	114.3	117.8	119.7	122.1	142.3	143.0	143.8	144.6	145.5	77.8	79.9	81.9	82.7	84.0
Nonelectrical machinery	155.4	158.7	163.7	169.6	174.1	205.4	206.7	208.0	209.3	210.6	75.7	76.8	78.7	81.0	82.6
Electrical machinery	173.4	175.7	177.2	179.1	181.8	228.9	229.6	230.5	231.5	232.5	75.7	76.5	76.9	77.4	78.2
Motor vehicles and parts	108.0	113.4	110.6	117.9	117.5	141.2	141.7	142.3	142.8	143.3	76.5	80.0	77.8	82.5	82.0
Automobiles	92.2	102.8	92.6	109.9	108.2	148.6	149.3	149.8	149.9	150.1	62.0	68.9	61.8	73.3	72.1
Aerospace and misc. trans. eqp.	152.9	152.9	153.9	151.5	151.9	172.1	173.2	174.2	175.3	176.4	88.8	88.3	88.3	86.4	86.1
Instruments	145.2	146.7	149.0	151.6	157.1	183.3	184.9	186.6	188.3	190.1	79.2	79.3	79.9	80.5	82.6
Other durables	133.1	135.4	137.8	138.1	137.6	164.0	165.8	167.3	168.6	169.9	81.2	81.7	82.3	81.9	81.0
Nondurable manufacturing	138.6	139.7	141.4	142.3	145.0	161.7	163.1	164.6	166.3	168.0	85.7	85.6	85.9	85.6	86.3
Food and kindred products	138.9	139.0	141.4	140.9	143.3	172.8	174.1	175.4	176.8	178.2	80.4	79.8	80.6	79.7	80.4
Textile mill products	118.8	117.4	116.2	115.4	116.4	126.1	126.6	127.5	128.9	130.4	94.2	92.8	91.1	89.5	89.3
Paper and products	148.4	148.3	149.0	149.1	151.4	153.6	154.9	156.2	157.7	159.2	96.0	95.7	95.4	94.5	95.1
Chemicals and products	141.8	144.6	146.6	149.5	154.6	169.6	170.5	171.7	173.2	174.6	83.6	84.8	85.3	86.3	88.5
Petroleum products	93.5	94.7	96.9	95.9	94.9	110.5	110.8	111.1	111.4	111.6	84.6	85.4	87.2	86.1	85.0
Rubber and plastics products	165.7	169.1	171.7	173.4	175.3	188.8	191.3	193.9	196.8	199.7	87.8	88.4	88.5	88.1	87.8
Other nondurables	140.7	141.4	143.0	144.5	147.2	161.6	163.9	166.2	168.6	170.9	87.0	86.3	86.1	85.7	86.1
Mining	100.7	104.3	102.5	103.4	103.9	129.0	128.4	127.7	127.0	126.2	78.0	81.2	80.3	81.5	82.3
Utilities	111.0	112.3	114.7	111.9	115.0	138.8	139.4	139.8	140.1	140.4	80.5	80.6	82.0	79.9	81.9
Electric utilities	130.2	126.6	130.0	129.8	135.1	152.9	154.0	154.8	155.4	156.1	85.1	82.2	84.0	83.5	86.6

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

Monthly, seasonally adjusted, percent of capacity																
Series	1973 High	1975 Low	1978 -80 High	1982 Low	1987 -87 Avg.	1987 NOV	1988									
							MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	
Industrial Materials	92.0	70.5	89.1	68.5	82.2	82.9	82.4	82.9	83.0	83.2	84.4	84.3	84.1	84.4	84.8	
Durable goods materials	91.8	64.4	89.8	60.9	79.0	79.0	79.1	79.7	80.8	80.7	81.7	81.4	81.9	82.3	82.7	
Metal materials	99.2	67.1	93.6	45.7	77.7	83.3	78.3	79.3	82.1	80.8	84.9	83.4	86.0	87.1	87.4	
Raw steel	106.0	66.4	98.9	36.1	80.2	89.7	86.5	83.4	89.7	87.5	95.1	98.0	97.5	90.8		
Aluminum	95.7	73.0	97.4	58.8	87.3	94.8	99.2	99.5	98.8	99.5	100.8	100.5	100.3	99.8		
Nondurable goods materials	91.1	66.7	88.1	70.7	83.4	89.0	88.3	88.7	87.7	87.4	88.9	88.8	88.2	88.7	89.0	
Textile, paper, and chemical materials	92.8	64.8	89.4	68.8	83.8	91.0	89.9	90.1	88.8	88.6	90.4	90.3	89.5	90.0	90.2	
Pulp and paper materials	98.4	70.6	97.3	79.9	91.7	98.7	97.8	98.1	98.1	97.1	100.0	96.4	97.9	98.2		
Chemical materials	92.5	64.4	87.9	63.5	81.0	88.6	87.5	88.0	86.9	87.0	88.8	89.0	88.3	89.1		
Energy materials	94.6	86.9	94.0	82.3	89.0	85.7	84.1	84.5	83.3	84.9	86.2	86.6	85.1	84.7	85.5	

Table 4

### Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987 Q3	1987 Q4	1988 Q1	1988 Q2	1988 Q3	1987 Q3	1987 Q4	1988 Q1	1988 Q2	1988 Q3	1987 Q3	1987 Q4	1988 Q1	1988 Q2	1988 Q3
Industrial Materials	119.2	122.5	122.5	124.0	126.5	147.2	147.8	148.5	149.3	150.1	81.0	82.9	82.5	83.0	84.3
Durable goods materials	125.7	130.3	131.5	134.1	137.1	163.9	164.7	165.7	166.8	167.9	76.7	79.1	79.4	80.4	81.6
Metal materials	83.8	91.4	86.2	88.1	92.7	109.4	108.9	108.8	109.1	109.4	76.5	84.0	79.2	80.8	84.8
Raw steel	77.0	79.5	77.7	77.1	85.9	90.8	89.4	88.7	88.7	88.7	84.8	88.9	87.5	86.9	96.8
Aluminum	83.6	88.4	92.5	94.8	97.2	94.4	93.9	94.3	95.5	96.7	88.6	94.1	98.1	99.2	100.5
Nondurable goods materials	128.2	130.1	129.4	130.4	132.9	144.7	145.6	146.8	148.3	149.8	88.6	89.3	88.1	87.9	88.7
Textile, paper and chemical materials	130.5	133.0	131.6	132.4	135.3	144.4	145.4	146.7	148.5	150.2	90.4	91.5	89.7	89.2	90.1
Pulp and paper materials	144.6	145.1	145.7	145.9	148.9	145.1	146.2	147.6	149.2	150.7	99.6	99.2	98.7	97.8	98.8
Chemical materials	130.2	135.5	133.5	135.7	139.6	150.9	152.0	153.5	155.4	157.3	86.3	89.1	87.0	87.3	88.7
Energy materials	100.0	102.1	100.9	100.6	102.4	120.1	119.9	119.7	119.4	119.1	83.3	85.2	84.3	84.2	86.0

#### 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.