

FEDERAL RESERVE statistical release



G.3 (402)

CAPACITY UTILIZATION

Manufacturing, Mining, Utilities, and Industrial Materials

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

March 16, 1989

Capacity utilization in manufacturing, mining, and utilities decreased 0.2 percentage point in February to 84.3 percent, its first decline since September. The operating rate for manufacturing, the largest of the three industry groupings, also declined 0.2 percentage point, principally reflecting reductions in primary processing industries. Even so, the rates for overall manufacturing, and especially primary processing, remain well above their long-run averages. Utilization in mining also moved down in February, as coal production continued to fall from its high level at the end of last year. In contrast, the operating rate for utilities rebounded in February after having been depressed in January by relatively warm weather.

Within manufacturing, the largest utilization rate declines in February came in primary metals, petroleum products, and motor vehicles and parts. Despite drops of over a percentage point for both primary metals and petroleum products, these industries continue to operate at relatively high rates. For primary processing industries as a whole, the 0.4 percentage point decrease in February leaves its utilization rate at 88.0 percent, about its average during both the fourth quarter of last year and its peak quarter in the late 1970s. The utilization rate for advanced processing industries edged lower in February. The operating rate for motor vehicles and parts decreased for the second month in a row after having increased steadily from August to December. The decline in February resulted from reduced production of cars and motor vehicle parts; truck production held steady. The most notable increase in utilization came in the nonelectrical machinery industry, where the operating rate during the last three months was higher than at any time since the late 1970s.

Utilization at producers of industrial materials decreased 0.5 percentage point in February to 84.4 percent. Declines were widespread throughout the materials industries, with the largest decreases in energy materials, reflecting the drop in coal mining.

Capacity Utilization: Summary

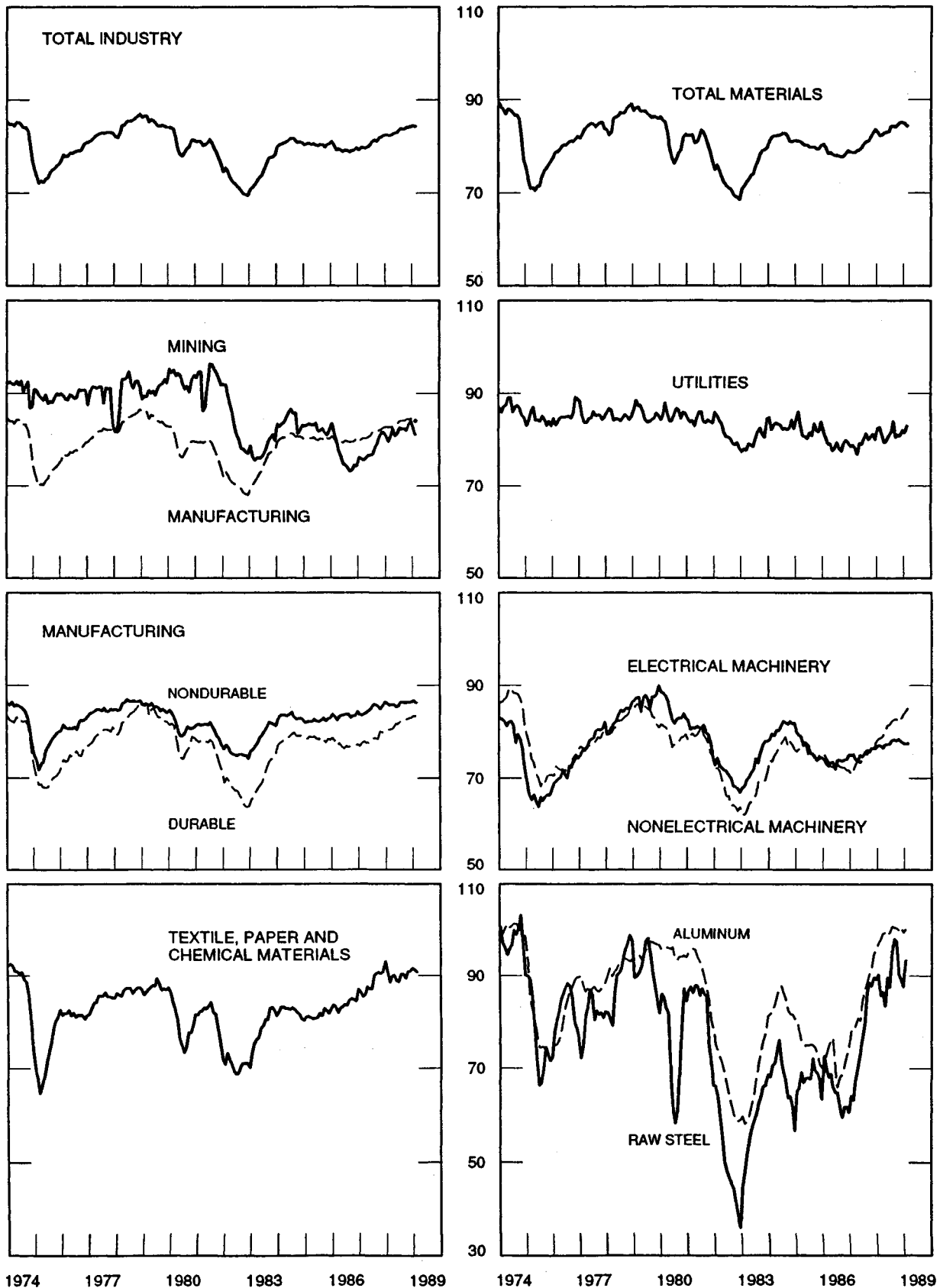
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1987 -88 Avg.	1988		1989	
						NOV	DEC	JAN	FEB
Total Industry	88.6	72.1	86.9	69.5	81.6	84.1	84.3	84.5	84.3
Manufacturing	87.7	69.9	86.5	68.0	80.7	84.4	84.5	84.8	84.6
Durable	87.4	67.9	86.3	63.7	78.8	83.0	83.1	83.5	83.4
Nondurable	88.8	71.8	87.0	74.2	83.6	86.4	86.5	86.7	86.3
Mining	92.8	87.8	95.2	76.9	86.5	83.3	84.0	82.5	81.1
Utilities	95.6	82.9	88.5	78.0	86.7	80.8	82.0	81.5	82.9
Industrial Materials	92.0	70.5	89.1	68.5	82.3	85.1	85.1	84.9	84.4

CAPACITY UTILIZATION

FEBRUARY DATA

SEASONALLY ADJUSTED, PERCENT



MANUFACTURING, MINING AND UTILITIES

Table 1

Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973	1975	1978	1982	1987	1988	1989									
	High	Low	-80	Low	-88	FEB										
	High		High		Avg.		JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	
Total Industry	88.6	72.1	86.9	69.5	81.6	82.4	83.0	83.7	83.8	83.7	84.0	84.1	84.3	84.5	84.3	
Manufacturing	87.7	69.9	86.5	68.0	80.7	82.6	83.3	84.0	84.0	84.0	84.3	84.4	84.5	84.8	84.6	
Primary processing	91.9	68.3	89.1	65.0	82.0	86.6	86.6	87.8	87.4	87.2	87.9	88.1	88.0	88.4	88.0	
Advanced processing	86.0	71.1	85.1	69.5	80.2	80.7	81.7	82.2	82.4	82.6	82.6	82.6	82.8	83.1	83.0	
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	80.5	81.7	82.3	82.3	82.5	82.8	83.0	83.1	83.5	83.4	
Stone, clay and glass products	89.3	67.1	86.8	62.9	78.5	82.2	83.0	82.1	82.3	82.2	82.6	83.5	83.7	84.8		
Primary metals	101.9	67.0	97.1	45.8	79.9	85.1	85.8	89.5	88.8	90.9	91.9	90.4	87.7	91.2	90.1	
Iron and steel, subtotal	105.8	66.6	100.3	37.6	79.0	86.8	83.0	89.7	88.2	90.9	92.8	90.2	86.6	92.5		
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.5	82.7	89.5	89.3	89.6	90.9	90.7	90.7	89.1	89.5		
Fabricated metal products	85.0	64.7	87.4	61.3	78.0	81.8	83.1	83.8	84.0	84.1	83.7	84.8	84.8	84.6	84.4	
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.2	78.7	81.6	82.4	82.7	82.8	82.2	82.8	83.8	84.4	85.1	
Electrical machinery	85.7	63.7	89.9	66.9	78.1	77.1	77.4	78.2	78.4	78.1	78.5	78.0	77.6	77.4	77.5	
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.2	76.8	83.3	81.5	82.0	82.6	84.7	85.5	87.2	86.1	84.9	
Automobiles			93.3	36.6		60.6	75.3	71.4	70.7	74.2	77.0	76.7	79.8	75.7	72.9	
Aerospace and misc. trans. eqp.	77.0	69.6	87.1	70.7	78.1	88.7	86.2	86.7	85.8	85.9	86.2	85.6	85.0	85.5	85.5	
Instruments	89.2	74.9	88.9	77.8	82.9	80.0	81.0	82.5	82.5	82.8	83.6	83.6	82.6	83.7	83.7	
Other durables	87.7	69.0	81.0	69.1	81.6	82.5	81.3	81.4	80.9	80.7	81.2	81.7	82.4	82.5	82.2	
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.6	85.7	85.5	86.4	86.4	86.2	86.4	86.4	86.5	86.7	86.3	
Food and kindred products	85.8	77.6	85.1	76.5	82.1	80.9	79.7	80.6	80.4	80.1	80.4	81.1	80.9	81.1		
Textile mill products	92.1	58.9	88.3	70.6	85.2	90.4	88.3	90.2	89.3	88.8	89.1	88.9	88.8	89.5		
Paper and products	95.6	67.7	92.7	80.2	88.8	94.7	93.9	95.9	94.8	94.5	94.7	93.7	94.1	94.0		
Chemicals and products	88.6	69.2	82.9	67.6	79.3	84.7	86.7	88.1	88.6	88.7	89.0	89.1	89.7	89.4		
Petroleum products	99.6	83.7	91.7	68.8	86.9	86.3	84.4	85.2	86.0	83.9	86.1	84.9	87.6	89.0	87.5	
Rubber and plastics products	97.5	59.5	89.4	71.2	85.0	88.8	88.2	88.3	87.8	87.3	87.7	87.6	87.5	87.3		
Other nondurables	86.4	72.3	92.4	78.9	86.0	86.0	85.6	85.8	86.1	86.3	86.0	85.7	85.1	85.9	85.7	
Mining	92.8	87.8	95.2	76.9	86.5	79.5	81.2	82.5	82.2	82.3	81.9	83.3	84.0	82.5	81.1	
Utilities	95.6	82.9	88.5	78.0	86.7	82.6	80.8	81.5	83.9	80.4	81.0	80.8	82.0	81.5	82.9	
Electric utilities	98.7	83.0	87.6	78.2	87.9	84.4	84.9	86.4	88.9	84.6	84.9	84.0	84.7	83.9	85.4	

Table 2

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987	1988	Q2	Q3	Q4	1987	1988	Q2	Q3	Q4	1987	1988	Q2	Q3	Q4
Total Industry	133.2	134.5	136.0	138.4	140.0	162.2	163.1	164.2	165.2	166.3	82.1	82.4	82.8	83.8	84.2
Manufacturing	138.1	139.6	141.5	144.0	145.8	167.7	168.9	170.2	171.5	172.8	82.3	82.7	83.2	84.0	84.4
Primary processing	122.2	123.0	123.9	125.9	127.7	140.6	141.6	142.7	143.9	145.2	86.9	86.9	86.8	87.5	88.0
Advanced processing	147.6	149.7	152.3	154.9	156.7	184.1	185.4	186.7	188.1	189.5	80.1	80.7	81.5	82.4	82.7
Durable manufacturing	136.9	138.4	141.0	143.3	145.2	171.1	172.0	173.0	174.0	175.0	80.0	80.4	81.5	82.4	82.9
Stone, clay and glass products	119.8	121.5	122.1	122.5	124.4	147.2	147.9	148.4	148.9	149.4	81.4	82.1	82.2	82.2	83.2
Primary metals	90.5	86.0	87.3	91.8	92.3	101.8	101.6	102.0	102.3	102.6	88.8	84.7	85.7	89.7	90.0
Iron and steel, subtotal	81.2	76.5	75.8	80.2	80.5	89.8	89.2	89.3	89.5	89.6	90.4	85.8	84.8	89.6	89.9
Nonferrous metals, subtotal	108.0	104.1	109.1	113.7	114.5	124.6	125.1	125.8	126.4	127.1	86.7	83.2	86.8	89.9	90.1
Fabricated metal products	114.3	117.8	119.7	122.1	124.0	143.0	143.8	144.6	145.7	146.9	79.9	81.9	82.7	83.9	84.4
Nonelectrical machinery	158.7	163.7	169.6	174.0	175.7	206.7	208.0	209.3	210.6	211.9	76.8	78.7	81.0	82.6	82.9
Electrical machinery	175.7	177.2	179.1	181.8	182.2	229.6	230.5	231.5	232.5	233.5	76.5	76.9	77.4	78.2	78.0
Motor vehicles and parts	113.4	110.6	117.9	117.5	123.4	141.7	142.3	142.8	143.3	143.8	80.0	77.8	82.5	82.0	85.8
Automobiles	102.8	92.6	109.9	108.2	116.9	149.3	149.8	149.9	150.1	150.2	68.9	61.8	73.3	72.1	77.8
Aerospace and misc. trans. eqp.	152.9	153.9	151.5	152.0	151.9	173.2	174.2	175.3	176.4	177.5	88.3	88.3	86.4	86.2	85.6
Instruments	146.7	149.0	151.6	157.0	159.8	184.9	186.6	188.3	190.1	191.8	79.3	79.9	80.5	82.6	83.3
Other durables	135.4	137.8	138.1	137.6	139.9	165.8	167.3	168.6	169.9	171.2	81.7	82.3	81.9	81.0	81.7
Nondurable manufacturing	139.7	141.4	142.3	145.0	146.8	163.1	164.6	166.3	168.0	169.8	85.6	85.9	85.6	86.3	86.4
Food and kindred products	139.0	141.4	140.9	143.3	145.1	174.1	175.4	176.8	178.2	179.6	79.8	80.6	79.7	80.4	80.8
Textile mill products	117.4	116.2	115.4	116.6	117.2	126.6	127.5	128.9	130.4	131.8	92.8	91.1	89.5	89.4	89.0
Paper and products	148.3	149.0	149.1	151.4	151.4	154.9	156.2	157.7	159.2	160.7	95.7	95.4	94.5	95.1	94.2
Chemicals and products	144.6	146.6	149.5	154.5	157.7	170.5	171.7	173.2	174.9	176.7	84.0	85.3	86.3	88.5	89.3
Petroleum products	94.7	96.9	95.9	94.9	96.4	110.8	111.1	111.4	111.6	111.9	85.4	87.2	86.1	85.0	86.2
Rubber and plastics products	169.1	171.7	173.4	175.3	177.5	191.3	193.9	196.8	199.7	202.6	88.4	88.5	88.1	87.8	87.6
Other nondurables	141.4	143.0	144.5	147.2	148.3	163.9	166.2	168.6	170.9	173.3	86.3	86.1	85.7	86.1	85.6
Mining	104.3	102.5	103.4	103.9	104.4	128.4	127.7	127.0	126.3	125.7	81.2	80.3	81.5	82.3	83.1
Utilities	112.3	114.7	111.9	115.1	114.3	139.4	139.8	140.1	140.4	140.7	80.0	82.0	79.9	81.9	81.3
Electric utilities	126.6	130.0	129.8	135.2	132.4	154.0	154.8	155.4	156.1	156.7	82.2	84.0	83.5	86.6	84.5

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	1975	1978	1982	1987	1988	1988								1989	
	High	Low	-80 High	Low	-88 Avg.	FEB	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	
Industrial Materials	92.0	70.5	89.1	68.5	82.3	82.3	83.2	84.4	84.3	84.1	84.7	85.1	85.1	84.9	84.4	
Durable goods materials	91.8	64.4	89.8	60.9	79.1	79.3	80.7	81.7	81.4	81.9	82.4	82.7	82.1	82.6	82.2	
Metal materials	99.2	67.1	93.6	45.7	77.9	79.3	80.8	84.9	83.4	86.0	87.3	86.9	84.5	86.8	85.0	
Raw steel	106.0	66.4	98.9	36.1	80.7	85.7	87.5	95.1	98.0	97.5	90.4	89.3	87.7	93.3		
Aluminum	95.7	73.0	97.4	58.8	87.8	97.9	99.5	100.8	100.5	100.3	99.8	100.5	99.4	100.2		
Nondurable goods materials	91.1	66.7	88.1	70.7	83.6	87.3	87.4	88.9	88.8	88.2	89.3	89.4	90.0	89.8	89.4	
Textile, paper, and chemical materials	92.8	64.8	89.4	68.8	84.1	88.5	88.6	90.4	90.3	89.4	90.9	90.9	91.6	91.3	90.8	
Pulp and paper materials	98.4	70.6	97.3	79.9	92.0	97.8	97.1	100.0	98.4	97.9	97.8	96.7	98.4	97.3		
Chemical materials	92.5	64.4	87.9	63.5	81.3	85.7	87.0	88.8	89.0	88.0	90.2	90.5	91.3	90.9		
Energy materials	94.6	86.9	94.0	82.3	88.9	84.1	84.9	86.2	86.6	85.3	85.3	86.2	86.9	85.2	84.4	

Table 4

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987 Q4	1988 Q1	Q2	Q3	Q4	1987 Q4	1988 Q1	Q2	Q3	Q4	1987 Q4	1988 Q1	Q2	Q3	Q4
Industrial Materials	122.5	122.5	124.0	126.5	128.1	147.8	148.5	149.3	150.1	150.8	82.9	82.5	83.0	84.3	84.9
Durable goods materials	130.3	131.5	134.1	137.1	139.3	164.7	165.7	166.8	167.9	169.0	79.1	79.4	80.4	81.6	82.4
Metal materials	91.4	86.2	88.1	92.7	94.7	108.9	108.8	109.1	109.5	109.8	84.0	79.2	80.8	84.8	86.2
Raw steel	79.5	77.7	77.1	85.9	79.5	89.4	88.7	88.7	88.9	89.2	88.9	87.5	86.9	96.8	89.1
Aluminum	88.4	92.5	94.8	97.2	97.8	93.9	94.3	95.5	96.7	97.9	94.1	98.1	99.2	100.5	99.9
Nondurable goods materials	130.1	129.4	130.4	132.8	135.4	145.6	146.8	148.3	149.8	151.2	89.3	88.1	87.9	88.6	89.6
Textile, paper and chemical materials	133.0	131.6	132.4	135.3	138.3	145.4	146.7	148.5	150.2	151.8	91.5	89.7	89.2	90.0	91.1
Pulp and paper materials	145.1	145.7	145.9	148.9	148.6	146.2	147.6	149.2	150.7	152.3	99.2	98.7	97.8	98.8	97.6
Chemical materials	135.5	133.5	135.7	139.4	144.5	152.0	153.5	155.4	157.4	159.3	89.1	87.0	87.3	88.6	90.7
Energy materials	102.1	100.9	100.6	102.5	102.2	119.9	119.7	119.4	119.0	118.7	85.2	84.3	84.2	86.0	86.1

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 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.