

FEDERAL RESERVE statistical release



G.3 (402)

For immediate release

CAPACITY UTILIZATION

Manufacturing, Mining, Utilities, and Industrial Materials

November 16, 1988

Capacity utilization in manufacturing, mining, and utilities increased 0.2 percentage point in October to 84.0 percent. Utilization for manufacturing alone reached 84.3 percent in October, and was revised up to 84.1 percent in September. The operating rate for utilities edged up in October while the rate for mining declined. Since early 1987, the operating rate for manufacturing has increased more than 4 percentage points to its highest level since July 1979, when it was 84.7 percent. During the last expansion, it reached a peak of 86.0 percent in March 1979.

Utilization rate increases in manufacturing came predominately at durable goods industries during October, as they have most of this year. The operating rate for durables has climbed nearly 3 percentage points in 1988, while the rate for nondurable goods producers has been high but stable all year. The largest contributor to the increase in utilization for durable goods industries in October was motor vehicles and parts, where uneven gains throughout the year have pushed its operating rate to its highest level since 1985. The current rate is still well below the highs it attained during 1978. Also contributing to the utilization rate increase for durable manufacturing in October were nonelectrical machinery and fabricated metals products, which continued their upward trend of the past year. Partially offsetting these increases in durables goods industries in October was a dip in the operating rate for primary metals industries, which, in September, had exceeded 90 percent for the first time since 1979. Utilization for nondurable goods manufacturing held steady in October at 86.2 percent despite an increase in the operating rate at petroleum refiners.

Utilization at producers of industrial materials edged down 0.1 percentage point in October to 84.2 percent. Operating rates for aluminum producers have hovered around 100 percent from the start of the summer through September, the last month for which firm production data are available.

Capacity Utilization: Summary

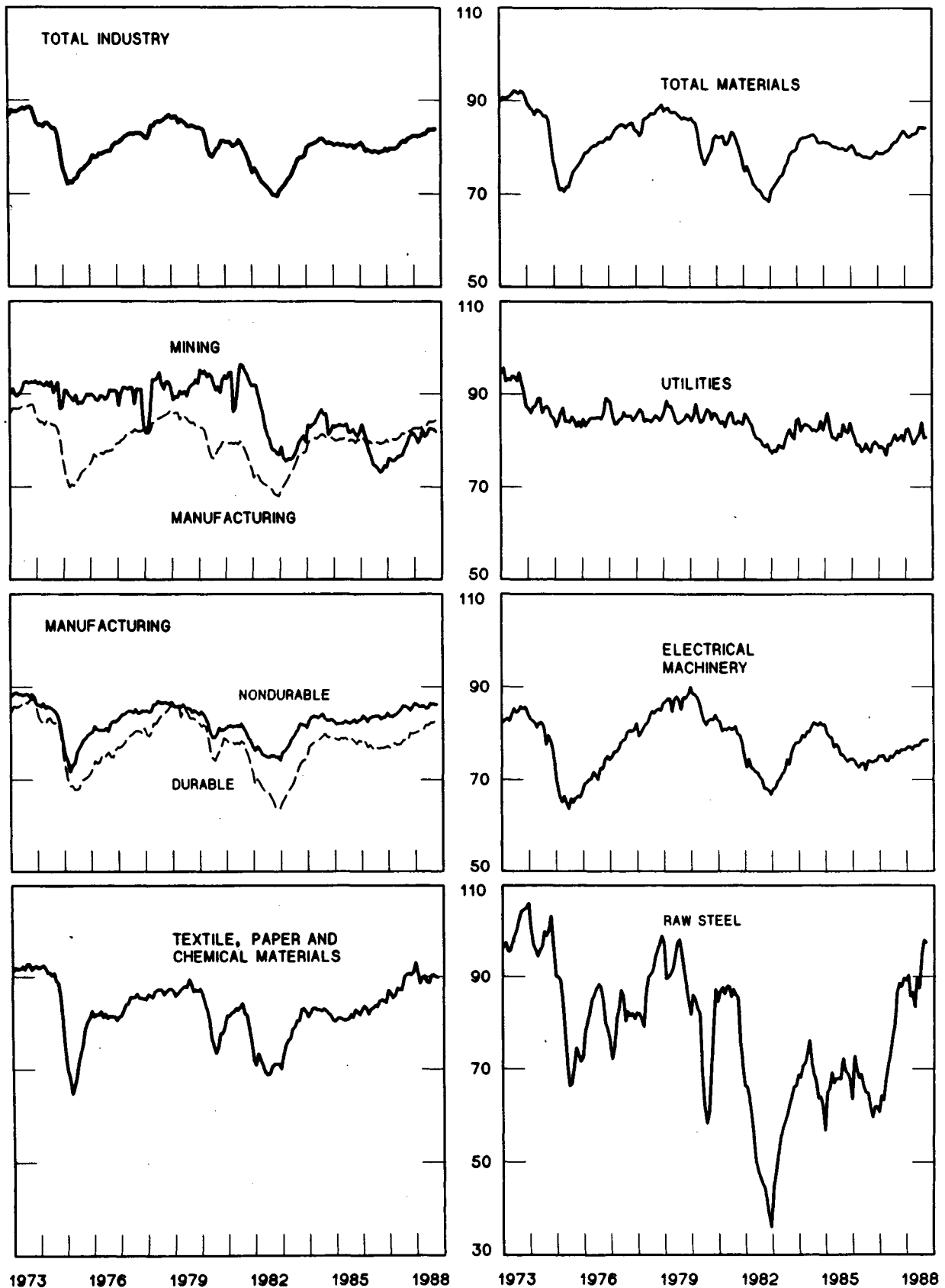
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1987 -87 Avg.	1988			
						JUL	AUG	SEP	OCT
Total Industry	88.6	72.1	86.9	69.5	81.5	83.7	83.8	83.8	84.0
Manufacturing	87.7	69.9	86.5	68.0	80.6	84.0	83.9	84.1	84.3
Durable	87.4	67.9	86.3	63.7	78.7	82.3	82.3	82.6	83.0
Nondurable	88.8	71.8	87.0	74.2	83.5	86.4	86.3	86.2	86.2
Mining	92.8	87.8	95.2	76.9	86.7	82.5	82.4	82.4	81.8
Utilities	95.6	82.9	88.5	78.0	86.9	81.5	83.9	80.6	80.8
Industrial Materials	92.0	70.5	89.1	68.5	82.2	84.4	84.3	84.3	84.2

CAPACITY UTILIZATION

OCTOBER DATA

SEASONALLY ADJUSTED, PERCENT



MANUFACTURING, MINING AND UTILITIES

Table 1

Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973	1975	1978	1982	1987	1987	1988									
	High	Low	High	Low	Avg.	OCT	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	
Total Industry	88.6	72.1	86.9	69.5	81.5	81.9	82.4	82.4	82.7	82.9	83.0	83.7	83.8	83.8	84.0	
Manufacturing	87.7	69.9	86.5	68.0	80.6	82.0	82.6	82.7	82.9	83.3	83.3	84.0	83.9	84.1	84.3	
Primary processing	91.9	66.3	89.1	65.0	81.7	86.2	86.6	86.9	86.9	87.0	86.6	87.8	87.3	87.3	87.5	
Advanced processing	86.0	71.1	85.1	69.5	80.1	80.1	80.7	80.7	81.2	81.7	81.7	82.2	82.3	82.5	82.8	
Durable manufacturing	87.4	67.9	86.3	63.7	78.7	80.1	80.5	80.6	80.9	81.8	81.7	82.3	82.3	82.6	83.0	
Stone, clay and glass products	89.3	67.1	86.6	62.9	78.3	81.0	82.2	82.7	81.9	81.8	83.0	82.1	82.1	82.2		
Primary metals	101.9	67.0	97.1	45.8	79.6	88.8	85.1	83.7	83.7	87.5	85.8	89.5	89.1	90.9	89.4	
Iron and steel, subtotal	105.8	66.6	100.3	37.6	78.6	90.9	86.8	83.2	83.5	88.0	83.0	89.7	88.4	90.8		
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.2	85.9	82.7	84.3	84.1	86.8	89.5	89.3	90.0	91.0		
Fabricated metal products	85.0	64.7	87.4	61.3	77.8	79.5	81.8	82.4	82.3	82.9	83.1	83.8	83.7	84.1	84.4	
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.1	76.6	78.7	79.0	80.1	81.4	81.6	82.4	82.7	83.4	84.0	
Electrical machinery	85.7	63.7	89.9	66.9	78.1	76.5	77.1	76.5	77.3	77.4	77.4	78.2	78.5	78.6	78.6	
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.1	82.0	76.8	79.3	80.5	83.8	83.3	81.5	81.9	82.6	84.4	
Automobiles			93.3	36.6		72.5	60.6	65.8	69.3	75.3	75.3	71.4	70.4	74.0	76.5	
Aerospace and misc. trans. eqp.	77.0	69.6	87.1	70.7	77.7	88.9	88.7	87.6	86.6	86.4	86.2	86.7	85.7	85.4	85.5	
Instruments	89.2	74.9	88.9	77.8	83.0	79.6	80.0	80.0	80.2	80.3	81.0	82.5	82.3	82.3	82.6	
Other durables	87.7	69.0	81.0	69.1	81.6	81.2	82.5	82.4	82.2	82.2	81.3	81.4	80.6	80.2	80.7	
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.5	84.9	85.7	85.8	85.9	85.4	85.5	86.4	86.3	86.2	86.2	
Food and kindred products	85.8	77.6	85.1	76.5	82.2	79.5	80.9	80.2	79.6	79.7	79.7	80.6	80.3	80.0		
Textile mill products	92.1	58.9	88.3	70.6	85.0	92.4	90.4	91.4	91.3	88.9	88.3	90.2	89.2	89.1		
Paper and products	95.6	67.7	92.7	80.2	88.5	94.5	94.7	95.1	94.9	94.8	93.9	95.9	94.7	94.1		
Chemicals and products	88.6	69.2	82.9	67.6	78.9	83.1	84.7	85.0	86.2	86.1	86.7	88.1	88.6	88.6		
Petroleum products	99.6	83.7	91.7	68.8	86.9	85.5	86.3	88.5	88.5	85.5	84.4	85.2	85.9	85.4	86.7	
Rubber and plastics products	97.5	59.5	89.4	71.2	84.8	87.5	88.8	88.4	88.0	88.1	88.2	88.3	87.6	88.0		
Other nondurables	86.4	72.3	92.4	78.9	86.0	86.2	86.0	86.2	86.3	85.4	85.6	85.8	86.0	86.0	85.5	
Mining	92.8	87.8	95.2	76.9	86.7	80.6	79.5	80.6	82.3	80.8	81.2	82.5	82.4	82.4	81.8	
Utilities	95.6	82.9	88.5	78.0	86.9	80.5	82.6	81.0	79.3	79.7	80.8	81.5	83.9	80.6	80.8	
Electric utilities	98.7	83.0	87.6	78.2	88.0	82.5	84.4	83.2	82.2	83.5	84.9	86.4	88.9	84.6	84.8	

Table 2

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987	1987	1988	1988	1988	1987	1987	1988	1988	1988	1987	1987	1988	1988	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	125.9	139.8	140.6	141.6	142.7	143.9	85.3	86.9	86.9	86.8	87.5
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	122.4	146.1	147.2	147.9	148.4	148.9	80.7	81.4	82.1	82.2	82.1
Primary metals	83.7	90.5	86.0	87.3	91.9	102.6	101.8	101.6	102.0	102.3	81.6	88.8	84.7	85.7	89.8
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	113.9	124.1	124.6	125.1	125.8	126.4	82.4	86.7	83.2	86.8	90.1
Fabricated metal products	110.8	114.3	117.8	119.7	122.0	142.3	143.0	143.8	144.6	145.5	77.8	79.9	81.9	82.7	83.9
Nonelectrical machinery	155.4	158.7	163.7	169.6	174.4	205.4	206.7	208.0	209.3	210.6	75.7	76.8	78.7	81.0	82.8
Electrical machinery	173.4	175.7	177.2	179.1	182.3	228.9	229.6	230.5	231.5	232.5	75.7	76.5	76.9	77.4	78.4
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	108.0	148.6	149.3	149.8	149.9	150.1	62.0	88.9	81.8	73.3	71.9
Aerospace and misc. trans. eqp.	152.9	152.9	153.9	151.5	151.6	172.1	173.2	174.2	175.3	176.4	88.8	88.3	88.3	86.4	85.9
Instruments	145.2	146.7	149.0	151.6	156.6	183.3	184.9	186.6	188.3	190.1	79.2	79.3	79.9	80.5	82.4
Other durables	133.1	135.4	137.8	138.1	137.1	164.0	165.8	167.3	168.6	169.9	81.2	81.7	82.3	81.9	80.7
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	143.1	172.8	174.1	175.4	176.8	178.2	80.4	79.8	80.6	79.7	80.3
Textile mill products	118.6	117.4	116.2	115.4	116.7	126.1	126.6	127.5	128.9	130.4	94.2	92.8	91.1	89.5	89.5
Paper and products	148.4	148.3	149.0	149.1	151.1	153.6	154.9	156.2	157.7	159.2	96.6	95.7	95.4	94.5	94.9
Chemicals and products	141.8	144.6	146.6	149.5	154.4	169.6	170.5	171.7	173.2	174.6	83.6	84.8	85.3	86.3	88.4
Petroleum products	93.5	94.7	96.9	95.9	95.4	110.5	110.8	111.1	111.4	111.6	84.6	85.4	87.2	86.1	85.5
Rubber and plastics products	165.7	169.1	171.7	173.4	175.7	188.8	191.3	193.9	196.8	199.7	87.8	88.4	88.5	88.1	88.0
Other nondurables	140.7	141.4	143.0	144.5	146.9	161.8	163.9	166.2	168.6	170.9	87.0	86.3	86.1	85.7	85.9
Mining	100.7	104.3	102.5	103.4	104.0	129.0	128.4	127.7	127.0	126.2	78.0	81.2	80.3	81.5	82.4
Utilities	111.8	112.3	114.7	111.9	115.1	138.8	139.4	139.8	140.1	140.4	80.5	80.6	82.0	79.9	82.0
Electric utilities	130.2	126.6	130.0	129.8	135.2	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	1975	1978	1982	1987	1987	1988									
	High	Low	High	Low	High	Low	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	
Industrial Materials	92.0	70.5	89.1	68.5	82.2	82.1	82.3	82.4	82.9	83.0	83.2	84.4	84.3	84.3	84.2	
Durable goods materials	91.8	64.4	89.8	60.9	79.0	78.3	79.3	79.1	79.7	80.8	80.7	81.7	81.3	82.0	81.9	
Metal materials	99.2	67.1	93.6	45.7	77.7	82.4	79.3	78.3	79.3	82.1	80.8	84.9	83.5	86.0	84.0	
Raw steel	100.0	66.4	96.5	50.1	80.2	87.8	85.7	86.5	83.4	89.7	87.5	95.1	98.0	97.5		
Aluminum	95.7	73.0	97.4	58.8	87.3	91.8	97.9	99.2	99.5	98.8	99.5	100.8	100.5	100.3		
Nondurable goods materials	91.1	66.7	88.1	70.7	83.4	82.2	87.3	88.3	88.7	87.7	87.4	86.9	88.8	88.5	88.4	
Textile, paper, and chemical materials	92.8	64.8	89.4	68.8	83.8	90.4	88.5	89.9	90.1	88.8	88.6	90.4	90.4	89.9	89.8	
Pulp and paper materials	98.4	70.6	97.3	79.9	91.7	97.4	97.8	97.8	98.1	98.1	97.1	100.0	96.2	97.7		
Chemical materials	92.5	64.4	87.9	63.5	81.0	88.0	85.7	87.5	88.0	86.9	87.0	88.8	89.3	88.6		
Energy materials	94.6	80.9	94.0	82.3	89.0	84.9	84.1	84.1	84.5	83.3	84.9	86.2	86.9	85.6	85.1	

Table 4

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987	1988	1988	1988	1988	1987	1988	1988	1988	1988	1987	1988	1988	1988	1988
	Q3	Q4	Q1	Q2	Q3	Q3	Q4	Q1	Q2	Q3	Q3	Q4	Q1	Q2	Q3
Industrial Materials	119.2	122.5	122.5	124.0	126.6	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	81.7
Metal materials	83.8	91.4	86.2	88.1	92.8	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	133.0	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	135.0	144.4	145.4	146.7	148.5	150.2	90.4	91.5	89.7	89.2	90.3
Pulp and paper materials	144.6	145.1	145.7	145.9	148.7	145.1	146.2	147.6	149.2	150.7	99.0	99.2	98.7	97.8	98.6
Chemical materials	130.2	135.5	133.5	135.7	139.9	150.9	152.0	153.5	155.4	157.3	86.3	89.1	87.0	87.3	88.9
Energy materials	100.0	102.1	100.9	100.6	102.7	120.1	119.9	119.7	119.4	119.1	83.3	85.2	84.3	84.2	86.2

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 15, October 17, November 16, and December 16.