

FEDERAL RESERVE statistical release



G.3 (402)

For Immediate release

CAPACITY UTILIZATION

Manufacturing, Mining, Utilities, and Industrial Materials

May 17, 1988

Capacity utilization in manufacturing, mining, and utilities rose 0.3 percentage point in April to 82.7 percent after little change between December and March. Utilization rates for manufacturing and mining increased in April while the operating rate for utilities declined. Within manufacturing, utilization rates for both primary and advanced processing industries increased in April. The operating rate for advanced processing has returned to about the same level as its recent high during 1984; in contrast, utilization for primary processing industries during the past half year has been at its highest level since 1979.

The April increase in utilization for manufacturing came principally at producers of durable goods where output gains were widespread. Operating rates for both the electrical and nonelectrical machinery industries continued to rise in April, as did the rate for fabricated metal products. Utilization at automobile assembly facilities also continued its rebound from the very low rates at the start of the year. Utilization for nondurable manufacturing was unchanged in April despite an increase at petroleum refiners of nearly a percentage point.

Capacity utilization at producers of industrial materials rose 0.5 percentage point in April to 82.9 percent; gains came for both durable and nondurable goods materials. Operating rates for nondurable goods materials continued to be well above their long term average, as they have for the past year. Although the overall materials operating rate has fallen since last December, it remained nearly four percentage points above its level of a year ago. Contributing to the past year's increase have been rising utilization rates, on average, for raw steel and aluminum manufacturers. In these industries, capacity reductions undertaken during this decade and a resurgence in production during the past year have pushed utilization up to levels last attained in the early 1980s.

Capacity Utilization: Summary

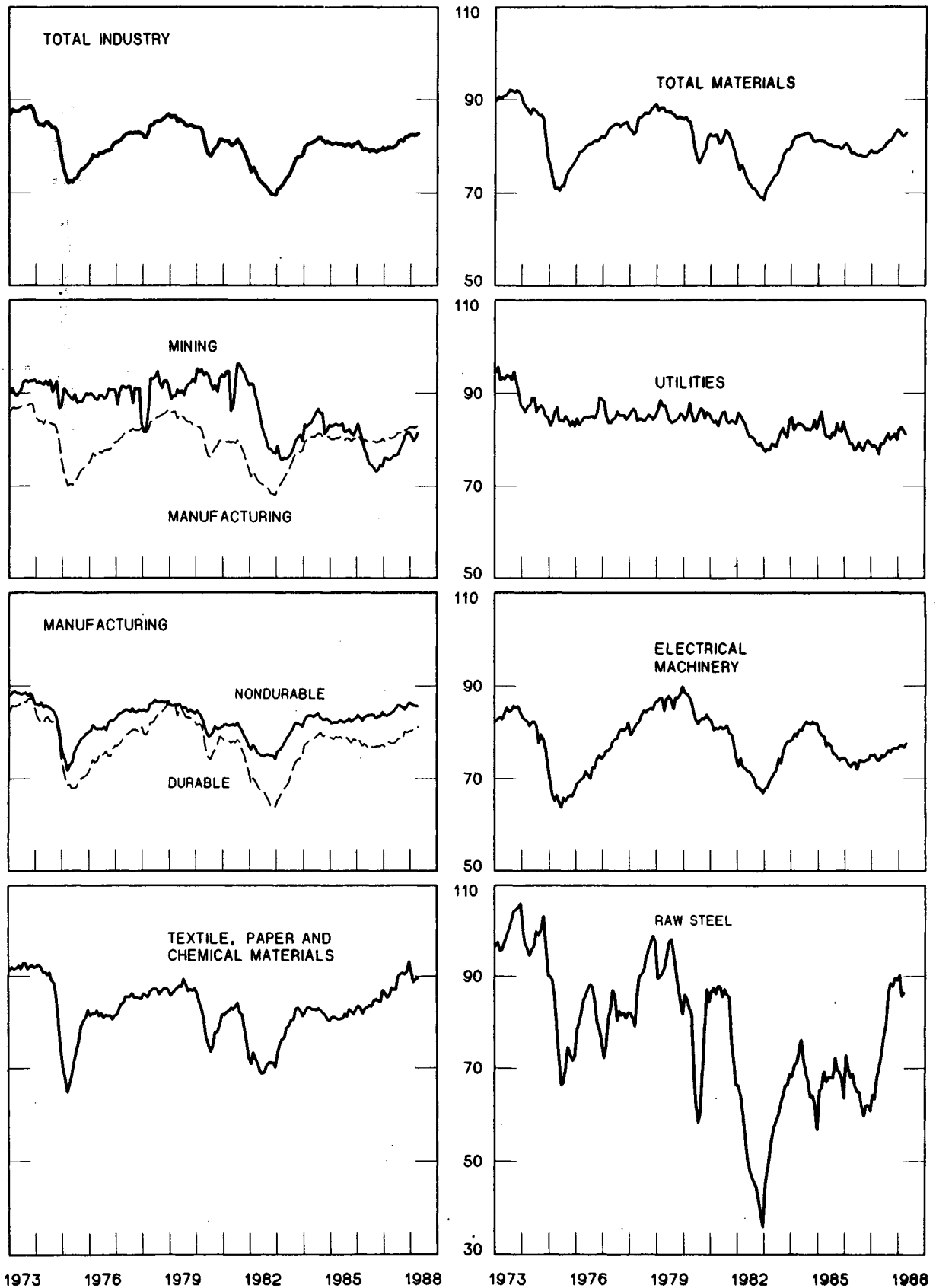
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1987 -87 Avg.	1988			
						JAN	FEB	MAR	APR
Total Industry	88.6	72.1	86.9	69.5	81.5	82.5	82.4	82.4	82.7
Manufacturing	87.7	69.9	86.5	68.0	80.6	82.7	82.6	82.6	83.0
Durable	87.4	67.9	86.3	63.7	78.7	80.3	80.4	80.6	81.1
Nondurable	88.8	71.8	87.0	74.2	83.5	86.2	85.8	85.7	85.7
Mining	92.8	87.8	95.2	76.9	86.7	80.7	79.6	80.3	81.5
Utilities	95.6	82.9	88.5	78.0	86.9	82.4	82.8	81.8	81.1
Industrial Materials	92.0	70.5	89.1	68.5	82.2	83.0	82.2	82.4	82.9

CAPACITY UTILIZATION

APRIL 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	1987					1988			
	High	Low	-80	Low	-87	APR	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
			High		Avg.										
Total Industry	88.6	72.1	80.9	69.5	81.5	79.6	81.4	81.1	81.9	82.1	82.4	82.5	82.4	82.4	82.7
Manufacturing	87.7	69.9	80.5	68.0	80.6	80.2	81.5	81.3	82.0	82.2	82.6	82.7	82.6	82.6	83.0
Primary processing	91.9	68.3	89.1	65.0	81.7	83.5	85.3	85.1	86.2	87.0	87.6	87.1	86.6	86.6	87.1
Advanced processing	86.0	71.1	85.1	69.5	80.1	78.7	79.9	79.5	80.1	80.0	80.3	80.7	80.8	80.7	81.1
Durable manufacturing	87.4	67.9	80.3	63.7	78.7	77.5	78.6	78.4	80.1	79.9	80.1	80.3	80.4	80.6	81.1
Stone, clay and glass products	89.3	67.1	86.6	62.9	78.3	83.3	79.7	81.0	81.0	81.9	81.4	81.5	82.2	82.3	
Primary metals	101.9	67.0	97.1	45.8	79.6	73.6	83.0	82.6	88.8	88.6	89.1	85.2	83.9	83.5	
Iron and steel, subtotal	105.8	66.6	100.3	37.6	78.6	69.9	83.4	82.3	90.9	88.8	91.6	87.3	84.7	83.2	
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.2	78.7	82.3	83.1	85.9	88.3	85.8	82.4	82.8	83.8	
Fabricated metal products	85.0	64.7	87.4	61.3	77.8	77.8	77.4	78.0	79.5	79.4	80.8	81.6	81.9	82.4	82.8
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.1	73.8	75.1	76.1	76.6	76.1	77.8	78.5	78.6	79.0	79.6
Electrical machinery	85.7	63.7	89.9	66.9	78.1	73.9	76.1	75.7	76.5	76.5	76.5	77.1	77.1	76.7	77.6
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.1	78.1	77.2	74.7	82.0	80.4	77.7	77.2	76.8	79.4	80.9
Automobiles			93.3	36.6		70.3	59.0	60.7	72.5	70.2	63.9	59.0	60.6	65.8	69.3
Aerospace and misc. trans. eqp.	77.0	69.6	87.1	70.7	77.7	89.2	89.4	88.4	88.9	88.2	87.9	88.7	88.7	87.6	87.5
Instruments	89.2	74.9	88.9	77.8	83.0	78.8	79.8	79.2	79.6	79.9	78.5	79.7	80.0	80.1	80.3
Other durables	87.7	69.0	81.0	69.1	81.6	81.0	81.2	80.3	81.2	82.0	81.8	82.0	82.9	82.3	82.5
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.5	84.2	85.8	85.5	84.9	85.6	86.4	86.2	85.8	85.7	85.7
Food and kindred products	85.8	77.6	85.1	76.5	82.2	79.4	80.3	80.5	79.5	79.8	80.3	80.7	80.9	80.4	
Textile mill products	92.1	58.9	88.3	70.6	85.0	92.9	95.0	93.6	92.4	92.7	93.3	91.5	90.4	90.6	
Paper and products	95.6	67.7	92.7	80.2	88.5	92.5	96.9	95.7	94.5	95.8	97.0	96.3	94.7	95.4	
Chemicals and products	88.0	69.2	82.9	67.6	78.9	81.5	83.9	83.8	83.1	84.7	86.5	86.3	84.9	84.9	
Petroleum products	99.6	83.7	91.7	68.8	86.9	85.5	84.1	84.5	85.4	84.2	86.6	86.7	86.3	87.6	88.7
Rubber and plastics products	97.5	59.5	89.4	71.2	84.8	86.5	87.3	87.1	87.5	88.8	88.8	88.3	88.8	88.5	
Other nondurables	86.4	72.3	92.4	78.9	86.0	85.8	87.2	86.3	86.2	86.4	86.2	86.0	86.1	85.8	85.5
Mining	92.8	87.8	95.2	76.9	86.7	75.9	78.2	79.1	80.6	81.5	81.5	80.7	79.6	80.3	81.5
Utilities	95.6	82.9	88.5	78.0	86.9	76.8	81.3	80.0	80.5	81.2	80.0	82.4	82.8	81.8	81.1
Electric utilities	98.7	83.0	87.0	78.2	88.0	80.7	86.3	83.2	82.5	82.8	81.4	84.3	84.4	83.3	82.6

Table 2

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987	1987	1987	1987	1988	1987	1987	1987	1987	1988	1987	1987	1987	1987	1988
	Q1	Q2	Q3	Q4	Q1	Q1	Q2	Q3	Q4	Q1	Q1	Q2	Q3	Q4	Q1
Total Industry	126.9	128.2	131.0	133.2	134.5	159.5	160.4	161.3	162.2	163.1	79.5	79.9	81.2	82.1	82.4
Manufacturing	131.6	133.2	135.7	138.1	139.6	164.5	165.6	166.7	167.7	168.9	80.0	80.5	81.4	82.3	82.7
Primary processing	114.3	116.1	119.2	122.2	122.8	138.2	139.0	139.8	140.6	141.6	82.7	83.5	85.3	86.9	86.8
Advanced processing	142.0	143.5	145.8	147.6	149.7	180.3	181.6	182.9	184.1	185.4	78.7	79.0	79.7	80.1	80.7
Durable manufacturing	130.5	131.4	133.7	136.9	138.4	168.4	169.3	170.2	171.1	172.0	77.5	77.6	78.5	80.0	80.4
Stone, clay and glass products	120.2	118.6	118.0	119.8	121.3	144.0	145.1	146.1	147.2	147.9	83.4	81.7	80.7	81.4	82.0
Primary metals	75.0	77.3	83.7	90.5	85.6	104.0	103.3	102.6	101.8	101.6	72.1	74.8	81.6	88.8	84.2
Iron and steel, subtotal	62.4	66.3	73.8	81.2	75.9	93.8	92.5	91.1	89.8	89.2	66.5	71.7	81.0	90.4	85.1
Nonferrous metals, subtotal	98.7	98.0	102.2	108.0	103.9	123.2	123.7	124.1	124.6	125.1	80.1	79.2	82.4	86.7	83.0
Fabricated metal products	109.1	109.9	110.8	114.3	117.9	140.8	141.5	142.3	143.0	143.8	77.5	77.6	77.8	79.9	82.0
Nonelectrical machinery	145.8	150.6	155.4	158.7	163.7	202.8	204.1	205.4	206.7	208.0	71.9	73.8	75.7	76.8	78.7
Electrical machinery	169.9	170.0	173.4	175.7	177.3	227.4	228.1	228.9	229.6	230.5	74.7	74.5	75.7	76.5	76.9
Motor vehicles and parts	115.4	109.7	108.0	113.4	110.7	140.2	140.7	141.2	141.7	142.3	82.3	78.0	76.5	80.0	77.8
Automobiles	113.7	103.1	94.2	102.8	92.6	147.1	147.8	148.6	149.3	149.8	77.3	69.7	62.0	68.9	61.8
Aerospace and misc. trans. eqp.	152.8	152.6	152.9	152.9	153.9	170.0	171.1	172.1	173.2	174.2	89.9	89.2	88.8	88.3	88.3
Instruments	140.6	143.1	145.2	146.7	149.1	180.0	181.6	183.3	184.9	186.6	78.1	78.8	79.2	79.3	79.9
Other durables	130.7	132.2	133.1	135.4	137.9	160.3	162.2	164.0	165.8	167.3	81.5	81.5	81.2	81.7	82.4
Nondurable manufacturing	133.1	135.7	138.6	139.7	141.4	158.9	160.3	161.7	163.1	164.6	83.7	84.7	85.7	85.6	85.9
Food and kindred products	136.1	137.0	138.9	139.0	141.5	170.3	171.6	172.8	174.1	175.4	79.9	79.9	80.4	79.8	80.7
Textile mill products	110.9	116.5	118.8	117.4	115.8	125.2	125.7	126.1	126.6	127.5	88.5	92.7	94.2	92.8	90.8
Paper and products	139.9	141.5	148.4	148.3	149.2	151.1	152.4	153.6	154.9	156.2	92.5	92.8	96.6	95.7	95.5
Chemicals and products	135.8	138.2	141.8	144.6	146.6	167.8	168.7	169.6	170.5	171.7	80.9	81.9	83.6	84.8	85.4
Petroleum products	93.1	93.0	93.5	94.7	96.6	109.8	110.1	110.5	110.8	111.1	84.8	84.4	84.6	85.4	86.9
Rubber and plastics products	156.7	162.7	165.7	169.1	171.8	183.8	186.3	188.8	191.3	193.9	85.2	87.3	87.8	88.4	88.6
Other nondurables	134.6	138.4	140.7	141.4	142.9	157.5	159.6	161.8	163.9	166.2	85.5	86.7	87.0	86.3	86.0
Mining	98.8	99.0	100.7	104.3	102.5	130.4	129.7	129.0	128.4	127.7	75.8	76.3	78.0	81.2	80.2
Utilities	108.1	108.3	111.8	112.3	115.1	137.7	138.3	138.8	139.4	139.8	78.5	78.3	80.5	80.6	82.3
Electric utilities	122.5	126.6	130.2	126.6	130.1	150.8	151.9	152.9	154.0	154.8	81.2	83.4	85.1	82.2	84.0

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	1987					1988				
	High	Low	-80	Low	-87	APR	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	
Industrial Materials	92.0	70.5	89.1	68.5	82.2	79.1	81.1	81.2	82.1	82.9	83.6	83.0	82.2	82.4	82.9	
Durable goods materials	91.8	64.4	89.8	60.9	79.0	75.0	76.6	77.0	78.3	79.0	80.0	79.7	79.2	79.2	79.9	
Metal materials	99.2	67.1	93.6	45.7	77.7	68.8	77.5	78.3	82.4	83.3	86.3	80.1	76.5	78.3	79.1	
Raw steel	106.0	66.4	98.9	36.1	80.2	70.6	86.5	88.5	87.8	89.7	89.2	90.3	85.7	86.5		
Aluminum	95.7	73.0	97.4	56.0	87.3	80.8	88.6	90.3	91.8	94.8	95.8	97.1	97.9	99.2		
Nondurable goods materials	91.1	66.7	88.1	70.7	83.4	86.5	88.6	88.7	88.2	89.0	90.8	88.8	87.5	87.8	88.1	
Textile, paper, and chemical materials	92.8	64.8	89.4	68.8	83.8	87.5	90.5	90.7	90.4	91.0	93.1	90.8	88.7	89.3	89.6	
Pulp and paper materials	98.4	70.6	97.3	79.9	91.7	95.1	99.9	98.5	97.4	98.7	101.6	100.6	97.8	98.1		
Chemical materials	92.5	64.4	87.9	63.5	81.0	83.9	86.4	87.4	88.0	88.6	90.9	87.8	86.1	86.7		
Energy materials	94.6	86.9	94.0	82.3	89.0	81.3	84.0	83.5	84.9	85.7	84.8	84.7	84.1	84.4	84.8	

Table 4

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1987 Q1	Q2	Q3	Q4	1988 Q1	1987 Q1	Q2	Q3	Q4	1988 Q1	1987 Q1	Q2	Q3	Q4	1988 Q1
Industrial Materials	115.0	110.5	119.2	122.5	122.5	146.1	146.7	147.2	147.8	148.5	78.7	79.4	81.0	82.9	82.5
Durable goods materials	121.4	122.9	125.7	130.3	131.5	162.3	163.1	163.9	164.7	165.7	74.8	75.4	76.7	79.1	79.4
Metal materials	74.7	77.0	83.8	91.4	85.9	110.0	110.0	109.4	109.9	108.8	67.5	70.0	76.5	84.0	79.0
Raw steel	60.9	67.6	77.0	79.5	77.7	93.0	92.2	90.8	89.4	88.7	65.1	73.6	84.8	88.9	87.5
Aluminum	74.9	77.8	83.6	88.4	92.5	95.4	94.9	94.4	93.9	94.3	78.5	81.9	88.6	94.1	98.1
Nondurable goods materials	121.2	124.0	128.2	130.1	129.3	142.9	143.8	144.7	145.0	146.8	84.0	86.2	88.6	89.3	88.0
Textile, paper and chemical materials	122.3	125.1	130.5	133.0	131.5	142.4	143.4	144.4	145.4	146.7	85.9	87.2	90.4	91.5	89.6
Pulp and paper materials	136.4	137.7	144.6	145.1	145.9	142.8	143.9	145.1	146.2	147.6	95.5	95.7	99.6	99.2	98.8
Chemical materials	122.9	125.3	130.2	135.5	133.3	148.8	149.8	150.9	152.0	154.5	82.6	83.6	86.3	89.1	86.8
Energy materials	98.3	98.7	100.0	102.1	101.0	120.3	120.2	120.1	119.9	119.7	81.7	82.1	83.3	85.2	84.4

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