

FEDERAL RESERVE statistical release



G.3 (402)

For release at 9:15 a.m. (EST)
January 17, 1990

CAPACITY UTILIZATION Manufacturing, Mining, Utilities, and Industrial Materials

Capacity utilization in manufacturing, mining, and utilities increased 0.2 percentage point in December to 83.3 percent. A surge of 5 percentage points in the operating rate for utilities, which was the largest in the 23-year history of this series, resulted from the abnormally cold temperatures experienced in December. Elsewhere, utilization in manufacturing edged down 0.1 percentage point while the rate for mining fell nearly a percentage point.

Utilization for manufacturing declined in December despite the return to work of strikers at a major aircraft manufacturer, which boosted the operating rate for aerospace and miscellaneous transportation equipment nearly 6 percentage points. Elsewhere, decreases in factory operating rates were widespread. Utilization for primary metals continued the downward trend that began in late summer, dropping more than 2 percentage points in December to 78.8 percent, its lowest level since June 1987. Operating rates for both the nonferrous metals and iron and steel industries have fallen to levels significantly below those earlier in the year. Activity at auto assembly facilities remained slack in December as their operating rate held steady at 64.3 percent. Over the course of 1989, overall factory utilization declined 1.3 percentage points with durable goods industries experiencing the bulk of the slowdown.

Utilization for producers of industrial materials fell 0.5 percentage point in December to 82.8 percent. The drop reflected declines for both durable and nondurable goods materials industries. The operating rate for energy materials rose as a result of the increase in utilities output.

Capacity Utilization: Summary

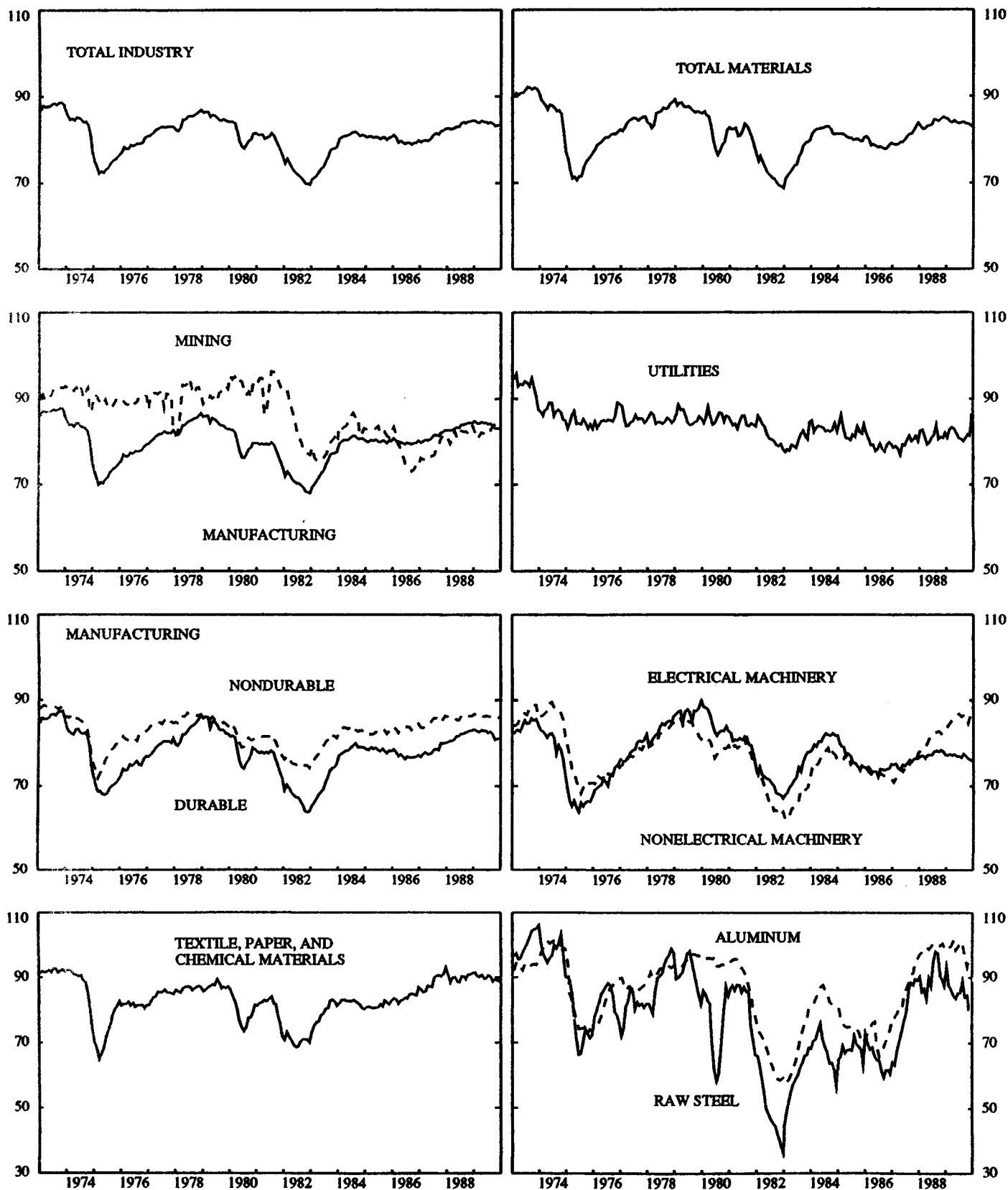
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 —80 High	1982 Low	1967 —88 Ave.	1989 Sep	Oct	Nov	Dec
Total industry	88.6	72.1	86.9	69.5	81.6	83.6	83.1	83.1	83.3
Manufacturing	87.7	69.9	86.5	68.0	80.7	83.7	83.1	83.2	83.1
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	82.2	80.9	81.0	81.1
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.6	85.9	86.2	86.2	85.8
Mining	92.8	87.8	95.2	76.9	86.5	83.4	84.0	84.3	83.4
Utilities	95.6	82.9	88.5	78.0	86.7	80.8	81.7	81.3	86.3
Materials	92.0	70.5	89.1	68.5	82.3	83.6	83.5	83.3	82.8

CAPACITY UTILIZATION

SEASONALLY ADJUSTED, PERCENT

DECEMBER DATA



MANUFACTURING, MINING AND UTILITIES

Table 1

Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973 High	1975 Low	1978 High	1982 Low	1987 -88 Ave.	1988 Dec	1989 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total industry	88.6	72.1	86.9	69.5	81.6	84.3	84.2	84.0	84.0	83.7	83.9	83.6	83.1	83.1	83.3
Manufacturing	87.7	69.9	86.5	68.0	80.7	84.4	84.5	84.3	84.4	84.0	84.2	83.7	83.1	83.2	83.1
Primary processing	91.9	68.3	89.1	65.0	82.0	87.9	86.8	86.2	86.2	86.7	86.6	85.8	86.2	85.7	84.5
Advanced processing	86.0	71.1	85.1	69.5	80.2	82.8	83.5	83.4	83.5	82.9	83.2	82.6	81.7	81.9	82.2
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	83.1	83.0	82.9	82.9	82.4	82.8	82.2	80.9	81.0	81.1
Stone, clay & glass prod.	89.3	67.1	86.6	62.9	78.5	83.6	82.9	82.3	82.2	81.5	82.0	81.6	81.7	81.9	
Primary metals	101.9	67.0	97.1	45.8	79.9	87.6	87.1	84.1	84.0	85.6	86.5	85.3	84.9	81.0	78.8
Iron and steel	105.8	66.6	100.3	37.6	79.0	86.5	85.1	80.8	80.2	82.8	83.2	82.4	83.3	78.5	
Nonferrous metals	95.6	62.1	91.1	60.8	81.5	89.1	89.7	88.6	89.1	89.4	91.0	89.1	87.0	84.4	
Fabricated metal products	85.0	64.7	87.4	61.3	78.0	84.9	82.8	83.7	83.7	83.7	83.5	82.6	82.3	82.7	82.1
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.2	83.7	86.0	86.6	86.8	86.2	86.5	86.4	84.6	86.0	86.2
Electrical machinery	85.7	63.7	89.9	66.9	78.1	77.3	77.4	77.1	77.1	76.7	77.6	77.1	76.6	76.3	75.9
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.2	87.2	84.2	82.5	80.1	75.9	78.4	77.2	75.4	75.5	75.4
Autos			93.3	36.6		79.8	75.2	73.1	69.6	61.8	65.8	70.7	69.8	64.3	64.3
Aerosp. & misc. transp. eq.	77.0	68.6	87.1	70.7	78.1	85.6	86.9	87.3	87.8	88.3	87.8	87.0	78.3	79.4	85.3
Instruments	89.2	74.9	88.9	77.8	82.9	82.7	83.4	83.7	84.1	83.9	82.7	81.8	81.7	81.1	80.6
Other durables	87.7	69.0	81.0	69.1	81.6	82.4	80.7	81.2	81.9	81.7	81.5	81.4	81.8	81.8	81.4
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.6	86.3	86.5	86.2	86.4	86.3	86.2	85.9	86.2	86.2	85.8
Foods	85.8	77.6	85.1	76.5	82.1	81.0	80.6	80.7	80.9	80.4	80.7	80.8	81.3	81.4	
Textile mill products	92.1	58.9	88.3	70.6	85.2	89.1	92.0	92.8	92.8	92.5	92.1	92.0	91.7	90.7	
Paper and products	95.6	67.7	92.7	80.2	88.8	94.1	92.2	91.6	91.3	92.4	92.3	92.4	93.2	92.8	
Chemicals and products	88.6	69.2	82.9	67.6	79.3	89.2	88.3	87.3	87.9	88.8	88.0	86.5	87.3	87.6	
Petroleum products	99.6	83.7	91.7	68.8	86.9	87.5	86.7	86.3	87.2	87.4	86.9	87.4	87.1	87.0	85.2
Rubber & plastics prod.	97.5	59.5	89.4	71.2	85.0	87.2	85.8	86.6	87.0	86.6	86.8	86.7	87.0	86.6	
Other nondurables	86.4	72.3	92.4	78.9	86.0	85.1	87.8	86.9	87.0	86.1	85.9	86.2	85.9	85.8	85.6
Mining	92.8	87.8	95.2	76.9	86.5	83.6	82.0	81.8	81.5	82.1	82.4	83.4	84.0	84.3	83.4
Utilities	95.6	82.9	88.5	78.0	86.7	82.0	82.9	81.8	80.8	80.5	80.0	80.8	81.7	81.3	86.3
Electric utilities	98.7	83.0	87.6	78.2	87.9	84.7	86.8	85.8	84.9	85.0	84.4	85.1	86.1	85.6	90.7

Table 2

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	Output					Capacity					Utilization				
	1988 QIV	1989 QI	QII	QIII	QIV	1988 QIV	1989 QI	QII	QIII	QIV	1988 QIV	1989 QI	QII	QIII	QIV
Total industry	139.9	140.7	141.8	142.2	142.3	166.3	167.5	168.7	169.9	171.1	84.1	84.0	84.1	83.7	83.2
Manufacturing	145.8	147.0	148.3	148.8	148.5	172.8	174.3	175.7	177.2	178.7	84.4	84.4	84.4	84.0	83.1
Primary processing	127.7	127.8	127.6	128.8	128.5	145.2	146.5	147.8	149.1	150.4	87.9	87.3	86.4	86.4	85.5
Advanced processing	156.7	158.6	160.8	160.9	160.4	189.5	191.0	192.6	194.2	195.8	82.7	83.0	83.5	82.9	81.9
Durable manufacturing	145.2	146.0	147.1	147.3	145.6	175.0	176.1	177.4	178.6	179.8	82.9	82.9	83.0	82.5	81.0
Stone, clay & glass prod.	124.4	125.8	124.2	123.4		149.4	150.0	150.5	151.1		83.2	83.9	82.5	81.7	
Primary metals	92.3	90.9	88.2	89.5	85.6	102.6	103.1	103.7	104.3	105.0	90.0	88.2	85.1	85.8	81.6
Iron and steel	80.5	79.1	74.4	75.6		89.6	90.0	90.6	91.3		89.8	87.9	82.0	82.8	
Nonferrous metals	114.5	113.2	114.4	115.9		127.1	127.7	128.4	129.0		90.1	88.6	89.1	89.9	
Fabricated metal products	124.1	124.3	124.4	125.1	124.7	146.9	148.0	149.1	150.2	151.3	84.5	83.9	83.4	83.3	82.4
Nonelectrical machinery	175.7	180.8	186.2	187.6	187.6	211.9	213.5	215.4	217.2	219.1	82.9	84.7	86.5	86.3	85.6
Electrical machinery	182.0	181.4	181.9	182.6	181.4	233.5	234.5	235.6	236.7	237.8	78.0	77.3	77.2	77.1	76.3
Motor vehicles and parts	123.4	122.9	119.3	112.4	110.3	143.8	144.4	145.0	145.7	146.3	85.8	85.1	82.3	77.2	75.4
Autos	116.9	110.6	108.9	99.0	98.9	150.2	150.2	150.0	149.8	149.6	77.8	73.6	72.6	66.1	66.1
Aerosp. & misc. transp. eq.	152.3	153.7	157.1	158.8	147.7	177.5	178.6	179.9	181.1	182.4	85.8	86.0	87.3	87.7	81.0
Instruments	159.8	161.4	164.3	164.4	162.9	191.8	193.9	196.2	198.5	200.8	83.3	83.2	83.7	82.8	81.1
Other durables	139.9	138.5	141.3	142.7	144.1	171.2	172.5	173.8	175.1	176.4	81.7	80.3	81.3	81.5	81.7
Nondurable manufacturing	146.7	148.4	149.9	151.0	152.5	169.8	171.6	173.5	175.3	177.2	86.4	86.5	86.4	86.1	86.1
Foods	145.2	146.1	147.2	148.1		179.6	181.0	182.4	183.7		80.8	80.7	80.7	80.6	
Textile mill products	117.4	119.8	123.3	123.3		131.8	132.7	133.2	133.7		89.1	90.2	92.5	92.2	
Paper and products	151.4	152.4	150.3	152.9		160.7	162.3	163.9	165.5		94.2	93.9	91.7	92.4	
Chemicals and products	157.4	158.9	159.1	161.0		176.7	178.8	181.1	183.5		89.1	88.9	87.9	87.8	
Petroleum products	96.4	97.1	97.4	98.1	97.4	111.9	112.1	112.3	112.5	112.7	86.2	86.6	86.7	87.2	86.5
Rubber & plastics prod.	177.3	175.8	180.3	183.4		202.6	205.5	208.5	211.5		87.5	85.5	86.5	86.7	
Other nondurables	148.3	152.3	155.3	155.3	156.9	173.3	175.7	178.1	180.4	182.8	85.6	86.7	87.2	86.1	85.8
Mining	104.2	101.8	102.0	102.7	103.9	125.7	125.1	124.7	124.3	123.8	82.9	81.3	81.8	82.6	83.9
Utilities	114.3	116.0	115.7	113.9	118.0	140.7	141.0	141.4	141.7	142.0	81.3	82.3	81.8	80.4	83.1
Electric utilities	132.4	134.4	135.8	134.9	139.8	156.7	157.4	158.2	159.0	159.8	84.5	85.4	85.9	84.8	87.5

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

Series	1973 High	1975 Low	1978 —80 High	1982 Low	1967 —88 Ave.	1988 Dec	1989 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Materials	92.0	70.5	89.1	68.5	82.3	84.9	84.2	83.8	83.6	83.7	83.9	83.6	83.5	83.3	82.8
Durable goods materials	91.8	64.4	89.8	60.9	79.1	82.1	81.3	81.0	81.1	81.3	81.7	81.2	80.3	80.0	79.1
Metal materials	99.2	67.1	93.6	45.7	77.9	84.6	83.6	79.8	80.6	82.3	82.7	81.9	81.7	77.2	75.0
Raw steel	106.0	66.4	98.9	36.1	80.7	87.6	84.4	83.7	85.4	85.4	89.0	84.0	84.7	80.2	
Aluminum	95.7	73.0	97.4	58.8	87.8	99.4	101.5	98.4	99.6	101.2	99.9	96.4	93.5	96.2	
Nondurable goods materials	91.1	66.7	88.1	70.7	83.6	89.8	89.2	88.7	88.7	89.2	88.8	87.5	88.3	88.1	87.8
Textile, paper, & chem. mat.	92.8	64.8	89.4	68.8	84.1	91.3	90.7	89.6	89.8	90.6	90.1	88.8	89.4	89.1	88.8
Pulp & paper materials	98.4	70.6	97.3	79.9	92.0	98.4	94.5	93.2	93.7	95.0	95.1	95.1	96.3	95.8	
Chemical materials	92.5	64.4	87.9	63.5	81.3	90.7	90.1	88.4	88.5	89.5	88.6	86.7	87.4	87.2	
Energy materials	94.6	86.9	94.0	82.3	88.9	86.5	86.0	85.5	83.8	83.9	84.3	85.4	86.1	86.1	86.6

Table 4

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	Output					Capacity					Utilization				
	1988 QIV	1989 QI	QII	QIII	QIV	1988 QIV	1989 QI	QII	QIII	QIV	1988 QIV	1989 QI	QII	QIII	QIV
Materials	128.0	127.6	127.9	128.6	128.5	150.8	151.7	152.6	153.5	154.4	84.9	84.1	83.9	83.8	83.2
Durable goods materials	139.2	138.6	139.0	140.4	138.6	169.0	170.1	171.3	172.5	173.7	82.4	81.5	81.1	81.4	79.8
Metal materials	94.8	92.3	90.0	91.4	86.9	109.8	110.2	110.6	111.0	111.4	86.3	83.8	81.4	82.3	78.0
Raw steel	79.5	79.8	76.2	78.2		89.2	89.6	90.2	90.8		89.1	89.0	84.5	86.1	
Aluminum	97.8	98.5	99.1	98.9		97.9	98.7	99.2	99.7		99.9	99.7	99.8	99.2	
Nondurable goods materials	135.4	136.3	137.1	137.9	138.6	151.2	152.7	154.2	155.8	157.4	89.5	89.3	88.9	88.5	88.1
Textile, paper, & chem. mat.	138.1	139.2	139.8	141.1	141.5	151.8	153.5	155.3	157.0	158.8	91.0	90.7	90.0	89.8	89.1
Pulp & paper materials	148.6	148.4	146.1	149.8		152.3	154.0	155.8	157.6		97.6	96.4	93.8	95.1	
Chemical materials	144.1	145.4	145.7	146.5		159.3	161.4	163.7	165.9		90.5	90.1	89.0	88.3	
Energy materials	102.0	100.7	100.7	99.8	101.8	118.7	118.4	118.3	118.1	118.0	86.0	85.0	85.1	84.5	86.3

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 are aggregated to primary 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 16th 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 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. Raddock, "Revised Federal Reserve Rates of Capacity Utilization," *Federal Reserve Bulletin* Vol. 71 (October 1985), pp. 754–66. Historical utilization rates since 1967 (1948 in the case of manufacturing) are included in the statistical supplement to the October 1987 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 1990. At 9:15 a.m. on January 17, February 16, March 16, April 17, May 15, June 15, July 17, August 16, September 14, October 17, November 14, and December 14.

Notice

This release is available on the day of issue through the Department of Commerce's online Electronic Bulletin Board.

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