

FEDERAL RESERVE statistical release



G.3 (402)

For Immediate release

CAPACITY UTILIZATION

October 19, 1987

Manufacturing, Mining, Utilities, and Industrial Materials

The estimates of capacity and capacity utilization have been revised. The revised data for 1987 are in this release; revised data for 1981-1986 as well as unrevised historical data are contained in the attached supplement.

Capacity utilization in manufacturing, mining, and utilities remained at 81.2 percent in September, as increased utilization at mines was offset by slight declines in operating rates at manufacturers and utilities. Taking a longer view, operating rates have been trending upward during the past year, almost fully reversing the two year decline that started in the third quarter of 1984. The increase in utilization over the past year has resulted from broad-based production increases in most industries, except automotive goods.

Within manufacturing, most industries showed only small changes during September. The largest absolute changes were in primary metals and motor vehicles and parts. The operating rate for primary metals producers continued its upward trend of the past year. It has risen 15.5 percentage points during that period as production has increased and some steel mill capacity has been shut down. Utilization in the motor vehicles and parts industry fell again in September; automobile production rebounded slightly, but this was more than offset by a large decline in truck production.

Producers of industrial materials continued to utilize 80.8 percent of their capacity in September. Gains in operating rates in nondurable goods materials industries were countered by declines for durable materials producers.

The capacity and capacity utilization estimates have been revised beginning in 1981, while the related production indexes have been revised back to 1985. In the aggregate, neither production nor capacity growth between the end of 1984 and June 1987 have been revised significantly. However, there have been significant revisions to utilization rates in many of the individual industries.

Capacity Utilization: Summary

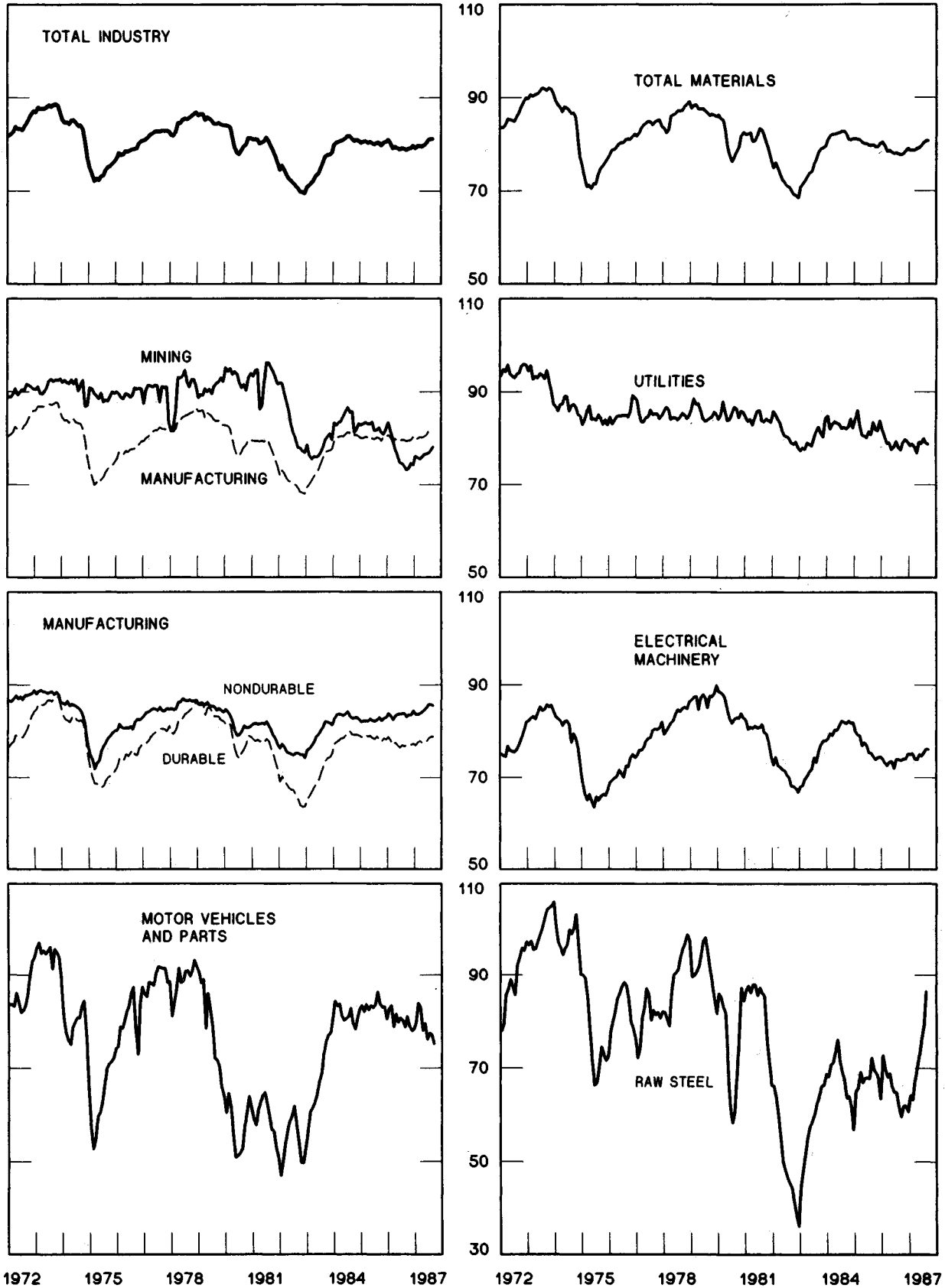
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1987 -86 Avg.	1987			
						JUN	JUL	AUG	SEP
Total Industry	88.6	72.1	86.9	69.5	81.5	80.3	81.1	81.2	81.2
Manufacturing	87.7	69.9	86.5	68.0	80.6	80.8	81.5	81.6	81.5
Durable	87.4	67.9	86.3	63.7	78.7	77.8	78.5	78.8	78.8
Nondurable	88.8	71.8	87.0	74.2	83.5	85.2	85.8	85.7	85.5
Mining	92.8	87.8	95.2	76.9	87.2	76.6	76.8	77.4	78.2
Utilities	95.6	82.9	88.5	78.0	87.3	79.0	80.0	79.0	78.8
Industrial Materials	92.0	70.5	89.1	68.5	82.3	79.8	80.4	80.8	80.8

CAPACITY UTILIZATION

SEPTEMBER DATA

SEASONALLY ADJUSTED, PERCENT



MANUFACTURING, MINING AND UTILITIES

Table 1

Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973	1975	1978	1982	1987	1986	1987								
	High	Low	-80	Low	-86	SEP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Total Industry	88.6	72.1	86.9	69.5	81.5	78.8	79.2	79.7	79.7	79.6	79.9	80.3	81.1	81.2	81.2
Manufacturing	87.7	69.9	86.5	68.0	80.6	79.4	79.6	80.0	80.3	80.2	80.4	80.8	81.5	81.6	81.5
Primary processing	91.9	68.3	89.1	65.0	81.6	81.5	82.7	82.4	83.1	83.5	83.2	84.0	85.2	85.2	85.2
Advanced processing	86.0	71.1	85.1	69.5	80.1	78.4	78.2	79.0	79.1	78.7	79.2	79.2	79.8	80.0	79.8
Durable manufacturing	87.4	67.9	86.3	63.7	78.7	76.9	76.9	77.6	77.9	77.5	77.6	77.8	78.5	78.8	78.8
Stone, clay and glass products	89.3	67.1	86.6	62.9	78.1	82.5	84.8	82.5	83.0	83.3	80.8	81.1	81.6	80.5	80.4
Primary metals	101.9	67.0	97.1	45.8	79.6	68.7	69.8	72.2	74.2	73.6	74.5	76.4	79.2	82.6	84.2
Iron and steel, subtotal	105.8	66.6	100.3	37.6	78.6	62.1	63.1	66.4	70.1	69.9	71.0	74.2	77.4	82.7	85.0
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.2	78.5	79.5	80.7	80.2	78.7	79.5	79.5	81.5	82.6	83.0
Fabricated metal products	85.0	64.7	87.4	61.3	77.7	77.2	77.1	76.9	78.3	77.8	76.7	78.4	78.3	78.0	78.1
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.2	72.3	70.9	71.8	73.0	73.8	73.3	74.2	75.3	75.4	75.6
Electrical machinery	85.7	63.7	89.9	66.9	78.2	73.7	75.0	75.2	78.0	73.9	75.0	74.7	75.5	76.2	76.1
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.0	81.1	80.0	83.9	83.0	78.1	79.6	76.2	77.5	77.2	75.2
Automobiles	77.0	43.7	93.3	36.6	76.7	77.8	72.3	80.8	78.8	70.3	71.6	67.4	66.5	59.0	60.7
Aerospace and misc. trans. eqp.	91.8	69.6	87.1	70.7	77.1	89.4	89.5	90.0	90.0	89.2	89.5	88.9	88.7	89.3	89.5
Instruments	89.2	74.9	88.9	77.8	83.2	78.3	77.7	78.9	77.7	78.8	78.2	79.3	78.8	79.7	80.0
Other durables	87.7	69.0	81.0	69.1	81.6	81.2	81.2	81.4	81.9	81.0	81.7	81.9	82.0	81.6	81.2
Nondurable manufacturing	88.8	71.8	87.0	74.2	83.5	83.1	83.7	83.6	83.9	84.2	84.6	85.2	85.8	85.7	85.5
Food and kindred products	85.8	77.6	85.1	76.5	82.3	79.8	79.2	80.1	80.4	79.4	80.1	80.1	80.4	80.9	80.2
Textile mill products	92.1	58.9	88.3	70.6	84.7	88.8	87.3	88.5	89.8	92.9	92.1	93.1	94.9	92.2	92.4
Paper and products	95.6	67.7	92.7	80.2	88.2	91.5	92.7	92.6	92.3	92.5	92.7	93.3	94.8	95.2	95.2
Chemicals and products	88.6	69.2	82.9	67.6	78.7	79.5	81.4	80.9	80.5	81.5	81.9	82.4	83.4	83.9	84.1
Petroleum products	99.6	83.7	91.7	68.8	87.0	85.3	87.2	83.5	83.8	85.5	84.1	83.7	84.1	83.6	83.7
Rubber and plastics products	97.5	59.5	89.4	71.2	84.7	84.7	84.9	85.0	85.9	86.5	87.0	88.4	89.2	88.8	88.9
Other nondurables	86.4	72.3	92.4	78.9	85.9	84.8	85.6	85.2	85.7	85.8	86.9	87.5	87.7	86.8	86.5
Mining	92.8	87.8	95.2	76.9	87.2	73.1	76.1	75.8	75.5	75.9	76.5	76.6	76.8	77.4	78.2
Utilities	95.6	82.9	88.5	78.0	87.3	77.5	78.5	78.8	78.2	76.8	79.2	79.0	80.0	79.0	78.8
Electric utilities	98.7	83.0	87.6	78.2	88.3	80.9	80.8	81.1	81.8	80.7	84.8	84.6	85.9	84.4	83.8

Table 2

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1986	1987	1987	1987	1987	1986	1987	1987	1987	1987	1986	1987	1987	1987	1987
	Q3	Q4	Q1	Q2	Q3	Q3	Q4	Q1	Q2	Q3	Q3	Q4	Q1	Q2	Q3
Total Industry	124.8	125.9	126.9	128.2	130.9	157.9	158.7	159.5	160.4	161.3	79.0	79.4	79.5	79.9	81.2
Manufacturing	129.2	130.4	131.6	133.2	135.9	162.4	163.4	164.5	165.6	166.7	79.5	79.8	80.0	80.5	81.5
Primary processing	111.5	113.4	114.3	116.1	119.1	136.9	137.5	138.2	139.0	139.8	81.4	82.5	82.7	83.5	85.2
Advanced processing	139.9	140.6	142.0	143.5	146.1	177.8	179.1	180.3	181.6	182.9	78.6	78.5	78.7	79.0	79.9
Durable manufacturing	128.2	129.1	130.5	131.4	134.0	166.8	167.6	168.4	169.3	170.2	76.8	77.0	77.5	77.6	78.7
Stone, clay and glass products	117.5	118.5	120.2	118.6	121.1	143.0	143.3	144.0	145.1	146.1	82.2	82.7	83.4	81.7	80.8
Primary metals	73.0	74.0	75.0	77.3	84.1	106.5	105.1	104.0	103.3	102.6	68.6	70.4	72.1	74.8	82.0
Iron and steel, subtotal	61.0	61.9	62.4	66.3	77.1	97.7	95.6	93.8	92.5	91.1	62.5	64.8	66.5	71.7	81.7
Nonferrous metals, subtotal	95.6	96.7	98.7	98.0	102.3	123.0	123.0	123.2	123.7	123.7	77.7	78.6	80.1	79.2	82.4
Fabricated metal products	107.1	108.9	109.1	109.9	111.2	139.3	140.0	140.8	141.5	142.3	76.9	77.8	77.5	77.6	78.1
Nonelectrical machinery	145.1	144.8	145.8	150.6	154.9	199.9	201.4	202.8	204.1	205.4	72.6	71.9	71.9	73.8	75.4
Electrical machinery	166.5	168.5	169.9	170.0	173.8	225.5	226.5	227.4	228.1	228.9	73.8	74.4	74.7	74.5	76.0
Motor vehicles and parts	111.4	109.7	115.4	109.7	108.3	139.2	139.7	140.2	140.7	141.2	80.0	78.5	82.3	78.0	76.6
Automobiles	108.1	109.6	113.7	103.1	92.2	144.9	146.1	147.1	147.8	148.6	74.6	75.0	77.3	69.7	62.0
Aerospace and misc. trans. eqp.	149.8	150.8	152.8	152.6	153.5	168.0	169.0	170.0	171.1	172.1	89.2	89.2	89.9	89.2	89.2
Instruments	139.0	139.5	140.6	143.1	145.7	176.6	178.3	180.0	181.6	183.3	78.7	78.2	78.1	78.8	79.5
Other durables	127.8	131.2	130.7	132.2	133.8	157.2	158.7	160.3	162.2	164.0	81.3	82.7	81.5	81.5	81.6
Nondurable manufacturing	130.7	132.1	133.1	135.7	138.5	156.4	157.6	158.9	160.3	161.7	83.6	83.8	83.7	84.7	85.7
Food and kindred products	134.7	135.2	136.1	137.0	138.1	168.0	169.1	170.3	171.6	172.6	80.2	80.0	79.9	79.9	80.5
Textile mill products	110.0	111.9	110.9	116.5	121.1	124.4	124.8	125.2	125.7	126.1	88.4	89.7	88.5	92.7	93.1
Paper and products	138.0	139.8	139.9	141.5	146.0	148.7	149.9	151.1	152.4	153.4	92.8	93.3	92.5	92.8	95.1
Chemicals and products	132.5	133.8	135.8	138.2	141.1	166.0	166.9	167.8	168.7	169.7	79.8	80.2	80.9	81.9	83.8
Petroleum products	92.8	92.8	93.1	93.0	92.6	108.9	109.4	109.8	110.1	110.5	85.3	84.9	84.8	84.4	83.8
Rubber and plastics products	152.9	155.5	156.7	162.7	167.1	179.2	181.5	183.8	186.3	188.3	85.3	85.7	85.2	87.3	89.0
Other nondurables	131.3	133.5	134.6	138.4	140.8	153.7	155.5	157.5	159.6	161.8	85.5	85.9	85.5	86.7	87.0
Mining	96.8	96.9	98.8	99.0	100.0	131.2	130.8	130.4	129.7	129.0	73.8	74.1	75.8	76.3	77.5
Utilities	107.3	109.1	108.1	108.3	110.1	137.0	137.3	137.7	138.3	138.8	78.3	79.4	78.5	78.3	79.3
Electric utilities	122.9	123.7	122.5	126.6	129.5	149.3	150.0	150.8	151.9	152.9	82.3	82.5	81.2	83.4	84.7

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	1987 -86 Avg.	1986 SEP	1987								
							JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Industrial Materials	92.0	70.5	89.1	68.5	82.3	77.7	78.7	78.7	78.7	79.1	79.3	79.8	80.4	80.8	80.8
Durable goods materials	91.8	64.4	89.8	60.9	79.1	73.7	74.4	74.7	75.2	75.0	75.1	75.9	76.5	77.0	76.8
Metal materials	99.2	67.1	93.6	45.7	77.8	65.1	66.2	67.8	68.7	68.8	69.7	71.5	73.9	76.6	77.4
Raw steel	106.0	66.4	98.9	36.1	80.3	59.6	64.2	63.3	67.8	70.6	73.4	76.7	79.5	86.5	
Aluminum	95.7	73.0	97.4	58.8	87.4	68.9	78.1	78.1	79.4	80.8	80.3	84.7	86.8	88.6	
Nondurable goods materials	91.1	66.7	88.1	70.7	83.2	84.0	85.1	84.6	84.8	86.5	86.2	86.1	87.7	87.4	87.8
Textile, paper, and chemical materials	92.8	64.8	89.4	68.8	83.6	85.0	86.4	85.4	85.8	87.5	87.1	87.1	89.2	88.9	89.4
Pulp and paper materials	98.4	70.6	97.3	79.9	91.4	94.7	96.4	95.6	94.6	95.1	95.7	96.3	99.6	99.9	
Chemical materials	92.5	64.4	87.9	63.5	80.8	81.2	83.4	82.3	82.2	83.9	83.9	83.1	84.2	84.5	
Energy materials	94.6	86.9	94.0	82.3	89.3	80.6	82.5	81.9	80.8	81.3	82.1	82.8	82.3	82.8	82.8

Table 4

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1986 Q3	1986 Q4	1987 Q1	1987 Q2	1987 Q3	1986 Q3	1986 Q4	1987 Q1	1987 Q2	1987 Q3	1986 Q3	1986 Q4	1987 Q1	1987 Q2	1987 Q3
Industrial Materials	113.0	114.3	115.0	116.5	118.7	145.1	145.6	146.1	146.7	147.2	77.9	78.5	78.7	79.4	80.7
Durable goods materials	119.0	120.7	121.4	122.9	125.8	161.0	161.6	162.3	163.1	163.9	73.9	74.7	74.8	75.4	76.8
Metal materials	73.2	75.4	74.7	77.0	83.1	112.5	111.5	110.6	110.0	109.4	65.0	67.7	67.5	70.0	76.0
Raw steel	60.3	58.6	60.9	67.8		97.3	95.3	93.6	92.2		62.0	61.5	65.1	73.6	
Aluminum	68.3	70.8	74.9	77.8		100.9	97.4	95.4	94.9		67.7	72.7	78.5	81.9	
Nondurable goods materials	118.3	120.3	121.2	124.0	126.8	141.4	142.1	142.9	143.8	144.7	83.6	84.7	84.8	86.2	87.7
Textile, paper and chemical materials	118.9	120.9	122.3	125.1	128.7	140.8	141.6	142.4	143.4	144.8	84.4	85.4	85.9	87.2	89.2
Pulp and paper materials	134.1	137.0	136.4	137.7		140.7	141.7	142.8	143.9		95.3	96.7	95.5	95.7	
Chemical materials	118.1	120.3	122.9	125.3		147.0	147.8	148.8	149.8		80.3	81.4	82.6	83.6	
Energy materials	98.1	97.8	98.3	98.7	99.2	120.5	120.4	120.3	120.2	120.1	81.5	81.2	81.7	82.1	82.7

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. 754-88. 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 1987. Approximately 11 a.m. on January 20, February 17, March 16, April 16, May 18, June 17, July 16, August 17, September 16, October 19, November 16, and December 16.