

FEDERAL RESERVE statistical release



G.3 (402)

For immediate release

CAPACITY UTILIZATION

Manufacturing, Mining, Utilities, and Industrial Materials

January 16, 1987

Capacity utilization in manufacturing, mining, and utilities rose 0.2 percentage point in December to 79.6 percent. The utilization rate for the industrial sector has risen 0.6 percentage point since September; nevertheless, the rate in December was one percentage point lower than a year earlier and also remained below its 1967-85 average.

Manufacturers operated at 80.3 percent of capacity in December, up 0.4 percentage point from November and about the same as a year ago. Within manufacturing, producers of durables operated at 76.9 percent of capacity compared with 85.2 percent for producers of nondurables; producers of machinery and primary metals continued to operate at low rates, while utilization at plants producing paper and aerospace equipment was relatively high.

Utilization in mining rose 0.3 percentage point to 73.7 percent in December, following a 0.6 percentage point increase the month before. These were the first increases since January 1986, when the rate was 81.6 percent. A surge in coal production and stabilization in oil and gas well drilling were factors in this reversal. Electric and gas utilities operated at 80.0 percent of their capacity in December, down a bit from the preceding month.

Producers of industrial materials operated at 78.6 percent of capacity in December, up from 78.5 percent in November.

Capacity Utilization: Summary

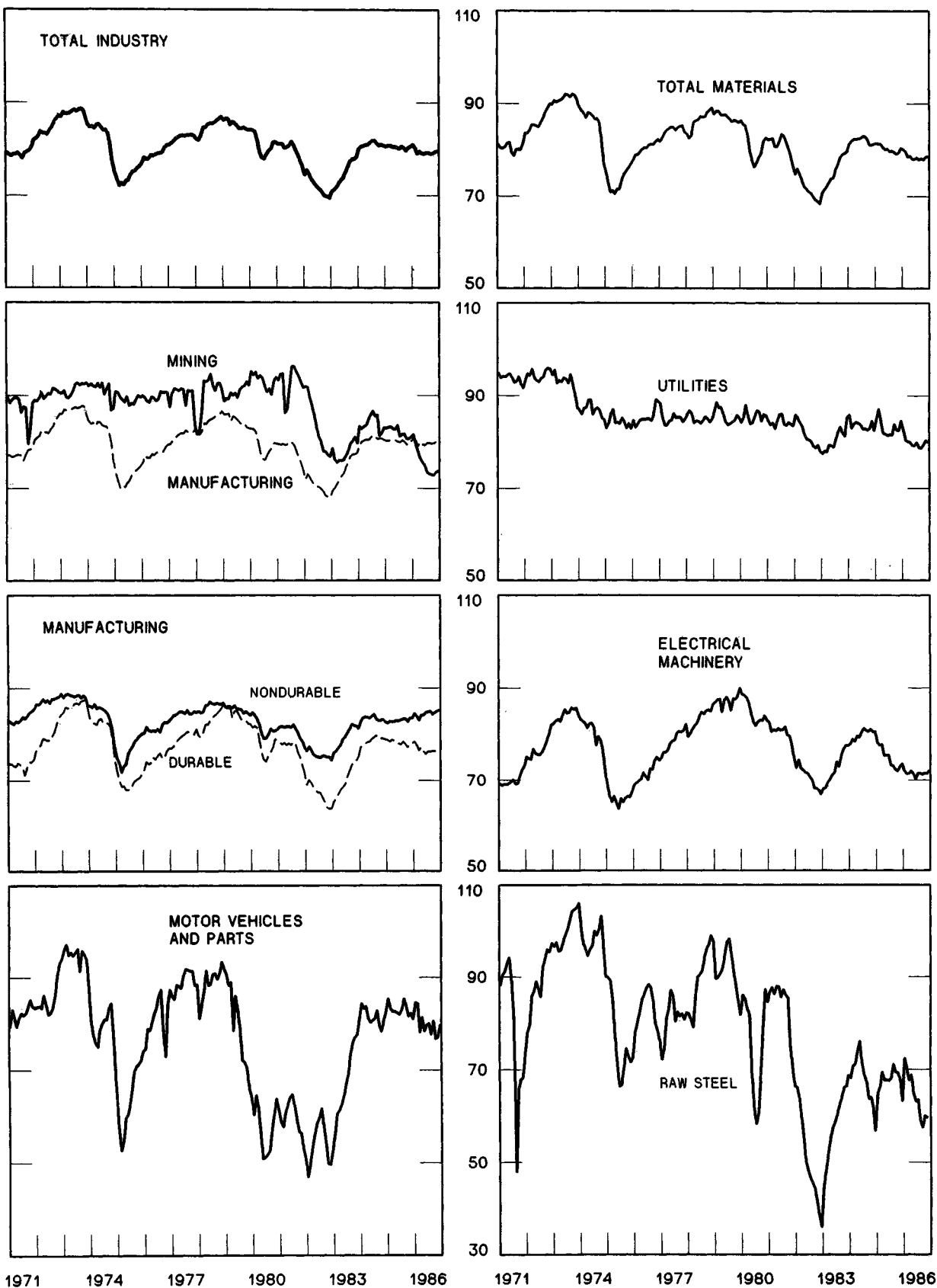
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1967 -85 Avg.	1986			
						SEP	OCT	NOV	DEC
Total Industry	88.6	72.1	86.9	69.5	81.7	79.0	79.1	79.4	79.6
Manufacturing	87.7	69.9	86.5	68.0	80.6	79.6	79.7	79.9	80.3
Durable	87.4	67.9	86.3	63.7	78.7	76.4	76.4	76.5	76.9
Nondurable	88.8	71.8	87.0	74.4	83.5	84.3	84.7	85.0	85.2
Mining	92.8	87.8	95.2	76.9	87.7	72.9	72.8	73.4	73.7
Utilities	95.6	82.9	88.5	78.0	87.9	78.7	79.4	80.3	80.0
Industrial Materials	92.0	70.5	89.1	68.4	82.5	78.1	77.9	78.5	78.6

CAPACITY UTILIZATION

DECEMBER DATA

SEASONALLY ADJUSTED, PERCENT



MANUFACTURING, MINING AND UTILITIES

Table 1

Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973	1975	1978	1982	1985	1985	1986											
	High	Low	High	Low	Avg.	DEC	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			
Total Industry	88.6	72.1	86.9	69.5	81.7	80.6	79.5	79.1	79.0	79.2	79.2	79.0	79.1	79.4	79.6			
Manufacturing	87.7	69.9	86.5	68.0	80.6	80.2	79.9	79.4	79.3	79.7	79.7	79.6	79.7	79.9	80.3			
Primary processing	91.9	68.3	89.1	65.1	81.7	83.0	83.2	82.9	82.7	82.9	83.2	83.7	83.7	84.2	84.6			
Advanced processing	86.0	71.1	85.1	69.5	80.1	79.0	78.5	78.0	77.7	78.4	78.0	77.6	77.9	77.9	78.3			
Durable manufacturing	87.4	67.9	86.3	63.7	78.7	78.1	77.1	76.3	75.7	76.3	76.2	76.4	76.4	76.5	76.9			
Stone, clay and glass products	89.3	67.1	86.6	62.9	77.8	81.9	83.6	82.4	82.7	81.7	81.6	82.8	80.3	80.1				
Primary metals	101.9	67.0	97.1	45.0	80.1	73.9	71.0	68.1	65.1	67.2	67.1	67.8	68.0	70.6	69.8			
Iron and steel, subtotal	105.8	66.6	100.3	37.6	79.4	69.1	64.0	58.9	57.1	60.7	59.9	60.4	61.6	64.2				
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.3	81.4	81.9	82.5	77.6	77.2	78.3	79.3	77.9	80.3				
Fabricated metal products	85.0	64.7	87.4	61.3	77.9	81.1	81.0	79.7	79.8	79.1	79.2	80.2	80.8	80.3	80.8			
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.5	74.5	71.0	71.1	70.5	71.4	71.2	70.2	71.0	70.7	70.7			
Electrical machinery	85.7	63.7	89.9	66.9	78.3	73.5	72.0	71.5	70.1	71.5	71.5	71.2	71.5	71.4	72.0			
Motor vehicles and parts	97.1	52.7	93.3	47.0	77.9	81.0	81.3	78.4	79.7	80.0	77.7	80.5	76.8	77.1	79.7			
Automobiles	91.8	43.7	93.3	36.6	76.7	75.2	80.3	75.6	79.3	76.1	70.2	77.0	73.7	74.1	79.9			
Aerospace and misc. trans. eqp.	77.0	69.6	87.1	70.7	76.4	85.5	87.3	87.0	87.1	88.7	89.0	89.4	89.5	89.5	89.3			
Instruments	89.2	74.9	88.9	77.8	83.4	81.6	81.7	80.2	79.7	80.5	80.4	80.0	78.9	79.6	79.8			
Other durables	87.7	69.0	81.0	69.1	81.7	82.2	83.2	83.5	82.9	83.0	83.2	84.0	84.8	85.4	85.6			
Nondurable manufacturing	88.8	71.8	87.0	74.4	83.5	83.5	84.1	84.1	84.7	84.8	85.0	84.3	84.7	85.0	85.2			
Food and kindred products	85.8	77.6	85.1	76.5	82.3	79.0	78.8	78.9	79.3	78.9	79.1	78.5	77.8	78.2				
Textile mill products	92.1	58.9	88.3	70.6	84.5	87.4	90.2	90.1	91.1	91.0	92.6	93.6						
Paper and products	95.6	67.7	92.7	80.8	88.4	93.2	94.4	93.6	96.2	96.6	96.8	95.4	95.8	97.4				
Chemicals and products	88.6	69.2	82.9	67.6	78.6	78.3	80.5	79.6	81.1	80.9	81.0	80.5	80.6	80.4				
Petroleum products	99.6	83.7	91.7	69.7	87.7	87.1	89.6	93.9	90.1	89.0	92.3	91.7	89.5	88.9	89.9			
Rubber and plastics products	97.5	59.5	89.4	71.2	84.6	86.4	83.5	85.0	85.9	87.4	87.0	86.3	87.2	87.5				
Other nondurables	86.4	72.3	92.4	78.9	86.0	87.5	87.5	87.2	87.3	87.9	87.3	86.1	88.4	88.4	88.7			
Mining	92.8	87.8	95.2	76.9	87.7	81.1	76.4	75.5	74.9	73.5	73.1	72.9	72.8	73.4	73.7			
Utilities	95.6	82.9	88.5	78.0	87.9	84.5	80.0	79.3	79.2	79.9	78.8	78.7	79.4	80.3	80.0			
Electric utilities	98.7	83.0	87.6	78.2	88.7	83.6	82.3	82.2	83.0	84.3	82.1	82.2	82.7	83.6	83.0			

Table 2

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1985 Q4	1986 Q1	Q2	Q3	Q4	1985 Q4	1986 Q1	Q2	Q3	Q4	1985 Q4	1986 Q1	Q2	Q3	Q4
Total Industry	124.7	125.0	124.4	125.0	126.0	155.4	156.3	157.1	157.9	158.7	80.2	80.0	79.2	79.1	79.4
Manufacturing	127.4	128.4	128.4	129.4	130.6	159.5	160.5	161.4	162.4	163.4	79.9	80.0	79.5	79.7	79.9
Primary processing	110.3	111.5	111.1	112.1	113.7	133.1	133.6	134.0	134.6	135.1	82.8	83.5	82.9	83.3	84.1
Advanced processing	137.8	138.5	138.9	139.7	140.8	175.3	176.7	177.9	179.1	180.4	78.6	78.4	78.0	78.0	78.1
Durable manufacturing	127.9	128.3	127.1	127.7	128.9	164.5	165.5	166.4	167.3	168.2	77.7	77.5	76.4	76.3	76.6
Stone, clay and glass products	117.0	119.8	120.8	120.3		144.1	144.9	145.8	146.6		81.2	82.6	82.9	82.1	
Primary metals	82.2	79.7	74.8	73.7	75.6	110.6	110.2	109.8	109.4	108.9	74.3	72.3	68.1	67.4	69.5
Iron and steel, subtotal	72.6	68.7	61.4	61.2		103.7	103.0	102.2	101.5		70.0	66.7	60.0	60.3	
Nonferrous metals, subtotal	100.3	100.5	100.0	97.2		123.8	123.9	124.1	124.2		81.0	81.1	80.6	78.3	
Fabricated metal products	107.9	108.4	107.1	106.3	107.9	133.4	133.5	133.6	133.7	133.8	80.9	81.2	80.1	79.5	80.6
Nonelectrical machinery	144.3	143.5	140.9	142.0	142.8	195.7	197.2	198.7	200.2	201.7	73.7	72.8	70.9	70.9	70.8
Electrical machinery	166.6	165.4	165.3	166.9	168.5	228.9	230.7	232.2	233.7	235.2	72.8	71.7	71.2	71.4	71.6
Motor vehicles and parts	111.8	113.7	110.6	110.5	108.8	137.0	138.1	138.6	139.2	139.7	81.6	82.3	79.8	79.4	77.9
Automobiles	108.4	116.6	112.2	106.2	107.9	142.9	143.6	143.1	142.7	142.2	75.9	81.2	78.4	74.5	75.9
Aerospace and misc. trans. eqp.	140.6	143.0	144.8	147.3	149.9	164.7	165.4	166.1	166.9	167.6	85.3	86.5	87.2	88.3	89.4
Instruments	139.6	141.8	140.9	141.8	141.6	171.5	173.2	174.9	176.6	178.3	81.4	81.9	80.5	80.3	79.4
Other durables	123.6	126.0	127.2	128.4	132.2	150.6	151.7	152.8	153.9	155.0	82.1	83.1	83.2	83.4	85.3
Nondurable manufacturing	126.8	128.6	130.2	131.8	133.1	152.4	153.5	154.5	155.6	156.6	83.2	83.8	84.3	84.7	85.0
Food and kindred products	131.0	132.3	133.8	134.6		166.7	168.1	169.4	170.7		78.6	78.7	79.0	78.8	
Textile mill products	108.5	108.6	111.8	114.7		123.2	123.4	123.6	123.8		88.1	88.0	90.4	92.6	
Paper and products	129.3	132.8	134.8	137.9		140.6	141.4	142.3	143.2		92.0	93.9	94.7	96.3	
Chemicals and products	127.9	131.3	132.8	134.1		163.4	164.3	165.2	166.0		78.2	79.9	80.4	80.8	
Petroleum products	88.2	91.1	93.0	92.6	90.9	102.3	102.0	101.9	101.8	101.7	86.2	89.3	91.2	91.0	89.4
Rubber and plastics products	149.5	149.7	149.7	155.3		172.1	174.3	176.5	178.7		86.8	85.9	84.8	86.9	
Other nondurables	129.4	129.9	131.8	132.5	135.8	148.4	149.6	150.9	152.1	153.4	87.2	86.8	87.3	87.1	88.5
Mining	107.1	105.4	99.9	96.6	96.5	132.5	132.4	132.1	131.9	131.7	80.9	79.6	75.6	73.2	73.3
Utilities	112.8	110.5	108.9	108.8	110.3	135.7	136.3	136.9	137.5	138.1	83.2	81.1	79.5	79.1	79.9
Electric utilities	120.6	119.6	122.2	123.5		146.0	147.1	148.1	149.0	150.0	82.6	81.3	82.5	82.9	83.1

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	1975	1978	1982	1967	1985	1986									
	High	Low	-80	Low	-85	DEC										
			High		Avg.		APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
Industrial Materials	92.0	70.5	89.1	68.4	82.5	80.3	78.7	78.1	78.0	78.3	77.9	78.1	77.9	78.5	78.6	
Durable goods materials	91.8	64.4	89.8	60.9	79.3	76.5	74.9	73.7	73.2	73.7	73.5	73.5	73.5	74.3	74.1	
Metal materials	99.2	67.1	93.6	45.7	78.4	71.8	68.3	65.2	63.2	63.8	63.8	64.8	64.9	68.8	66.6	
Raw steel	106.0	66.4	98.9	36.1	81.1	63.3	68.8	64.9	63.2	63.5	58.9	57.6	60.1	59.7		
Aluminum	95.7	73.0	97.4	58.8	88.1	67.1	72.1	72.4	64.7	61.4	62.6	62.4	63.8	65.2		
Nondurable goods materials	91.1	66.7	88.1	70.6	83.2	82.8	83.6	83.5	84.3	85.0	85.5	86.1	85.9	85.7	86.3	
Textile, paper, and chemical materials	92.8	64.8	89.4	68.6	83.6	83.3	83.6	84.2	85.1	85.6	86.5	87.4	87.0	86.8	87.4	
Pulp and paper materials	98.4	70.6	97.3	79.9	91.4	94.3	93.6	93.1	95.9	97.8	97.9	96.1	95.7	97.7		
Chemical materials	92.5	64.4	87.9	63.3	80.8	79.4	79.4	80.2	80.4	80.2	81.2	82.6	82.5	81.5		
Energy materials	94.6	86.9	94.0	82.2	89.7	86.4	82.8	82.9	83.1	82.3	80.6	80.7	80.1	81.2	81.5	

Table 4

Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1985 Q4	1986 Q1	Q2	Q3	Q4	1985 Q4	1986 Q1	Q2	Q3	Q4	1985 Q4	1986 Q1	Q2	Q3	Q4
Industrial Materials	114.3	114.5	113.3	113.4	114.2	143.6	144.2	144.7	145.3	145.8	79.6	79.4	78.3	78.1	78.3
Durable goods materials	121.1	120.9	118.8	118.8	120.0	159.0	159.9	160.7	161.5	162.2	76.2	75.6	73.9	73.6	74.0
Metal materials	82.6	79.0	75.1	73.1	75.7	115.5	115.0	114.5	114.0	113.4	71.5	68.7	65.6	64.2	66.8
Raw steel	68.6	71.4	66.2	60.0		102.7	101.8	100.9	99.9		66.8	70.1	65.6	60.0	
Aluminum	78.6	79.1	77.7	68.1		114.7	113.2	111.4	109.7		68.5	69.9	69.7	62.1	
Nondurable goods materials	113.9	115.7	116.9	119.7	120.7	138.6	139.0	139.5	139.9	140.4	82.2	83.2	83.8	85.6	86.0
Textile, paper and chemical materials	114.0	116.2	117.0	120.4	121.6	138.0	138.4	138.8	139.2	139.6	82.7	83.9	84.3	86.5	87.1
Pulp and paper materials	124.8	128.8	130.1	135.1		136.5	137.3	138.1	138.9		91.4	93.8	94.2	97.3	
Chemical materials	113.4	115.3	115.4	117.7		143.6	144.0	144.3	144.7		79.0	80.1	80.0	81.4	
Energy materials	102.6	102.2	100.6	98.6	98.4	120.9	121.1	121.3	121.4	121.6	84.9	84.4	82.9	81.2	80.9

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 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.