

# FEDERAL RESERVE statistical release



G.3 (402)

For Immediate release

## CAPACITY UTILIZATION

### Manufacturing, Mining, Utilities, and Industrial Materials

April 16, 1986

Capacity utilization in manufacturing, mining, and utilities declined 0.6 percentage point in March to 79.4 percent following a 0.7 percentage point fall in February. Sharp declines occurred in March in the durable manufacturing and mining industries, as utilization in the motor vehicle and steel industries, as well as in the oil and gas well drilling and coal mining industries, fell substantially. Meanwhile, operating rates for utilities and nondurable manufacturing each edged down slightly.

The largest declines in utilization within the manufacturing sector in March came in industries that have shown volatile utilization rates over the past year. The operating rate in the automobile industry dropped 9.4 percentage points in March to 75.7 percent. However, the utilization rate at auto makers in February was at its highest level in more than a year, and the average utilization rate during the first quarter of 1986 as a whole remained well above the fourth quarter figure. The primary metals utilization rate has also been volatile over the last year and, on occasion, lower than in March. The operating rate in petroleum refining declined sharply for the second month in a row after surging nearly five percentage points in January. Most other manufacturing industries had only small utilization rate changes, but operating rates for the machinery industries, which edged down in March, were substantially lower than a year ago.

Capacity utilization in total industrial materials declined for the third consecutive month, returning to its level of November 1985. Durable goods materials and energy materials industries both showed utilization rate declines of around one-half percentage point in March. Those declines were partly offset by increases in operating rates at nondurable goods materials industries, including chemicals, paper and textiles.

### Capacity Utilization: Summary

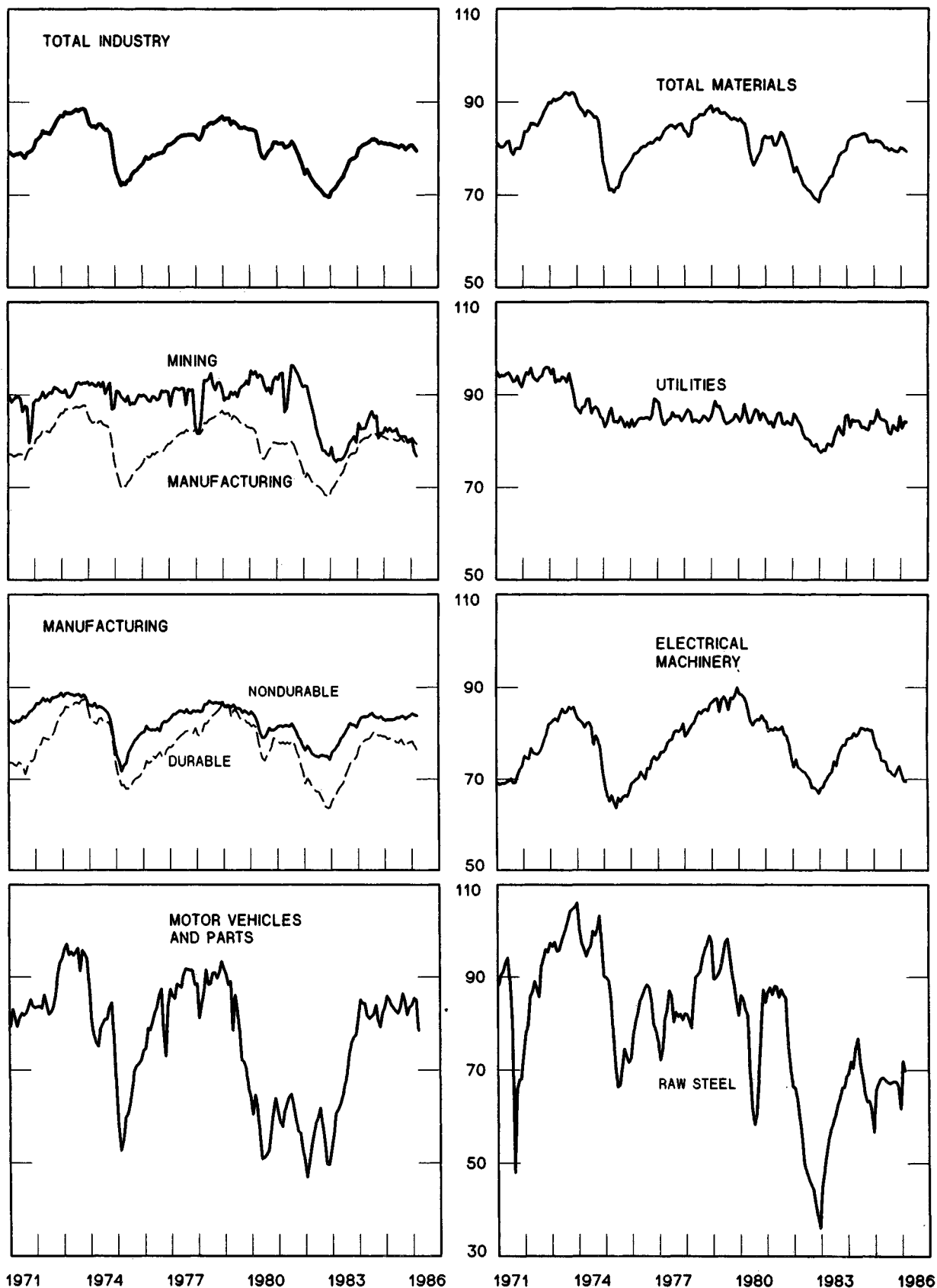
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1987 -85 Avg.	1985 1986			
						DEC	JAN	FEB	MAR
Total Industry	88.6	72.1	86.9	69.5	81.7	80.7	80.7	80.0	79.4
Manufacturing	87.7	69.9	86.5	68.0	80.6	80.4	80.7	79.9	79.3
Durable	87.4	67.9	86.3	63.7	78.8	78.1	78.3	77.2	76.3
Nondurable	88.8	71.8	87.0	74.4	83.5	83.9	84.3	84.0	83.9
Mining	92.8	87.8	95.2	76.9	87.7	80.0	80.0	77.6	76.7
Utilities	95.6	82.9	88.5	78.0	87.9	85.3	82.8	84.2	84.0
Industrial Materials	92.0	70.5	89.1	68.4	82.5	80.1	80.0	79.6	79.2

# CAPACITY UTILIZATION

MARCH DATA

SEASONALLY ADJUSTED, PERCENT



# MANUFACTURING, MINING AND UTILITIES

Table 1

## Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973 High	1975 Low	1978 High	1982 Low	1987 -85 Avg.	1985 MAR	1985					1986				
							JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Total Industry	88.6	72.1	86.9	69.5	81.7	81.0	80.2	80.7	80.5	79.4	80.3	80.7	80.7	80.0	79.4	
Manufacturing	87.7	69.9	86.5	68.0	80.6	80.5	80.1	80.7	80.1	79.6	80.2	80.4	80.7	79.9	79.3	
Primary processing	91.9	68.3	89.1	65.1	81.7	81.8	82.3	82.9	82.8	83.1	83.0	83.3	84.8	84.0	83.4	
Advanced processing	86.0	71.1	85.1	69.5	80.2	79.8	79.1	79.6	79.0	78.0	79.0	79.0	78.9	78.0	77.4	
Durable manufacturing	87.4	67.9	86.3	63.7	78.8	78.9	78.0	78.7	77.8	77.2	77.9	78.1	78.3	77.2	76.3	
Stone, clay and glass products	89.3	67.1	86.6	62.9	77.7	78.6	80.6	81.2	81.0	80.4	79.9	81.9	83.0	82.3		
Primary metals	101.9	67.0	97.1	45.8	80.2	73.7	71.5	74.3	72.8	75.5	76.0	74.3	77.2	75.6	73.1	
Iron and steel, subtotal	105.8	66.6	100.3	37.6	79.4	69.9	66.1	69.0	67.2	72.0	72.9	69.9	73.4	70.8		
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.3	79.8	80.2	82.7	81.7	81.0	80.9	81.3	83.2	83.1		
Fabricated metal products	85.0	64.7	87.4	61.3	77.9	81.6	80.5	80.9	80.6	81.2	80.9	81.5	81.9	81.1	80.6	
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.5	76.0	75.2	75.8	74.1	72.0	73.0	72.9	72.8	72.0	71.8	
Electrical machinery	85.7	63.7	89.9	66.9	78.3	76.4	71.9	71.7	71.0	70.7	72.0	73.0	71.2	69.6	69.5	
Motor vehicles and parts	97.1	52.7	93.3	47.0	78.0	83.8	83.6	86.3	84.8	81.9	83.5	83.9	85.4	85.0	78.5	
Automobiles			93.3	36.6		83.8	82.2	82.0	79.6	74.0	75.8	79.4	82.2	85.1	75.7	
Aerospace and misc. trans. eqp.	77.0	69.6	87.1	70.7	76.6	82.2	85.0	86.2	86.6	87.0	87.6	87.2	88.1	86.3	86.0	
Instruments	89.2	74.9	88.9	77.8	83.4	83.4	83.4	83.5	81.8	81.7	82.0	81.6	82.1	81.8	82.0	
Other durables	87.7	69.0	81.0	69.1	81.8	82.2	83.2	83.4	83.6	83.5	83.2	83.2	84.3	82.8	82.8	
Nondurable manufacturing	88.8	71.8	87.0	74.4	83.5	82.9	83.3	83.7	83.7	83.2	83.6	83.9	84.3	84.0	83.9	
Food and kindred products	85.8	77.6	85.1	76.5	82.4	78.8	80.2	80.2	79.9	78.6	78.8	79.3	79.5	79.1		
Textile mill products	92.1	58.9	88.3	70.6	84.5	81.1	84.7	86.5	86.7	85.2	87.7	86.3	87.2	87.0		
Paper and products	95.6	67.7	92.7	80.8	88.4	91.5	92.4	91.2	91.8	90.7	91.2	93.9	94.5	93.3		
Chemicals and products	88.6	69.2	82.9	67.6	78.7	78.7	78.0	78.9	79.3	78.4	78.4	78.5	79.6	80.2		
Petroleum products	99.6	83.7	91.7	69.7	87.7	82.9	86.7	86.8	84.7	86.6	86.5	88.1	93.0	91.0	89.1	
Rubber and plastics products	97.5	59.5	89.4	71.2	84.6	86.5	86.0	87.0	87.0	86.7	87.4	86.8	86.7	86.0		
Other nondurables	86.4	72.3	92.4	78.9	86.1	87.6	86.8	87.3	87.3	87.9	88.6	88.3	87.5	87.0	87.0	
Mining	92.8	87.8	95.2	76.9	87.7	82.8	81.2	80.9	81.0	80.9	79.7	80.0	80.0	77.6	76.7	
Utilities	95.6	82.9	88.5	78.0	87.9	85.0	81.9	81.5	83.4	82.7	82.3	85.3	82.8	84.2	84.0	
Electric utilities	98.7	83.0	87.6	78.2	88.7	83.4	81.0	80.2	82.6	81.5	80.8	84.4	81.3	82.8	82.3	

Table 2

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1984 Q1	1985 Q2	1986 Q3	1986 Q4	1986 Q1	1984 Q1	1985 Q2	1986 Q3	1986 Q4	1986 Q1	1984 Q1	1985 Q2	1986 Q3	1986 Q4	1986 Q1
Total Industry	123.8	124.2	124.8	125.4	125.8	152.8	154.0	155.1	156.2	157.2	81.0	80.7	80.5	80.3	80.0
Manufacturing	126.0	126.6	127.6	128.2	129.0	156.5	157.7	158.9	160.2	161.3	80.5	80.3	80.3	80.0	80.0
Primary processing	107.5	108.1	109.5	110.4	112.0	131.6	132.0	132.4	132.8	133.2	81.6	81.9	82.7	83.1	84.1
Advanced processing	137.1	137.9	138.6	139.0	139.2	171.4	173.2	174.9	176.7	178.3	80.0	79.6	79.2	78.7	78.1
Durable manufacturing	127.7	127.9	128.5	128.9	129.1	161.7	163.1	164.5	165.8	167.0	79.0	78.5	78.1	77.7	77.3
Stone, clay and glass products	111.5	115.6	115.8	116.3		141.4	142.3	143.2	144.1		78.8	81.2	80.9	80.7	
Primary metals	81.2	78.7	80.4	82.8	82.5	111.1	110.8	110.4	110.0	109.5	73.1	71.0	72.9	75.2	75.3
Iron and steel, subtotal	70.9	68.3	70.0	73.9		104.8	104.3	103.8	103.3		67.6	65.5	67.4	71.6	
Nonferrous metals, subtotal	100.7	98.3	100.2	99.5		123.0	122.9	122.9	122.8		81.9	80.0	81.5	81.0	
Fabricated metal products	107.5	108.3	107.5	108.4	108.5	133.1	133.2	133.3	133.4	133.5	80.8	81.3	80.7	81.2	81.2
Nonelectrical machinery	145.5	147.9	147.7	144.9	145.4	191.8	194.3	196.9	199.4	201.4	75.9	76.1	75.0	72.6	72.2
Electrical machinery	174.1	169.2	165.6	168.6	166.1	225.5	228.5	231.5	234.5	236.9	77.2	74.1	71.5	71.9	70.1
Motor vehicles and parts	112.3	110.6	115.0	113.9	115.0	132.3	133.9	135.4	137.0	138.6	84.9	82.7	84.9	83.1	83.0
Automobiles	115.9	112.5	114.6	109.2	116.3	137.3	139.2	141.0	142.9	143.6	84.4	80.8	81.2	76.4	81.0
Aerospace and misc. trans. eqp.	131.8	135.4	140.0	142.4	142.2	162.6	162.8	162.9	163.1	163.8	81.1	83.2	85.9	87.3	86.8
Instruments	138.8	139.7	140.8	140.4	142.2	166.0	167.9	169.8	171.7	173.5	83.6	83.2	82.9	81.8	82.0
Other durables	120.5	122.7	123.9	124.7	125.6	146.2	147.4	148.5	149.7	150.8	82.4	83.3	83.4	83.3	83.3
Nondurable manufacturing	123.6	124.9	126.4	127.2	128.9	149.2	150.2	151.2	152.3	153.3	82.9	83.1	83.6	83.6	84.1
Food and kindred products	128.7	131.3	132.4	131.5		162.6	164.0	165.3	166.7		79.2	80.1	80.1	78.9	
Textile mill products	97.2	100.8	105.7	106.4		122.4	122.7	122.9	123.2		79.4	82.1	86.0	86.4	
Paper and products	127.2	125.4	128.4	129.3		138.4	139.1	139.9	140.6		91.9	90.2	91.8	91.9	
Chemicals and products	126.0	126.3	127.9	128.1		160.6	161.5	162.4	163.3		78.5	78.2	78.7	78.4	
Petroleum products	84.3	87.2	87.5	87.9	91.4	103.0	102.3	101.6	100.9	100.5	81.8	85.2	86.0	87.1	91.0
Rubber and plastics products	145.3	144.9	147.4	149.7		165.8	167.9	170.0	172.1		87.6	86.3	86.7	87.0	
Other nondurables	126.3	127.6	128.2	130.9	130.4	144.5	145.8	147.0	148.3	149.6	87.4	87.6	87.2	88.3	87.2
Mining	110.1	110.0	108.5	107.6	104.8	133.4	133.6	133.9	134.1	134.3	82.6	82.3	81.0	80.2	78.1
Utilities	114.2	113.6	111.4	113.7	114.6	133.7	134.5	135.4	136.3	136.9	85.5	84.4	82.3	83.4	83.7
Electric utilities	120.1	119.3	118.3	120.8		142.8	144.2	145.5	146.9	148.0	84.1	82.8	81.3	82.2	82.1

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	1985											
	High	Low	High	Low	Avg.	MAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR			
<b>Materials Industrial</b>	92.0	70.5	89.1	68.4	82.5	81.4	79.5	79.9	79.5	79.3	79.2	80.1	80.0	79.6	79.2			
Durable goods materials	91.8	64.4	89.8	60.9	79.4	78.9	75.8	76.6	75.4	75.2	75.8	75.8	76.3	75.3	74.7			
Metal materials	99.2	67.1	93.6	45.7	78.4	69.8	66.4	69.4	67.3	69.4	70.8	70.7	71.3	70.2	68.8			
Raw steel	106.0	66.4	98.9	36.1	81.1	68.2	67.2	67.4	67.6	67.4	66.4	61.8	71.9	69.8				
Aluminum	95.7	73.0	97.4	58.8	88.0	74.2	71.0	70.5	70.3	68.5	66.0	65.7	66.0	67.2				
Nondurable goods materials	91.1	66.7	88.1	70.6	83.2	80.2	81.7	82.1	82.9	81.9	81.5	82.7	83.4	83.5	83.9			
Textile, paper, and chemical materials	92.8	64.8	89.4	68.6	83.6	81.4	82.7	82.8	83.7	82.4	82.1	83.5	84.1	84.3	84.8			
Pulp and paper materials	98.4	70.6	97.3	79.9	91.3	92.1	91.7	90.1	90.7	88.8	90.1	94.7	94.8	94.3				
Chemical materials	92.5	64.4	87.9	63.3	80.8	79.5	80.1	79.8	81.2	80.5	78.8	80.1	81.0	81.5				
Energy materials	94.6	86.9	94.0	82.2	89.7	88.4	85.8	85.1	85.6	86.2	84.7	87.4	85.2	85.7	85.2			

Table 4

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1984 Q1	1985 Q2	1986 Q3	1986 Q4	1986 Q1	1984 Q1	1985 Q2	1986 Q3	1986 Q4	1986 Q1	1984 Q1	1985 Q2	1986 Q3	1986 Q4	1986 Q1
<b>Materials Industrial</b>	115.4	114.5	114.2	114.8	115.4	141.6	142.5	143.4	144.3	145.0	81.5	80.4	79.6	79.5	79.6
Durable goods materials	123.6	121.4	120.7	121.4	121.9	155.9	157.4	158.9	160.5	161.6	79.3	77.1	76.0	75.6	75.4
Metal materials	80.6	80.2	79.4	82.4	81.8	117.3	117.3	117.3	117.3	116.7	68.7	68.4	67.7	70.3	70.1
Raw steel	70.4	71.2	70.7	68.3		104.9	104.9	104.8	104.8		67.1	67.9	67.4	65.2	
Aluminum	90.9	86.4	83.5	78.8		118.8	118.6	118.3	118.1		76.5	72.9	70.6	66.7	
Nondurable goods materials	110.9	111.2	113.7	113.8	116.3	137.3	137.8	138.2	138.7	139.1	80.7	80.7	82.2	82.0	83.6
Textile, paper and chemical materials	111.6	111.0	114.1	114.0	116.6	136.7	137.0	137.4	137.8	138.7	81.7	81.0	83.0	82.7	84.4
Pulp and paper materials	126.3	121.8	123.8	124.5		136.1	136.2	136.3	136.5		92.8	89.4	90.8	91.2	
Chemical materials	113.2	112.6	114.6	114.2		141.5	142.0	142.6	143.1		80.0	79.3	80.4	79.8	
Energy materials	105.0	105.2	103.2	104.2	103.5	120.0	120.3	120.6	120.9	121.2	87.5	87.5	85.5	86.1	85.4

**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 "Revised Federal Reserve Rates of Capacity Utilization", *Federal Reserve Bulletin*, October 1985. Revised data from 1948-84 are included in the statistical supplement to the July 1985 capacity utilization release, which 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 1986.** Approximately 11 a.m. on January 17, February 18, March 17, April 16, May 16, June 16, July 16, August 18, September 17, October 17, November 17, and December 17.