

# FEDERAL RESERVE statistical release



G.3 (402)

For immediate release

## CAPACITY UTILIZATION

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

September 17, 1986

The estimates of capacity utilization, output, and capacity have been revised back to 1984. The revised data for 1986 are in this release; revised data for 1984-85 as well as unrevised historical data are contained in the attached supplement.

Capacity utilization in manufacturing, mining, and utilities decreased 0.1 percentage point in August to 79.0 percent. This level is about the same as the upward-revised rates for the three preceding months, but 1.6 percentage points lower than a year earlier. The overall decrease in August was related to a further drop in utilization in the mining industry and to a decline in electric generation that was related to unseasonably cool weather. In manufacturing, the utilization rate edged up 0.1 percentage point to 79.6 percent in August.

Capacity utilization in nondurable manufacturing continued to reflect the production advances observed in this sector during the past year, while the operating rate in durable manufacturing edged down further. The August increase of 0.3 percentage point in nondurables was spurred by gains in petroleum products, chemicals, textiles and food. The 0.1 percentage point decrease for durables was mainly related to a strike at a major steel producer, a cutback in assemblies by a major producer of automobiles, and to a decline in output of nonelectrical machinery. Several durable manufacturing industries, including aerospace and miscellaneous transportation equipment, instruments, and nonferrous metals registered increases in their operating rates.

Producers of industrial materials operated at 77.9 percent of capacity in August, down 0.2 percentage point from July. The increase in nondurable materials was more than offset by declines in durable materials (principally steel) and in most energy materials.

As shown in the attached supplement, the overall estimates of capacity utilization and growth in industrial production and capacity were all revised downward in 1984-85. Capacity growth for 1986 also was revised downward and has increased at an annual rate of 2.1 percent instead of the 2.3 percent rate previously shown. The revised estimates of production, however, show more growth so far in 1986, and as a result the revised utilization rate for total industry is estimated at 79.1 percent in July, compared with 78.2 percent estimated previously.

### Capacity Utilization: Summary

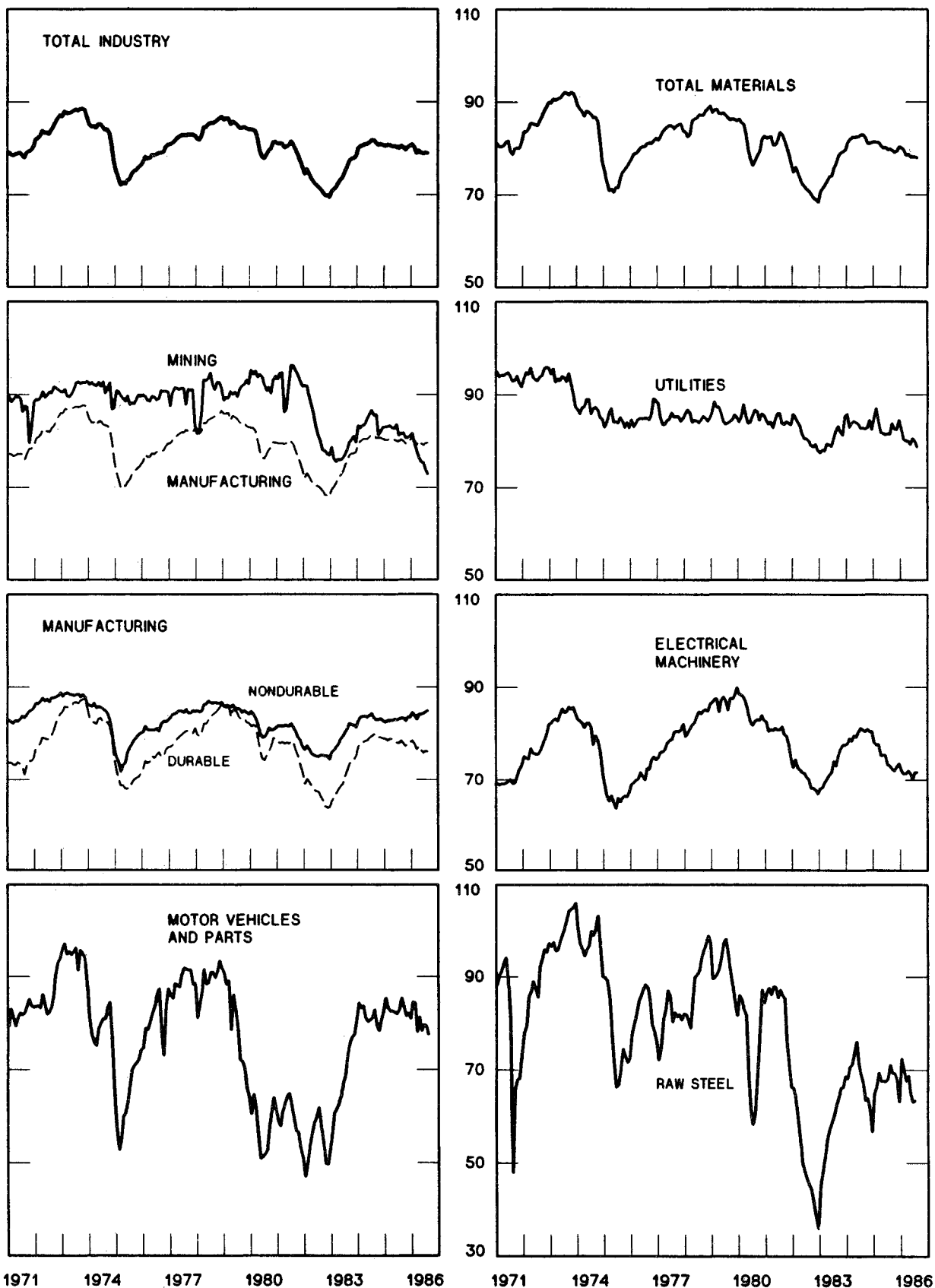
Percent of capacity, seasonally adjusted

Series	1973 High	1975 Low	1978 -80 High	1982 Low	1987 -85 Avg.	1986			
						MAY	JUN	JUL	AUG
<b>Total Industry</b>	88.6	72.1	86.9	69.5	81.7	79.1	78.9	79.1	79.0
<b>Manufacturing</b>	87.7	69.9	86.5	68.0	80.6	79.4	79.1	79.5	79.6
Durable	87.4	67.9	86.3	63.7	78.7	76.3	75.7	76.1	76.0
Nondurable	88.8	71.8	87.0	74.4	83.5	84.1	84.3	84.6	84.9
<b>Mining</b>	92.8	87.8	95.2	76.9	87.7	75.5	75.3	73.8	72.8
<b>Utilities</b>	95.6	82.9	88.5	78.0	87.9	79.3	80.6	80.0	78.7
<b>Industrial Materials</b>	92.0	70.5	89.1	68.4	82.5	78.1	78.2	78.1	77.9

# CAPACITY UTILIZATION

AUGUST DATA

SEASONALLY ADJUSTED, PERCENT



# MANUFACTURING, MINING AND UTILITIES

Table 1

## Capacity Utilization

Monthly, seasonally adjusted, percent of capacity

Series	1973	1975	1978	1982	1987	1985	1985 1986								
	High	Low	-80 High	Low	-85 Avg.	AUG	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
Total Industry	88.6	72.1	86.9	69.5	81.7	80.6	80.6	80.9	80.2	79.0	79.5	79.1	78.9	79.1	79.0
Manufacturing	87.7	69.9	86.5	68.0	80.6	80.3	80.2	80.8	80.2	79.1	79.9	79.4	79.1	79.5	79.6
Primary processing	91.9	68.3	89.1	65.1	81.7	82.5	83.0	84.4	83.6	82.4	83.2	82.9	82.6	82.7	83.2
Advanced processing	86.0	71.1	85.1	69.5	80.1	79.3	79.0	79.2	78.6	77.4	78.5	78.0	77.6	78.1	78.0
Durable manufacturing	87.4	67.9	86.3	63.7	78.7	78.4	78.1	78.4	77.7	76.5	77.1	76.3	75.7	76.1	76.0
Stone, clay and glass products	89.3	67.1	86.6	62.9	77.8	81.3	81.9	83.0	82.3	82.6	83.6	82.4	82.7	81.2	
Primary metals	101.9	67.0	97.1	45.8	80.1	74.2	73.9	74.7	72.9	69.3	71.0	68.1	65.1	66.8	67.0
Iron and steel, subtotal	105.8	66.6	100.3	37.6	79.4	69.3	69.1	69.9	67.5	62.6	64.0	58.9	57.1	60.3	
Nonferrous metals, subtotal	95.6	62.1	91.1	60.8	81.3	81.9	81.4	82.2	81.4	79.7	81.9	82.5	77.3	76.8	
Fabricated metal products	85.0	64.7	87.4	61.3	77.9	80.6	81.1	81.8	81.2	80.6	81.0	79.7	79.8	79.1	79.7
Nonelectrical machinery	89.0	68.2	86.0	62.9	78.5	74.8	74.5	73.7	72.9	71.7	71.0	71.1	70.5	71.1	70.2
Electrical machinery	85.7	63.7	89.9	66.9	78.3	73.1	73.5	72.1	71.4	71.4	72.0	71.5	70.1	71.7	71.7
Motor vehicles and parts	97.1	52.7	93.3	47.0	77.9	85.3	81.0	84.5	84.3	78.2	81.3	78.4	79.7	79.5	77.6
Automobiles			93.3	36.6		81.9	75.2	83.8	85.1	74.6	80.3	75.6	79.3	76.1	70.2
Aerospace and misc. trans. eqp.	77.0	69.6	87.1	70.7	76.4	84.0	85.5	87.2	86.2	86.0	87.3	87.3	87.0	87.0	88.4
Instruments	89.2	74.9	88.9	77.8	83.4	83.1	81.6	82.0	81.9	81.7	81.7	80.2	79.7	78.6	79.2
Other durables	87.7	69.0	81.0	69.1	81.7	82.6	82.2	83.3	83.1	82.7	83.2	83.5	82.9	83.1	83.1
Nondurable manufacturing	88.8	71.8	87.0	74.4	83.5	83.3	83.5	84.5	83.9	83.0	84.1	84.1	84.3	84.6	84.9
Food and kindred products	85.8	77.6	85.1	76.5	82.3	79.5	79.0	78.7	79.1	78.5	78.8	78.9	78.9	78.7	
Textile mill products	92.1	58.9	88.3	70.6	84.5	84.8	87.4	87.5	89.1	87.4	90.2	90.1	91.1	91.2	
Paper and products	95.6	67.7	92.7	80.8	88.4	90.5	93.2	94.6	93.8	93.4	94.4	93.6	95.4	96.8	
Chemicals and products	88.6	69.2	82.9	67.6	78.6	78.7	78.3	80.3	80.4	79.1	80.5	79.6	80.4	81.0	
Petroleum products	99.6	83.7	91.7	69.7	87.7	87.0	87.1	92.8	88.3	86.9	89.6	93.9	90.3	88.7	92.1
Rubber and plastics products	97.5	59.5	89.4	71.2	84.6	87.1	86.4	86.5	86.7	84.4	83.5	85.0	85.9	86.3	
Other nondurables	86.4	72.3	92.4	78.9	86.0	87.0	87.5	88.3	86.1	86.0	87.5	87.2	87.0	87.6	87.4
Mining	92.8	87.8	95.2	76.9	87.7	81.6	81.1	81.6	79.4	77.9	76.4	75.5	75.3	73.8	72.8
Utilities	95.6	82.9	88.5	78.0	87.9	81.5	84.5	82.7	80.4	80.1	80.0	79.3	80.6	80.0	78.7
Electric utilities	98.7	83.0	87.6	78.2	88.7	81.2	83.6	81.5	81.3	81.2	82.3	82.2	83.1	82.1	80.8

Table 2

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1985 Q2	Q3	Q4	1986 Q1	Q2	1985 Q2	Q3	Q4	1986 Q1	Q2	1985 Q2	Q3	Q4	1986 Q1	Q2
Total Industry	123.5	124.0	124.7	125.0	124.3	153.5	154.4	155.4	156.3	157.1	80.5	80.3	80.2	80.0	79.2
Manufacturing	126.1	126.8	127.4	128.4	128.3	157.3	158.4	159.5	160.5	161.4	80.2	80.1	79.9	80.0	79.5
Primary processing	107.9	109.2	110.3	111.5	111.1	132.2	132.7	133.1	133.6	134.0	81.6	82.3	82.8	83.5	82.9
Advanced processing	137.2	137.4	137.8	138.5	138.8	172.4	173.9	175.3	176.7	177.9	79.6	79.0	78.6	78.4	78.0
Durable manufacturing	127.3	127.5	127.9	128.3	127.1	162.3	163.4	164.5	165.5	166.4	78.4	78.0	77.7	77.5	76.4
Stone, clay and glass products	116.2	116.8	117.0	119.8	120.8	142.3	143.2	144.1	144.9	145.8	81.6	81.5	81.2	82.6	82.9
Primary metals	78.6	80.5	82.2	79.7	74.7	111.3	111.0	110.6	110.2	109.8	70.6	72.5	74.3	72.3	68.1
Iron and steel, subtotal	68.2	70.1	72.6	68.7	61.4	104.8	104.3	103.7	103.0	102.2	65.1	67.3	70.0	66.7	60.0
Nonferrous metals, subtotal	98.2	100.2	100.3	100.5	99.9	123.6	123.7	123.8	123.9	124.1	79.5	81.0	81.0	81.1	80.6
Fabricated metal products	107.7	106.8	107.9	108.4	107.1	133.2	133.3	133.4	133.5	133.6	80.9	80.1	80.9	81.2	80.1
Nonelectrical machinery	147.0	145.0	144.3	143.5	140.9	192.7	194.2	195.7	197.2	198.7	76.3	74.6	73.7	72.8	70.9
Electrical machinery	169.0	165.3	166.6	165.4	165.3	224.4	226.6	228.9	230.7	232.2	75.3	72.9	72.8	71.7	71.2
Motor vehicles and parts	110.2	113.7	111.8	113.7	110.6	133.9	135.4	137.0	138.1	138.6	82.3	84.0	81.6	82.3	79.8
Automobiles	112.9	114.5	108.4	116.6	112.2	139.2	141.0	142.9	143.6	143.1	81.1	81.2	75.9	81.2	78.4
Aerospace and misc. trans. eqp.	132.8	137.1	140.6	143.0	144.8	163.6	164.1	164.7	165.4	166.1	81.2	83.5	85.3	86.5	87.2
Instruments	138.9	140.1	139.6	141.8	140.9	167.8	169.7	171.5	173.2	174.9	82.8	82.6	81.4	81.9	80.5
Other durables	121.9	123.7	123.6	126.0	127.2	148.0	149.3	150.6	151.7	152.8	82.4	82.9	82.1	83.1	83.2
Nondurable manufacturing	124.6	125.9	126.8	128.6	130.0	150.3	151.3	152.4	153.5	154.5	82.9	83.2	83.2	83.8	84.2
Food and kindred products	130.3	131.4	131.0	132.3	133.6	164.0	165.3	166.7	168.1	169.4	79.5	79.5	78.6	78.7	78.9
Textile mill products	101.2	105.1	108.5	108.6	111.8	122.7	122.9	123.2	123.4	123.6	82.5	85.5	88.1	88.0	90.4
Paper and products	126.0	127.7	129.3	132.8	134.4	138.9	139.8	140.6	141.4	142.3	90.7	91.4	92.0	93.9	94.5
Chemicals and products	126.8	128.1	127.9	131.3	132.5	161.6	162.5	163.4	164.3	165.2	78.5	78.8	78.2	79.9	80.2
Petroleum products	86.9	87.2	88.2	91.1	93.0	102.9	102.6	102.3	102.0	101.9	84.4	85.0	86.2	89.3	91.2
Rubber and plastics products	144.7	148.2	149.5	149.7	149.7	167.9	170.0	172.1	174.3	176.5	86.2	87.1	86.8	85.9	84.8
Other nondurables	126.8	127.4	129.4	129.9	131.6	145.8	147.1	148.4	149.6	150.9	87.0	86.6	87.2	86.8	87.2
Mining	109.9	107.9	107.1	105.4	100.1	132.4	132.4	132.5	132.4	132.1	83.0	81.5	80.9	79.6	75.7
Utilities	109.6	111.1	112.8	110.5	109.5	134.3	135.0	135.7	136.3	136.9	81.7	82.3	83.2	81.1	80.0
Electric utilities	119.2	118.6	120.6	119.6	122.2	143.8	144.9	146.0	147.1	148.1	82.9	81.8	82.6	81.3	82.5

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

Monthly, seasonally adjusted, percent of capacity															
Series	1973	1975	1978	1982	1987	1985	1985 1986								
	High	Low	-80 High	Low	-85 Avg.	AUG	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
Industrial Materials	92.0	70.5	89.1	68.4	82.5	79.8	80.3	80.1	79.6	78.5	78.7	78.1	78.2	78.1	77.9
Durable goods materials	91.8	64.4	89.8	60.9	79.3	76.8	76.5	76.5	75.9	74.5	74.9	73.7	73.2	73.5	73.4
Metal materials	99.2	67.1	93.6	45.7	78.4	70.2	71.8	71.0	69.0	66.0	68.3	65.2	63.5	64.1	63.6
Raw steel	106.0	66.4	98.9	36.1	81.1	71.1	63.3	72.4	70.2	67.7	68.8	64.9	63.2	63.5	
Aluminum	95.7	73.0	97.4	58.8	88.1	72.8	67.1	68.6	69.8	71.3	72.1	72.4	63.4	61.4	
Nondurable goods materials	91.1	66.7	88.1	70.6	83.2	81.6	82.8	83.7	83.5	82.5	83.6	83.5	84.2	84.4	85.0
Textile, paper, and chemical materials	92.8	64.8	89.4	68.6	83.6	81.7	83.3	84.3	84.2	83.4	83.6	84.2	85.0	85.0	85.9
Pulp and paper materials	98.4	70.6	97.3	79.9	91.4	89.7	94.3	94.6	93.8	93.0	93.6	93.1	96.1	95.6	
Chemical materials	92.5	64.4	87.9	63.3	80.8	78.7	79.4	80.8	80.2	79.4	79.4	80.2	80.3	80.2	
Energy materials	94.6	86.9	94.0	82.2	89.7	84.8	86.4	85.1	84.3	83.7	82.8	82.9	83.7	82.7	81.2

Table 4

## Output, Capacity, and Capacity Utilization

Quarterly, seasonally adjusted

Series	OUTPUT					CAPACITY					UTILIZATION				
	1985 Q2	Q3	Q4	Q1	Q2	1985 Q2	Q3	Q4	Q1	Q2	1985 Q2	Q3	Q4	Q1	Q2
Industrial Materials	114.0	113.8	114.3	114.5	113.4	142.1	142.8	143.6	144.2	144.7	80.3	79.7	79.6	79.4	78.3
Durable goods materials	121.4	120.4	121.1	120.9	118.8	156.6	157.8	159.0	159.9	160.7	77.5	76.3	76.2	75.6	73.9
Metal materials	79.8	79.6	82.6	79.0	75.2	116.3	115.9	115.5	115.0	114.5	68.7	68.7	71.5	68.7	65.7
Raw steel	70.3	71.8	68.6	71.4	66.2	104.0	103.3	102.7	101.8	100.9	67.7	69.5	66.8	70.1	65.6
Aluminum	86.2	84.2	78.6	79.1	77.2	116.9	115.8	114.7	113.2	111.4	73.7	72.7	68.5	69.9	69.3
Nondurable goods materials	111.0	113.4	113.9	115.7	116.8	137.7	138.1	138.6	139.0	139.5	80.6	82.1	82.2	83.2	83.8
Textile, paper and chemical materials	110.6	113.3	114.0	116.2	117.0	137.1	137.5	138.0	138.4	138.8	80.7	82.4	82.7	83.9	84.3
Pulp and paper materials	121.6	123.8	124.8	128.8	130.2	135.1	135.8	136.5	137.3	138.1	90.0	91.1	91.4	93.8	98.3
Chemical materials	112.1	113.6	113.4	115.3	115.4	142.7	143.1	143.6	144.0	144.3	78.6	79.4	79.0	80.1	79.9
Energy materials	103.7	102.5	102.6	102.2	100.8	120.2	120.6	120.9	121.1	121.3	86.3	85.0	84.9	84.4	83.1

### 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 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.