

# FEDERAL RESERVE statistical release



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## INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Industrial production dropped 2.8 percent in September, as hurricanes Gustav and Ike and a strike at a major producer of civilian aircraft severely curtailed output. For the third quarter as a whole, industrial production decreased at an annual rate of 6.0 percent. Manufacturing production fell 2.6 percent in September.

(over)

### INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY

Seasonally adjusted

Industrial production	2002=100						Percent change						Sept. '07 to Sept. '08
	2008 Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>	Aug. <sup>r</sup>	Sept. <sup>p</sup>	2008 Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>	Aug. <sup>r</sup>	Sept. <sup>p</sup>	
<b>Total index</b>	111.4	111.3	111.5	111.4	110.4	107.3	-.5	-.1	.1	.0	-1.0	-2.8	-4.5
<i>Previous estimates</i>	111.4	111.3	111.5	111.6	110.3		-.5	-.1	.2	.1	-1.1		
<b>Major market groups</b>													
<b>Final Products</b>	112.3	112.1	112.8	112.6	111.2	108.4	-.7	-.2	.6	-.2	-1.3	-2.5	-4.9
Consumer goods	106.2	105.8	106.5	106.2	104.4	103.0	-.5	-.4	.6	-.2	-1.7	-1.4	-5.0
Business equipment	130.0	130.4	130.8	130.8	130.5	121.4	-1.7	.3	.3	.0	-.2	-7.0	-7.0
<b>Nonindustrial supplies</b>	106.6	106.2	105.9	105.6	105.0	103.2	-.2	-.3	-.3	-.3	-.6	-1.7	-4.8
Construction	101.4	101.8	101.3	102.1	101.1	99.6	-.9	.4	-.4	.8	-1.0	-1.5	-6.5
Materials	112.3	112.3	112.2	112.4	111.5	107.7	-.5	.0	-.1	.2	-.8	-3.4	-3.9
<b>Major industry groups</b>													
<b>Manufacturing (see note below)</b>	112.3	112.4	112.3	112.3	111.3	108.5	-.9	.1	-.1	.0	-.9	-2.6	-4.8
<i>Previous estimates</i>	112.3	112.4	112.4	112.5	111.4		-.9	.1	.0	.1	-1.0		
Mining	104.0	104.2	104.3	106.0	106.0	97.7	.1	.2	.1	1.6	.0	-7.8	-3.6
Utilities	110.4	108.0	109.9	107.8	104.5	106.7	1.5	-2.2	1.8	-2.0	-3.1	2.2	-2.1
													Capacity growth
													Sept. '07 to Sept. '08
<b>Capacity utilization</b>													
Percent of capacity													
	Average 1972-2007	1988-89 high	1990-91 low	1994-95 high	2001-02 low	2007 Sept.	2008 Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>	Aug. <sup>r</sup>	Sept. <sup>p</sup>	Sept. '07 to Sept. '08
<b>Total industry</b>	81.0	85.0	78.6	85.1	73.6	81.3	79.9	79.7	79.7	79.6	78.7	76.4	1.6
<i>Previous estimates</i>							79.9	79.7	79.7	79.7	78.7		
<b>Manufacturing (see note below)</b>	79.7	85.4	77.1	84.6	71.5	79.8	77.7	77.6	77.5	77.3	76.6	74.5	1.8
<i>Previous estimates</i>							77.7	77.6	77.5	77.5	76.6		
Mining	87.5	86.3	83.6	88.7	84.8	88.9	90.7	90.9	90.9	92.3	92.2	85.0	.8
Utilities	86.8	92.7	84.1	93.9	84.6	86.6	86.5	84.5	85.9	84.0	81.3	82.9	2.3
<b>Stage-of-process groups</b>													
<b>Crude</b>	86.6	88.3	84.4	89.5	81.9	88.3	89.2	89.9	89.2	90.4	90.4	83.7	.6
<b>Primary and semifinished</b>	82.2	86.4	77.8	88.2	74.6	81.9	80.2	79.6	79.6	79.1	78.0	76.7	2.0
<b>Finished</b>	77.7	82.8	77.1	80.4	69.9	78.1	76.0	75.9	76.2	76.1	75.1	73.3	1.8

r Revised. p Preliminary.

Note. The statistics in this release cover output, capacity, and capacity utilization in the U.S. industrial sector, which is defined by the Federal Reserve to comprise manufacturing, mining, and electric and gas utilities. Mining is defined as all industries in sector 21 of the North American Industry Classification System (NAICS); electric and gas utilities are those in NAICS sectors 2211 and 2212. Manufacturing comprises NAICS manufacturing industries (sector 31-33) plus the logging industry and the newspaper, periodical, book, and directory publishing industries. Logging and publishing are classified elsewhere in NAICS (under agriculture and information respectively), but historically they were considered to be manufacturing and were included in the industrial sector under the Standard Industrial Classification (SIC) system. In December 2002 the Federal Reserve reclassified all its industrial output data from the SIC system to NAICS.

The output of mines plunged 7.8 percent, as crude oil and natural gas operations in the Gulf of Mexico were suspended because of the hurricanes. The output of utilities rose 2.2 percent, as temperatures returned to more normal levels in September after a relatively cool August.

The estimated effect of the disruptions from the hurricanes on total industrial production in September is about 2<sup>1</sup>/<sub>4</sub> percentage points. In addition to reductions in oil and gas extraction, hurricane-related shutdowns of petroleum refineries and petrochemical producers factored significantly in the decline; other manufacturing industries with storm outages made smaller contributions to the drop in output. The strike in the commercial aircraft industry contributed an estimated 1/2 percentage point to the overall decrease in industrial production.

At 107.3 percent of its 2002 average, total industrial production in September was 4.5 percent below its level of a year earlier. The capacity utilization rate for total industry fell to 76.4 percent in September, a level 4.6 percentage points below its average level from 1972 to 2007.

### Market Groups

The production of consumer goods decreased 1.4 percent in September; durable goods declined 0.7 percent, while nondurable goods fell 1.5 percent. Consumer durable goods were weighed down by a drop of 3.3 percent in the production of appliances, furniture, and carpeting and by a decrease of 2.7 percent in the output of miscellaneous goods. Elsewhere among durable goods, the index for automotive products rose 1.7 percent in September after having dropped 11.0 percent in August. Among consumer nondurable goods, the index for consumer energy products tumbled 4.4 percent in September, as lower output at petroleum refineries was slightly offset by an advance in utilities output. Non-energy consumer nondurable goods weakened 0.3 percent. The indexes for foods and tobacco and for chemical products both moved lower, while the output of clothing and paper products both edged up.

The output of business equipment dropped 7.0 percent in September. The production of transit equipment plummeted more than 30 percent because of the work stoppage in civilian aircraft. The index for industrial and other equipment fell 2.4 percent because of a hurricane-related decline in mining and oil and gas field machinery and weakness in construction machinery, general purpose machinery, and farm machinery. The index for information processing equipment edged down 0.1 percent.

The output of defense and space equipment decreased 0.9 percent in September. A large shipbuilding facility on the Gulf coast was temporarily shut down as a result of the hurricanes, which contributed significantly to the decline.

Among nonindustrial supplies, the production of construction supplies decreased 1.5 percent after having fallen 1.0 percent in August. The index of business supplies fell 1.8 percent in September for its fifth consecutive monthly decrease.

Materials output dropped 3.4 percent. The production of energy materials fell 6.1 percent because of contractions in natural gas and crude oil. The production of durable materials decreased 1.0 percent. The index for consumer parts was unchanged after having fallen 6.5 percent in August. The index for equipment parts moved down 0.9 percent in September; about half of the decline was a result of lower production of aircraft parts. The output of other durable materials fell 1.3 percent. The production of nondurable materials moved down 3.3 percent. The shutdowns of petrochemical producers in the Gulf region contributed significantly to the decrease of 5.8 percent in the index for chemical materials. The index for textile materials fell 1.0 percent, and the index for paper materials declined 1.3 percent.

## Industry Groups

Manufacturing output decreased 2.6 percent in September, and the factory operating rate fell to 74.5 percent, a level more than 5 percentage points below its 1972–2007 average. The production of durable goods industries fell 2.5 percent, with declines widespread among its components. In addition to a large drop in aerospace and miscellaneous transportation equipment, production decreased for wood products; nonmetallic mineral products; primary metals; fabricated metal products; machinery; electrical equipment, appliances, and components; furniture and related products; and miscellaneous goods. The output of motor vehicles and parts advanced 1.9 percent after having fallen 11.3 percent in August, while the output of computer and electronic products was unchanged. The production of nondurable goods decreased 2.9 percent, with widespread weakness. The output of petroleum and coal products plunged 9.2 percent because of the storms' effects on refinery activity. Declines were also recorded in the indexes for food, beverage, and tobacco products; textile and textile product mills; paper and products; printing; chemicals; and plastics and rubber products.

The index for other manufacturing (that is, industries formerly considered manufacturing but not classified as manufacturing under the North American Industry Classification System, or NAICS), which consists of publishing and logging, edged down 0.2 percent in September after an increase of 0.5 percent in August.

Capacity utilization rates at industries grouped by stage of process were as follows: For the crude stage, utilization fell 6.7 percentage points, to 83.7 percent, a rate 2.9 percentage points below its 1972–2007 average; for the primary and semifinished stages, utilization fell 1.3 percentage points, to 76.7 percent, a rate 5.5 percentage points below its long-run average; and for the finished stage, utilization moved down 1.8 percentage points, to 73.3 percent, a rate 4.4 percentage points below its long-run average.

### **Tables**

1. Industrial Production: Market and Industry Group Summary; percent change
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  13. Historical Statistics: Total Industry Excluding Selected High-Technology Industries
  14. Historical Statistics: Manufacturing Excluding Selected High-Technology Industries
- Further detail is available on the Board's website ([www.federalreserve.gov/releases/G17/](http://www.federalreserve.gov/releases/G17/)).

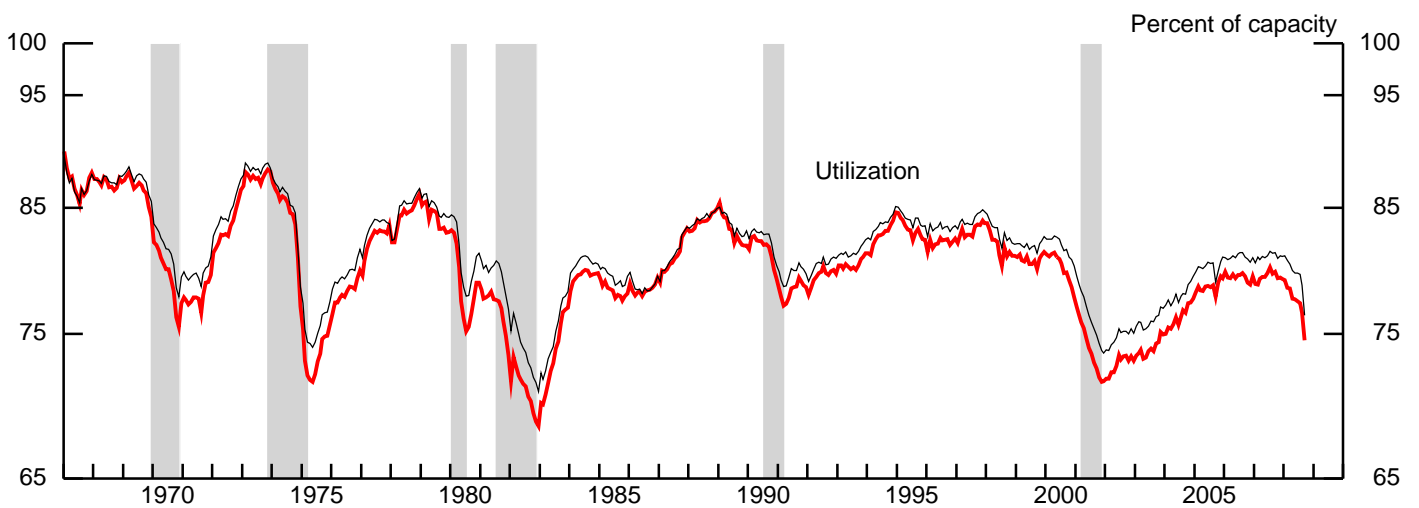
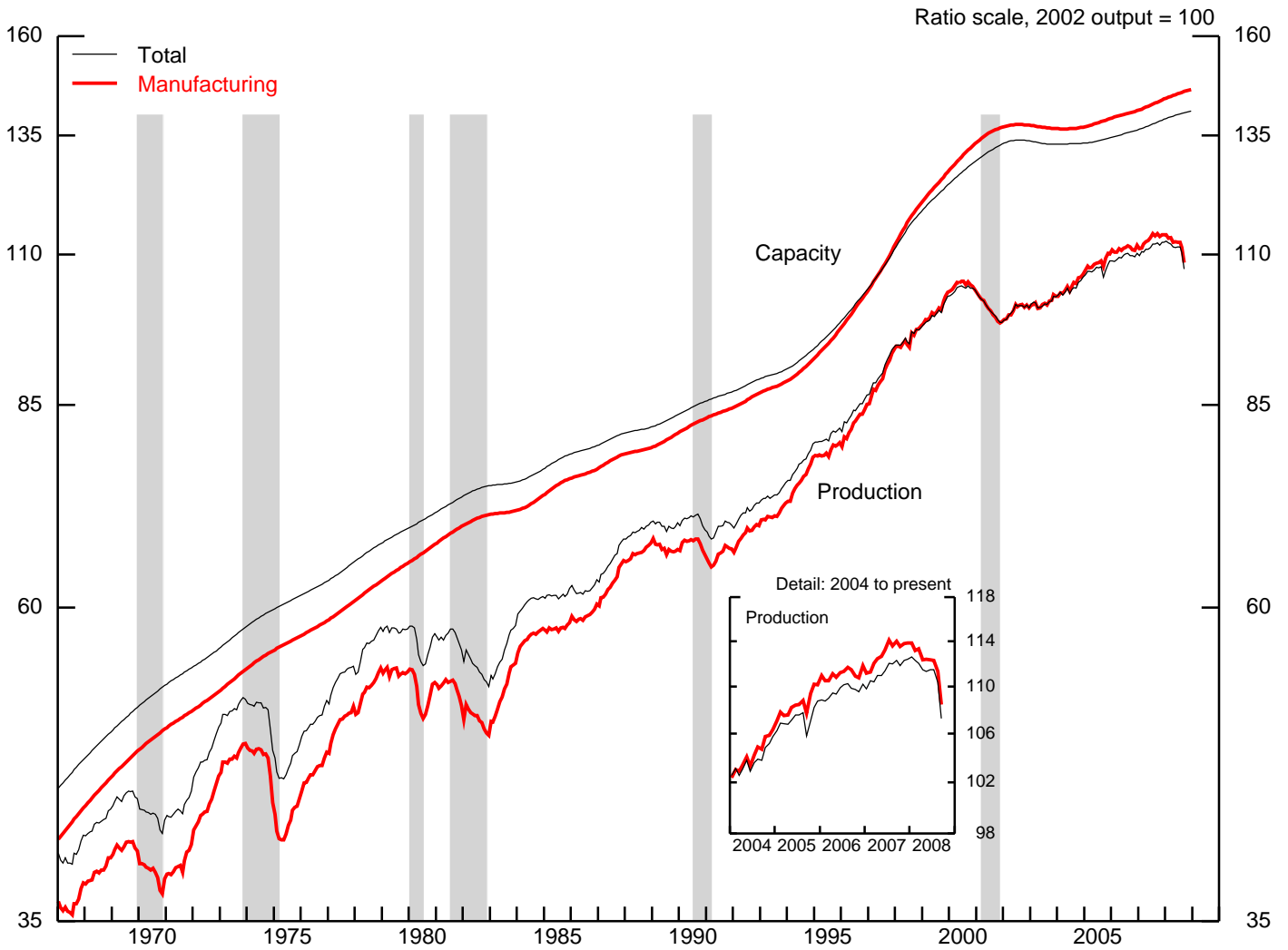
## **Revision of Industrial Production and Capacity Utilization**

The Federal Reserve Board plans to issue its annual revision to the index of industrial production (IP) and the related measures of capacity utilization in late March of 2009. The revised IP indexes will incorporate data from selected editions of the U.S. Census Bureau's 2007 Current Industrial Reports. Detailed data from the 2007 Economic Census, however, are not expected to be available. Annual data from the U.S. Geological Survey regarding metallic and nonmetallic minerals (except fuels) for 2007 will also be incorporated. The updating will include revisions to the monthly indicator (either product data or input data) and to seasonal factors for each industry as well as changes in the estimation methods for some series. Any changes to the methods for estimating the output of an industry will affect the index from 1972 to the present.

Capacity and capacity utilization will be revised to incorporate data from the Census Bureau's Quarterly Survey of Plant Capacity, which covers manufacturing, along with new data on capacity from the U.S. Geological Survey, the Department of Energy, and other organizations.

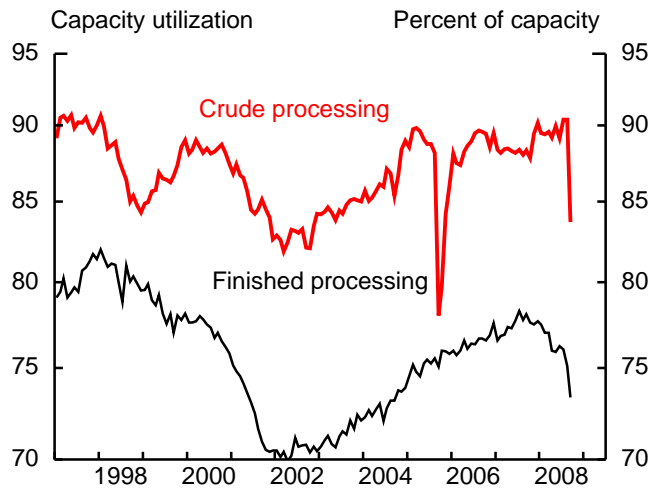
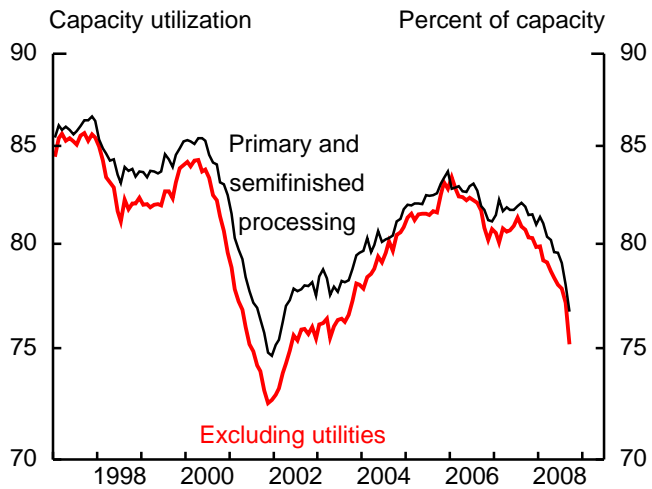
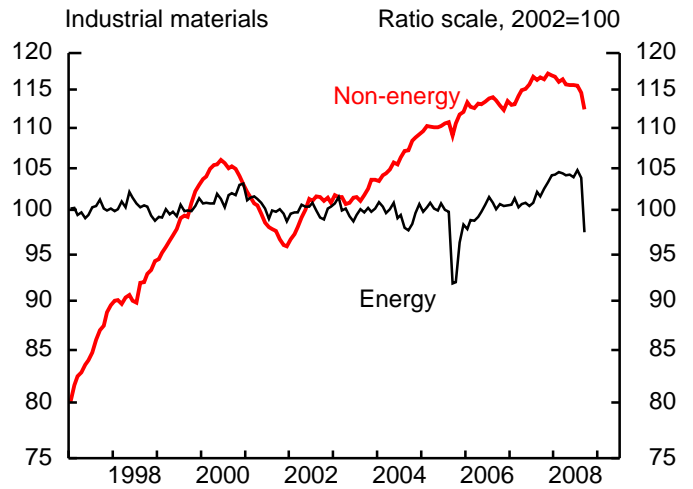
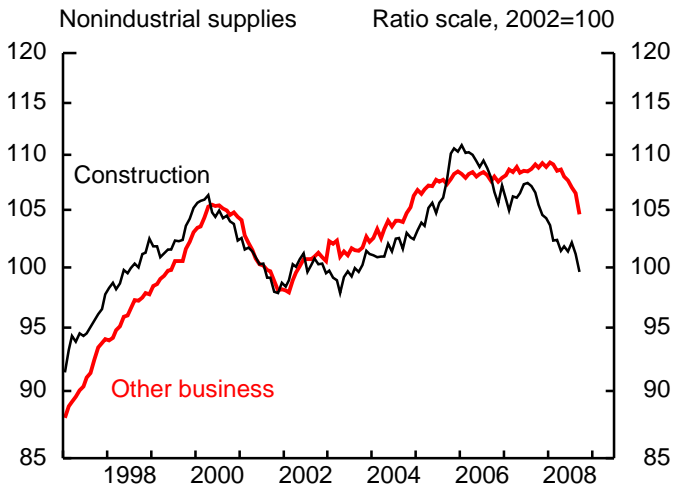
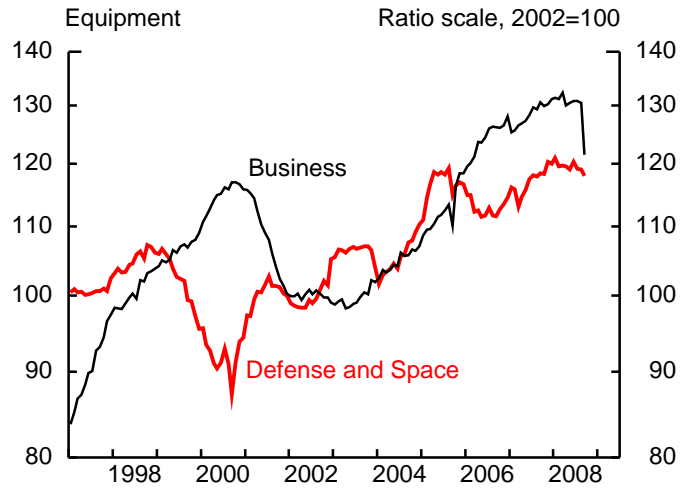
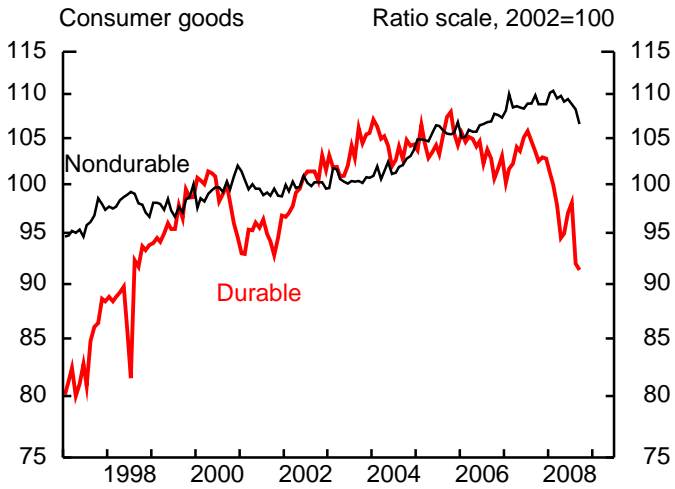
Once the revision is published, it will be available on the Board's website at [www.federalreserve.gov/releases/G17](http://www.federalreserve.gov/releases/G17). The revised data will also be available through the website of the Department of Commerce. Further information on the revision can be obtained from the Board's Industrial Output Section (telephone number 202-452-3197).

# 1. Industrial production, capacity, and utilization

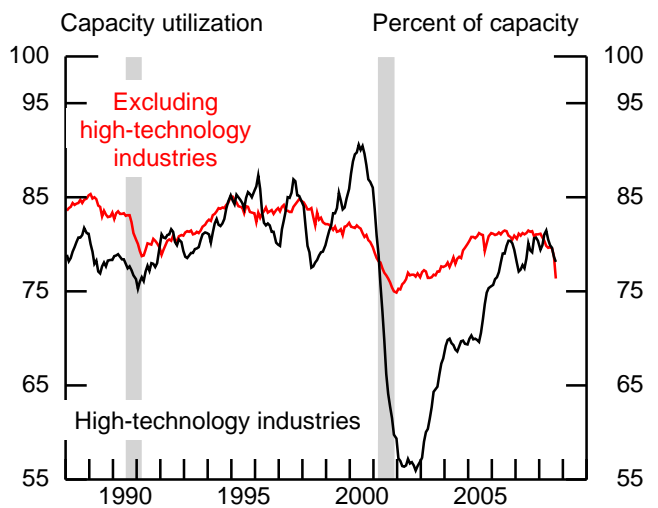
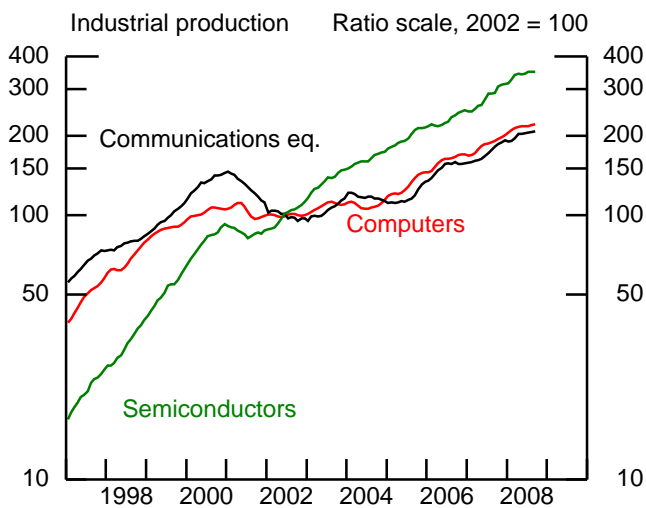
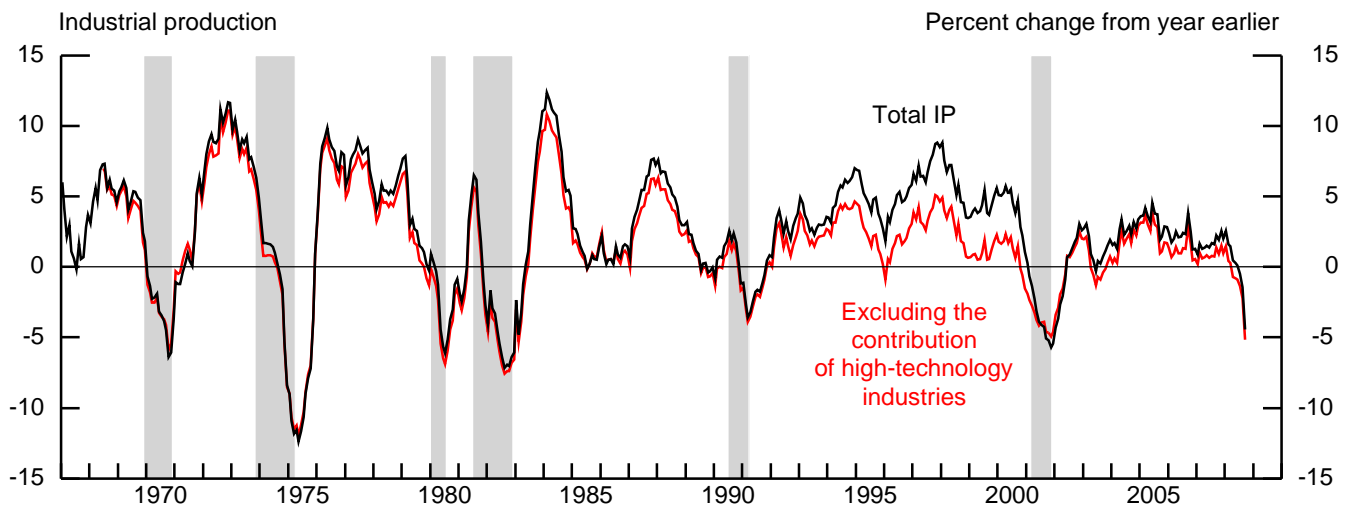
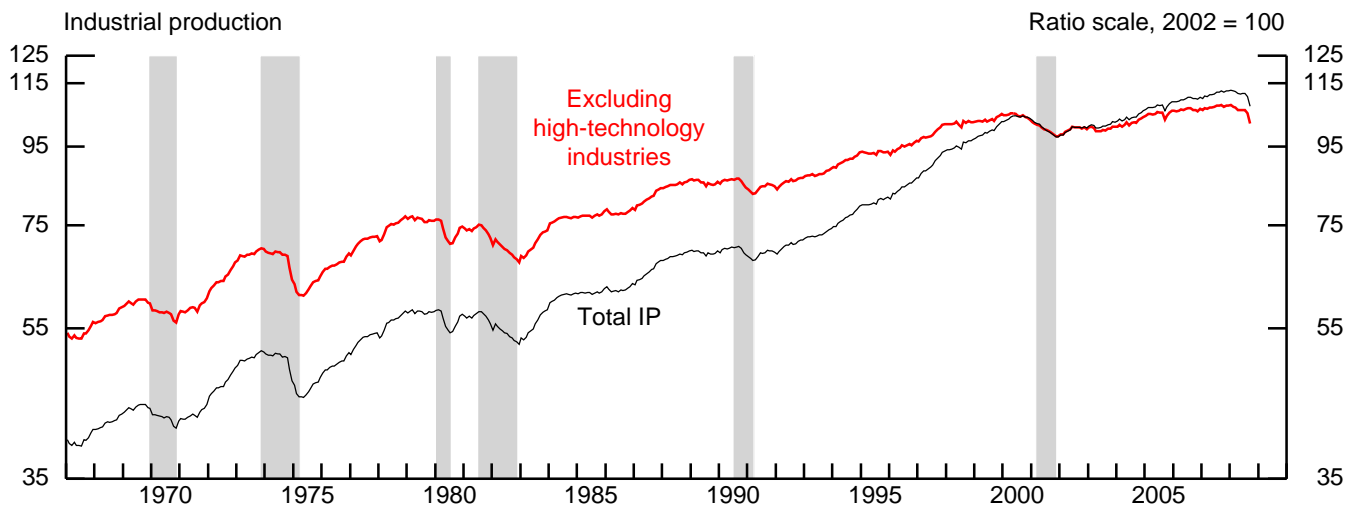


Notes: The shaded areas are periods of business recession as defined by the National Bureau of Economic Research (NBER). See note on cover page.

## 2. Industrial production and capacity utilization



### 3. Industrial production and capacity utilization, high-technology industries



Notes: High-technology industries are defined as semiconductors and related electronic components (NAICS 334412-9), computers (NAICS 3341), and communications equipment (NAICS 3342). The shaded areas are periods of business recession as defined by the NBER.

**Table 1**  
**INDUSTRIAL PRODUCTION: MARKET AND INDUSTRY GROUP SUMMARY**

Percent change, seasonally adjusted

Item	2007 proportion <sup>1</sup>	Fourth quarter to fourth quarter			Annual rate			Monthly rate						Sept. '07 to Sept. '08
		2005	2006	2007	2008 Q1	Q2 <sup>r</sup>	Q3 <sup>p</sup>	2008 Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>	Aug. <sup>r</sup>	Sept. <sup>p</sup>	
<b>Total IP</b>	100.00	2.6	1.7	2.1	.4	-3.1	-6.0	-5	-1	.1	.0	-1.0	-2.8	-4.5
<b>MARKET GROUPS</b>														
<b>Final products and nonindustrial supplies</b>	56.13	4.4	1.0	1.3	.5	-4.1	-6.0	-6	-2	.3	-2	-1.1	-2.3	-4.9
<b>Consumer goods</b>	29.33	2.4	.2	1.1	.7	-5.1	-5.9	-5	-4	.6	-2	-1.7	-1.4	-5.0
<b>Durable</b>	6.68	1.5	-3.9	.9	-11.4	-15.6	-6.8	-3.4	.4	2.2	1.1	-6.2	-7	-11.7
Automotive products	3.23	-1.9	-5.3	3.6	-13.4	-29.1	-5.0	-7.1	.9	5.4	2.0	-11.0	1.7	-15.3
Home electronics	.31	11.0	11.5	14.2	7.6	26.0	11.4	4.5	2.0	-2.0	3.9	-.6	-.1	17.0
Appliances, furniture, carpeting	1.08	1.6	-6.1	-6.0	-19.8	-7.8	-19.5	-.4	-.8	-1.2	-.3	-4.3	-3.3	-17.7
<b>Miscellaneous goods</b>	2.06	5.6	-2.8	-1.5	-6.5	-2.1	-5.9	-.5	.1	.0	.0	-.8	-2.7	-7.3
<b>Nondurable</b>	22.65	2.7	1.5	1.2	4.4	-2.1	-5.7	.3	-.6	.2	-.5	-.5	-1.5	-3.0
Non-energy	16.27	3.0	2.1	.9	.6	-.5	-2.5	-.4	.0	.1	-.5	-.1	-.3	-1.7
Foods and tobacco	8.99	3.9	.3	1.5	-.3	.8	-4.9	-.4	.1	-.2	-.9	-.2	-.3	-3.2
Clothing	.54	-2.1	.3	-1.9	-2.7	-9.1	10.4	-.6	-1.5	1.7	1.0	1.2	.2	-.3
Chemical products	4.71	3.1	7.7	.0	1.1	.1	-1.2	.4	.1	.2	.1	-.5	-.6	.2
Paper products	1.56	-.9	-2.4	1.1	4.8	-5.8	.5	-2.4	.3	.6	-1.3	1.4	.1	-1.0
Energy	6.38	1.7	-.2	1.9	14.9	-5.8	-12.7	1.8	-2.1	.6	-.6	-1.6	-4.4	-5.9
<b>Business equipment</b>	9.38	10.3	7.8	2.8	3.6	-3.6	-8.4	-1.7	.3	.3	.0	-.2	-7.0	-7.0
Transit	1.71	15.9	9.1	-3.4	-5.7	-7.5	-41.1	-2.2	.5	1.6	.2	-4.5	-33.5	-38.2
Information processing	2.72	14.6	12.8	8.9	12.4	13.4	1.5	1.2	.5	.6	-.3	.2	-.1	9.0
Industrial and other	4.95	5.9	4.4	1.7	2.1	-11.0	-1.0	-3.2	.2	-.4	.1	1.0	-2.4	-5.0
<b>Defense and space equipment</b>	1.73	6.9	-2.6	5.2	1.8	-1.5	-3.0	-.1	-.5	1.1	-1.0	-.1	-.9	-.3
<b>Construction supplies</b>	4.21	7.5	-3.5	-1.6	-7.4	-4.8	-2.2	-.9	.4	-.4	.8	-1.0	-1.5	-6.5
<b>Business supplies</b>	10.64	2.6	-.3	1.1	.0	-3.2	-7.5	.1	-.6	-.3	-.6	-.5	-1.8	-4.2
<b>Materials</b>	43.87	.3	2.5	3.2	.3	-1.9	-6.1	-.5	.0	-.1	.2	-.8	-3.4	-3.9
<b>Non-energy</b>	29.30	2.4	1.3	3.5	-1.6	-2.4	-5.1	-.6	-.1	.0	-.1	-.8	-1.9	-3.7
<b>Durable</b>	17.55	5.4	1.2	5.4	.7	-2.2	-3.2	-.5	-.5	.3	.2	-1.1	-1.0	-1.7
Consumer parts	2.92	.5	-5.8	-2.0	-12.6	-12.2	-12.0	-1.8	-.3	1.0	.7	-6.5	.0	-13.0
Equipment parts	6.02	11.3	9.4	12.5	10.4	4.0	1.2	-.2	-.4	.5	.1	.5	-.9	6.2
Other	8.62	2.9	-2.0	3.0	-1.4	-3.3	-3.5	-.3	-.7	.0	.2	-.5	-1.3	-3.5
<b>Nondurable</b>	11.75	-2.2	1.6	.6	-4.9	-2.8	-7.8	-.7	.6	-.5	-.6	-.3	-3.3	-6.5
Textile	.52	.5	-12.2	-9.4	-13.1	-11.1	-.6	-1.1	.3	-2.5	.5	2.0	-1.0	-7.7
Paper	2.23	-1.1	1.6	-1.3	-4.2	-2.1	-8.3	-.9	2.2	-2.8	-.6	.0	-1.3	-3.1
Chemical	5.78	-5.8	4.9	2.1	-6.0	-2.6	-10.5	-.3	.7	-.2	-.2	-1.0	-5.8	-9.6
<b>Energy</b>	14.58	-4.0	5.2	2.7	4.1	-1.0	-7.7	-.2	.1	-.3	.8	-.9	-6.1	-4.1
<b>INDUSTRY GROUPS</b>														
<b>Manufacturing</b>	78.70	3.7	1.1	2.3	-1.0	-3.8	-5.8	-.9	.1	-.1	.0	-.9	-2.6	-4.8
<b>Manufacturing (NAICS)</b>	31-33	75.02	3.9	1.4	2.5	-.8	-3.4	-5.8	-.8	.1	-.1	.0	-.9	-2.7
<b>Durable manufacturing</b>		38.51	6.9	1.6	3.9	-.4	-5.6	-4.7	-1.4	-.1	.4	.4	-1.5	-2.5
Wood products	321	1.19	11.6	-13.3	-6.8	-13.8	-8.3	-8.1	-1.2	-.7	-.7	-.9	1.0	-3.3
Nonmetallic mineral products	327	2.25	5.3	-3.5	.7	-8.3	-4.3	-2.5	-1.5	.3	-1.2	1.2	-.7	-2.0
Primary metal	331	2.70	-1.1	-4.2	4.1	9.6	-12.2	.0	-.6	-2.0	.4	2.0	-1.9	-.3
Fabricated metal products	332	5.58	6.2	3.2	3.4	.8	-7.5	-5.7	-1.1	-.8	-1.3	-.3	.4	-.9
Machinery	333	4.89	8.3	2.5	-.7	-1.3	-9.5	-3.8	-3.1	-.1	-.2	-.8	1.6	-3.3
Computer and electronic products	334	6.85	15.1	12.2	13.9	14.1	15.4	3.3	1.3	.3	.5	.4	.0	12.2
Electrical equip., appliances, and components	335	1.93	1.8	-.5	3.7	1.5	3.1	-6.2	-.4	.9	.1	-.2	-1.9	-1.6
Motor vehicles and parts	3361-3	5.12	-.3	-5.9	-2.2	-14.3	-28.1	-6.6	-6.2	.5	4.3	2.6	-11.3	1.9
Aerospace and miscellaneous transportation equipment	3364-9	3.50	11.5	4.5	10.9	-1.0	-3.8	-20.3	-.5	-.5	1.6	-.6	-.5	-16.6
Furniture and related products	337	1.43	1.6	-1.6	-1.7	-16.0	-10.1	-16.9	-1.3	-.2	-.7	-.9	-3.9	-1.5
Miscellaneous	339	3.09	6.6	2.7	1.5	.6	-1.4	2.4	-.7	.2	-.4	.4	1.4	-1.7
<b>Nondurable manufacturing</b>		36.50	.7	1.3	.9	-1.3	-1.2	-7.0	-.2	.3	-.5	-.3	-.4	-2.9
Food, beverage, and tobacco products	311,2	10.74	4.1	.3	2.1	.0	.7	-4.9	-.3	-.2	-.1	-.9	-.2	-.2
Textile and product mills	313,4	.93	-.3	-11.7	-8.1	-11.2	-10.4	-5.1	-1.8	.2	-1.4	.1	-.3	-1.0
Apparel and leather	315,6	.57	-1.3	-.8	-2.0	-2.7	-8.2	10.9	-.6	-1.4	1.8	1.1	1.1	.3
Paper	322	2.54	-.7	.3	-2.2	-2.9	.0	-4.5	-1.3	2.7	-1.9	-.8	.8	-1.4
Printing and support	323	1.87	.5	1.9	-1.3	-4.3	-7.4	-12.6	-1.0	-.4	-2.9	-1.6	1.4	-1.5
Petroleum and coal products	324	5.24	-3.7	2.2	-.5	8.0	-.2	-13.6	1.1	.2	-.8	.3	-.5	-9.2
Chemical	325	11.57	-1.2	5.0	1.4	-3.0	-1.1	-6.9	.0	.7	-.6	.0	-.9	-3.0
Plastics and rubber products	326	3.04	2.6	-3.6	4.4	-8.2	-3.4	-2.6	-.7	.2	.9	.2	-1.4	-2.0
<b>Other manufacturing (non-NAICS)</b>	1133,5111	3.68	-.5	-4.5	-1.4	-3.4	-10.4	-5.2	-2.1	-.6	-.1	-1.3	.5	-.2
<b>Mining</b>	21	11.62	-4.9	8.2	.2	3.5	2.2	-3.6	.1	.2	.1	1.6	.0	-7.8
<b>Utilities</b>	2211,2	9.68	2.0	-.7	3.1	8.2	-4.6	-10.8	1.5	-2.2	1.8	-2.0	-3.1	2.2
Electric	2211	7.98	3.5	-1.2	3.3	3.8	-3.5	-12.0	1.3	-2.4	2.9	-2.4	-3.9	2.6
Natural gas	2212	1.70	-4.6	1.5	2.0	31.4	-9.6	-5.3	2.3	-1.4	-2.9	.3	1.1	.0

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NOTE. Under the industry groups, the figures to the right of the series descriptions are 2002 North American Industry Classification System (NAICS) codes. The abbreviation pt denotes part of a NAICS code. Additional industry detail is available on the Board's web site ([www.federalreserve.gov/releases/G17](http://www.federalreserve.gov/releases/G17)). Under market groups, in the products category, miscellaneous consumer nondurables, oil and gas drilling, and manufactured homes are not shown separately; in the nondurable materials category, containers and miscellaneous nondurable materials are not shown separately.

1. The proportion data are estimates of the relative contribution of each series to the growth of total industrial production in the following year.



**Table 2**  
**INDUSTRIAL PRODUCTION: SPECIAL AGGREGATES AND SELECTED DETAIL**

Percent change, seasonally adjusted

Item	2007 proportion	Fourth quarter to fourth quarter			Annual rate			Monthly rate						Sept. '07 to Sept. '08	
		2005	2006	2007	2008 Q1	Q2 <sup>r</sup>	Q3 <sup>p</sup>	2008 Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>	Aug. <sup>r</sup>	Sept. <sup>p</sup>		
<b>Total industry</b>	100.00	2.6	1.7	2.1	.4	-3.1	-6.0	-.5	-.1	.1	.0	-1.0	-2.8	-4.5	
<b>Energy</b>	24.66	-1.8	3.7	2.3	7.1	-1.7	-8.9	.7	-.6	.2	.2	-1.2	-5.0	-4.0	
Consumer products	6.38	1.7	-.2	1.9	14.9	-5.8	-12.7	1.8	-2.1	.6	-.6	-1.6	-4.4	-5.9	
Commercial products	2.94	.4	1.2	2.0	7.4	-.4	-11.7	2.9	-1.9	1.5	-1.0	-2.5	-2.4	-3.0	
Oil and gas well drilling	213111	.77	11.9	14.8	-8	1.2	20.1	16.4	1.9	1.7	1.5	-.4	2.3	3.4	
Converted fuel	4.15	-2.6	2.5	5.3	2.5	-4.3	-13.8	.5	-.4	-.9	-.9	-2.3	-1.7	-5.5	
Primary energy	10.42	-4.6	6.4	1.6	4.7	.3	-5.4	-.5	.3	-.1	1.4	-.4	-7.7	-3.6	
<b>Non-energy</b>	75.34	3.9	1.1	2.1	-1.7	-3.6	-5.0	-.9	.1	.1	-.1	-.9	-2.0	-4.5	
<b>Selected high-technology industries</b>	4.31	22.4	17.3	22.3	18.3	20.8	6.0	1.9	.1	.5	.9	.1	.5	17.3	
Computers and peripheral equipment	3341	.98	28.8	18.0	16.7	26.4	14.4	4.3	1.1	.6	.1	.1	.6	.9	15.6
Communications equipment	3342	1.28	13.7	20.6	20.6	7.2	25.4	5.6	3.6	.5	.4	.4	.4	.8	14.3
Semiconductors and related electronic components	334412-9	2.04	24.0	15.4	25.9	21.9	20.9	7.1	1.2	-.3	.7	1.6	-.4	.1	19.9
<b>Excluding selected high-technology industries</b>	71.03	2.7	.0	.8	-2.9	-5.1	-5.6	-1.1	.0	.1	-.2	-.9	-2.2	-5.8	
<b>Motor vehicles and parts</b>	3361-3	5.12	-.3	-5.9	-2.2	-14.3	-28.1	-6.6	-6.2	.5	4.3	2.6	-11.3	1.9	-16.4
Motor vehicles	3361	2.28	-2.3	-7.0	-2.7	-16.7	-39.6	.2	-11.9	3.2	9.3	4.8	-17.8	3.7	-20.0
Motor vehicle parts	3363	2.47	-.6	-4.3	.5	-10.8	-15.4	-5.3	-1.6	-.5	1.0	2.1	-6.1	.7	-10.5
<b>Excluding motor vehicles and parts</b>	65.91	3.0	.6	1.1	-2.0	-3.2	-5.6	-.8	.0	-.2	-.4	-.2	-2.5	-5.0	
Consumer goods	19.88	3.1	1.0	.3	-1.7	-1.5	-3.7	-.4	.0	-.1	-.4	-.4	-.7	-3.3	
Business equipment	7.33	7.3	5.8	2.8	2.8	-6.3	-11.3	-2.2	.2	.1	-.3	.4	-9.2	-10.4	
Construction supplies	4.17	7.5	-3.7	-1.9	-7.6	-5.2	-2.3	-1.0	.4	-.4	.8	-1.0	-1.6	-6.8	
Business supplies	7.41	2.4	-1.6	-.1	-3.5	-5.2	-6.1	-1.1	-.1	-1.1	-.6	.4	-1.6	-5.4	
Materials	25.38	.6	.7	1.8	-2.5	-2.8	-5.8	-.6	.0	-.1	-.4	-.3	-2.3	-4.7	
<b>Measures excluding selected high-technology industries</b>															
Total industry	95.69	1.6	.9	1.2	-.4	-4.2	-6.5	-.6	-.1	.1	-.1	-1.0	-3.0	-5.4	
Manufacturing <sup>1</sup>	74.39	2.5	.1	1.1	-2.1	-5.2	-6.5	-1.0	.1	-.1	-.1	-.9	-2.7	-6.1	
Durable	34.37	4.7	-.5	1.5	-2.8	-8.7	-6.1	-1.8	-.2	.4	.3	-1.7	-2.8	-7.3	
<b>Measures excluding motor vehicles and parts</b>															
Total industry	94.88	2.8	2.1	2.4	1.2	-1.7	-6.0	-.2	-.2	-.1	-.1	-.5	-3.0	-3.8	
Manufacturing <sup>1</sup>	73.58	4.0	1.7	2.6	.0	-2.0	-5.8	-.5	.0	-.3	-.2	-.2	-2.8	-4.1	
Durable	33.56	8.1	2.8	4.8	1.8	-1.9	-4.5	-.7	-.2	-.1	.1	-.1	-3.0	-2.8	
<b>Measures excluding selected high-technology industries and motor vehicles and parts</b>															
Total industry	90.57	1.7	1.4	1.4	.4	-2.8	-6.5	-.4	-.2	-.1	-.2	-.5	-3.2	-4.8	
Manufacturing <sup>1</sup>	69.27	2.7	.6	1.3	-1.1	-3.4	-6.5	-.7	.0	-.4	-.3	-.2	-3.0	-5.4	
<b>Stage-of-process components of non-energy materials, measures of the input to</b>															
Finished processors	11.68	5.6	2.8	5.1	.7	-1.7	-3.9	-.8	.1	-.2	.1	-1.2	-.8	-1.0	
Primary and semifinished processors	17.61	.1	.3	2.4	-3.0	-2.9	-5.9	-.4	-.2	.1	-.3	-.5	-2.7	-5.4	

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1. Refer to note on cover page.

**Table 3**  
**MOTOR VEHICLE ASSEMBLIES**

Millions of units, seasonally adjusted annual rate

Item	2007 average	2007 Q4	2008 Q1	Q2	Q3	2008 Apr.	May	June	July	Aug.	Sept.
<b>Total</b>	10.75	10.50	9.91	8.79	8.76	8.44	8.68	9.25	9.76	8.15	8.38
Autos	3.92	3.97	3.93	3.62	4.27	3.51	3.62	3.74	4.68	4.12	4.02
Trucks	6.83	6.53	5.98	5.17	4.49	4.94	5.07	5.50	5.08	4.03	4.36
Light	6.55	6.29	5.74	4.92	4.28	4.67	4.80	5.29	4.88	3.82	4.13
Medium and heavy	.28	.24	.24	.25	.22	.27	.26	.21	.21	.21	.23
<b>Memo</b>											
Autos and light trucks	10.47	10.26	9.67	8.54	8.55	8.17	8.42	9.04	9.56	7.94	8.15

NOTE: Seasonal factors and underlying data for auto, light truck, and medium and heavy truck production are available on the Board's web site, [www.federalreserve.gov/releases/G17/mvsv.htm](http://www.federalreserve.gov/releases/G17/mvsv.htm)

**Table 4**  
**INDUSTRIAL PRODUCTION INDEXES: MARKET AND INDUSTRY GROUP SUMMARY**

2002 = 100, seasonally adjusted

Item	2007 proportion	2008 Jan.	Feb.	Mar.	Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>	Aug. <sup>r</sup>	Sept. <sup>p</sup>
<b>Total IP</b>	100.00	112.6	112.3	112.0	111.4	111.3	111.5	111.4	110.4	107.3
<b>MARKET GROUPS</b>										
<b>Final products and nonindustrial supplies</b>	56.13	112.3	112.0	111.4	110.8	110.5	110.9	110.7	109.5	107.0
<b>Consumer goods</b>	29.33	108.0	107.9	106.7	106.2	105.8	106.5	106.2	104.4	103.0
<b>Durable</b>	6.68	101.1	100.0	97.8	94.5	94.9	97.0	98.1	92.0	91.4
Automotive products	3.23	99.6	98.5	93.8	87.2	88.0	92.8	94.6	84.3	85.7
Home electronics	.31	167.7	168.1	169.7	177.4	180.9	177.3	184.2	183.1	183.0
Appliances, furniture, carpeting	1.08	89.1	87.3	87.3	86.9	86.3	85.2	84.9	81.3	78.6
Miscellaneous goods	2.06	101.9	100.9	101.4	100.8	100.9	100.9	100.8	100.0	97.3
<b>Nondurable</b>	22.65	110.1	110.4	109.5	109.8	109.1	109.4	108.8	108.2	106.5
Non-energy	16.27	109.3	109.1	109.5	109.1	109.2	109.2	108.6	108.6	108.2
Foods and tobacco	8.99	109.3	109.2	110.2	109.8	109.9	109.7	108.7	108.5	108.2
Clothing	.54	77.2	76.5	75.3	74.8	73.7	75.0	75.7	76.7	76.8
Chemical products	4.71	119.1	119.0	118.1	118.7	118.7	118.9	119.1	118.4	117.7
Paper products	1.56	96.5	96.6	97.2	94.9	95.2	95.8	94.5	95.8	95.9
Energy	6.38	112.6	113.8	109.7	111.7	109.4	110.1	109.5	107.7	103.0
<b>Business equipment</b>	9.38	131.4	131.1	132.3	130.0	130.4	130.8	130.8	130.5	121.4
Transit	1.71	122.5	121.1	120.7	118.1	118.6	120.6	120.9	115.5	76.7
Information processing	2.72	165.2	167.5	169.9	172.0	172.8	173.9	173.4	173.7	173.5
Industrial and other	4.95	117.4	116.5	117.6	113.8	114.0	113.6	113.7	114.8	112.0
<b>Defense and space equipment</b>	1.73	120.9	119.6	119.6	119.5	119.0	120.2	119.1	119.0	118.0
<b>Construction supplies</b>	4.21	103.6	102.3	102.3	101.4	101.8	101.3	102.1	101.1	99.6
<b>Business supplies</b>	10.64	109.3	109.2	108.5	108.6	108.0	107.7	107.0	106.5	104.6
<b>Materials</b>	43.87	113.0	112.6	112.8	112.3	112.3	112.2	112.4	111.5	107.7
<b>Non-energy</b>	29.30	116.7	116.0	116.4	115.7	115.6	115.6	115.5	114.6	112.4
<b>Durable</b>	17.55	126.0	126.0	126.4	125.7	125.1	125.5	125.7	124.4	123.1
Consumer parts	2.92	90.1	89.1	87.6	86.0	85.7	86.6	87.2	81.5	81.5
Equipment parts	6.02	178.3	179.9	182.8	182.3	181.6	182.4	182.6	183.5	181.9
Other	8.62	109.8	109.6	109.5	109.2	108.5	108.5	108.6	108.0	106.6
<b>Nondurable</b>	11.75	103.1	101.4	101.8	101.1	101.7	101.2	100.6	100.3	97.0
Textile	.52	71.0	71.0	69.6	68.9	69.2	67.4	67.8	69.1	68.4
Paper	2.23	97.8	95.9	96.6	95.8	97.8	95.1	94.5	94.6	93.4
Chemical	5.78	111.9	109.9	109.7	109.4	110.1	109.9	109.6	108.5	102.2
<b>Energy</b>	14.58	104.2	104.5	104.3	104.1	104.2	103.9	104.7	103.8	97.4
<b>INDUSTRY GROUPS</b>										
<b>Manufacturing</b>	78.70	113.8	113.1	113.3	112.3	112.4	112.3	112.3	111.3	108.5
<b>Manufacturing (NAICS)</b>	<b>31-33</b>	75.02	115.2	114.5	114.6	113.7	113.8	113.8	112.7	109.7
<b>Durable manufacturing</b>		38.51	122.9	122.2	122.4	120.7	120.6	121.1	121.5	116.8
Wood products	321	1.19	92.3	91.0	91.4	90.2	89.6	89.0	88.1	86.1
Nonmetallic mineral products	327	2.25	106.1	104.9	106.5	104.9	105.2	104.0	105.2	102.4
Primary metal	331	2.70	115.2	114.1	112.3	111.5	109.4	109.8	111.9	108.9
Fabricated metal products	332	5.58	113.4	113.5	113.6	112.4	111.5	110.1	109.7	109.2
Machinery	333	4.89	115.2	114.1	116.0	112.4	112.3	112.1	111.2	109.3
Computer and electronic products	334	6.85	198.5	202.2	206.2	208.9	209.5	210.5	211.4	211.3
Electrical equip., appliances, and components	335	1.93	106.1	104.4	106.0	105.7	106.6	106.7	106.5	102.8
Motor vehicles and parts	3361-3	5.12	93.9	93.0	88.6	83.1	83.5	87.2	89.4	80.8
Aerospace and miscellaneous transportation equipment	3364-9	3.50	127.4	125.2	125.1	124.4	123.8	125.8	125.1	103.9
Furniture and related products	337	1.43	98.1	96.4	95.9	94.6	94.4	93.7	92.8	87.8
Miscellaneous	339	3.09	117.8	115.3	117.1	116.3	116.6	116.1	116.6	116.3
<b>Nondurable manufacturing</b>		36.50	106.8	106.0	106.2	106.0	106.3	105.8	105.4	102.0
Food, beverage, and tobacco products	311,2	10.74	110.0	109.7	111.0	110.6	110.3	110.3	109.3	108.8
Textile and product mills	313,4	.93	75.3	75.2	74.7	73.3	73.4	72.3	72.4	71.5
Apparel and leather	315,6	.57	77.8	77.1	76.0	75.6	74.5	75.9	76.7	77.7
Paper	322	2.54	96.0	93.7	95.1	93.8	96.4	93.8	94.5	93.2
Printing and support	323	1.87	98.4	97.3	98.4	97.4	97.0	94.2	92.6	92.5
Petroleum and coal products	324	5.24	111.7	110.6	109.5	110.6	110.9	110.0	110.3	99.6
Chemical	325	11.57	114.6	113.6	113.2	113.2	114.0	113.3	113.2	108.9
Plastics and rubber products	326	3.04	103.0	102.8	102.0	101.3	101.5	102.4	102.7	99.3
<b>Other manufacturing (non-NAICS)</b>	<b>1133,5111</b>	3.68	91.3	91.2	91.0	89.1	88.5	88.4	87.3	87.5
<b>Mining</b>	<b>21</b>	11.62	103.2	103.6	103.9	104.0	104.2	104.3	106.0	97.7
<b>Utilities</b>	<b>2211,2</b>	9.68	110.8	112.6	108.7	110.4	108.0	109.9	107.8	106.7
Electric	2211	7.98	112.4	113.5	110.4	111.8	109.2	112.3	109.6	108.0
Natural gas	2212	1.70	103.2	107.9	101.0	103.4	102.0	99.0	99.4	100.4

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NOTE. Refer to notes on table 1.

**Table 5**  
**INDUSTRIAL PRODUCTION INDEXES: SPECIAL AGGREGATES**  
2002 = 100, seasonally adjusted

Item	2007 proportion	2008 Jan.	Feb.	Mar.	Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>	Aug. <sup>r</sup>	Sept. <sup>p</sup>
<b>Total industry</b>	100.00	112.6	112.3	112.0	111.4	111.3	111.5	111.4	110.4	107.3
<b>Energy</b>	24.66	108.8	109.4	107.8	108.6	107.9	108.1	108.4	107.1	101.8
Consumer products	6.38	112.6	113.8	109.7	111.7	109.4	110.1	109.5	107.7	103.0
Commercial products	2.94	117.2	119.0	114.3	117.6	115.3	117.1	115.9	113.0	110.4
Oil and gas well drilling	213111	.77	169.3	167.5	171.0	174.3	177.3	179.9	179.2	183.3
Converted fuel	4.15	110.2	110.0	108.5	109.0	108.5	107.6	106.7	104.2	102.4
Primary energy	10.42	101.6	102.0	102.4	101.9	102.2	102.1	103.6	103.2	95.2
<b>Non-energy</b>	75.34	113.4	112.8	113.0	111.9	112.0	112.1	112.0	111.0	108.8
<b>Selected high-technology industries</b>	4.31	251.6	257.0	264.5	269.5	269.8	271.1	273.5	273.7	275.0
Computers and peripheral equipment	3341	.98	205.7	210.3	214.0	216.3	217.5	217.7	217.9	219.2
Communications equipment	3342	1.28	190.5	190.9	195.7	202.7	203.6	204.4	205.4	207.7
Semiconductors and related electronic components	334412-9	2.04	315.8	326.4	338.6	342.7	341.6	344.2	349.5	348.2
<b>Excluding selected high-technology industries</b>	71.03	107.1	106.3	106.3	105.1	105.1	105.2	105.1	104.1	101.8
<b>Motor vehicles and parts</b>	3361-3	5.12	93.9	93.0	88.6	83.1	83.5	87.2	89.4	79.3
Motor vehicles	3361	2.28	94.5	92.8	86.8	76.5	78.9	86.3	90.4	74.3
Motor vehicle parts	3363	2.47	93.0	92.5	89.2	87.8	87.4	88.2	90.1	85.2
<b>Excluding motor vehicles and parts</b>	65.91	108.2	107.4	107.8	107.0	107.0	106.8	106.4	106.2	103.6
Consumer goods	19.88	107.3	106.9	107.3	106.8	106.8	106.7	106.3	105.9	105.1
Business equipment	7.33	121.0	120.4	121.5	118.8	119.1	119.2	118.8	119.3	108.3
Construction supplies	4.17	102.9	101.5	101.5	100.5	100.9	100.4	101.2	100.2	98.6
Business supplies	7.41	101.9	100.9	101.6	100.5	100.5	99.4	98.8	99.2	97.6
Materials	25.38	107.9	106.9	107.2	106.6	106.6	106.5	106.0	105.7	103.3
<b>Measures excluding selected high-technology industries</b>										
Total industry	95.69	107.6	107.2	106.8	106.1	105.9	106.1	106.0	104.9	101.8
Manufacturing <sup>1</sup>	74.39	107.6	106.8	106.7	105.6	105.7	105.6	105.5	104.5	101.7
Durable	34.37	110.5	109.5	109.3	107.3	107.1	107.5	107.8	106.0	103.0
<b>Measures excluding motor vehicles and parts</b>										
Total industry	94.88	113.8	113.5	113.5	113.2	113.1	113.0	112.8	112.3	108.9
Manufacturing <sup>1</sup>	73.58	115.5	114.8	115.3	114.7	114.8	114.4	114.2	113.9	110.8
Durable	33.56	128.4	127.8	128.9	128.0	127.7	127.6	127.6	127.5	123.7
<b>Measures excluding selected high-technology industries and motor vehicles and parts</b>										
Total industry	90.57	108.4	108.0	107.9	107.5	107.3	107.3	107.1	106.5	103.1
Manufacturing <sup>1</sup>	69.27	108.8	107.9	108.2	107.5	107.5	107.1	106.8	106.6	103.4
<b>Stage-of-process components of non-energy materials, measures of the input to</b>										
Finished processors	11.68	127.9	127.7	128.4	127.4	127.6	127.4	127.5	126.0	125.0
Primary and semifinished processors	17.61	108.7	107.7	107.9	107.5	107.2	107.3	107.1	106.5	103.6

<sup>r</sup> Revised. <sup>p</sup> Preliminary.

1. Refer to note on cover page.

**Table 6**  
**DIFUSION INDEXES OF INDUSTRIAL PRODUCTION**  
Percent

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>One month earlier</b>												
2006	60.9	43.3	52.6	57.4	49.0	52.9	56.1	48.4	44.6	42.0	42.3	59.0
2007	42.9	56.4	58.3	62.2	49.7	57.4	55.6	45.5	53.8	44.6	57.1	50.0
2008	48.1	45.5	53.5	42.6	55.8	54.3	50.6	42.8				
<b>Three months earlier</b>												
2006	58.3	50.6	56.4	51.9	55.1	51.3	52.6	52.6	49.4	41.7	37.5	45.2
2007	46.2	52.9	51.0	62.5	59.6	61.9	59.6	56.7	55.8	43.6	52.9	51.9
2008	48.4	42.6	46.8	45.2	53.5	46.2	51.3	45.8				
<b>Six months earlier</b>												
2006	56.4	54.2	58.0	57.7	52.9	52.2	49.0	53.8	49.0	44.2	44.9	47.1
2007	38.8	43.6	45.5	57.4	58.7	56.4	65.4	57.7	61.2	51.6	53.5	54.8
2008	46.5	43.9	47.1	44.2	45.2	45.5	47.1	47.8				

NOTE. The diffusion indexes are calculated as the percentage of series that increased over the indicated span (one, three, or six months) plus one-half the percentage that were unchanged.

**Table 7**  
**CAPACITY UTILIZATION**  
Percent of capacity, seasonally adjusted

Item	2007 proportion	1972- 2007 ave.	1994- 95 high	2001- 02 low	2008 Q1	Q2 <sup>f</sup>	Q3 <sup>p</sup>	2008 Apr. <sup>f</sup>	May <sup>f</sup>	June <sup>f</sup>	July <sup>f</sup>	Aug. <sup>f</sup>	Sept. <sup>p</sup>
<b>Total industry</b>	100.00	81.0	85.1	73.6	80.7	79.7	78.2	79.9	79.7	79.7	79.6	78.7	76.4
<b>Manufacturing<sup>1</sup></b>	80.83	79.7	84.6	71.5	78.7	77.6	76.1	77.7	77.6	77.5	77.3	76.6	74.5
<b>Manufacturing (NAICS) 31-33</b>	77.04	79.5	84.7	71.0	78.7	77.7	76.2	77.7	77.7	77.5	77.5	76.6	74.5
<b>Durable manufacturing</b>	41.25	78.0	84.2	68.1	77.1	75.4	74.0	75.6	75.3	75.4	75.5	74.3	72.3
Wood products 321	1.36	79.9	87.9	70.7	67.7	66.3	65.0	66.8	66.3	65.9	65.3	66.0	63.9
Nonmetallic mineral products 327	2.35	79.4	84.0	74.9	76.1	75.0	74.2	75.2	75.4	74.4	75.2	74.6	73.0
Primary metal 331	2.64	80.9	95.8	68.5	85.5	82.5	82.3	83.6	81.9	82.1	83.7	82.0	81.3
Fabricated metal products 332	5.64	77.5	85.5	69.5	81.3	79.6	78.3	80.4	79.7	78.6	78.3	78.6	77.9
Machinery 333	5.15	78.7	87.6	63.7	76.6	74.4	73.4	74.6	74.4	74.2	73.5	74.6	72.1
Computer and electronic products 334	7.82	78.3	83.7	58.2	77.9	78.5	77.2	78.9	78.4	78.1	77.8	77.1	76.5
Electrical equip., appliances, and components 335	1.87	83.2	93.1	72.0	83.3	83.4	81.6	83.1	83.6	83.6	83.3	81.5	80.1
Motor vehicles and parts 3361-3	5.82	77.4	89.0	69.7	69.7	64.2	63.0	63.1	63.4	66.1	67.8	60.1	61.2
Aerospace and miscellaneous transportation equipment 3364-9	3.69	72.7	68.8	62.8	79.9	78.8	74.1	78.7	78.3	79.4	78.8	78.3	65.2
Furniture and related products 337	1.53	78.6	83.2	68.2	73.5	71.7	68.6	72.0	71.9	71.4	70.7	68.0	67.0
Miscellaneous 339	3.38	76.6	81.2	70.5	74.3	73.7	73.8	73.8	73.9	73.4	73.6	74.6	73.3
<b>Nondurable manufacturing</b>	35.78	81.6	85.4	74.8	80.6	80.2	78.6	80.2	80.4	79.9	79.7	79.3	77.0
Food, beverage, and tobacco products 311,2	10.68	81.5	84.0	75.7	80.9	80.9	79.7	81.1	80.8	80.7	79.9	79.7	79.5
Textile and product mills 313,4	1.08	82.0	91.8	68.9	67.3	66.0	65.6	66.1	66.4	65.6	65.8	65.8	65.3
Apparel and leather 315,6	.66	78.4	87.5	60.2	73.1	72.1	74.6	72.1	71.3	72.8	73.8	74.8	75.2
Paper 322	2.50	87.6	92.4	78.5	82.1	82.2	81.4	81.2	83.5	82.0	81.3	82.0	80.9
Printing and support 323	2.00	83.5	86.5	72.6	75.4	73.7	71.0	74.7	74.3	72.1	70.8	71.7	70.5
Petroleum and coal products 324	4.21	85.9	90.5	83.8	90.6	90.6	87.4	90.6	90.9	90.2	90.4	90.0	81.7
Chemical 325	11.69	78.3	81.2	69.4	78.1	77.6	76.0	77.5	77.9	77.4	77.3	76.5	74.2
Plastics and rubber products 326	2.98	83.6	91.8	74.6	82.4	81.3	80.4	81.0	81.1	81.7	81.8	80.5	78.8
<b>Other manufacturing (non-NAICS) 1133,5111</b>	3.79	84.5	83.0	80.3	78.4	76.2	75.1	76.6	76.1	76.0	74.9	75.3	75.2
<b>Mining 21</b>	9.90	87.5	88.7	84.8	90.5	90.8	89.9	90.7	90.9	90.9	92.3	92.2	85.0
<b>Utilities 2211,2</b>	9.27	86.8	93.9	84.6	87.1	85.6	82.8	86.5	84.5	85.9	84.0	81.3	82.9
<b>Selected high-technology industries</b>	4.93	78.1	85.6	55.9	80.1	80.6	78.8	81.5	80.5	79.9	79.6	78.7	78.1
Computers and peripheral equipment 3341	1.13	77.9	86.3	66.8	80.5	81.0	79.8	81.3	81.1	80.5	79.9	79.7	79.8
Communications equipment 3342	1.45	75.7	82.8	40.4	80.3	82.8	81.9	83.1	82.8	82.5	82.2	81.8	81.8
Semiconductors and related electronic components 334412-9	2.35	80.8	92.2	57.4	80.0	79.4	76.9	80.8	79.1	78.4	78.3	76.8	75.7
<b>Measures excluding selected high-technology industries</b>	95.07	81.2	85.0	74.8	80.7	79.7	78.2	79.8	79.6	79.7	79.6	78.7	76.3
Total industry	75.90	79.8	84.5	72.8	78.6	77.4	76.0	77.5	77.5	77.3	77.2	76.4	74.3
<b>STAGE-OF-PROCESS GROUPS</b>													
Crude	13.93	86.6	89.5	81.9	89.5	89.4	88.2	89.2	89.9	89.2	90.4	90.4	83.7
Primary and semifinished	47.15	82.2	88.2	74.6	80.9	79.8	77.9	80.2	79.6	79.6	79.1	78.0	76.7
Finished	38.92	77.7	80.4	69.9	77.2	76.0	74.8	76.0	75.9	76.2	76.1	75.1	73.3

r Revised. p Preliminary.

1. Refer to note on cover page.

**Table 8**  
**INDUSTRIAL CAPACITY**  
Percent change

Item	Average annual rate				Fourth quarter to fourth quarter				Annual rate				Monthly rate
	1972-79	1980-88	1989-94	1995-2008	2005	2006	2007	2008	2007 Q4	2008			2008 Sept.
										Q1	Q2	Q3	
<b>Total industry</b>	3.0	2.0	2.2	3.0	.8	1.3	1.8	1.5	1.9	1.8	1.6	1.4	.1
Manufacturing <sup>1</sup>	3.2	2.2	2.5	3.4	1.4	1.4	2.0	1.7	2.2	2.0	1.8	1.6	.1
Mining	.8	.0	-.8	-.4	-1.1	1.4	1.7	.7	1.3	.9	.7	.6	.1
Utilities	4.2	2.3	1.5	2.2	.7	.8	1.2	2.2	2.1	2.3	2.4	2.2	.2
<b>Selected high-technology industries</b>													
Manufacturing <sup>1</sup> ex. selected high-technology industries	19.7	17.4	15.6	24.7	13.1	10.3	21.4	17.6	23.0	20.8	18.0	16.1	1.2
	2.6	1.3	1.6	1.5	.7	.8	.8	.8	.9	.9	.8	.8	.1
<b>STAGE-OF-PROCESS GROUPS</b>													
Crude	1.7	.3	-.4	.0	-.8	.9	1.4	.5	1.0	.7	.5	.4	.0
Primary and semifinished	3.0	1.4	2.4	3.5	.8	1.2	2.1	1.9	2.4	2.3	2.0	1.7	.1
Finished	3.8	3.4	2.6	3.2	2.3	1.8	1.7	1.8	1.9	1.9	1.8	1.8	.1

1. Refer to note on cover page.

**Table 9**  
**GROSS VALUE OF FINAL PRODUCTS AND NONINDUSTRIAL SUPPLIES**  
Billions of 2000 dollars at annual rate, seasonally adjusted

Item	2000	2007	2008			2008					
			Q1	Q2 <sup>r</sup>	Q3 <sup>p</sup>	Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>	Aug. <sup>r</sup>	Sept. <sup>p</sup>
<b>Final products and nonindustrial supplies</b>	2,813.4	3,034.7	3,046.7	3,005.1	2,952.8	3,005.6	2,999.5	3,010.1	3,013.9	2,966.6	2,877.9
<b>Final products</b>	2,114.3	2,311.5	2,326.3	2,289.8	2,249.5	2,288.1	2,284.2	2,297.0	2,301.3	2,259.1	2,187.9
Consumer goods	1,476.4	1,606.3	1,610.7	1,581.4	1,554.5	1,581.4	1,576.4	1,586.4	1,590.2	1,554.2	1,519.0
Durable	471.7	495.0	476.4	450.5	444.3	443.3	446.8	461.5	469.6	431.9	431.5
Automotive products	278.6	299.3	287.9	262.5	260.3	255.0	258.3	274.2	281.6	247.5	251.9
Other durable goods	193.0	195.8	188.5	187.9	183.9	188.2	188.4	187.3	188.0	184.3	179.4
Nondurable	1,004.8	1,105.3	1,122.7	1,114.3	1,094.2	1,119.2	1,112.4	1,111.4	1,109.3	1,102.3	1,071.1
Equipment, total	637.9	715.4	727.5	721.6	707.5	719.5	721.4	723.8	724.1	720.5	678.1
Business and defense	621.5	698.4	711.2	703.6	687.9	701.7	703.3	705.6	705.7	701.3	656.7
Business	561.2	622.5	633.4	625.7	610.1	623.8	626.0	627.2	628.3	624.0	578.0
Defense and space	60.3	77.1	79.0	78.7	78.1	78.7	78.3	79.2	78.4	78.3	77.7
<b>Nonindustrial supplies</b>	699.1	724.5	722.2	716.7	704.7	718.8	716.6	714.8	714.2	708.8	691.0
Construction supplies	196.8	200.3	194.7	191.8	191.2	191.4	192.5	191.6	193.4	191.7	188.4
Business supplies	502.3	524.2	527.5	524.8	513.5	527.3	524.1	523.1	520.8	517.1	502.6
Commercial energy products	135.7	155.1	158.6	158.7	153.3	159.6	157.3	159.1	158.0	154.4	147.4

<sup>r</sup> Revised. <sup>p</sup> Preliminary.

**Table 10**  
**GROSS-VALUE-WEIGHTED INDUSTRIAL PRODUCTION: STAGE-OF-PROCESS GROUPS**  
Percent change, seasonally adjusted

Item	2007 gross value <sup>1</sup>	Fourth quarter to fourth quarter			Annual rate			Monthly rate						Sept. '07 to Sept. '08		
		2005	2006	2007	2008	Q1	Q2 <sup>r</sup>	Q3 <sup>p</sup>	2008	Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>r</sup>	July <sup>r</sup>		Aug. <sup>r</sup>	Sept. <sup>p</sup>
Finished	1996.8	5.3	2.3	1.4	-1.4	-6.2	-4.6	-1.8	.3	.8	.4	-2.2	-2.0	-5.5		
Semifinished	1719.2	4.8	-1.6	2.4	-1.7	-3.0	-4.9	.0	-.7	.9	-.5	-1.4	-.5	-3.7		
Primary	985.6	-.7	-.6	2.0	4.1	-4.5	-11.6	.3	-.8	-.5	-.4	-.7	-4.6	-6.5		
Crude	426.2	-7.9	7.6	2.3	.3	-.7	-8.1	-.4	1.1	-1.6	1.5	-.5	-7.7	-6.8		

<sup>r</sup> Revised. <sup>p</sup> Preliminary.

1. Billions of 2000 dollars.

**Table 11**  
**HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Total Industry**

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
<b>IP (percent change)<sup>1</sup></b>																	
1986	.5	-.7	-.6	.1	.1	-.3	.6	-.2	.2	.5	.5	.9	2.3	-2.4	1.7	4.6	1.0
1987	-.3	1.3	.2	.6	.7	.5	.6	.7	.3	1.5	.5	.5	5.4	7.2	7.3	10.2	5.2
1988	.0	.4	.3	.6	-.1	.2	.2	.5	-.3	.6	.2	.4	3.5	3.5	2.1	3.2	5.2
1989	.2	-.5	.2	.0	-.7	.0	-.9	.9	-.3	-.1	.3	.7	1.5	-1.8	-2.5	1.8	.9
1990	-.5	.9	.5	-.1	.2	.3	-.1	.2	.2	-.7	-1.2	-.7	3.2	2.8	1.4	-6.0	1.0
1991	-.5	-.7	-.5	.2	1.0	1.0	.0	.1	.8	-.2	-.2	-.3	-7.5	2.6	5.5	.7	-1.6
1992	-.6	.7	.8	.7	.4	.0	.8	-.5	.2	.7	.4	.0	-.3	7.3	2.9	3.9	2.8
1993	.5	.3	.0	.3	-.4	.2	.3	.0	.4	.7	.4	.5	3.5	1.2	2.1	6.0	3.3
1994	.4	.0	1.1	.5	.6	.7	.2	.5	.2	.8	.7	1.1	5.2	7.4	5.2	8.2	5.3
1995	.3	.0	.1	-.1	.2	.3	-.4	1.3	.4	-.2	.3	.5	5.3	.9	3.8	3.3	4.8
1996	-.6	1.7	-.2	.7	.6	.9	-.1	.6	.5	.0	.9	.7	3.5	7.7	5.1	5.6	4.4
1997	.1	1.2	.8	.0	.6	.5	.6	1.4	.9	.7	.9	.4	8.0	6.3	9.7	10.7	7.3
1998	.4	.0	.0	.5	.6	-.5	-.4	2.1	-.3	.7	-.1	.3	4.1	3.1	2.9	5.2	5.9
1999	.5	.4	.2	.2	.7	-.2	.6	.5	-.4	1.3	.6	.8	4.3	3.8	4.0	8.0	4.3
2000	.1	.4	.4	.6	.2	.1	-.2	-.2	.4	-.4	.0	-.3	4.9	5.0	-.3	-1.3	4.2
2001	-.7	-.6	-.3	-.3	-.7	-.6	-.5	-.4	-.4	-.6	-.5	.0	-5.5	-5.2	-5.9	-5.2	-3.4
2002	.5	.1	.7	.4	.5	1.0	-.3	.1	.0	-.3	.4	-.5	2.3	6.3	2.3	-.5	-.1
2003	.6	.4	-.2	-.8	.0	.2	.4	-.1	.5	.1	.8	-.1	2.7	-2.9	2.8	3.7	1.2
2004	.3	.5	-.5	.5	.7	-.8	.7	.3	-.1	1.0	.3	.6	2.6	2.0	2.0	5.8	2.5
2005	.5	.6	.0	-.1	.3	.4	.0	.2	-1.8	1.2	1.1	.5	5.4	1.9	-.4	3.7	3.3
2006	.1	-.1	.2	.4	-.1	.5	.3	.1	-.4	-.1	-.2	.6	3.2	2.6	1.9	-.9	2.2
2007	-.4	.7	-.1	.5	.0	.3	.6	.0	.3	-.4	.4	.1	1.5	3.2	3.6	.3	1.7
2008	.2	-.3	-.2	-.5	-.1	.1	.0	-1.0	-2.8				.4	-3.1	-6.0		
<b>IP (2002=100)</b>																	
2006	108.8	108.7	109.0	109.4	109.3	109.9	110.1	110.2	109.8	109.7	109.5	110.2	108.9	109.5	110.1	109.8	109.6
2007	109.8	110.5	110.4	111.0	111.0	111.4	112.0	112.0	112.3	111.8	112.3	112.4	110.2	111.1	112.1	112.2	111.4
2008	112.6	112.3	112.0	111.4	111.3	111.5	111.4	110.4	107.3				112.3	111.4	109.7		
<b>Capacity (percent of 2002 output)</b>																	
2006	134.6	134.7	134.9	135.0	135.2	135.3	135.4	135.6	135.7	135.9	136.0	136.2	134.7	135.2	135.6	136.1	135.4
2007	136.4	136.6	136.8	137.0	137.2	137.4	137.6	137.9	138.1	138.3	138.5	138.7	136.6	137.2	137.9	138.5	137.5
2008	139.0	139.1	139.3	139.5	139.7	139.9	140.0	140.2	140.3				139.1	139.7	140.2		
<b>Utilization (percent)</b>																	
1986	79.7	79.0	78.4	78.4	78.4	78.1	78.5	78.3	78.3	78.6	78.8	79.4	79.0	78.3	78.4	78.9	78.7
1987	79.0	79.9	79.9	80.2	80.6	80.8	81.2	81.6	81.7	82.8	83.1	83.4	79.6	80.5	81.5	83.1	81.2
1988	83.3	83.5	83.7	84.1	83.9	84.1	84.2	84.5	84.2	84.6	84.6	84.9	83.5	84.0	84.3	84.7	84.1
1989	85.0	84.5	84.6	84.4	83.7	83.6	82.6	83.2	82.8	82.6	82.6	83.1	84.7	83.9	82.9	82.8	83.6
1990	82.5	83.0	83.2	82.9	82.9	83.0	82.7	82.8	82.8	82.1	80.9	80.3	82.9	83.0	82.8	81.1	82.4
1991	79.8	79.1	78.6	78.6	79.3	80.0	79.9	79.9	80.5	80.2	80.0	79.6	79.2	79.3	80.1	79.9	79.6
1992	79.0	79.5	80.0	80.4	80.5	80.4	80.9	80.3	80.4	80.8	80.9	80.8	79.5	80.5	80.5	80.9	80.3
1993	81.1	81.2	81.1	81.3	80.9	81.1	81.2	81.1	81.4	81.8	82.0	82.3	81.2	81.1	81.2	82.1	81.4
1994	82.5	82.3	83.0	83.2	83.4	83.7	83.7	83.8	83.7	84.2	84.4	85.1	82.6	83.4	83.7	84.5	83.6
1995	85.0	84.7	84.5	84.1	84.0	83.9	83.3	84.1	84.1	83.6	83.5	83.5	84.7	84.0	83.8	83.5	84.0
1996	82.6	83.6	83.1	83.3	83.4	83.7	83.2	83.4	83.4	83.0	83.4	83.5	83.1	83.5	83.3	83.3	83.3
1997	83.2	83.8	84.0	83.6	83.7	83.6	83.6	84.2	84.5	84.6	84.8	84.6	83.7	83.6	84.1	84.7	84.0
1998	84.4	83.9	83.4	83.3	83.3	82.4	81.6	82.9	82.3	82.5	82.0	82.0	83.9	83.0	82.3	82.2	82.8
1999	82.0	82.0	81.8	81.7	82.0	81.6	81.8	81.9	81.3	82.0	82.2	82.6	82.0	81.8	81.6	82.3	81.9
2000	82.4	82.4	82.4	82.6	82.5	82.4	81.9	81.5	81.6	81.0	80.7	80.2	82.4	82.5	81.6	80.6	81.8
2001	79.4	78.7	78.2	77.8	77.1	76.4	75.9	75.4	74.9	74.3	73.8	73.6	78.8	77.1	75.4	73.9	76.3
2002	73.8	73.8	74.2	74.4	74.7	75.4	75.1	75.2	75.2	75.0	75.4	75.1	73.9	74.8	75.2	75.2	74.8
2003	75.6	75.9	75.9	75.3	75.4	75.6	75.9	75.9	76.3	76.4	77.0	77.0	75.8	75.4	76.1	76.8	76.0
2004	77.2	77.6	77.1	77.5	78.0	77.4	77.9	78.1	78.0	78.7	79.0	79.4	77.3	77.6	78.0	79.1	78.0
2005	79.8	80.2	80.1	80.0	80.2	80.5	80.4	80.5	79.0	79.8	80.6	80.9	80.0	80.3	80.0	80.4	80.2
2006	80.9	80.7	80.8	81.1	80.9	81.2	81.3	81.3	80.9	80.8	80.5	80.9	80.8	81.0	81.2	80.7	80.9
2007	80.5	80.9	80.7	81.0	80.9	81.0	81.4	81.2	81.3	80.9	81.1	81.0	80.7	81.0	81.3	81.0	81.0
2008	81.0	80.7	80.4	79.9	79.7	79.7	79.6	78.7	76.4				80.7	79.7	78.2		

1. Quarterly changes are at annual rates. Annual changes are calculated from annual averages.

**Table 12**  
**HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Manufacturing<sup>1</sup>**

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
<b>IP (percent change)<sup>2</sup></b>																	
1986	1.1	-6	-3	.4	.1	-3	.6	.2	.2	.4	.5	.9	4.4	-1	2.6	5.0	2.2
1987	-3	1.4	.1	.5	.8	.4	.7	.5	.6	1.6	.6	.6	6.0	6.9	7.1	11.7	5.7
1988	-2	.2	.3	.9	-1	.1	.1	.1	.3	.6	.3	.4	2.5	4.5	1.4	4.9	5.4
1989	.7	-1.0	-1	.1	-8	.1	-1.1	.9	-2	-2	.2	.2	1.7	-3.2	-3.0	.6	.8
1990	-1	1.4	.4	-3	.1	.2	-2	.3	.0	-8	-1.1	-7	4.7	2.6	.7	-6.6	.8
1991	-8	-6	-7	.3	.7	1.1	.2	.3	1.0	-2	-3	-1	-8.8	2.1	7.1	1.4	-2.0
1992	-6	.9	1.0	.6	.6	.3	.8	-5	.1	.6	.4	-2	.7	8.3	3.9	2.7	3.6
1993	1.0	.2	-1	.6	-1	-1	.3	-1	.6	.8	.4	.5	4.3	1.8	1.3	6.7	3.5
1994	.2	.1	1.3	.8	.7	.3	.5	.7	.3	1.0	.8	1.2	5.0	9.4	6.1	9.9	5.9
1995	.3	-1	.2	-2	.0	.4	-6	1.2	.8	-2	.1	.5	5.6	.3	3.1	4.1	5.2
1996	-7	1.7	-3	1.0	.6	1.1	.3	.6	.6	-1	.8	.9	2.8	8.7	7.5	5.9	4.8
1997	.1	1.4	1.2	-2	.9	.7	.5	1.7	.9	.7	1.1	.5	9.6	7.5	10.9	11.6	8.5
1998	.7	.0	-2	.7	.5	-7	-5	2.5	-3	.9	.2	.5	5.7	2.6	3.1	7.5	6.7
1999	.3	.7	-1	.4	.9	-3	.5	.7	-4	1.6	.8	.7	4.8	4.2	3.7	9.6	5.0
2000	.2	.3	.7	.6	-1	.2	.0	-5	.4	-4	-3	-6	5.4	4.8	-4	-2.9	4.5
2001	-6	-6	-3	-2	-7	-7	-4	-7	-4	-7	-3	.2	-6.3	-5.4	-6.4	-5.1	-4.1
2002	.4	.1	.7	.1	.7	1.1	-4	.3	.0	-5	.4	-5	2.8	5.7	3.1	-1.1	-1
2003	.5	.2	.3	-1.0	.1	.6	.2	.3	.7	.1	1.0	-2	2.0	-1.9	2.6	4.1	1.3
2004	.0	.6	-1	.5	.7	-7	.8	.7	-2	1.0	.1	.5	2.1	3.3	3.9	5.4	2.9
2005	.7	.7	-3	.0	.6	.2	.0	.3	-1.0	1.5	.8	-1	5.8	2.2	1.0	6.0	4.0
2006	.7	-4	.0	.5	-3	.4	.1	.3	-2	-5	-1	1.0	2.7	1.4	1.6	-1.1	2.4
2007	-6	.1	.7	.4	.2	.5	.8	-4	.4	-4	.2	.0	1.1	4.7	4.0	-6	1.7
2008	.0	-6	.1	-9	.1	-1	.0	-9	-2.6				-1.0	-3.8	-5.8		
<b>IP (2002=100)</b>																	
2006	110.9	110.5	110.5	111.1	110.8	111.2	111.3	111.7	111.5	110.9	110.8	111.8	110.6	111.0	111.5	111.2	111.1
2007	111.1	111.3	112.0	112.4	112.6	113.2	114.1	113.6	114.0	113.5	113.8	113.8	111.5	112.8	113.9	113.7	112.9
2008	113.8	113.1	113.3	112.3	112.4	112.3	112.3	111.3	108.5				113.4	112.3	110.7		
<b>Capacity (percent of 2002 output)</b>																	
2006	139.1	139.3	139.4	139.6	139.7	139.9	140.0	140.2	140.3	140.5	140.7	140.8	139.3	139.7	140.2	140.7	140.0
2007	141.0	141.2	141.4	141.7	141.9	142.1	142.4	142.7	142.9	143.2	143.4	143.7	141.2	141.9	142.7	143.4	142.3
2008	143.9	144.1	144.4	144.6	144.8	145.0	145.2	145.3	145.5				144.1	144.8	145.3		
<b>Utilization (percent)</b>																	
1986	78.8	78.2	77.9	78.2	78.2	77.9	78.2	78.3	78.4	78.5	78.8	79.3	78.3	78.1	78.3	78.9	78.4
1987	78.9	79.9	79.7	80.0	80.4	80.5	80.8	81.1	81.4	82.5	82.9	83.3	79.5	80.3	81.1	82.9	80.9
1988	83.0	83.1	83.3	83.9	83.8	83.9	83.9	83.9	84.1	84.5	84.7	84.9	83.1	83.8	84.0	84.7	83.9
1989	85.4	84.5	84.2	84.1	83.2	83.2	82.1	82.6	82.2	81.9	81.9	81.8	84.7	83.5	82.3	81.9	83.1
1990	81.6	82.5	82.6	82.3	82.2	82.2	81.9	81.9	81.8	81.0	79.9	79.2	82.2	82.2	81.9	80.0	81.6
1991	78.4	77.8	77.1	77.3	77.7	78.5	78.5	78.6	79.3	79.1	78.7	78.6	77.8	77.8	78.8	78.8	78.3
1992	78.0	78.5	79.1	79.4	79.7	79.8	80.2	79.7	79.5	79.8	79.9	79.6	78.5	79.6	79.8	79.8	79.4
1993	80.3	80.3	80.0	80.4	80.2	80.0	80.1	79.9	80.3	80.8	81.0	81.2	80.2	80.2	80.1	81.0	80.4
1994	81.2	81.1	82.0	82.4	82.7	82.7	82.8	83.1	83.1	83.6	83.9	84.6	81.4	82.6	83.0	84.0	82.8
1995	84.5	84.1	83.9	83.5	83.2	83.1	82.3	82.9	83.2	82.7	82.4	82.4	84.2	83.3	82.8	82.5	83.2
1996	81.4	82.3	81.6	82.0	82.0	82.5	82.3	82.3	82.4	81.9	82.2	82.4	81.8	82.2	82.3	82.2	82.1
1997	82.0	82.7	83.2	82.5	82.7	82.8	82.6	83.4	83.6	83.5	83.9	83.7	82.7	82.7	83.2	83.7	83.1
1998	83.7	83.1	82.4	82.3	82.2	81.1	80.2	81.7	81.0	81.3	81.0	81.1	83.1	81.9	81.0	81.1	81.8
1999	80.9	81.1	80.7	80.6	81.0	80.4	80.4	80.6	80.0	80.9	81.1	81.3	80.9	80.7	80.3	81.1	80.7
2000	81.1	81.0	81.2	81.3	80.9	80.8	80.4	79.7	79.7	79.1	78.5	77.8	81.1	81.0	79.9	78.5	80.1
2001	77.0	76.4	75.9	75.5	74.7	74.0	73.6	72.9	72.5	71.9	71.5	71.6	76.4	74.7	73.0	71.7	73.9
2002	71.8	71.8	72.2	72.2	72.7	73.5	73.1	73.4	73.4	73.1	73.4	73.0	71.9	72.8	73.3	73.2	72.8
2003	73.4	73.6	73.8	73.2	73.3	73.8	73.9	73.8	74.3	74.4	75.1	75.0	73.6	73.4	74.0	74.8	74.0
2004	75.0	75.5	75.4	75.8	76.3	75.7	76.3	76.8	76.6	77.3	77.4	77.7	75.3	75.9	76.6	77.5	76.3
2005	78.1	78.6	78.3	78.3	78.6	78.7	78.6	78.7	77.8	78.9	79.4	79.3	78.4	78.5	78.4	79.2	78.6
2006	79.7	79.3	79.2	79.6	79.3	79.5	79.5	79.7	79.4	78.9	78.7	79.4	79.4	79.4	79.5	79.0	79.4
2007	78.8	78.8	79.2	79.4	79.4	79.6	80.1	79.6	79.8	79.3	79.3	79.2	78.9	79.5	79.8	79.3	79.4
2008	79.1	78.5	78.5	77.7	77.6	77.5	77.3	76.6	74.5				78.7	77.6	76.1		

1. Refer to note on cover page.

2. Quarterly changes are at annual rates. Annual changes are calculated from annual averages.

**Table 13**  
**HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Total Industry Excluding Selected High-Technology Industries<sup>1</sup>**

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
<b>IP (percent change)<sup>2</sup></b>																	
1986	.5	-8	-7	.1	.1	-2	.4	-3	.1	.4	.4	.8	2.3	-2.6	.6	4.0	.9
1987	-5	1.2	.2	.5	.6	.4	.5	.6	.2	1.4	.5	.4	4.4	6.4	6.0	9.2	4.3
1988	.0	.4	.2	.5	-2	.2	.1	.5	-4	.5	.2	.4	3.0	2.8	1.4	2.9	4.4
1989	.3	-5	.3	-1	-7	.0	-1.1	.9	-3	-2	.2	.7	1.8	-2.0	-3.3	1.0	.6
1990	-7	.9	.4	-2	.1	.2	-2	.2	.1	-8	-1.3	-7	2.4	2.2	1.0	-6.6	.3
1991	-5	-8	-6	.2	.9	1.0	.0	.1	.9	-2	-2	-5	-8.0	2.1	5.4	.3	-2.0
1992	-8	.7	.8	.6	.3	-1	.8	-6	.1	.6	.3	.0	-1.8	6.2	1.7	2.8	1.9
1993	.5	.3	-1	.3	-4	.2	.3	-1	.3	.6	.3	.5	3.0	.5	1.5	5.1	2.5
1994	.4	-1	.9	.3	.4	.6	.1	.3	.0	.6	.4	.9	4.3	5.5	3.3	5.5	4.0
1995	.2	-2	-2	-3	.1	.1	-5	1.1	.1	-5	.1	.2	3.1	-1.4	1.4	.3	2.5
1996	-1.0	1.4	-4	.7	.5	.7	-5	.4	.4	-3	.8	.5	-2	6.1	2.2	3.3	1.7
1997	-1	.9	.5	-4	.3	.2	.3	1.0	.7	.7	.7	.2	5.0	2.2	6.0	8.2	4.2
1998	.2	-1	-1	.3	.5	-9	-8	2.0	-6	.5	-3	.0	1.6	1.0	-4	2.1	3.1
1999	.2	.1	-1	-1	.6	-5	.3	.4	-5	1.2	.3	.6	.8	.4	1.0	5.6	1.2
2000	-3	.0	.1	.4	-1	.0	.3	-4	.4	-5	-2	-5	.7	1.7	-2.8	-2.8	1.1
2001	-7	-5	-3	-1	-6	-5	-3	-3	-5	-6	-5	-1	-6.2	-4.3	-4.6	-5.3	-4.0
2002	.7	.0	.7	.3	.4	.9	-3	.0	.0	-3	.3	-6	2.7	5.8	1.6	-1.1	.0
2003	.6	.2	-3	-1.0	-1	.1	.3	-1	.5	.0	.7	-1	1.3	-4.4	1.6	3.0	.2
2004	.2	.5	-6	.6	.7	-9	.7	.2	-2	1.0	.3	.6	1.7	2.1	1.8	5.4	1.8
2005	.4	.5	-1	-1	.3	.4	-2	.0	-2.1	1.1	1.0	.5	4.8	1.3	-1.8	2.2	2.7
2006	.0	-2	.2	.3	-2	.4	.2	.0	-5	-1	-2	.6	2.6	1.7	1.1	-1.7	1.3
2007	-4	.7	-2	.4	-1	.2	.4	-1	.2	-6	.4	.0	1.4	2.2	2.2	-1.0	.9
2008	.2	-4	-4	-6	-1	.1	-1	-1.0	-3.0				-4	-4.2	-6.5		
<b>IP (2002=100)</b>																	
2006	105.8	105.6	105.8	106.2	106.0	106.4	106.6	106.6	106.1	106.0	105.7	106.3	105.7	106.2	106.5	106.0	106.1
2007	106.0	106.7	106.5	106.9	106.9	107.1	107.5	107.4	107.6	107.0	107.4	107.4	106.4	107.0	107.5	107.3	107.0
2008	107.6	107.2	106.8	106.1	105.9	106.1	106.0	104.9	101.8				107.2	106.0	104.3		
<b>Capacity (percent of 2002 output)</b>																	
2006	130.3	130.4	130.5	130.6	130.7	130.8	130.9	131.0	131.1	131.2	131.3	131.4	130.4	130.7	131.0	131.3	130.9
2007	131.5	131.5	131.6	131.7	131.8	131.9	132.0	132.1	132.2	132.3	132.4	132.5	131.5	131.8	132.1	132.4	132.0
2008	132.7	132.8	132.8	132.9	133.0	133.1	133.2	133.3	133.4				132.7	133.0	133.3		
<b>Utilization (percent)</b>																	
1986	80.2	79.4	78.8	78.8	78.8	78.6	78.8	78.5	78.6	78.8	79.1	79.6	79.5	78.7	78.6	79.2	79.0
1987	79.2	80.1	80.1	80.4	80.8	81.1	81.4	81.8	81.9	83.0	83.3	83.6	79.8	80.8	81.7	83.3	81.4
1988	83.6	83.9	84.0	84.4	84.2	84.3	84.4	84.7	84.4	84.7	84.9	85.2	83.8	84.3	84.5	84.9	84.4
1989	85.3	84.8	85.0	84.8	84.1	84.0	83.0	83.6	83.2	82.9	82.9	83.4	85.1	84.3	83.2	83.1	83.9
1990	82.7	83.3	83.5	83.2	83.2	83.3	83.0	83.1	83.1	82.4	81.2	80.5	83.2	83.2	83.1	81.4	82.7
1991	80.0	79.3	78.7	78.8	79.4	80.1	80.0	80.0	80.6	80.3	80.1	79.6	79.3	79.5	80.2	80.0	79.8
1992	78.9	79.4	79.9	80.4	80.5	80.3	80.9	80.3	80.4	80.8	81.0	80.9	79.4	80.4	80.5	80.9	80.3
1993	81.2	81.4	81.3	81.5	81.1	81.1	81.3	81.2	81.4	81.9	82.1	82.4	81.3	81.2	81.3	82.1	81.5
1994	82.6	82.5	83.1	83.3	83.5	83.9	83.8	83.9	83.8	84.2	84.4	85.0	82.7	83.5	83.8	84.5	83.7
1995	85.0	84.7	84.4	84.1	83.9	83.9	83.3	84.1	84.0	83.4	83.3	83.3	84.7	84.0	83.8	83.4	84.0
1996	82.3	83.3	82.8	83.3	83.5	83.9	83.4	83.5	83.6	83.2	83.6	83.8	82.8	83.6	83.5	83.6	83.4
1997	83.5	84.0	84.2	83.6	83.6	83.5	83.4	84.0	84.3	84.5	84.8	84.6	83.9	83.5	83.9	84.6	84.0
1998	84.5	84.1	83.7	83.7	83.9	82.9	82.0	83.4	82.6	82.8	82.3	82.2	84.1	83.5	82.7	82.4	83.2
1999	82.1	82.1	81.8	81.5	81.9	81.3	81.4	81.6	81.0	81.8	82.0	82.3	82.0	81.6	81.3	82.0	81.7
2000	81.9	81.8	81.8	82.0	81.8	81.7	81.2	80.8	81.0	80.4	80.2	79.7	81.8	81.8	81.0	80.1	81.2
2001	79.1	78.5	78.2	78.0	77.5	77.0	76.7	76.4	75.9	75.4	75.0	74.8	78.6	77.5	76.3	75.1	76.9
2002	75.3	75.2	75.7	76.0	76.3	76.9	76.7	76.7	76.8	76.6	76.9	76.5	75.4	76.4	76.7	76.7	76.3
2003	77.0	77.2	77.1	76.4	76.4	76.5	76.8	76.7	77.1	77.1	77.7	77.6	77.1	76.4	76.8	77.4	77.0
2004	77.7	78.1	77.6	78.0	78.6	77.9	78.5	78.6	78.5	79.3	79.6	80.1	77.8	78.2	78.6	79.7	78.5
2005	80.4	80.8	80.8	80.6	80.9	81.2	81.0	81.0	79.3	80.1	80.9	81.2	80.6	80.9	80.4	80.7	80.7
2006	81.2	81.0	81.1	81.3	81.0	81.3	81.4	81.4	80.9	80.8	80.5	80.9	81.1	81.2	81.2	80.7	81.1
2007	80.6	81.1	80.9	81.2	81.1	81.2	81.4	81.3	81.4	80.9	81.1	81.0	80.9	81.1	81.4	81.0	81.1
2008	81.1	80.7	80.4	79.8	79.6	79.7	79.6	78.7	76.3				80.7	79.7	78.2		

1. Selected high-technology industries are computers, communications equipment, and semiconductors and related electronic components.

2. Quarterly changes are at annual rates. Annual changes are calculated from annual averages.



**Table 14**  
**HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Manufacturing<sup>1</sup> Excluding Selected High-Technology Industries<sup>2</sup>**

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
<b>IP (percent change)<sup>3</sup></b>																	
1986	1.2	-7	-3	.4	.1	-2	.2	.2	.2	.4	.4	.8	4.7	-2	1.3	4.3	2.1
1987	-5	1.4	.1	.4	.7	.3	.6	.3	.5	1.5	.6	.5	4.7	5.9	5.5	10.5	4.6
1988	-2	.2	.2	.8	-2	.0	.0	.1	.3	.5	.3	.4	1.8	3.6	.5	4.5	4.4
1989	.8	-1.0	-1	.0	-8	.1	-1.3	.9	-3	-3	.1	.2	2.1	-3.5	-4.1	-5	4
1990	-2	1.4	.3	-3	.1	.2	-2	.3	-1	-9	-1.2	-8	3.8	1.9	.2	-7.4	.0
1991	-8	-8	-8	.4	.6	1.1	.3	.2	1.1	-2	-4	-3	-9.6	1.5	7.1	.9	-2.6
1992	-8	.9	.9	.4	.5	.1	.8	-5	-1	.5	.3	-3	-1.1	7.0	2.6	1.3	2.6
1993	1.1	.1	-3	.5	-2	-2	.3	-2	.5	.7	.3	.5	3.9	.9	.5	5.7	2.5
1994	.1	.0	1.2	.6	.5	.2	.3	.5	.1	.7	.6	1.0	3.9	7.2	3.8	6.7	4.4
1995	.2	-3	-1	-4	-2	.2	-8	.9	.6	-5	-1	.1	3.1	-2.5	.2	.6	2.5
1996	-1.2	1.4	-5	1.0	.4	.9	-1	.3	.4	-4	.7	.7	-1.7	6.8	4.2	3.1	1.5
1997	-2	1.0	.9	-7	.5	.4	.1	1.3	.6	.6	.9	.2	6.0	2.6	6.6	8.7	4.9
1998	.5	-2	-3	.4	.4	-1.1	-9	2.4	-7	.7	-1	.2	2.9	.1	-8	4.0	3.5
1999	.0	.4	-4	.0	.8	-7	.0	.6	-5	1.4	.4	.4	.8	.3	.2	7.0	1.4
2000	-3	-2	.3	.4	-5	.1	-4	-8	.4	-5	-6	-9	.4	.9	-3.5	-4.9	.8
2001	-6	-5	-3	-1	-7	-5	-1	-7	-4	-7	-2	.1	-7.3	-4.4	-4.9	-5.1	-4.9
2002	.6	.0	.7	.0	.6	1.0	-5	.3	.0	-5	.3	-7	3.3	5.0	2.3	-1.9	.0
2003	.4	-1	.1	-1.1	.0	.4	.0	-4	.7	-1	.9	-3	.4	-3.7	1.2	3.2	.0
2004	-2	.6	-2	.6	.7	-8	.9	.6	-3	1.0	.1	.5	1.1	3.5	3.7	4.9	2.2
2005	.6	.6	-3	.0	.5	.2	-1	.1	-1.3	1.5	.7	-1	5.0	1.4	-7	4.3	3.3
2006	.7	-5	.0	.5	-4	.3	.0	.2	-3	-6	-2	1.0	1.9	.3	.5	-2.1	1.2
2007	-6	.1	.6	.3	.1	.4	.5	-5	.3	-7	.1	.0	.9	3.5	2.3	-2.3	.7
2008	.0	-8	-1	-1.0	.1	-1	-1	-9	-2.7				-2.1	-5.2	-6.5		
<b>IP (2002=100)</b>																	
2006	107.2	106.6	106.6	107.1	106.7	107.0	107.0	107.2	106.9	106.2	106.1	107.1	106.8	106.9	107.0	106.5	106.8
2007	106.4	106.5	107.2	107.5	107.5	107.9	108.5	108.0	108.3	107.5	107.7	107.6	106.7	107.6	108.3	107.6	107.6
2008	107.6	106.8	106.7	105.6	105.7	105.6	105.5	104.5	101.7				107.1	105.7	103.9		
<b>Capacity (percent of 2002 output)</b>																	
2006	134.0	134.1	134.2	134.3	134.4	134.5	134.6	134.6	134.7	134.8	134.8	134.9	134.1	134.4	134.6	134.8	134.5
2007	135.0	135.1	135.1	135.2	135.3	135.4	135.5	135.6	135.7	135.8	135.9	136.0	135.1	135.3	135.6	135.9	135.5
2008	136.1	136.2	136.3	136.4	136.5	136.6	136.7	136.7	136.8				136.2	136.5	136.7		
<b>Utilization (percent)</b>																	
1986	79.4	78.8	78.4	78.7	78.7	78.5	78.6	78.6	78.7	78.8	79.1	79.6	78.9	78.6	78.6	79.2	78.8
1987	79.1	80.1	80.1	80.2	80.7	80.8	81.1	81.3	81.6	82.8	83.2	83.6	79.8	80.6	81.4	83.2	81.2
1988	83.3	83.5	83.7	84.3	84.1	84.1	84.1	84.1	84.3	84.7	84.9	85.2	83.5	84.2	84.2	85.0	84.2
1989	85.8	84.9	84.7	84.5	83.7	83.7	82.4	83.0	82.6	82.2	82.1	82.1	85.1	84.0	82.7	82.1	83.5
1990	81.8	82.8	82.9	82.5	82.5	82.5	82.2	82.3	82.1	81.3	80.2	79.4	82.5	82.5	82.2	80.3	81.9
1991	78.7	77.9	77.2	77.4	77.7	78.5	78.6	78.7	79.4	79.2	78.8	78.5	77.9	77.9	78.9	78.8	78.4
1992	77.8	78.4	79.0	79.3	79.6	79.6	80.1	79.6	79.5	79.8	79.9	79.6	78.4	79.5	79.8	79.8	79.3
1993	80.4	80.4	80.1	80.5	80.3	80.0	80.2	79.9	80.2	80.7	80.9	81.2	80.3	80.2	80.1	81.0	80.4
1994	81.3	81.2	82.0	82.4	82.7	82.7	82.9	83.2	83.1	83.5	83.9	84.5	81.5	82.6	83.0	84.0	82.8
1995	84.5	84.1	83.8	83.3	83.0	83.0	82.2	82.7	83.0	82.4	82.1	82.1	84.1	83.1	82.6	82.2	83.0
1996	80.9	81.9	81.2	81.8	82.0	82.5	82.3	82.4	82.5	82.0	82.4	82.7	81.3	82.1	82.4	82.4	82.1
1997	82.3	82.9	83.3	82.4	82.5	82.5	82.3	83.0	83.2	83.3	83.7	83.6	82.8	82.5	82.8	83.5	82.9
1998	83.6	83.2	82.6	82.6	82.7	81.5	80.5	82.1	81.3	81.6	81.3	81.2	83.1	82.3	81.3	81.3	82.0
1999	81.0	81.1	80.5	80.3	80.7	80.0	79.8	80.1	79.5	80.5	80.7	80.9	80.9	80.3	79.8	80.7	80.4
2000	80.4	80.2	80.3	80.4	79.9	79.8	79.4	78.7	78.8	78.3	77.7	77.0	80.3	80.1	79.0	77.7	79.3
2001	76.4	75.9	75.6	75.5	74.9	74.4	74.3	73.8	73.5	72.9	72.8	72.8	76.0	74.9	73.9	72.8	74.4
2002	73.3	73.3	73.8	73.8	74.3	75.1	74.8	75.0	75.1	74.7	75.0	74.5	73.4	74.4	74.9	74.7	74.4
2003	74.9	74.9	75.1	74.3	74.3	74.7	74.7	74.5	75.1	75.1	75.1	75.6	75.0	74.4	74.8	75.5	74.9
2004	75.5	75.9	75.8	76.3	76.8	76.2	76.9	77.4	77.2	77.9	78.0	78.3	75.7	76.4	77.2	78.1	76.9
2005	78.8	79.2	79.0	78.9	79.3	79.3	79.2	79.2	78.1	79.2	79.7	79.5	79.0	79.2	78.9	79.5	79.1
2006	80.0	79.5	79.4	79.7	79.4	79.5	79.5	79.6	79.4	78.8	78.6	79.4	79.7	79.5	79.5	79.0	79.4
2007	78.8	78.9	79.3	79.5	79.5	79.7	80.1	79.6	79.8	79.2	79.2	79.2	79.0	79.6	79.8	79.2	79.4
2008	79.1	78.4	78.3	77.5	77.5	77.3	77.2	76.4	74.3				78.6	77.4	76.0		

1. Refer to note on cover page.

2. Selected high-technology industries are computers, communications equipment, and semiconductors and related electronic components.

3. Quarterly changes are at annual rates. Annual changes are calculated from annual averages.

The **Industrial Production and Capacity Utilization** statistical release, which is published around the middle of the month, reports measures of output, capacity, and capacity utilization in manufacturing, mining, and the electric and gas utilities industries. More detailed descriptions of industrial production and capacity utilization are available at [www.federalreserve.gov/releases/G17](http://www.federalreserve.gov/releases/G17) at the Board's World Wide Web site. In addition, files containing data shown in the release, more detailed series that are published in a monthly supplement to the G.17, and historical data are available at the Board's Web site. Instructions for searching for and downloading specific series are provided as well. For paid access to the data files through the Department of Commerce's Economic Bulletin Board or World Wide Web site, please call STAT-USA at 1-800-STAT-USA or 202-452-1986. Diskettes containing historical data and the data published in this release also are available from the Board of Governors of the Federal Reserve System, Publications Services, 202-452-3245.

## INDUSTRIAL PRODUCTION

**Coverage.** The industrial production (IP) index measures the real output of the manufacturing, mining, and electric and gas utilities industries; the reference period for the index is 2002. Manufacturing consists of those industries included in the North American Industry Classification System, or NAICS, definition of manufacturing *plus* those industries—logging and newspaper, periodical, book and directory publishing—that have traditionally been considered to be manufacturing and included in the industrial sector. For the period since 1997, the total IP index has been constructed from 312 individual series based on the 2002 North American Industrial Classification System (NAICS) codes. These individual series are classified in two ways: (1) market groups, and (2) industry groups. Market groups consist of products and materials. Total products are the aggregate of final products, such as consumer goods and equipment, and nonindustrial supplies (which are inputs to nonindustrial sectors). Materials are inputs in the manufacture of products. Major industry groups include three-digit NAICS industries and aggregates of these industries—for example, durable and nondurable manufacturing, mining, and utilities. A complete description of the market and industry structures, including details regarding series classification, relative importance weights, and data sources, is available on the Board's web site ([www.federalreserve.gov/releases/G17/About.html](http://www.federalreserve.gov/releases/G17/About.html)). Changes in output for the market and industry groups are summarized in table 1 and the levels of output (in index form) are shown in table 4. Special aggregates, that highlight the relative importance and contributions of several key industries, such as high-technology and motor vehicles, are summarized in tables 2 and 5. For a detailed description of the contents of the statistical tables, see below.

**Source data.** On a monthly basis, the individual indexes of industrial production are constructed from two main types of source data: (1) output measured in physical units and (2) data on inputs to the production process, from which output is inferred. Data on physical products, such as tons of steel or barrels of oil, are obtained from private trade associations and from government agencies; data of this type are used to estimate monthly IP wherever possible and appropriate. Production indexes for a few industries are derived by dividing estimated nominal output (calculated using unit production or sales and unit values) by a corresponding Fisher price index; the most notable of these fall within the high-technology grouping and include computers, communications equipment, and semiconductors. When suitable data on physical product are not available, estimates of output are based on production-worker hours by industry. Data on hours worked by production workers are collected in the monthly establishment survey conducted by the Bureau of Labor Statistics. The factors used to convert inputs into estimates of production are based on historical relationships between the inputs and the comprehensive annual data used to benchmark the IP indexes; these factors also may be influenced by technological or cyclical developments. The annual data used in benchmarking the individual IP indexes are constructed from a variety of source data, such as the quinquennial *Censuses of Manufactures and Mineral Industries* and the *Annual Survey of Manufactures*, prepared by the Bureau of the Census; the *Minerals Yearbook*, prepared by the United States Geological Survey of the Department of the Interior; and publications of the Department of Energy.

**Aggregation Methodology and Weights.** The aggregation method for the IP index is a version of the Fisher-ideal index formula. (For a detailed discussion of the aggregation method, see *Federal Reserve Bulletin* February 1997 and March 2001.) In the IP index, series that measure the output of an individual industry are combined using weights derived from their proportion in the total value-added output of all industries. The IP index, which extends back to 1919, is built as a chain-type index since 1972. The current formula for the growth in monthly IP (or any of the sub-aggregates) since 1972 is the geometric mean of the change in output ( $I$ ), and, as can be seen below, is computed using the unit value added estimate for the current month ( $p_m$ ) and the estimate for previous month:

$$\frac{I_m^A}{I_{m-1}^A} = \sqrt{\frac{\sum I_m p_{m-1}}{\sum I_{m-1} p_{m-1}} \times \frac{\sum I_m p_m}{\sum I_{m-1} p_m}}$$

The IP proportions (typically shown in the first column of the relevant tables in the G.17 release) are estimates of the industries' relative contributions to overall growth in the following year. For example, the relative importance weight of the motor vehicles and parts industry is about 8 percent. If output in this industry increased 10 percent in a month, then this gain would boost growth in total IP by 8/10 percentage point ( $0.08 \times 10\% = 0.8\%$ ). To assist users with calculations, the Federal Reserve's web site provides supplemental monthly statistics that represent the exact proportionate contribution of a monthly change in a component index to the monthly change in the total index ([www.federalreserve.gov/releases/G17/ipdisk/ipweights.sa](http://www.federalreserve.gov/releases/G17/ipdisk/ipweights.sa)).

**Timing.** The first estimate of output for a month is published around the 15th of the following month. The estimate is preliminary (denoted by the superscript "p" in tables) and, beginning with the release of March 2008 data, subject to revision in each of the subsequent five months as new source data become available. (Revised estimates are denoted by the superscript "r" in tables.) For the first estimate of output for a given month, about 70 percent of the source data (in value-added terms) are available; the fraction of available source data increases to about 84 percent for estimates in the second month that the estimate is published, 98 percent in the third month, and 98 percent in the fourth month. Data availability by data type, based on the four-month reporting window used in 2007, is summarized in the table below:

**Availability of Monthly IP Data in Publication Window**  
(Percent of value added in 2007)

Type of data	Month of estimate			
	1st	2nd	3rd	4th
Physical product	29	42	56	56
Production-worker hours	42	42	42	42
IP data received	70	84	98	98
IP data estimated	30	16	2	2

The physical product group includes series based on either monthly or quarterly data. As can be seen in the first line of the table, in the first month, a physical product indicator is available for about half of the series (in terms of value added) that ultimately are based on physical product data (29 percent out of total of 56 percent). Of the 29 percent, about two-thirds (19 percent of total IP) include series that are derived from weekly physical product data and for which actual monthly data may lag up to several months. On average, quarterly product data are received for the third estimate of industrial production. Specifically, quarterly data are available for the second estimate of the last month of a quarter, the third estimate of the second month of a quarter, and the fourth estimate of the first month of a quarter. The incorporation of a six-month window is expected to allow an additional 3 percent to 4 percent of IP to reflect primary source data.

**Seasonal adjustment.** Individual series are seasonally adjusted using Census X-12 ARIMA. For series based on production-worker hours,

the current seasonal factors were estimated with data through January 2008; for other series, the factors were estimated with data through at least September 2007. Series are pre-adjusted for the effects of holidays or the business cycle when appropriate. For the data since 1972, all seasonally adjusted aggregate indexes are calculated by aggregating the seasonally adjusted indexes of the individual series.

**Reliability.** The average revision to the *level* of the total IP index, without regard to sign, between the first and the fourth estimates was 0.26 percent during the 1987–2006 period. The average revision to the *percent change* in total IP, without regard to sign, from the first to the fourth estimates was 0.21 percentage point during the 1987–2006 period. In most cases (about 85 percent), the direction of change in output indicated by the first estimate for a given month is the same as that shown by the fourth estimate.

**Rounding.** The published percent changes are calculated from unrounded indexes, and may not be the same as percent changes calculated from the rounded indexes shown in the release.

## CAPACITY UTILIZATION

**Overview.** The Federal Reserve Board constructs estimates of capacity and capacity utilization for industries in manufacturing, mining, and electric and gas utilities. For a given industry, the capacity utilization rate is equal to an output index (seasonally adjusted) divided by a capacity index. The Federal Reserve Board's capacity indexes attempt to capture the concept of *sustainable maximum output*—the greatest level of output a plant can maintain within the framework of a realistic work schedule, after factoring in normal downtime and assuming sufficient availability of inputs to operate the capital in place.

**Coverage.** Capacity indexes are constructed for 87 detailed industries (69 in manufacturing, 16 in mining, and 2 in utilities), which mostly correspond to industries at the three- and four-digit NAICS level. Estimates of capacity and utilization are available for a variety of groups, including durable and nondurable manufacturing, total manufacturing, mining, utilities, and total industry. Manufacturing consists of those industries included in the North American Industry Classification System, or NAICS, definition of manufacturing *plus* those industries—logging and newspaper, periodical, book and directory publishing—that have traditionally been considered to be manufacturing and included in the industrial sector. Also, special aggregates are available, such as high-tech industries and manufacturing excluding high-tech industries.

**Source Data.** The monthly rates of capacity utilization are designed to be consistent with both the monthly data on production and the periodically available data on capacity and utilization. Because there is no direct monthly information on overall industrial capacity or utilization rates, the Federal Reserve first estimates annual capacity indexes from the source data. Capacity data reported in physical units from government sources (primarily from the U.S. Geological Survey and the Department of Energy's Energy Information Administration) and trade sources are available for portions of several industries in manufacturing (e.g., paper, industrial chemicals, petroleum refining, motor vehicles), as well as for electric utilities and mining; these industries represent about 24 percent of total industrial capacity. When physical product data are unavailable for manufacturing industries, capacity indexes are based on responses to the Bureau of the Census's *Survey of Plant Capacity* (SPC); these industries account for a bit less than 72 percent of total industry capacity. In the absence of utilization data for a few mining and petroleum series, capacity is based on trends through peaks in production (roughly 4 percent of total industry capacity). A detailed description of the methodology used to construct the capacity indexes is available on the Board's web site ([www.federalreserve.gov/releases/G17/cap\\_notes.htm](http://www.federalreserve.gov/releases/G17/cap_notes.htm)).

**Aggregation Methodology.** Monthly capacity aggregates are calculated in three steps: (1) utilization aggregates are calculated on an annual basis through the most recent full year as capacity-weighted aggregates of individual utilization rates; (2) the annual aggregate capacity is derived from the corresponding production and utilization aggregates; (3) the monthly capacity aggregate is obtained by interpolating with a Fisher index of its constituent monthly capacity series. Utilization rates for the individual series and aggregates are

calculated by dividing the pertinent monthly production index by the related capacity index.

**Consistency.** A major aim is that the Federal Reserve utilization rates be consistent over time so that, for example, a rate of 85 percent means about the same degree of tightness that it meant in the past. A major task for the Federal Reserve in developing reasonable and consistent time series of capacity and utilization is dealing with inconsistencies between the movements of the industrial production index and the survey-based utilization rates. The McGraw-Hill/DRI Survey, now discontinued, was the primary source of manufacturing utilization rates for many years. This was a survey of large companies that reported, on average, higher utilization rates than those reported by establishments covered by the SPC (currently the primary source of factory operating rates) for the fourteen years they overlapped. Adjustments have been made to keep the industry utilization rates currently reported by the Federal Reserve roughly in line with rates formerly reported by McGraw-Hill. As a consequence, the rates reported by the Federal Reserve tend to be higher than the rates reported in the SPC.

**Perspective.** Over the 1972–2007 period, the average total industry utilization rate is 81.0 percent; for manufacturing, the average factory operating rate has been 79.7 percent. 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 total industry and total manufacturing, utilization rates have exceeded 90 percent only in wartime. The highs and lows in capacity utilization shown in table 7 are specific to each series and do not all occur in the same month.

## REFERENCES AND RELEASE DATES

**References.** The annual revision published in March 2008 will be described in a *Federal Reserve Bulletin* article to be published in the summer of 2008. The annual revision published in December 2006 is described in an article published in the *Federal Reserve Bulletin*, vol. 93, pp. A39–A58, [www.federalreserve.gov/pubs/bulletin](http://www.federalreserve.gov/pubs/bulletin). A description of the aggregation methods for industrial production and capacity utilization is included in an article in the *Federal Reserve Bulletin*, vol. 83 (February 1997), pp. 67–92. The Federal Reserve methodology for constructing industry-level measures of capital is detailed in “Capital Stock Estimates for Manufacturing Industries: Methods and Data” by Mike Mohr and Charles Gilbert (1996), which can be obtained at: [www.federalreserve.gov/releases/g17/capital\\_stock\\_doc\\_latest.pdf](http://www.federalreserve.gov/releases/g17/capital_stock_doc_latest.pdf).

*Industrial Production—1986 Edition* contains a more detailed description of the other methods used to compile the industrial production index, plus a history of its development, a glossary of terms, and a bibliography. The major revisions to the IP indexes and capacity utilization since 1990 have been described in the *Federal Reserve Bulletin* (April 1990, June 1990, June 1993, March 1994, January 1995, January 1996, February 1997, February 1998, January 1999, March 2000, March 2001, March 2002, April 2003, Winter 2004, Winter 2005, Winter 2006, May 2007).

## Release Schedule

At 9:15 a.m. on

**2008:** January 16, February 15, March 17, April 16, May 15, June 17, July 16, August 15, September 15, October 16, November 17, and December 15.

**2009:** January 16, February 18, March 16, April 15, May 15, June 16, July 15, August 14, September 16, October 16, November 17, and December 15.