

# FEDERAL RESERVE statistical release



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## INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Industrial production rose 0.8 percent in June, its sixth consecutive monthly increase; production for the second quarter was up at an annual rate of 4.6 percent. In June, at 140.6 percent of its 1992 average, industrial production reached its highest level since May 2001 but was 4.5 percent below its June 2000 peak. Manufacturing output also posted its sixth consecutive monthly increase, rising 0.7 percent in June. Output at mines expanded 1.1 percent, and production at utilities increased 1.6 percent. The rate of capacity utilization for total industry rose to 76.1 percent, a rate 1.7 percentage points above its trough in December 2001.

### Market Groups

The output of consumer goods advanced 0.8 percent in June with widespread increases among both durable and nondurable goods. The production of durables rose 1.1 percent, to its highest level since September 2000, while the output of nondurables gained 0.7 percent. A sharp increase in motor vehicle assemblies contributed significantly to the

(over)

### INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY

Seasonally adjusted

	1992=100				Percent change				June '01 to June '02
	2002 Mar. <sup>F</sup>	Apr. <sup>F</sup>	May <sup>F</sup>	June <sup>P</sup>	2002 Mar. <sup>F</sup>	Apr. <sup>F</sup>	May <sup>F</sup>	June <sup>P</sup>	
<b>Industrial production</b>									
<b>Total index</b>	138.6	138.9	139.5	140.6	.3	.2	.4	.8	.2
Previous estimates	138.7	139.1	139.3		.4	.3	.2		
<u>Major market groups</u>									
Products, total	127.4	127.0	127.2	128.1	.4	-.3	.1	.7	-1.5
Consumer goods	121.7	121.3	121.4	122.4	.4	-.3	.1	.8	1.0
Business equipment	163.5	163.1	163.3	163.7	-.3	-.3	.1	.2	-7.9
Construction supplies	139.7	139.0	139.1	139.6	2.2	-.5	.1	.3	1.2
Materials	157.4	159.1	160.5	162.0	.2	1.1	.9	.9	2.9
<u>Major industry groups</u>									
Manufacturing	143.4	143.5	144.3	145.4	.4	.1	.5	.7	.3
Durable	176.6	177.4	178.7	180.1	.3	.5	.7	.8	.0
Nondurable	110.9	110.6	111.0	111.7	.4	-.3	.4	.6	.6
Mining	95.4	96.2	96.3	97.3	-1.3	.8	.1	1.1	-5.1
Utilities	121.8	122.8	121.7	123.7	1.3	.8	-.9	1.6	3.8
					Percent of capacity				Capacity growth
<b>Capacity utilization</b>	Average 1967-2001	1982 low	1988-89 high	2001 June	2002 Mar. <sup>F</sup>	Apr. <sup>F</sup>	May <sup>F</sup>	June <sup>P</sup>	June '01 to June '02
<b>Total industry</b>	81.9	71.1	85.4	76.7	75.2	75.3	75.6	76.1	1.0
Previous estimates					75.3	75.4	75.5		
Manufacturing	80.9	69.0	85.7	75.0	73.7	73.7	74.0	74.5	.9
Advanced processing	80.3	71.0	84.2	75.0	72.8	72.5	72.6	73.0	.6
Primary processing	82.0	65.7	88.3	74.9	75.1	75.5	76.3	76.8	1.5
Mining	87.6	80.3	88.0	91.4	84.5	85.2	85.3	86.2	.7
Utilities	87.6	75.9	92.6	87.0	85.8	86.2	85.1	86.2	4.8

rise in the output of durables. However, the overall rise for consumer durables was tempered by a decline in output at appliance manufacturers. The appliance, furniture, and carpeting group fell 2.9 percent after having risen at about that rate in May. Among nondurables, non-energy production expanded 0.8 percent and was led by gains in the indexes for paper products and for food and tobacco. Among energy products, strong electricity sales were offset by declines elsewhere.

The output of business equipment inched up in both May and June but remained below the level at the beginning of the year. The output of information processing equipment strengthened in both months and reached its highest level since July 2001. Despite strength in the assembly of automobiles and light trucks, the output of transit equipment continued its downward trend and fell to its lowest level since November 1996. During the past year, the principal contributor to the weakness in this group has been commercial aircraft. Industrial and other equipment also declined a bit in June after having risen nearly 2 percent in May. The output of defense and space equipment posted its fourth consecutive monthly increase and reached its highest level since July 2000.

The production of construction supplies rose 0.3 percent in June to end the quarter 4.2 percent above its November 2001 low. The index for business supplies jumped 1.2 percent, but it has risen only about 2 percent since the start of the year after having fallen about 7 percent during 2001.

Materials production, continuing its recent strength, increased 0.9 percent in June. The index now stands at its highest level since February 2001. Durable materials posted a gain of 1.2 percent with all major categories contributing similarly to the rise in output. An increase of 0.2 percent for nondurable materials output reflected increases in the production of chemicals and textiles that were mostly offset by a decline in paper production. The index for energy materials increased 0.9 percent with gains in both converted fuels and primary energy.

### Industry Groups

Manufacturing output rose 0.7 percent in June. Production advanced for all major groups of durable goods except furniture and fixtures and aerospace and miscellaneous transportation equipment. The largest gains were in motor vehicles and parts, miscellaneous manufactures, instruments, and primary metals; fabricated metal products and industrial machinery also posted increases. The durables index has risen 3.4 percent since its December 2001 low. Among producers of nondurables, the primary contributors to the June increase were food and tobacco products, printing and publishing, and rubber and plastics. Only the output of petroleum products declined.

The factory operating rate increased 0.5 percentage point in June, to 74.5 percent, but it remained more than 6 percentage points below its 1967–2001 average. The utilization rate for advanced-processing industries rose to 73.0 percent, while the rate for primary-processing industries rose to 76.8 percent. The utilization rate for the selected high-technology industries edged up, to 65.9 percent, a rate still well below the low of 72.4 percent reached in 1991 but more than 5 percentage points above the recent low in December 2001. The operating rates for utilities and for mining both increased to 86.2 percent.

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Further detail is available on the Board's web site ([www.federalreserve.gov/releases/G17/](http://www.federalreserve.gov/releases/G17/)).

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

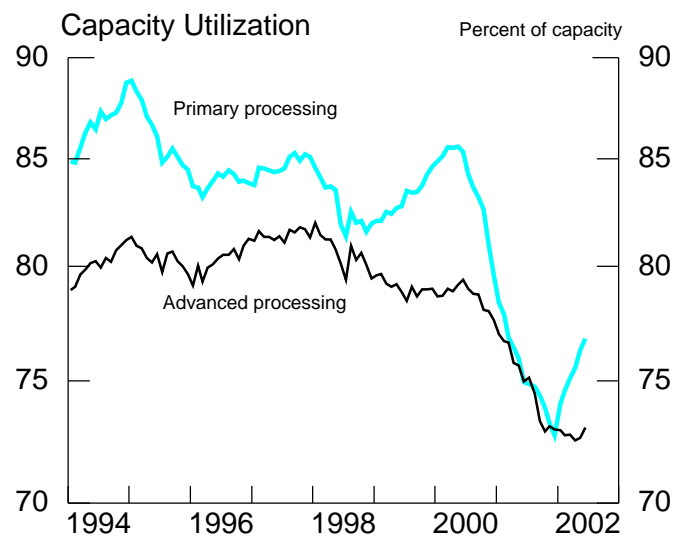
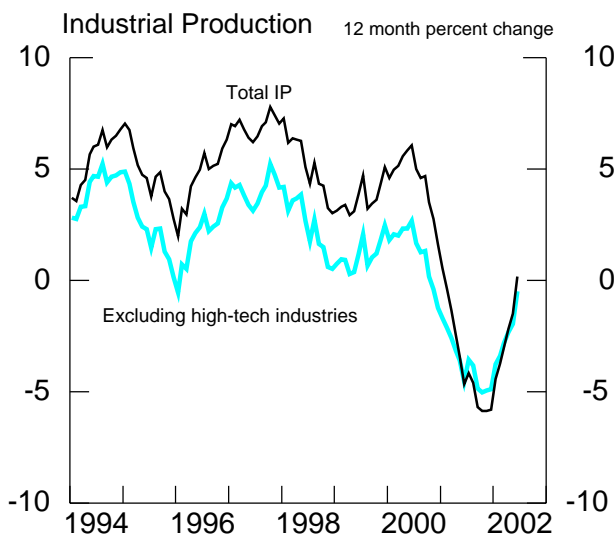
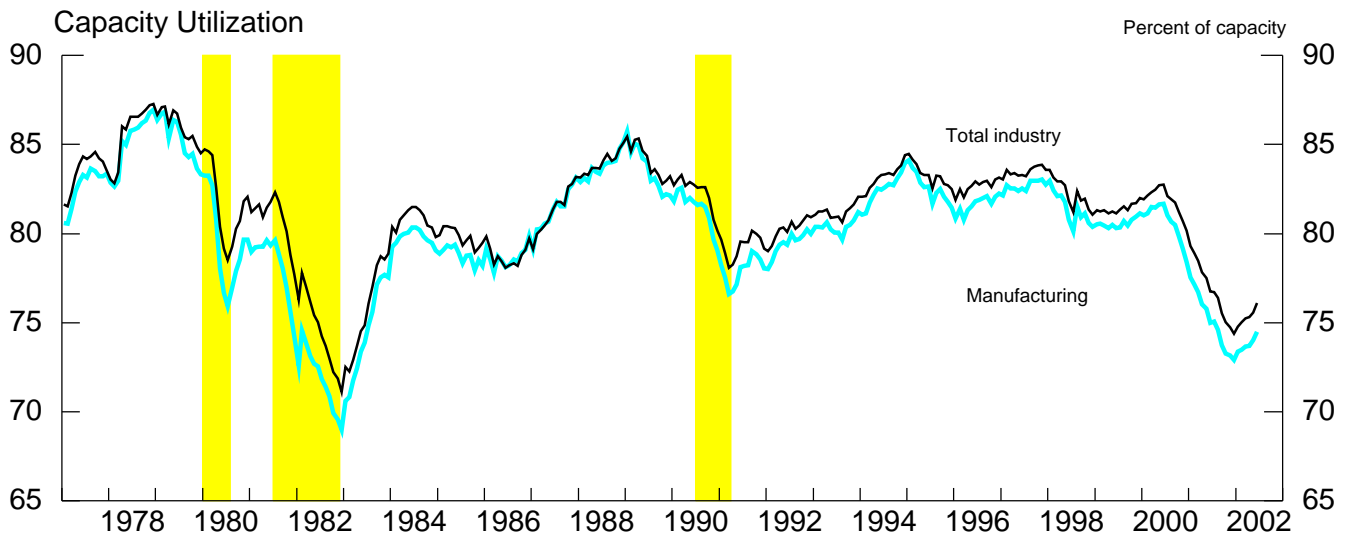
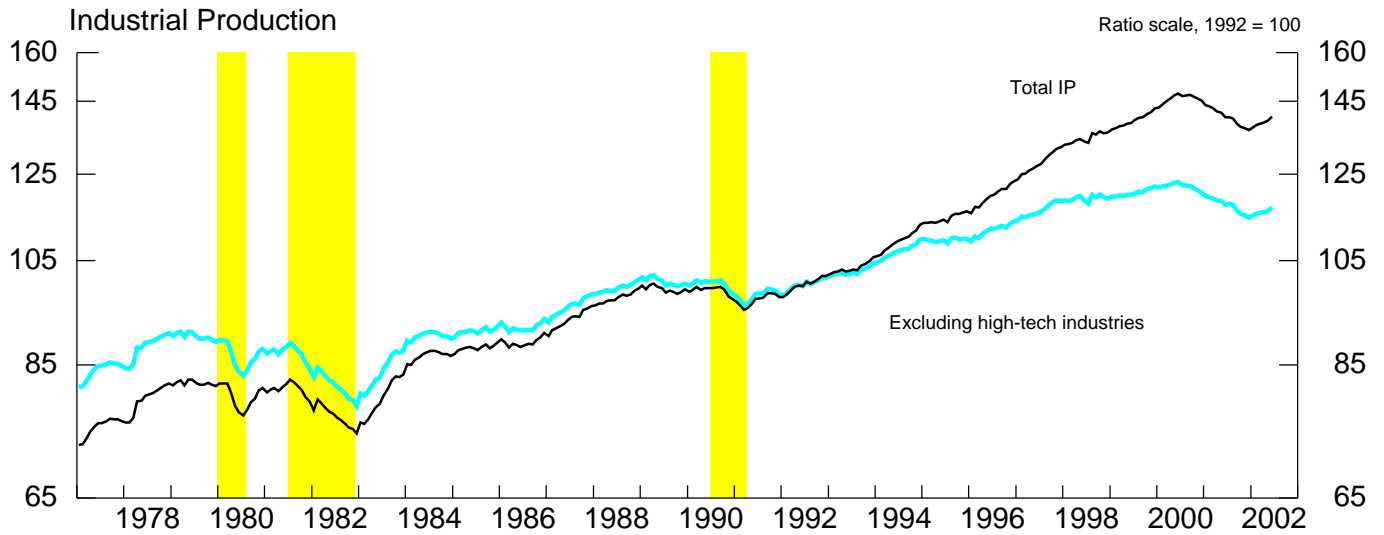
On November 26, the Federal Reserve Board will publish a revision to the index of industrial production (IP), the related measures of capacity and capacity utilization, and the data on industrial use of electric power. The revised estimates will be classified according to the 2002 North American Industrial Classification System (NAICS); previously, the estimates from 1987 forward were classified according to the 1987 Standard Industrial Classification system (SIC). NAICS changes the SIC system's industry composition of manufacturing. To preserve the continuity of the production, capacity, and utilization rate measures featured in the Federal Reserve's G.17 statistical release, portions of SIC 27 (printing and publishing) and SIC 24 (lumber and products) that are not classified in manufacturing under NAICS will continue to be included in the overall IP index and capacity utilization.

The revised production indexes will be based on annual output measures that are constructed by reclassifying the establishments in historical Censuses of Manufactures and Mineral Industries under NAICS; annual output indexes constructed this way will maximize the reliability and historical consistency of the IP industry detail. Data going back to at least 1972 will be restated using NAICS. The monthly indicators used in current IP will be incorporated into the revised IP indexes as far back as the data will allow.

The updated measures will reflect the incorporation of newly available, more comprehensive source data typical of annual revisions. The updating of source data for IP in the 2002 annual revision will include annual data from the 2000 Annual Survey of Manufactures of the Bureau of the Census and from selected editions of its 2000 and 2001 Current Industrial Reports. Annual data from the U.S. Geological Survey regarding metallic and nonmetallic minerals (except fuels) for 2000 and 2001 will also be introduced. The updating will include revisions to the monthly indicator for each industry (either physical product data, production-worker hours, or electric power usage) and revisions to seasonal factors.

Capacity and capacity utilization will be revised to incorporate preliminary data from the 2001 Survey of Plant Capacity of the Bureau of the Census, which covers manufacturing, along with other new data on capacity from the U.S. Geological Survey, the Department of Energy, and other organizations. The statistics on the industrial use of electric power will incorporate additional information received from utilities for the past few years and will include some data from the 2000 Annual Survey of Manufactures.

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



High-tech industries are defined as semiconductors and related electronic components (SIC 3672-9), computers (SIC 357), and communications equipment (SIC 366).  
 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	2001 proportion <sup>1</sup>	Fourth quarter to fourth quarter			Annual rate				Monthly rate				June '01 to June '02
		1999	2000	2001	2001 Q3	Q4	2002 Q1 <sup>r</sup>	Q2 <sup>p</sup>	2002 Mar. <sup>r</sup>	Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>p</sup>	
<b>Total IP</b>	100.00	4.3	2.6	-5.9	-4.7	-6.7	2.6	4.6	.3	.2	.4	.8	.2
<b>MARKET GROUPS</b>													
<b>Products</b>	61.89	2.6	1.8	-5.2	-4.7	-7.3	1.0	1.4	.4	-.3	.1	.7	-1.5
<b>Consumer goods</b>	30.46	2.5	.7	-1.7	-.5	-3.6	3.7	1.7	.4	-.3	.1	.8	1.0
<b>Durable</b>	6.50	6.7	-4.2	-2.3	2.9	-7.1	11.2	10.6	.9	.8	.9	1.1	5.2
Automotive products	3.49	5.8	-7.3	3.7	13.4	-6.5	13.2	14.7	.9	1.9	.1	2.6	9.7
Home electronics	.28	30.8	7.4	-18.2	-25.3	17.8	33.2	3.9	-1.3	-1.2	4.2	.3	7.2
Appliances, furniture, carpeting	1.32	2.6	-2.0	-2.3	.8	-1.9	10.5	5.6	.8	-.7	2.5	-2.9	2.9
Miscellaneous goods	1.41	3.8	-2.0	-11.4	-11.4	-17.7	2.5	6.2	1.2	-.3	.6	1.1	-4.0
<b>Nondurable</b>	23.96	1.3	2.2	-1.5	-1.4	-2.5	1.7	-.7	.3	-.7	-.1	.7	-.1
Non-energy	20.57	1.2	1.1	-.5	-1.0	-1.7	.5	-2.0	.3	-.9	-.1	.8	-.6
Foods and tobacco	11.18	.7	.4	-.8	-.8	.1	4.4	1.6	.6	-.4	-.2	1.1	1.9
Clothing	1.30	-2.8	-8.5	-10.8	-16.6	-13.1	6.6	-2.8	1.1	-1.3	.0	.3	-4.3
Chemical products	5.05	4.4	5.4	6.1	5.4	4.5	-1.1	-9.3	-.6	-1.3	-.4	.0	-1.1
Paper products	3.04	.1	2.4	-5.3	-4.7	-12.8	-13.3	-2.5	.5	-1.8	1.0	1.4	-7.0
Energy	3.39	2.3	8.6	-6.8	-3.2	-7.5	10.2	8.1	.1	.6	-.2	.0	2.7
<b>Business equipment</b>	13.06	4.4	5.8	-12.6	-16.2	-14.2	-4.4	-2.1	-.3	-.3	.1	.2	-7.9
Transit	2.93	-3.9	-7.5	-13.1	-13.5	-28.1	-10.0	-17.0	-2.3	-.6	-3.4	-.7	-18.4
Information processing	5.04	15.6	16.4	-11.5	-18.2	-5.1	1.3	1.8	.5	-.4	.4	1.2	-2.7
Industrial and other	5.08	-1.8	3.0	-13.6	-15.7	-14.3	-6.8	3.1	.2	.2	1.9	-.1	-6.8
<b>Defense and space equipment</b>	2.01	-7.6	-2.2	.2	-.7	4.2	2.8	5.2	.1	.7	.5	.6	3.9
<b>Construction supplies</b>	6.56	3.9	.5	-3.8	-1.5	-9.3	8.7	4.9	2.2	-.5	.1	.3	1.2
<b>Business supplies</b>	8.89	1.4	.9	-6.6	-2.7	-5.5	-2.4	2.9	.4	-.2	.1	1.2	-.8
<b>Materials</b>	38.11	7.2	3.9	-6.9	-4.8	-5.8	5.3	10.0	.2	1.1	.9	.9	2.9
<b>Durable</b>	22.35	10.4	7.5	-8.6	-7.0	-8.3	8.5	11.6	.3	1.1	1.2	1.2	3.1
Consumer parts	4.65	5.9	-2.1	-4.4	3.3	-9.3	21.2	9.4	.3	1.5	-.2	1.3	6.3
Equipment parts	8.09	19.7	25.1	-11.1	-13.0	-1.1	9.1	16.6	.3	1.3	2.3	1.2	6.1
Other	9.60	4.4	-3.1	-8.1	-6.1	-13.7	2.1	8.7	.3	.7	.9	1.1	-.8
<b>Nondurable</b>	7.63	3.9	-4.7	-6.1	1.4	-2.7	2.6	9.1	.7	.8	1.3	.2	4.2
Textile	.75	4.6	-12.8	-12.7	-13.6	-14.7	10.2	12.5	3.3	-1.0	1.0	.5	.0
Paper	1.56	4.5	-4.5	-5.0	5.6	-6.3	-10.7	10.5	-.1	2.5	2.8	-1.7	2.0
Chemical	3.50	5.3	-4.2	-7.2	3.5	-.2	9.7	12.3	1.3	.8	.7	1.2	7.9
<b>Energy</b>	8.13	.6	1.6	-3.2	-4.4	-2.1	-.7	6.2	-.4	1.3	-.3	.9	1.0
<b>INDUSTRY GROUPS</b>													
<b>Manufacturing</b>	86.74	4.8	2.3	-6.1	-4.9	-6.3	3.0	4.2	.4	.1	.5	.7	.3
<b>Durable</b>	46.81	6.9	4.8	-8.3	-7.7	-9.2	4.7	6.1	.3	.5	.7	.8	.0
Lumber and products	24	2.15	1.8	-6.8	-1.2	8.4	-9.4	-1.6	1.7	-1.1	.3	.6	-1.4
Furniture and fixtures	25	1.57	5.0	.8	-7.7	-7.7	-8.0	-.4	4.4	-.1	.5	.7	-1.7
Stone, clay, and glass products	32	2.66	3.2	-.9	-3.0	-5.3	-5.3	-2.2	4.7	-.1	1.4	-.3	-.6
Primary metals	33	2.93	6.7	-5.2	-13.7	-8.6	-26.4	11.2	10.1	1.2	-.5	2.1	-2.2
Fabricated metals	34	5.85	1.2	2.2	-6.4	-.7	-7.1	.6	2.7	.1	.4	.5	.0
Industrial machinery and equipment	35	7.69	7.1	7.5	-11.7	-14.4	-12.0	7.0	8.2	.9	.2	1.5	3
Electrical machinery	36	7.82	23.7	27.3	-14.3	-17.5	.3	11.7	17.6	.5	1.3	2.7	5.8
Motor vehicles and parts	371	6.35	7.5	-8.0	-.4	6.6	-10.1	22.7	14.9	.2	2.6	-.9	8.7
Aerospace and miscellaneous transportation equipment	372-6.9	4.10	-8.9	.2	-8.9	-12.0	-18.2	-20.4	-17.4	-1.9	-1.9	-1.3	-.9
Instruments	38	4.51	.6	1.3	-4.4	-7.8	-1.8	-1.3	-1.4	.4	-.5	-.1	1.1
Miscellaneous	39	1.18	4.8	-1.0	-8.8	-7.9	-14.5	8.8	11.6	1.5	-.2	1.7	2.4
<b>Nondurable</b>	39.93	2.1	-.7	-3.5	-1.6	-2.8	1.2	2.0	.4	-.3	.4	.6	.6
Food and tobacco products	20,21	11.77	.7	.4	-.8	-.6	.1	4.3	1.4	.6	-.5	-.1	1.0
Textile mill products	22	1.17	.4	-10.6	-10.7	-11.4	-12.9	12.6	12.9	2.5	-.1	.6	1.5
Apparel products	23	1.46	.3	-6.7	-10.7	-15.4	-16.1	5.2	-1.0	1.2	-1.1	.3	-.7
Paper and products	26	3.29	2.3	-3.0	-6.1	-1.4	-9.5	-5.3	11.2	1.0	.8	2.5	.1
Printing and publishing	27	6.62	.7	.5	-7.9	-5.7	-7.0	-10.5	-3.4	-.6	-.6	.1	-.9
Chemicals and products	28	9.75	4.1	.8	-.2	5.0	4.2	1.9	-.5	-.1	-.4	.4	3.1
Petroleum products	29	1.92	-.6	2.0	-1.2	-7.7	1.8	9.2	-.2	-.5	.2	-.7	-.1
Rubber and plastics products	30	3.78	5.9	-2.8	-5.2	-.9	-8.7	7.9	11.7	1.8	.1	1.1	.9
<b>Mining</b>	10-14	6.19	-.2	1.7	-2.4	-4.1	-11.8	-9.1	1.1	-1.3	.8	.1	1.1
<b>Utilities</b>	491,2,3pt	7.07	2.2	6.8	-6.1	-3.0	-7.2	8.3	12.2	1.3	.8	-.9	1.6
Electric		5.60	1.8	5.2	-4.1	-4.7	-3.4	3.2	14.0	2.2	1.6	-1.7	2.5
Gas		1.47	4.7	12.9	-13.1	2.9	-20.2	31.1	4.6	-2.1	-2.3	2.6	-2.2

NOTE. Under industry groups, the figures to the right of the series descriptions are 1987 Standard Industrial Classification (SIC) codes. The abbreviation pt denotes part of an SIC 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, 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. Under industry groups, in the nondurables category, leather and products (SIC 31) is 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.

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

Percent change, seasonally adjusted

Item	2001 proportion	Fourth quarter to fourth quarter			Annual rate				Monthly rate				June '01 to June '02
		1999	2000	2001	2001 Q3	2002 Q4	2002 Q1 <sup>f</sup>	2002 Q2 <sup>p</sup>	2002 Mar. <sup>f</sup>	2002 Apr. <sup>f</sup>	2002 May <sup>f</sup>	2002 June <sup>p</sup>	
<b>Total industry</b>	100.00	4.3	2.6	-5.9	-4.7	-6.7	2.6	4.6	.3	.2	.4	.8	.2
<b>Energy</b>	14.08	1.2	4.5	-4.3	-4.0	-7.5	1.4	5.9	-1	.8	-.4	.9	-.2
Consumer products	3.39	2.3	8.6	-6.8	-3.2	-7.5	10.2	8.1	.1	.6	-.2	.0	2.7
Commercial products	1.84	.7	7.3	.7	4.2	-6.7	7.4	6.8	1.3	-.2	-1.2	1.5	2.1
<b>Oil and gas well drilling</b>	.72	5.7	19.1	-16.0	-19.4	-56.6	-32.2	-11.7	-8	-2.4	-.5	2.4	-30.9
Converted fuel	2.67	2.7	5.6	-8.2	-9.4	-2.2	5.4	9.6	.3	1.1	.0	.4	4.1
Primary materials	5.46	-.6	-.2	-1.0	-2.3	-2.0	-3.7	4.5	-.8	1.5	-.4	1.3	-.4
<b>Non-energy</b>	85.92	4.8	2.3	-6.2	-4.9	-6.6	2.9	4.3	.4	.1	.5	.8	.2
<b>Selected high-technology industries</b>	6.62	34.0	39.5	-15.6	-21.8	1.3	23.7	26.5	1.1	1.8	2.6	1.7	10.4
Computers and office equipment	357	1.55	33.0	33.4	-8.2	-14.7	3.6	36.1	20.4	2.6	1.2	.6	.8
Communications equipment	366	1.53	21.1	25.4	-24.4	-28.1	-25.9	-19.1	-5.5	-.4	-1.0	-.6	.6
Semiconductors and related electronic components	3672-9	3.54	41.1	48.6	-14.9	-22.2	14.4	39.0	42.3	1.0	3.1	4.4	2.4
<b>Excluding selected high-technology   industries</b>	79.31	2.0	-1.4	-5.1	-3.1	-7.3	1.3	2.7	.3	.0	.4	.7	-.5
<b>Motor vehicles and parts</b>	371	6.35	7.5	-8.0	-.4	6.6	-10.1	22.7	14.9	.2	2.6	-.9	2.5
Motor vehicles	3711,3	3.69	6.3	-11.4	2.1	11.5	-9.9	21.0	14.3	-.1	3.0	-1.1	2.9
Motor vehicle parts	3714	2.56	9.2	-1.2	-2.4	.8	-9.2	26.6	14.7	.3	2.3	-.9	2.0
<b>Excluding motor vehicles and parts</b>	72.96	1.5	-.8	-5.5	-3.9	-7.0	-.5	1.6	.4	-.3	.5	.5	-1.4
Consumer goods	24.03	1.9	.5	-1.6	-1.7	-3.0	1.3	-.8	.4	-.8	.2	.6	-.5
Business equipment	9.17	-3.1	1.9	-11.8	-16.4	-13.4	-10.5	-6.6	-.6	-.9	.5	-.1	-10.3
Business supplies	7.05	1.6	-.5	-8.4	-4.6	-5.1	-4.9	1.8	.2	-.2	.4	1.1	-1.5
Materials	23.95	3.3	-2.7	-6.9	-2.0	-9.3	.6	6.2	.2	.5	1.0	.6	.3
<b>Measures excluding selected high-technology   industries</b>													
Total industry	93.38	1.8	-.5	-5.0	-3.3	-7.3	1.3	3.2	.3	.1	.3	.7	-.5
Manufacturing	80.12	1.9	-1.3	-5.1	-3.2	-6.9	1.5	2.6	.3	.0	.4	.6	-.5
Durable	40.19	1.8	-1.8	-6.7	-4.8	-10.9	1.9	3.2	.2	.3	.4	.7	-1.6
Industrial machinery	351-6,8,9	6.14	-.4	.1	-12.7	-14.3	-15.8	.3	5.1	.4	-.1	1.8	.1
Electrical machinery	361-5,9,71	2.76	3.9	-1.2	-6.3	-2.4	-.4	-1.4	.6	.1	.1	1.8	-1.9
<b>Measures excluding motor vehicles and parts</b>													
Total industry	93.65	4.1	3.4	-6.2	-5.5	-6.5	1.3	3.8	.3	.0	.5	.7	-.4
Manufacturing	80.39	4.5	3.2	-6.6	-5.8	-6.0	1.6	3.3	.4	-.1	.7	.6	-.4
Durable	40.46	6.8	6.8	-9.4	-9.7	-9.0	1.9	4.7	.3	.1	1.0	.5	-1.4
<b>Primary processing<sup>1</sup></b>	33.26	8.0	3.7	-7.2	-4.2	-6.1	8.8	10.9	.8	.7	1.1	.8	4.0
<b>Advanced processing<sup>2</sup></b>	53.48	2.8	1.4	-5.4	-5.4	-6.4	-.4	.1	.1	-.3	.2	.6	-2.0

NOTE. See notes to table 1.

1. Primary processing consists of textile mill products, paper and products, industrial chemicals, synthetic materials, and fertilizers, petroleum products, rubber and plastics products, lumber and products, primary metals, fabricated metals, stone, clay, and glass products, semiconductors and related electronic components, and motor vehicle parts.

2. Advanced processing consists of foods, tobacco products, apparel products, printing and publishing, chemical products and other agricultural chemicals, leather and products, furniture and fixtures, industrial machinery and equipment, electrical machinery except semiconductors and related electronic components, transportation equipment except motor vehicle parts, instruments, and miscellaneous manufactures.

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

Millions of units, seasonally adjusted annual rate

Item	2001 average	2001 Q3	2001 Q4	2002 Q1	2002 Q2	2002 Mar.	2002 Apr.	2002 May	2002 June
<b>Total</b>	11.42	11.60	11.61	12.20	12.34	12.16	12.32	12.07	12.63
Autos	4.88	4.73	4.80	5.24	5.17	5.17	5.19	5.05	5.26
Trucks	6.55	6.87	6.81	6.96	7.17	6.99	7.13	7.02	7.37
Light	6.29	6.62	6.59	6.72	6.93	6.72	6.87	6.78	7.14
Medium and heavy	.25	.25	.22	.24	.24	.26	.26	.24	.23
<b>MEMO</b>									
Autos and light trucks	11.17	11.35	11.39	11.96	12.10	11.90	12.06	11.83	12.40

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/mvsf.htm](http://www.federalreserve.gov/releases/G17/mvsf.htm)

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

1992 = 100, seasonally adjusted

Item	2001 proportion	2001 Oct.	Nov.	Dec.	2002 Jan.	Feb.	Mar. <sup>f</sup>	Apr. <sup>f</sup>	May <sup>f</sup>	June <sup>p</sup>
<b>Total IP</b>	100.00	137.7	137.2	136.7	137.6	138.1	138.6	138.9	139.5	140.6
MARKET GROUPS										
<b>Products</b>	61.89	126.8	126.7	126.5	126.7	126.9	127.4	127.0	127.2	128.1
<b>Consumer goods</b>	30.46	119.6	120.0	120.6	120.6	121.2	121.7	121.3	121.4	122.4
<b>Durable</b>	6.50	146.2	152.1	156.2	154.5	155.4	156.8	158.0	159.4	161.2
Automotive products	3.49	145.4	155.4	160.7	158.3	158.1	159.6	162.6	162.9	167.1
Home electronics	.28	537.7	566.7	640.4	625.1	628.8	620.6	613.0	638.7	640.7
Appliances, furniture, carpeting	1.32	122.5	125.1	126.2	125.1	128.6	129.6	128.6	131.9	128.1
Miscellaneous goods	1.41	109.2	107.5	108.0	108.0	108.7	110.0	109.7	110.3	111.6
<b>Nondurable</b>	23.96	113.1	112.3	112.2	112.6	113.1	113.4	112.6	112.5	113.3
Non-energy	20.57	112.5	112.2	112.4	112.5	112.3	112.7	111.7	111.6	112.5
Foods and tobacco	11.18	108.2	108.6	109.0	109.2	109.7	110.4	110.0	109.8	110.9
Clothing	1.30	74.4	73.2	74.7	75.4	74.9	75.7	74.7	74.7	74.9
Chemical products	5.05	148.5	148.0	148.5	149.4	147.6	146.7	144.7	144.1	144.2
Paper products	3.04	103.9	102.1	100.2	98.8	98.1	98.5	96.7	97.7	99.1
Energy	3.39	116.9	113.4	111.6	113.5	118.3	118.4	119.2	118.9	119.0
Business equipment	13.06	166.9	167.2	164.3	165.3	164.0	163.5	163.1	163.3	163.7
Transit	2.93	119.2	118.6	118.7	116.4	116.8	114.1	113.3	109.4	108.6
Information processing	5.04	267.9	269.1	265.5	268.2	267.9	269.1	267.9	268.9	272.0
Industrial and other	5.08	121.8	122.3	118.5	120.4	117.9	118.0	118.2	120.5	120.3
<b>Defense and space equipment</b>	2.01	74.2	74.3	74.7	74.9	74.9	74.9	75.4	75.8	76.3
<b>Construction supplies</b>	6.56	134.6	134.0	135.6	136.3	136.8	139.7	139.0	139.1	139.6
<b>Business supplies</b>	8.89	110.7	109.8	108.6	108.5	109.1	109.6	109.4	109.4	110.7
<b>Materials</b>	38.11	155.9	154.8	153.6	155.8	157.1	157.4	159.1	160.5	162.0
<b>Durable</b>	22.35	207.9	206.5	206.0	209.4	211.6	212.1	214.4	216.9	219.5
Consumer parts	4.65	152.3	155.0	157.5	161.4	162.9	163.4	165.8	165.4	167.6
Equipment parts	8.09	431.7	427.9	426.7	434.0	439.7	440.8	446.6	456.9	462.5
Other	9.60	122.5	120.5	119.0	120.5	121.5	121.8	122.6	123.8	125.1
<b>Nondurable</b>	7.63	104.7	103.1	101.1	103.3	103.4	104.1	104.9	106.3	106.5
Textile	.75	87.2	84.7	84.5	84.9	87.4	90.3	89.4	90.3	90.8
Paper	1.56	112.4	106.9	103.1	106.9	103.3	103.2	105.8	108.7	106.9
Chemical	3.50	103.5	102.2	99.3	102.8	104.1	105.4	106.2	107.0	108.2
<b>Energy</b>	8.13	102.6	102.6	101.6	101.6	102.6	102.1	103.5	103.2	104.2
INDUSTRY GROUPS										
<b>Manufacturing</b>	86.74	142.1	142.0	141.6	142.6	142.9	143.4	143.5	144.3	145.4
<b>Durable</b>	46.81	173.9	174.3	174.1	175.7	176.0	176.6	177.4	178.7	180.1
Lumber and products	24	2.15	112.8	112.4	113.0	112.9	111.0	112.9	111.6	111.9
Furniture and fixtures	25	1.57	133.5	134.8	135.4	133.6	135.0	134.8	135.4	136.0
Stone, clay, and glass products	32	2.66	130.3	128.8	126.3	127.7	127.8	127.7	129.5	129.0
Primary metals	33	2.93	113.6	110.2	103.6	111.3	111.8	113.1	112.5	115.0
Fabricated metals	34	5.85	127.5	127.2	129.1	128.7	127.7	127.9	128.4	129.5
Industrial machinery and equipment	35	7.69	202.8	203.4	200.4	204.5	205.3	207.1	207.5	210.6
Electrical machinery	36	7.82	484.8	485.1	487.3	494.0	500.8	503.1	509.9	523.5
Motor vehicles and parts	371	6.35	157.3	165.9	172.1	171.8	174.5	174.9	179.5	177.9
Aerospace and miscellaneous transportation equipment	372-6,9	4.10	93.8	91.0	88.9	87.4	86.4	84.7	83.1	81.3
Instruments	38	4.51	113.6	113.7	112.8	113.8	112.4	112.8	112.3	113.4
Miscellaneous	39	1.18	113.6	110.7	114.1	114.6	114.6	116.4	116.1	121.0
<b>Nondurable</b>	39.93	110.8	110.2	109.7	110.3	110.5	110.9	110.6	111.0	111.7
Food and tobacco products	20,21	11.77	108.8	109.4	109.8	109.9	110.4	111.1	110.6	110.4
Textile mill products	22	1.17	83.0	81.9	82.5	82.5	85.1	87.2	87.1	88.1
Apparel products	23	1.46	87.8	87.3	88.8	89.4	88.4	89.5	88.5	89.3
Paper and products	26	3.29	108.1	106.2	103.1	105.1	103.5	104.5	105.3	108.0
Printing and publishing	27	6.62	99.8	98.9	97.3	96.6	96.0	95.4	94.8	95.8
Chemicals and products	28	9.75	123.2	122.4	121.4	123.0	122.9	122.8	122.3	122.8
Petroleum products	29	1.92	114.9	114.0	112.2	114.8	117.2	116.7	116.9	115.4
Rubber and plastics products	30	3.78	134.4	133.4	134.8	134.7	136.6	139.1	139.2	140.7
<b>Mining</b>	10-14	6.19	99.5	99.0	97.4	97.0	96.6	95.4	96.2	96.3
<b>Utilities</b>	491,2,3pt	7.07	119.4	116.2	115.2	115.7	120.3	121.8	122.8	121.7
Electric		5.60	122.3	121.8	119.3	119.8	121.9	124.6	126.6	124.4
Gas		1.47	108.0	96.2	100.5	101.0	113.7	111.4	108.8	109.2

NOTE. See notes to table 1.

**Table 5**  
**INDUSTRIAL PRODUCTION INDEXES: SPECIAL AGGREGATES**

1992 = 100, seasonally adjusted

Item	2001 proportion	2001 Oct.	Nov.	Dec.	2002 Jan.	Feb.	Mar. <sup>f</sup>	Apr. <sup>f</sup>	May <sup>f</sup>	June <sup>p</sup>
<b>Total industry</b>	100.00	137.7	137.2	136.7	137.6	138.1	138.6	138.9	139.5	140.6
<b>Energy</b>	14.08	109.3	107.6	106.2	106.6	108.9	108.8	109.6	109.2	110.1
Consumer products	3.39	116.9	113.4	111.6	113.5	118.3	118.4	119.2	118.9	119.0
Commercial products	1.84	133.6	130.4	128.8	129.1	134.6	136.3	136.0	134.3	136.3
Oil and gas well drilling	.72	127.2	114.4	107.8	107.3	105.3	104.5	102.0	101.4	103.9
Converted fuel	2.67	110.9	109.1	107.9	108.6	111.6	112.0	113.2	113.2	113.6
Primary materials	5.46	98.2	98.8	97.9	97.6	97.7	96.9	98.3	97.9	99.1
<b>Non-energy</b>	85.92	142.5	142.4	142.0	143.0	143.2	143.7	143.9	144.7	145.8
<b>Selected high-technology industries</b>	6.62	1002.4	1002.5	1006.0	1032.2	1065.5	1077.4	1097.3	1125.4	1144.3
Computers and office equipment	357	1.55	1049.1	1067.2	1087.0	1118.5	1155.8	1185.5	1200.2	1207.2
Communication equipment	366	1.53	308.0	301.1	291.3	284.7	285.2	284.0	281.1	279.5
Semiconductors and related electronic components	3672-9	3.54	1709.7	1712.5	1731.5	1807.1	1884.6	1904.0	1963.0	2050.0
<b>Excluding selected high-technology industries</b>	79.31	116.5	116.3	116.0	116.6	116.5	116.9	116.8	117.3	118.1
<b>Motor vehicles and parts</b>	371	6.35	157.3	165.9	172.1	171.8	174.5	174.9	179.5	177.9
Motor vehicles	3711,3	3.69	147.1	159.9	167.2	165.2	166.2	166.0	171.1	169.2
Motor vehicle parts	3714	2.56	179.8	181.7	186.2	189.9	195.1	195.8	200.3	198.5
<b>Excluding motor vehicles and parts</b>	72.96	114.0	113.3	112.6	113.3	113.0	113.4	113.1	113.6	114.3
Consumer goods		24.03	113.3	113.1	113.5	113.4	113.5	114.0	113.0	113.3
Business equipment		9.17	120.3	119.9	116.4	117.5	115.0	114.4	113.3	113.9
Business supplies		7.05	105.5	105.2	104.0	103.8	103.4	103.6	103.4	103.8
Materials		23.95	115.3	113.9	112.4	113.9	113.9	114.2	114.8	115.9
<b>Measures excluding selected high-technology industries</b>										
Total industry	93.38	115.5	115.1	114.6	115.1	115.4	115.7	115.8	116.1	117.0
Manufacturing	80.12	116.3	116.1	115.7	116.4	116.4	116.7	116.7	117.1	117.9
Durable	40.19	122.0	122.3	122.1	122.8	122.5	122.7	123.1	123.5	124.3
Industrial machinery	351-6,8,9	6.14	123.6	123.6	120.6	122.8	122.4	122.9	122.7	124.9
Electrical machinery	361-5,9,71	2.76	123.1	124.5	126.4	125.7	123.4	123.6	123.7	125.9
<b>Measures excluding motor vehicles and parts</b>										
Total industry	93.65	136.8	135.8	134.9	135.8	136.3	136.7	136.8	137.5	138.4
Manufacturing	80.39	141.3	140.6	139.7	140.8	140.9	141.5	141.3	142.3	143.1
Durable	40.46	176.4	175.4	174.1	176.0	175.9	176.5	176.7	178.4	179.3
<b>Primary processing</b>	33.26	165.6	164.4	163.5	166.6	168.0	169.4	170.6	172.6	174.0
<b>Advanced processing</b>	53.48	129.1	129.5	129.3	129.3	129.0	129.1	128.8	129.0	129.8

NOTE. See notes to table 2.



**Table 6**  
**CAPACITY UTILIZATION**

Percent of capacity, seasonally adjusted

Item	2001 proportion	1967- 2001 ave.	1988- 89 high	1990- 91 low	1994- 95 high	2001				2002			
						Q3	Q4	Q1 <sup>f</sup>	Q2 <sup>p</sup>	Mar. <sup>f</sup>	Apr. <sup>f</sup>	May <sup>f</sup>	June <sup>p</sup>
<b>Total industry</b>	100.00	81.9	85.4	78.1	84.5	76.2	74.7	75.0	75.7	75.2	75.3	75.6	76.1
<b>Manufacturing</b>	87.62	80.9	85.7	76.6	84.1	74.5	73.1	73.5	74.1	73.7	73.7	74.0	74.5
<b>Durable</b>	49.11	79.4	84.6	73.1	83.7	72.0	70.1	70.6	71.4	70.7	71.0	71.3	71.8
Lumber and products	24	2.14	82.4	93.6	75.5	88.3	77.6	75.6	75.2	74.9	75.6	74.7	74.8
Furniture and fixtures	25	1.57	81.2	86.6	72.5	84.3	73.8	72.3	72.2	73.0	72.4	72.7	73.2
Stone, clay, and glass products	32	2.47	78.9	83.5	69.7	82.2	79.8	78.4	77.6	78.2	77.5	78.5	78.1
Primary metals	33	2.88	81.6	92.7	73.7	95.4	78.2	72.6	75.0	77.7	75.9	75.8	77.8
Fabricated metals	34	6.06	77.8	82.0	71.9	85.2	72.3	71.0	71.0	71.4	70.9	71.1	71.4
Industrial machinery and equipment	35	8.29	81.0	85.4	72.3	87.2	69.9	67.5	68.5	69.7	68.9	69.0	70.0
Electrical machinery	36	9.17	81.1	84.0	75.0	90.6	65.1	64.6	65.5	67.1	65.7	66.2	67.6
Motor vehicles and parts	371	6.47	77.0	89.1	55.9	85.1	76.5	74.1	77.5	79.8	77.9	79.8	80.7
Aerospace and miscellaneous transportation equipment	372-6,9	4.29	75.1	87.3	79.2	69.0	71.0	67.5	63.8	60.9	62.7	61.6	60.8
Instruments	38	4.57	81.1	81.4	77.2	78.3	73.4	73.1	73.0	72.8	72.9	72.5	73.3
Miscellaneous	39	1.19	76.0	79.0	71.7	80.7	74.2	71.3	72.7	74.5	73.4	73.1	74.3
<b>Nondurable</b>	38.51	83.0	87.3	80.7	84.6	77.7	77.1	77.4	77.7	77.6	77.3	77.6	78.1
Food and tobacco products	20,21	10.86	83.1	85.9	81.6	85.7	79.8	79.9	80.7	80.9	81.1	80.7	80.5
Textile mill products	22	1.20	85.2	90.4	77.7	92.5	73.3	71.5	74.3	77.2	76.4	76.5	77.2
Apparel products	23	1.60	80.6	85.1	75.5	85.9	68.4	65.9	67.1	67.1	67.4	66.8	67.0
Paper and products	26	3.19	88.3	93.5	85.0	92.0	78.1	76.1	75.1	77.2	75.2	75.8	77.8
Printing and publishing	27	6.61	84.9	91.7	79.6	82.2	73.9	72.7	70.9	70.6	70.5	70.2	70.4
Chemicals and products	28	9.60	79.2	86.2	79.3	79.9	76.4	77.2	77.4	76.9	77.2	76.7	76.9
Petroleum products	29	1.63	87.5	88.5	85.1	92.9	92.5	92.7	94.6	94.4	94.9	95.1	94.4
Rubber and plastics products	30	3.64	84.5	89.6	77.4	91.4	78.4	76.3	77.5	79.6	78.8	78.8	79.6
<b>Mining</b>	6.14	87.6	88.0	87.0	89.3	90.7	87.6	85.3	85.5	84.5	85.2	85.3	86.2
<b>Utilities</b>	6.24	87.6	92.6	83.4	92.5	86.3	83.6	84.3	85.8	85.8	86.2	85.1	86.2
<b>Selected high-technology industries</b>	8.52	80.0	81.9	72.4	88.2	61.3	60.7	62.9	65.2	63.7	64.3	65.4	65.9
Computers and office equipment	357	2.05	80.7	86.9	66.9	85.3	63.2	62.8	66.6	68.3	68.1	68.4	68.2
Communicationsequipment	366	1.92	80.1	84.8	73.4	88.7	62.8	57.9	54.6	53.5	54.4	53.7	53.3
Semiconductors and related electronic components	3672-9	4.55	79.6	81.1	75.6	91.0	59.7	60.9	64.6	68.4	65.4	66.7	68.8
<b>Measures excluding selected high-technology industries</b>													
Total industry	91.48	82.0	85.7	78.4	84.2	77.8	76.2	76.4	77.0	76.6	76.6	76.8	77.4
Manufacturing	79.10	81.0	86.1	76.8	83.8	76.1	74.7	74.9	75.4	75.1	75.0	75.3	75.8
Industrial machinery	351-6,8,9	6.24	81.0	85.5	74.0	88.2	72.6	69.5	69.7	70.7	69.8	69.8	71.1
Electrical machinery	361-5,9,71	2.71	83.2	87.5	74.3	93.6	76.1	76.0	75.6	75.7	75.2	75.3	76.6
<b>Primary processing</b>	33.80	82.0	88.3	76.7	88.8	74.7	73.3	74.6	76.2	75.1	75.5	76.3	76.8
<b>Advanced processing</b>	53.82	80.3	84.2	76.6	81.3	74.3	73.0	72.8	72.7	72.8	72.5	72.6	73.0

NOTE. See notes to table 2.

**Table 7**  
**INDUSTRIAL CAPACITY**

Percent change

Item	Average annual rate				Fourth quarter to fourth quarter				Annual rate				Monthly rate
	1967- 79	1980- 88	1989- 94	1995- 2002	1999	2000	2001	2002 <sup>p</sup>	2001 Q3	Q4	2002 Q1	Q2	2002 June
<b>Total industry</b>	3.5	2.2	2.3	4.2	3.9	4.0	1.7	1.0	1.2	1.0	.9	1.0	.1
<b>Manufacturing</b>	3.7	2.5	2.5	4.7	4.5	4.7	1.6	1.0	1.0	.8	.8	1.0	.1
Durable	3.6	3.1	3.0	7.3	6.6	8.1	3.0	1.6	1.9	1.5	1.5	1.6	.1
Nondurable	3.9	1.8	2.1	1.6	1.7	.4	-.2	.2	-.2	-.1	.0	.2	.0
<b>Mining</b>	.4	.2	-.6	-.4	-.2	-.1	.6	.4	.7	1.4	.9	.2	.0
<b>Utilities</b>	4.9	1.2	1.4	2.3	2.4	2.9	5.1	3.9	5.6	5.4	4.8	4.1	.3
<b>Selected high-technology industries</b>	11.3	15.9	13.6	32.2	28.6	42.9	12.7	10.1	7.3	5.4	7.3	9.6	.9
Manufacturing ex. selected high-technology industries	3.3	1.4	1.7	2.1	2.0	1.0	.3	.2	.2	.2	.1	.1	.0
<b>Primary processing</b>	3.8	1.6	3.4	6.8	5.0	7.8	2.7	1.6	1.6	1.2	1.4	1.7	.2
<b>Advanced processing</b>	3.7	3.1	2.1	3.4	4.2	2.9	.9	.6	.7	.6	.5	.6	.0

**Table 8**  
**GROSS VALUE OF PRODUCTS**

Billions of 1996 dollars at annual rate, seasonally adjusted

Item	1996	2001	2001			2002		2002			
			Q2	Q3	Q4	Q1 <sup>r</sup>	Q2 <sup>p</sup>	Mar. <sup>r</sup>	Apr. <sup>r</sup>	May <sup>r</sup>	June <sup>p</sup>
<b>Products, total</b>	2,419.8	2,724.4	2,751.8	2,726.5	2,677.3	2,696.0	2,713.5	2,707.4	2,704.1	2,708.0	2,728.4
<b>Final products</b>	1,858.1	2,102.7	2,126.8	2,103.9	2,067.5	2,080.6	2,092.1	2,084.4	2,085.2	2,087.9	2,103.3
Consumer goods	1,220.6	1,302.9	1,309.1	1,311.0	1,302.2	1,318.6	1,329.8	1,324.4	1,324.6	1,326.6	1,338.2
Durable	303.9	349.6	353.9	359.3	353.7	364.3	374.5	366.5	370.7	373.5	379.3
Automotive products	162.6	187.8	190.1	196.7	193.6	200.0	207.2	200.9	205.2	205.2	211.2
Other durable goods	141.3	160.5	162.7	159.7	157.3	161.0	163.0	162.5	161.2	164.8	163.0
Nondurable	916.7	953.3	955.1	952.0	948.5	954.7	956.1	958.4	954.6	953.9	959.8
Equipment, total	637.5	800.0	820.2	791.0	759.3	753.6	752.6	750.5	751.2	751.7	755.0
Business and defense	610.2	778.4	797.2	768.0	740.3	737.8	738.1	735.7	736.7	737.3	740.3
Business	538.6	715.8	735.3	705.6	676.3	673.1	672.0	671.0	671.4	671.2	673.4
Defense and space	71.6	64.4	64.2	64.0	64.7	65.1	66.2	65.1	65.6	66.2	66.8
<b>Intermediate products</b>	561.7	622.0	625.2	622.7	610.0	615.5	621.5	623.0	619.0	620.2	625.2
Construction supplies	235.0	274.0	276.1	275.7	268.3	274.6	278.0	279.3	277.1	278.0	279.0
Business supplies	326.7	347.6	348.5	346.3	341.2	340.2	342.6	342.7	341.1	341.4	345.4
Commercial energy products	81.9	92.2	93.2	93.6	91.7	93.6	94.7	95.9	94.9	94.0	95.2

**Table 9**  
**DIFFUSION INDEXES OF INDUSTRIAL PRODUCTION**

Percent

Item	Percent											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>One month earlier</b>												
2000	54.3	55.1	57.2	47.8	50.4	53.6	49.6	41.3	51.4	43.5	44.2	42.8
2001	46.0	36.6	39.9	43.1	41.7	40.9	47.8	43.5	39.5	42.0	38.8	52.2
2002	54.3	56.9	60.1	52.0	61.6							
<b>Three months earlier</b>												
2000	61.2	57.6	59.4	55.4	48.6	51.4	51.4	44.2	38.4	39.1	40.2	38.8
2001	39.5	37.5	36.6	38.0	37.7	37.7	39.1	40.2	41.3	36.6	33.0	39.1
2002	44.7	57.2	56.2	57.6	63.8							
<b>Six months earlier</b>												
2000	63.4	62.0	65.9	59.8	57.6	58.0	53.6	45.3	43.5	41.3	40.2	37.0
2001	35.5	32.6	32.2	30.8	31.9	32.6	30.1	32.6	35.9	30.4	34.1	35.5
2002	39.9	44.6	51.1	51.1	58.3							

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 10**  
**ELECTRIC POWER USE**

1992 = 100

Item	1992 billion kWh	Seasonally adjusted						Not seasonally adjusted					
		2001		2002		2002		2001		2002			
		Dec.	Jan.	Feb.	Mar. <sup>r</sup>	Apr. <sup>r</sup>	May <sup>p</sup>	Dec.	Jan.	Feb.	Mar. <sup>r</sup>	Apr. <sup>r</sup>	May <sup>p</sup>
<b>Total manufacturing and mining</b>	933.2	94.8	95.1	95.7	94.8	94.3	94.5	93.2	92.1	92.3	92.6	93.9	94.3
<b>Manufacturing</b>	853.2	95.1	95.5	96.1	95.2	94.6	95.0	93.2	92.1	92.5	92.9	94.3	94.8
Durable	366.0	96.0	95.6	95.9	95.3	95.6	95.5	92.9	91.5	92.6	93.4	94.8	95.6
Nondurable	487.2	94.4	95.5	96.2	95.2	93.9	94.6	93.5	92.5	92.4	92.5	93.8	94.1
<b>Mining</b>	80.1	90.5	89.1	90.4	88.6	89.1	87.6	92.8	92.2	89.6	88.5	88.8	87.0
Total ex. nuclear nondefense	908.9	96.1	96.0	96.4	95.9	95.4	95.5	93.7	92.5	92.6	92.9	94.4	95.3
Utility sales to industry	835.5	94.7	95.2	95.6	94.2	94.0	93.7	93.0	91.7	92.2	92.3	93.9	94.1
Industrial generation	97.7	93.2	94.8	97.9	95.6	97.7	98.2	95.7	98.6	93.7	96.9	94.2	96.6

NOTE. Additional industry detail is available on the Board's web site, [www.federalreserve.gov/releases/g17/download.htm](http://www.federalreserve.gov/releases/g17/download.htm).

**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>																	
1980	.5	.1	.0	-1.9	-2.5	-1.3	-.6	1.2	1.5	.7	1.6	.5	.8	-15.0	-4.2	14.2	-2.8
1981	-.9	.5	.5	-.7	.8	.6	.9	-.4	-.8	-.8	-1.4	-1.1	1.9	2.2	4.1	-10.5	1.6
1982	-1.6	2.2	-.7	-.9	-.8	-.3	-.8	-.5	-.7	-.8	-.3	-.8	-6.4	-5.2	-7.3	-7.5	-5.4
1983	2.1	-.2	1.0	1.3	1.2	.6	1.8	1.3	1.7	.8	-.1	.5	6.8	11.9	17.3	10.3	3.7
1984	2.1	-.2	1.1	.5	.6	.5	.2	.0	-.1	-.5	.1	-.4	11.1	7.2	2.6	-2.6	8.9
1985	.4	.9	.3	.2	.2	-.2	-.4	.6	.6	-.9	.6	.7	3.0	2.8	.3	1.4	1.6
1986	.6	-.7	-1.0	.8	-.2	-.3	.3	.3	-.1	.9	.5	.9	2.0	-1.7	.7	6.5	1.1
1987	-.6	1.2	.4	.4	.4	.9	.6	.1	-.1	1.4	.3	.6	4.2	6.7	5.6	7.1	4.6
1988	.1	.3	.0	.6	.1	.1	.7	.5	-.4	.3	.8	.5	3.2	3.1	3.9	3.6	4.5
1989	.6	-.8	.9	.2	-.6	-.2	-1.0	.4	-.2	-.5	.4	.5	3.8	.5	-4.4	-.1	1.8
1990	-.5	.5	.5	-.6	.4	.0	.0	.2	.1	-.6	-1.3	-.6	2.0	.6	1.0	-5.8	-.2
1991	-.5	-.8	-.9	.3	.8	1.2	.1	.1	1.0	-.1	-.1	-.6	-8.3	1.5	6.2	1.1	-2.0
1992	.0	.5	.9	.7	.3	-.1	.9	-.3	.4	.5	.6	.0	.6	6.6	3.3	4.4	3.1
1993	.3	.4	.2	.3	-.4	.2	.2	-.2	1.0	.4	.5	.8	3.6	1.5	1.8	6.5	3.4
1994	.2	.3	.8	.6	.7	.5	.3	.4	.2	.8	.6	1.1	5.7	7.6	5.2	7.5	5.5
1995	.5	.0	.1	-.2	.3	.4	-.5	1.3	.4	-.1	.3	.2	5.9	.8	3.6	3.6	4.8
1996	-.3	1.2	-.1	1.0	.7	.7	.2	.6	.5	.0	1.0	.6	2.9	8.4	6.3	5.8	4.6
1997	.4	1.1	.1	.6	.3	.5	.5	1.0	.7	.7	.6	.2	7.7	6.0	7.7	8.2	6.9
1998	.6	.1	.3	.5	.3	-.6	-.2	1.9	-.2	.6	-.4	.0	4.5	3.2	2.8	3.5	5.1
1999	.7	.2	.4	.1	.4	.2	.6	.5	.0	.8	.4	.7	3.6	3.3	4.7	5.8	3.7
2000	.2	.6	.6	.5	.7	.4	-.4	.1	.1	-.4	-.3	-.4	5.8	7.0	.6	-2.6	4.5
2001	-.8	-.3	-.4	-.6	-.3	-.9	.1	-.3	-1.1	-.6	-.3	-.4	-6.1	-5.9	-4.7	-6.7	-3.9
2002	.6	.4	.3	.2	.4	.8							2.6	4.6			
<b>IP (1992=100)</b>																	
2000	143.2	144.0	144.9	145.6	146.6	147.2	146.5	146.7	146.8	146.3	145.8	145.1	144.0	146.5	146.7	145.7	145.7
2001	143.9	143.5	142.9	142.0	141.6	140.3	140.4	140.0	138.5	137.7	137.2	136.7	143.5	141.3	139.6	137.2	140.1
2002	137.6	138.1	138.6	138.9	139.5	140.6							138.1	139.6			
<b>Capacity (percent of 1992 output)</b>																	
2000	174.8	175.4	176.0	176.6	177.2	177.9	178.5	179.0	179.6	180.1	180.6	181.1	175.4	177.2	179.0	180.6	178.1
2001	181.5	181.8	182.2	182.4	182.6	182.8	183.0	183.2	183.3	183.5	183.6	183.8	181.8	182.6	183.2	183.6	182.8
2002	183.9	184.1	184.2	184.4	184.5	184.7							184.1	184.5			
<b>Utilization (percent)</b>																	
1980	84.7	84.6	84.4	82.6	80.4	79.2	78.5	79.3	80.3	80.7	81.8	82.1	84.6	80.7	79.4	81.5	81.5
1981	81.2	81.4	81.6	80.9	81.4	81.8	82.3	81.8	80.9	80.1	78.8	77.7	81.4	81.4	81.7	78.9	80.8
1982	76.3	77.8	77.1	76.2	75.4	75.0	74.2	73.7	73.0	72.2	71.9	71.1	77.1	75.6	73.6	71.7	74.5
1983	72.5	72.3	72.9	73.7	74.5	74.8	76.1	77.0	78.2	78.7	78.6	78.9	72.6	74.4	77.1	78.7	75.7
1984	80.4	80.1	80.8	81.0	81.3	81.5	81.5	81.3	81.0	80.5	80.4	79.8	80.4	81.3	81.3	80.2	80.8
1985	79.9	80.4	80.4	80.3	80.3	79.9	79.4	79.6	79.9	79.0	79.2	79.5	80.2	80.2	79.6	79.2	79.8
1986	79.8	79.2	78.2	78.7	78.4	78.1	78.2	78.3	78.2	78.8	79.1	79.7	79.1	78.4	78.2	79.2	78.7
1987	79.1	80.0	80.2	80.5	80.7	81.4	81.8	81.8	81.6	82.6	82.8	83.2	79.8	80.8	81.7	82.9	81.3
1988	83.2	83.4	83.3	83.7	83.7	83.6	84.1	84.5	84.1	84.2	84.8	85.1	83.3	83.7	84.2	84.7	84.0
1989	85.4	84.6	85.3	85.3	84.7	84.4	83.4	83.6	83.3	82.8	83.0	83.2	85.1	84.8	83.4	83.0	84.1
1990	82.7	83.0	83.3	82.7	82.9	82.7	82.6	82.6	82.6	82.0	80.8	80.2	83.0	82.8	82.6	81.0	82.3
1991	79.6	78.9	78.1	78.2	78.7	79.6	79.5	79.5	80.2	80.0	79.8	79.2	78.9	78.8	79.7	79.6	79.3
1992	79.0	79.3	79.8	80.3	80.3	80.1	80.7	80.3	80.4	80.7	81.0	80.9	79.4	80.2	80.5	80.9	80.2
1993	81.1	81.3	81.2	81.4	80.9	80.9	81.0	80.6	81.3	81.4	81.6	82.1	81.2	81.1	81.0	81.7	81.2
1994	82.1	82.1	82.6	82.8	83.1	83.3	83.3	83.4	83.3	83.6	83.8	84.4	82.3	83.1	83.3	84.0	83.2
1995	84.5	84.2	83.9	83.4	83.3	83.3	82.5	83.2	83.2	82.8	82.7	82.5	84.2	83.3	83.0	82.7	83.3
1996	81.9	82.5	82.0	82.5	82.7	82.9	82.7	82.9	83.0	82.6	83.0	83.1	82.1	82.7	82.9	82.9	82.7
1997	83.1	83.6	83.3	83.4	83.3	83.3	83.2	83.6	83.7	83.8	83.9	83.6	83.3	83.3	83.5	83.8	83.5
1998	83.6	83.1	82.9	82.9	82.7	81.8	81.2	82.4	81.8	82.0	81.3	81.1	83.2	82.5	81.8	81.5	82.2
1999	81.3	81.2	81.3	81.1	81.2	81.2	81.4	81.5	81.3	81.7	81.7	82.0	81.3	81.2	81.4	81.8	81.4
2000	81.9	82.1	82.3	82.5	82.7	82.8	82.1	81.9	81.7	81.2	80.7	80.2	82.1	82.6	81.9	80.7	81.8
2001	79.3	78.9	78.5	77.8	77.5	76.7	76.7	76.4	75.5	75.0	74.7	74.4	78.9	77.4	76.2	74.7	76.8
2002	74.8	75.0	75.2	75.3	75.6	76.1							75.0	75.7			

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**

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
<b>IP (percent change)</b>																	
1980	.2	.3	-.4	-2.1	-3.1	-1.5	-.7	1.7	1.5	1.1	1.7	.3	-.4	-17.7	-4.7	16.8	-3.9
1981	-.6	.6	.3	.2	.7	-.1	.6	-.8	-.8	-1.1	-1.6	-1.6	2.5	4.2	-.1	-13.1	1.6
1982	-2.0	2.9	-.7	-.9	-.4	.0	-.8	-.5	-.5	-1.2	-.3	-.7	-7.6	-2.7	-5.6	-8.0	-5.9
1983	2.5	.4	1.4	1.1	1.4	.8	1.5	1.1	2.2	.6	.3	-.1	11.5	14.7	17.1	11.2	5.7
1984	2.5	.6	.7	.5	.4	.7	.3	.1	-.2	.0	.1	-.3	13.2	6.6	3.4	-.4	9.9
1985	.1	.6	.7	.2	.5	-.3	-.4	.9	.4	-.8	1.1	-.1	2.1	4.2	1.1	1.6	2.3
1986	1.5	-.5	-.9	1.4	-.1	-.3	.3	.6	.0	.8	.4	1.2	4.5	1.7	1.7	6.7	2.8
1987	-.8	1.6	.2	.5	.3	1.0	.7	-.2	.1	1.3	.5	.6	5.0	7.0	5.5	7.6	5.3
1988	-.2	.4	-.1	1.0	-.1	.0	.7	.3	.2	.2	.9	.6	2.3	4.1	3.7	5.2	4.7
1989	.9	-1.2	.8	.1	-.7	.0	-1.1	.3	-.3	-.6	.4	.1	4.3	-.7	-4.5	-1.4	1.9
1990	-.2	.9	.3	-.8	.4	-.1	.0	.3	-.1	-.6	-1.3	-.6	2.9	-.1	.8	-6.3	-.5
1991	-.9	-.7	-1.1	.3	.7	1.4	.2	.2	1.1	-.1	-.2	-.5	-9.7	1.2	7.8	1.7	-2.4
1992	.1	.7	1.0	.6	.4	.0	.9	-.3	.3	.5	.6	-.1	2.0	7.4	4.1	3.7	4.0
1993	.7	.2	.2	.5	-.3	.0	.2	-.3	1.1	.4	.5	.9	4.2	2.1	1.3	6.9	3.7
1994	.1	.4	1.1	.8	.8	.3	.5	.6	.3	.9	.8	1.1	5.9	9.4	6.0	9.0	6.1
1995	.6	-.1	.2	-.3	.1	.5	-.7	1.2	.7	.0	.1	.1	6.4	.4	3.0	4.2	5.3
1996	-.3	1.2	-.2	1.2	.8	.9	.6	.6	.6	.0	1.0	.7	2.4	9.2	8.4	6.2	4.9
1997	.4	1.2	.3	.5	.4	.7	.4	1.3	.6	.6	.7	.3	8.8	6.8	8.9	8.7	7.9
1998	.9	.0	.2	.7	.2	-.7	-.2	2.3	-.2	.8	-.2	.2	6.0	3.0	3.2	5.2	5.9
1999	.6	.4	.2	.2	.6	.1	.4	.8	.0	.8	.6	.6	3.9	3.6	4.8	6.9	4.2
2000	.3	.5	.9	.3	.7	.5	-.4	-.1	.1	-.5	-.5	-.7	6.3	7.1	.4	-4.0	4.8
2001	-.8	-.3	-.4	-.8	-.2	-1.0	.2	-.5	-1.1	-.5	-.1	-.3	-7.1	-6.2	-4.9	-6.3	-4.4
2002	.7	.2	.4	.1	.5	.7							3.0	4.2			
<b>IP (1992=100)</b>																	
2000	149.0	149.8	151.1	151.6	152.6	153.3	152.7	152.6	152.8	152.0	151.2	150.1	149.9	152.5	152.7	151.1	151.6
2001	148.9	148.4	147.9	146.7	146.4	145.0	145.2	144.5	142.9	142.1	142.0	141.6	148.4	146.0	144.2	141.9	144.8
2002	142.6	142.9	143.4	143.5	144.3	145.4							142.9	144.4			
<b>Capacity (percent of 1992 output)</b>																	
2000	183.8	184.6	185.4	186.1	186.9	187.7	188.4	189.1	189.8	190.4	191.0	191.5	184.6	186.9	189.1	191.0	187.9
2001	192.0	192.4	192.7	193.0	193.2	193.4	193.5	193.6	193.8	193.9	194.0	194.2	192.3	193.2	193.6	194.0	193.3
2002	194.3	194.4	194.6	194.8	194.9	195.1							194.4	194.9			
<b>Utilization (percent)</b>																	
1980	83.3	83.3	82.7	80.8	78.1	76.7	75.9	77.0	77.9	78.6	79.7	79.7	83.1	78.5	76.9	79.3	79.5
1981	79.0	79.2	79.3	79.3	79.6	79.3	79.6	78.8	78.0	77.0	75.6	74.2	79.2	79.4	78.8	75.6	78.3
1982	72.6	74.6	73.9	73.1	72.7	72.6	71.8	71.4	70.9	69.9	69.6	69.0	73.7	72.8	71.4	69.5	71.8
1983	70.6	70.8	71.8	72.5	73.4	73.9	74.8	75.6	77.2	77.6	77.7	77.5	71.1	73.2	75.9	77.6	74.4
1984	79.3	79.5	79.8	80.0	80.1	80.3	80.4	80.2	79.8	79.6	79.5	79.0	79.5	80.1	80.1	79.4	79.8
1985	78.9	79.1	79.3	79.2	79.4	78.9	78.3	78.8	78.8	77.9	78.5	78.2	79.1	79.2	78.6	78.2	78.8
1986	79.1	78.6	77.8	78.7	78.5	78.1	78.2	78.6	78.4	78.9	79.1	79.9	78.5	78.5	78.4	79.3	78.7
1987	79.1	80.2	80.3	80.6	80.7	81.4	81.8	81.5	81.5	82.5	82.8	83.1	79.9	80.9	81.6	82.8	81.3
1988	82.9	83.1	82.9	83.7	83.5	83.4	83.8	84.0	84.0	84.1	84.8	85.1	83.0	83.5	83.9	84.7	83.8
1989	85.7	84.5	85.0	85.0	84.2	84.1	83.0	83.1	82.7	82.1	82.2	82.1	85.1	84.4	82.9	82.1	83.6
1990	81.8	82.5	82.6	81.8	82.0	81.8	81.6	81.7	81.5	80.9	79.7	79.0	82.3	81.9	81.6	79.9	81.4
1991	78.2	77.5	76.6	76.8	77.1	78.1	78.2	78.2	79.0	78.9	78.6	78.1	77.5	77.3	78.5	78.5	77.9
1992	78.0	78.4	79.0	79.4	79.5	79.4	80.0	79.6	79.7	79.9	80.2	80.0	78.5	79.4	79.8	80.0	79.4
1993	80.4	80.4	80.4	80.6	80.2	80.0	80.1	79.7	80.4	80.5	80.7	81.2	80.4	80.3	80.0	80.8	80.4
1994	81.1	81.1	81.8	82.2	82.5	82.5	82.6	82.8	82.7	83.1	83.4	84.0	81.3	82.4	82.7	83.5	82.5
1995	84.1	83.7	83.5	82.9	82.6	82.6	81.7	82.3	82.5	82.1	81.8	81.5	83.8	82.7	82.1	81.8	82.6
1996	80.9	81.4	80.8	81.3	81.5	81.8	81.9	82.0	82.1	81.7	82.1	82.2	81.0	81.6	82.0	82.0	81.6
1997	82.1	82.7	82.5	82.5	82.4	82.5	82.4	83.0	83.0	83.0	83.0	82.7	82.5	82.5	82.8	82.9	82.7
1998	83.0	82.4	82.1	82.2	81.8	80.8	80.1	81.5	80.9	81.2	80.6	80.4	82.5	81.6	80.9	80.7	81.4
1999	80.5	80.6	80.4	80.3	80.5	80.3	80.3	80.7	80.5	80.8	81.0	81.1	80.5	80.4	80.5	81.0	80.6
2000	81.0	81.1	81.5	81.4	81.6	81.7	81.0	80.7	80.5	79.8	79.2	78.4	81.2	81.6	80.7	79.1	80.7
2001	77.6	77.2	76.7	76.0	75.8	75.0	75.1	74.6	73.7	73.3	73.2	72.9	77.2	75.6	74.5	73.1	75.1
2002	73.4	73.5	73.7	73.7	74.0	74.5							73.5	74.1			

NOTE. See note to table 11.

Table 13

**HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Total Industry Excluding Selected High-Technology Industries**

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
<b>IP (percent change)</b>																	
1980	.3	.0	-.1	-2.2	-2.7	-1.3	-.8	1.2	1.6	.6	1.6	.5	-.7	-16.6	-4.9	13.8	-4.0
1981	-.9	.4	.4	-.8	.8	.5	.9	-.5	-1.0	-.8	-1.6	-1.4	1.3	1.1	3.2	-11.8	.8
1982	-1.6	2.0	-.8	-.9	-.9	-.4	-1.0	-.4	-1.0	-1.0	-.3	-1.2	-7.7	-5.8	-8.2	-9.1	-6.5
1983	2.5	-.4	.8	1.2	1.2	.4	1.8	1.4	1.6	.6	-.2	.5	6.9	10.6	16.8	8.7	2.8
1984	1.9	-.3	1.0	.4	.4	.3	.1	-.1	-.2	-.5	.0	-.5	9.7	5.3	1.0	-3.5	7.5
1985	.3	.9	.2	.1	.2	-.1	-.5	.6	.7	-.8	.3	.7	2.3	2.5	.5	1.0	.9
1986	.7	-.8	-1.1	.8	-.3	-.2	.0	.2	-.2	1.0	.4	1.0	1.7	-1.8	-.6	6.3	.8
1987	-.8	1.2	.3	.4	.5	.8	.5	.1	-.2	1.3	.3	.5	3.5	6.8	5.0	6.5	4.2
1988	.1	.2	.1	.4	-.2	.1	.6	.5	-.3	.4	.6	.5	2.8	1.8	3.3	3.5	3.9
1989	.5	-.7	.9	.1	-.7	-.3	-.9	.4	-.3	-.3	.2	.3	3.5	-.3	-4.8	-.4	1.4
1990	-.4	.5	.5	-.5	.3	-.1	.0	.1	.2	-.6	-1.4	-.7	1.7	.6	.7	-6.4	-.5
1991	-.5	-.9	-1.0	.4	.8	1.2	.1	.0	1.0	-.2	-.2	-.7	-8.8	1.4	6.1	.4	-2.4
1992	-.3	.5	.8	.7	.2	-.3	.8	-.4	.3	.4	.5	.1	-.9	5.8	2.2	3.3	2.2
1993	.4	.4	.1	.3	-.5	.2	.2	-.3	.9	.3	.4	.7	3.5	.8	1.0	5.3	2.7
1994	.2	.3	.6	.3	.5	.4	.2	.3	.1	.6	.5	.8	4.8	5.5	3.3	5.3	4.1
1995	.2	-.2	-.1	-.4	.1	.3	-.6	1.1	.1	-.4	.1	.0	2.8	-1.4	1.4	.3	2.4
1996	-.5	1.1	-.3	.8	.5	.5	-.1	.3	.3	-.3	.8	.4	.6	6.1	3.2	2.8	2.0
1997	.2	.9	-.2	.4	.1	.3	.2	.8	.6	.6	.3	-.2	4.9	2.8	5.0	6.1	4.1
1998	.2	-.2	.3	.5	.2	-.9	-.6	1.8	-.5	.5	-.5	-.2	.7	1.9	-.4	1.3	2.5
1999	.4	.0	.2	-.1	.3	-.1	.2	.4	-.1	.6	.1	.3	.7	.8	2.1	3.7	1.1
2000	-.2	.3	.2	.2	.3	.3	-.7	.0	-.1	-.5	-.4	-.5	1.2	2.8	-2.0	-3.9	1.3
2001	-.7	-.2	-.3	-.4	-.1	-.8	.3	-.3	-1.1	-.7	-.3	-.5	-5.4	-3.9	-3.3	-7.3	-3.9
2002	.5	.2	.3	.1	.3	.7							1.3	3.2			
<b>IP (1992=100)</b>																	
2000	121.7	122.0	122.3	122.5	122.9	123.2	122.3	122.3	122.2	121.6	121.1	120.5	122.0	122.8	122.2	121.0	122.0
2001	119.6	119.4	119.1	118.6	118.5	117.6	117.9	117.6	116.3	115.5	115.1	114.6	119.4	118.2	117.2	115.0	117.3
2002	115.1	115.4	115.7	115.8	116.1	117.0							115.4	116.3			
<b>Capacity (percent of 1992 output)</b>																	
2000	149.2	149.3	149.4	149.5	149.6	149.7	149.7	149.8	149.9	150.0	150.1	150.2	149.3	149.6	149.8	150.1	149.7
2001	150.2	150.3	150.4	150.5	150.5	150.6	150.7	150.7	150.8	150.9	150.9	151.0	150.3	150.5	150.7	150.9	150.6
2002	151.0	151.1	151.1	151.1	151.2	151.2							151.1	151.2			
<b>Utilization (percent)</b>																	
1980	84.4	84.3	84.1	82.1	79.8	78.7	78.0	78.8	80.0	80.4	81.6	81.8	84.3	80.2	78.9	81.3	81.2
1981	81.0	81.2	81.5	80.7	81.3	81.6	82.2	81.6	80.7	79.9	78.5	77.3	81.2	81.2	81.5	78.6	80.6
1982	76.0	77.4	76.7	75.9	75.1	74.7	73.9	73.5	72.6	71.8	71.5	70.5	76.7	75.2	73.3	71.3	74.1
1983	72.3	72.0	72.6	73.4	74.2	74.5	75.8	76.8	78.0	78.4	78.2	78.6	72.3	74.0	76.9	78.4	75.4
1984	80.0	79.7	80.4	80.6	80.8	81.0	80.9	80.7	80.5	80.0	79.9	79.3	80.1	80.8	80.7	79.7	80.3
1985	79.5	80.0	80.1	80.0	80.0	79.8	79.3	79.6	80.0	79.1	79.2	79.6	79.9	79.9	79.6	79.3	79.7
1986	80.1	79.4	78.5	79.0	78.7	78.5	78.4	78.5	78.3	79.0	79.3	80.0	79.3	78.7	78.4	79.4	79.0
1987	79.4	80.2	80.5	80.8	81.1	81.7	82.1	82.2	81.9	83.0	83.2	83.5	80.0	81.2	82.1	83.2	81.6
1988	83.6	83.7	83.7	84.0	83.8	83.9	84.3	84.6	84.3	84.6	85.0	85.3	83.7	83.9	84.4	85.0	84.2
1989	85.7	85.0	85.6	85.6	84.9	84.6	83.6	83.9	83.5	83.2	83.3	83.4	85.4	85.0	83.7	83.3	84.4
1990	83.0	83.3	83.7	83.1	83.3	83.1	83.0	83.0	83.0	82.4	81.1	80.5	83.3	83.2	83.0	81.4	82.7
1991	80.0	79.2	78.4	78.6	79.1	80.0	80.0	79.9	80.6	80.4	80.2	79.5	79.2	79.2	80.2	80.0	79.7
1992	79.2	79.5	80.1	80.5	80.6	80.3	80.9	80.4	80.5	80.8	81.0	81.0	79.6	80.5	80.6	80.9	80.4
1993	81.2	81.4	81.4	81.5	81.0	81.0	81.1	80.8	81.4	81.5	81.8	82.2	81.3	81.2	81.1	81.8	81.3
1994	82.2	82.3	82.7	82.8	83.1	83.3	83.3	83.3	83.2	83.5	83.7	84.2	82.4	83.1	83.3	83.8	83.1
1995	84.2	83.9	83.6	83.1	83.1	83.1	82.4	83.2	83.1	82.6	82.5	82.3	83.9	83.1	82.9	82.5	83.1
1996	81.7	82.4	82.0	82.5	82.8	83.0	82.8	82.9	83.0	82.6	83.1	83.2	82.1	82.8	82.9	83.0	82.7
1997	83.2	83.7	83.3	83.5	83.3	83.3	83.3	83.7	84.0	84.2	84.2	83.8	83.4	83.4	83.7	84.1	83.6
1998	83.7	83.2	83.2	83.3	83.2	82.2	81.4	82.6	82.0	82.2	81.5	81.1	83.4	82.9	82.0	81.6	82.5
1999	81.3	81.2	81.2	81.0	81.1	80.9	81.1	81.3	81.1	81.6	81.6	81.8	81.2	81.0	81.2	81.7	81.3
2000	81.6	81.8	81.8	81.9	82.2	82.3	81.7	81.6	81.5	81.1	80.7	80.2	81.7	82.1	81.6	80.7	81.5
2001	79.6	79.5	79.2	78.8	78.7	78.1	78.3	78.0	77.1	76.6	76.3	75.9	79.4	78.5	77.8	76.2	78.0
2002	76.2	76.4	76.6	76.6	76.8	77.4							76.4	77.0			

NOTE. Excluded industries are computers, communications equipment, and semiconductors and related electronic components. See also note to table 11.

**Table 14****HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Manufacturing Excluding Selected High-Technology Industries**

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
<b>IP (percent change)</b>																	
1980	.0	.1	-.6	-2.4	-3.4	-1.5	-.9	1.7	1.6	1.0	1.7	.2	-2.3	-19.9	-5.6	16.5	-5.4
1981	-.6	.4	.2	.1	.7	-.3	.5	-.9	-1.1	-1.2	-1.8	-2.0	1.8	2.8	-1.7	-15.0	.5
1982	-2.1	2.7	-.8	-.9	-.5	-.1	-1.0	-.3	-.9	-1.4	-.4	-1.1	-9.4	-3.4	-6.7	-10.2	-7.4
1983	3.1	.3	1.3	1.0	1.4	.6	1.5	1.1	2.1	.4	.1	-.1	12.1	13.2	16.3	9.1	4.7
1984	2.3	.4	.6	.3	.1	.5	.2	-.1	-.3	.0	.0	-.4	11.6	4.0	1.4	-1.3	8.1
1985	.0	.6	.6	.1	.5	-.1	-.5	.9	.4	-.8	.8	-.1	1.2	4.0	1.4	1.1	1.5
1986	1.6	-.6	-1.0	1.5	-.2	-.1	-.1	.6	-.1	.9	.3	1.3	4.4	1.9	.3	6.6	2.5
1987	-1.0	1.6	.1	.6	.4	.9	.6	-.2	.0	1.3	.5	.5	4.1	7.1	4.8	6.9	4.8
1988	-.2	.2	.1	.8	-.4	.0	.6	.1	.3	.4	.8	.5	1.8	2.6	2.9	5.3	4.0
1989	.9	-1.1	.8	.0	-.7	-.1	-1.0	.3	-.3	-.4	.2	-.1	4.1	-1.7	-5.0	-1.8	1.4
1990	-.1	.9	.4	-.7	.4	-.2	.1	.2	.0	-.7	-1.4	-.7	2.7	-.1	.4	-7.1	-.9
1991	-.8	-.8	-1.2	.4	.7	1.5	.2	.1	1.2	-.2	-.3	-.6	-10.3	1.0	7.8	1.0	-2.8
1992	-.2	.6	.9	.6	.3	-.1	.8	-.4	.2	.3	.5	-.1	.1	6.4	2.8	2.3	2.9
1993	.8	.1	.1	.5	-.4	-.1	.2	-.4	1.0	.3	.5	.7	4.0	1.3	.3	5.6	2.8
1994	.0	.4	.8	.6	.6	.1	.4	.4	.1	.7	.6	.8	4.8	7.0	3.8	6.5	4.6
1995	.3	-.4	-.1	-.5	-.1	.4	-.9	1.0	.4	-.4	-.1	-.1	2.8	-2.1	.5	.4	2.5
1996	-.5	1.0	-.5	1.0	.5	.7	.3	.3	.3	-.4	.8	.5	-.4	6.7	4.9	2.6	1.9
1997	.2	.9	-.1	.3	.1	.5	.1	1.1	.5	.6	.4	-.1	5.7	3.1	5.7	6.3	4.6
1998	.5	-.3	.2	.6	.1	-1.0	-.7	2.1	-.5	.7	-.4	-.1	1.7	1.4	-.4	2.8	2.9
1999	.3	.2	.0	-.1	.5	-.2	.0	.7	-.1	.6	.4	.2	.6	.8	1.8	4.5	1.4
2000	-.2	.1	.4	-.1	.2	.3	-.7	-.3	.0	-.6	-.7	-.8	1.0	2.2	-2.5	-5.6	1.1
2001	-.7	-.2	-.3	-.5	.0	-.8	.5	-.5	-1.1	-.7	-.1	-.3	-6.3	-3.9	-3.2	-6.9	-4.6
2002	.6	-.1	.3	.0	.4	.6							1.5	2.6			
<b>IP (1992=100)</b>																	
2000	123.9	124.1	124.6	124.5	124.8	125.2	124.3	124.0	123.9	123.2	122.4	121.3	124.2	124.9	124.1	122.3	123.9
2001	120.5	120.4	120.0	119.4	119.4	118.5	119.0	118.4	117.0	116.3	116.1	115.7	120.3	119.1	118.1	116.1	118.2
2002	116.4	116.4	116.7	116.7	117.1	117.9							116.5	117.2			
<b>Capacity (percent of 1992 output)</b>																	
2000	153.8	153.9	154.1	154.2	154.3	154.5	154.6	154.7	154.8	154.9	155.0	155.0	153.9	154.3	154.7	155.0	154.5
2001	155.1	155.2	155.2	155.2	155.3	155.3	155.3	155.3	155.3	155.4	155.4	155.4	155.1	155.3	155.3	155.4	155.3
2002	155.4	155.5	155.5	155.5	155.5	155.5							155.5	155.5			
<b>Utilization (percent)</b>																	
1980	82.8	82.8	82.2	80.1	77.2	75.9	75.1	76.3	77.4	78.0	79.2	79.2	82.6	77.8	76.3	78.8	78.8
1981	78.6	78.8	78.9	78.8	79.3	78.9	79.2	78.4	77.5	76.5	75.0	73.4	78.8	79.0	78.4	75.0	77.8
1982	71.9	73.8	73.2	72.5	72.0	71.9	71.1	70.9	70.2	69.2	68.8	68.0	72.9	72.1	70.7	68.7	71.1
1983	70.1	70.3	71.2	71.9	72.9	73.3	74.4	75.2	76.8	77.0	77.1	77.0	70.5	72.7	75.5	77.1	73.9
1984	78.7	79.0	79.3	79.4	79.3	79.6	79.6	79.4	79.0	78.9	78.8	78.4	79.0	79.4	79.3	78.7	79.1
1985	78.2	78.5	78.8	78.7	78.9	78.7	78.1	78.7	78.8	78.0	78.5	78.2	78.5	78.8	78.5	78.2	78.5
1986	79.4	78.8	78.0	79.0	78.8	78.6	78.4	78.8	78.6	79.2	79.3	80.2	78.7	78.8	78.6	79.6	78.9
1987	79.3	80.5	80.5	80.9	81.1	81.8	82.2	82.0	81.9	82.9	83.2	83.6	80.1	81.3	82.0	83.2	81.7
1988	83.3	83.5	83.4	84.0	83.6	83.6	84.1	84.1	84.3	84.5	85.1	85.4	83.4	83.8	84.2	85.0	84.1
1989	86.1	85.0	85.5	85.3	84.5	84.3	83.2	83.4	82.9	82.5	82.5	82.3	85.5	84.7	83.2	82.4	83.9
1990	82.1	82.8	83.0	82.3	82.4	82.1	82.1	82.1	81.9	81.3	80.0	79.3	82.6	82.3	82.0	80.2	81.8
1991	78.5	77.8	76.8	77.0	77.5	78.5	78.6	78.6	79.5	79.3	78.9	78.4	77.7	77.7	78.9	78.9	78.3
1992	78.2	78.6	79.2	79.6	79.7	79.6	80.1	79.7	79.8	79.9	80.1	80.0	78.7	79.6	79.9	80.0	79.5
1993	80.5	80.4	80.4	80.7	80.3	80.1	80.2	79.7	80.5	80.5	80.8	81.3	80.5	80.4	80.1	80.9	80.5
1994	81.1	81.3	81.8	82.1	82.5	82.4	82.5	82.7	82.6	83.0	83.3	83.8	81.4	82.3	82.6	83.3	82.4
1995	83.8	83.3	83.0	82.5	82.3	82.4	81.5	82.1	82.2	81.7	81.4	81.2	83.4	82.4	81.9	81.4	82.3
1996	80.6	81.2	80.6	81.3	81.5	81.8	81.9	82.0	82.0	81.5	82.0	82.2	80.8	81.5	82.0	81.9	81.6
1997	82.2	82.8	82.5	82.5	82.3	82.5	82.4	83.0	83.1	83.3	83.4	82.9	82.5	82.5	82.8	83.2	82.7
1998	83.0	82.5	82.3	82.5	82.2	81.1	80.3	81.7	81.0	81.3	80.7	80.4	82.6	81.9	81.0	80.8	81.6
1999	80.4	80.4	80.2	80.0	80.3	80.0	79.9	80.3	80.2	80.6	80.8	80.8	80.4	80.1	80.1	80.7	80.3
2000	80.6	80.6	80.9	80.8	80.9	81.1	80.4	80.1	80.1	79.5	79.0	78.3	80.7	80.9	80.2	78.9	80.2
2001	77.7	77.6	77.4	76.9	76.9	76.3	76.6	76.2	75.3	74.8	74.7	74.5	77.5	76.7	76.1	74.7	76.3
2002	74.9	74.8	75.1	75.0	75.3	75.8							74.9	75.4			

NOTE. See note to table 13.

## Explanatory Note

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. The release also includes monthly indexes on the use of electric power in manufacturing and mining. Files containing data shown in the release, along with more detailed series that were published in the G.17 prior to February 2001 and historical data for all published series, are available at the Federal Reserve Board web site ([www.federalreserve.gov/releases/G17](http://www.federalreserve.gov/releases/G17)). 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 base year for the index is 1992. For the period since 1997, the total IP index has been constructed from 276 individual series based on the 1987 Standard Industrial Classification (SIC) 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 intermediate products, which are inputs to nonindustrial sectors. Materials are inputs in the manufacture of products. Major industry groups include two-digit SIC industries and aggregates of these industries—for example, durable and nondurable manufacturing, mining, and utilities. Changes in output for the market and industry groups are summarized in table 1, and the levels of output (in index form) are 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. 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.htm](http://www.federalreserve.gov/releases/G17/About.htm)).

**Source data.** On a monthly basis, the individual IP indexes 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, the most notable include semiconductors and computers, are derived by calculating a monthly real output index. These indexes are developed from very detailed product data (unit production or sales and unit value). Where suitable data on physical product are not available, estimates of output are based on either production-worker hours or electric power use by industry. Data on hours worked by production workers are collected in the monthly establishment survey conducted by the Bureau of Labor Statistics. The data on electric power use are described below. 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 to benchmark the individual IP indexes are constructed from various 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 method and weights.** The aggregation method for the current IP index is a version of the Fisher-ideal index formula. The weights used to combine the individual industry output indexes are monthly unit value added measures ("or prices"), which are derived from annual data on industry value added. The formula for the change in monthly IP (or a monthly IP sub-aggregate) is the geometric mean of the change in output computed using current month weights and the change computed using weights for the previous month:

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

where  $I_m$  is an individual production index for a month and  $p_m$  is the unit value added in month  $m$ . (For further discussion and information on the variant of this formula that was used from 1977 to 1992, see the *Federal Reserve Bulletin* article issued in February 1997.)

The Federal Reserve Board web site provides supplemental monthly statistics on the relative importance weights for published IP series: ([www.federalreserve.gov/releases/G17/ipdisk/ipweights.sa](http://www.federalreserve.gov/releases/G17/ipdisk/ipweights.sa)). These weights are the exact proportionate contribution of a monthly percentage change in a component index to the monthly percentage change in the total index. The weights are computed after IP is derived according to the formula given above and are provided to assist users of the index with calculations and interpretation of current developments. For example, if the relative importance weight of the motor vehicles and parts industry is 5 percent for a month, and if output in this industry increased 10 percent, then the gain in motor vehicle output would boost the change in total IP by ½ percentage point ( $0.05 \times 10\% = 0.5\%$ ).

In addition, annual IP proportions for the most recent full year (approximately the value added by an industry divided by the total value of all industries in the industrial sector) are typically in the first column of the relevant tables in the G.17 release. These may be used to estimate an industry's relative contribution to overall IP growth in the current year.

**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 the tables) and subject to revision in each of the subsequent three months as new source data become available. (Revised estimates are denoted by the superscript "r" in the tables.)

**Data availability.** For the first estimate of output for a given month, about 50 percent of the source data (in value-added terms) are available; the fraction of available source data increases to about 85 percent for the second month that the estimate is published, 95 percent in the third month, and 96 percent in the fourth month. Data availability by data type is summarized in the table below.

Until the source data for a particular series become available for a given month, estimates for the missing observations are based on other available data, such as labor input, recent trends in output and orders, and anecdotal reports from industry sources. After the fourth month that an IP estimate is published, indexes are not revised further until an annual revision or benchmark revision. These historical revisions are typically published in the late fall of each year; the most recent revision was published on November 27, 2001, and incorporated revised source data as well as data from the 1999 *Annual Survey of Manufactures*.

**Availability of Monthly IP Data in Publication Window**  
(Percent of value added in 2001)

Type of data	Month of estimate			
	1st	2nd	3rd	4th
Physical product	24	37	47	48
Production-worker hours	26	26	26	26
Electric power use	0	22	22	22
IP data received	50	85	95	96
IP data estimated	50	15	5	4

NOTE—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 (24 percent out of total of 48 percent). Of the 24 percent, about two-thirds (15 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. About 4 percent of the source data for monthly IP—all physical product measures—are available too late for direct inclusion in the current index and are incorporated at the time of an annual historical revision.

**Seasonal adjustment.** Individual series are seasonally adjusted using the Census X-12 ARIMA program. For series based on production-worker hours, the current seasonal factors were estimated with data through October 2001; for other series, the factors were estimated with data through at least June 2001. Series are pre-adjusted for the effects of holidays or the business cycle when appropriate. For the data since 1977, 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 0.28 percent during the 1987–2001 period. The average revision to the *percent change* in total IP, without regard to sign, from the first to the fourth estimates was 0.22 percentage point during the 1987–2001 period. In most cases (about 84 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 percentage changes are calculated from unrounded indexes and may not be the same as changes calculated from the rounded indexes in the release.

**Capacity Utilization**

**Overview.** Estimates of capacity and capacity utilization are constructed 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 FRB’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 76 detailed industries (56 in manufacturing, 18 in mining, and 2 in utilities), which mostly correspond to industries at the two- and three-digit SIC level. Estimates of capacity and utilization are available for various groups, including primary- and advanced-processing industries within manufacturing, durable and nondurable manufacturing, total manufacturing, mining, utilities, and total industry. Also, special aggregates are available, such as high-tech industries and manufacturing excluding high-tech industries. Component industries of the primary- and advanced-processing groups

within manufacturing are listed in the note in table 2 of the G.17 release.

**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. 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 (for example, paper, industrial chemicals, petroleum refining, and motor vehicles), as well as for electric utilities and mining; these industries represent about 15 percent of total industrial capacity. When physical product data are unavailable for manufacturing industries, capacity indexes are based on the Bureau of the Census’s *Survey of Plant Capacity* (SPC); these industries account for a bit more than 80 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 method.** 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.** The Federal Reserve utilization rates are calculated to be consistent over time so that, for example, a rate of 85 percent represents about the same degree of tightness that it did 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 IP 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 survey of large companies 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 the two surveys 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 1967–2001 period, the average total industry utilization rate is 81.9 percent; for manufacturing, the average factory operating rate is 80.9 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 in table 6 of the G.17 release are specific to each series and did not all occur in the same month.

**Electric Power**

**Coverage.** Electric power data for sales by utilities to industry users and for electric power produced by cogenerators (manufacturing and mining firms that produce electricity for their own use or to sell to a utility) are generally collected at the three-digit SIC level for mining and manufacturing. Aggregates for two-digit industries—as well as for total mining, durable, nondurable, total manufacturing and total industrial electric power use—are computed. An aggregate showing total industry excluding nuclear nondefense is shown separately because the value-added proportion for the nondefense (part of SIC 2819) in total IP is considerably less than its share of total electric power use. In addition, aggregates for utility sales to industrial users and for industry generation are computed. While only the major aggregates are shown in the release,



data for the two- and three-digit industries are available on the Board's web site ([www.federalreserve.gov/releases/G17](http://www.federalreserve.gov/releases/G17)).

**Source data.** Electric power data are collected from a sample of utilities and cogenerators covering all twelve Federal Reserve Districts. The primary criterion for inclusion of a utility in the panel is whether the utility provides electric power to industrial customers. A comparison of Federal Reserve kilowatt-hour aggregates to estimates from the 1998 *Annual Survey of Manufactures* suggests the Federal Reserve data cover about 75 percent of the overall sales to manufacturing in that year. The cogeneration panel covers about 50 percent of cogeneration used directly by manufacturers. In order to provide more complete coverage and to correct for any survey shortcomings, the series are benchmarked at the three-digit industry level to the latest available data from the *Annual Survey of Manufactures* and the *Census of Manufactures*.

**Methodology.** The data we receive from utilities and cogenerators are edited for anomalies and aggregated by weight to the three-digit SIC industry level and above. Where reports are late or unavailable for some reason, responses are estimated.

**Seasonal Adjustment.** Series are seasonally adjusted at the three-digit SIC level, with seasonally adjusted aggregates typically computed as sums of seasonally adjusted components. The seasonal adjustment procedure (Census's X-12 program) is used without trading-day adjustments because the reporting periods of the various utilities are not the same. A leap-year adjustment is made where appropriate.

#### Description of Tables.

**Table 1** summarizes the latest changes in output for the major market and industry groupings. Fourth-quarter to fourth-quarter changes for the past three years are shown. Output changes expressed at an annual rate for the past four quarters as well as monthly changes for the latest four months are shown. In addition, year-over-year changes are displayed for the latest IP month.

**Table 2**, which is in the same format as table 1, summarizes the latest changes in output for a special group of aggregates that have been constructed for analytical purposes. The total index is sub-divided into two broad categories: an energy group, which includes consumer energy products, commercial energy products, energy materials, and oil and gas well drilling, and a non-energy group, which includes the remaining portion of the total index. Within the non-energy aggregate, several other analytically useful categories are shown. One of these is a group of high-technology industries, which is composed of semiconductors and related electronic components, and industries that use a large concentration of these parts—computers and communication equipment. Other sub-groups of the market and industry structures excluding this high-technology group and motor vehicles and parts are shown.

**Table 3** displays motor vehicle assemblies (seasonally adjusted annual rate) for the latest year, four quarters, and four months. Seasonal factors for auto, light truck, and medium and heavy truck production are available on the Board's web site ([www.federalreserve.gov/releases/G17/mvsf.html](http://www.federalreserve.gov/releases/G17/mvsf.html)). Monthly changes in the IP indexes for the corresponding motor vehicle series will differ slightly from the monthly changes in assemblies, mainly because the IP indexes are built from a weighted (based on relative values) aggregate of the individual models.

**Tables 4 and 5** show seasonally adjusted indexes for recent months for the major market and industry groups included on table 1 and the special aggregates displayed on table 2.

**Table 6** summarizes the capacity utilization for the major industry groupings as well as for a few special aggregates. In addition to the utilization rates for the most recent four months and four quarters, the

average of utilization rates since 1967 and operating rates for relevant cyclical peaks and troughs are shown for each series.

**Table 7** summarizes change in capacity. Average rates of change in capacity for selected historical periods and for the most recent four years (on a fourth-quarter to fourth-quarter basis) are shown. In addition, rates of change for capacity on an annual-average basis are shown for the latest four quarters; the rate of change in capacity for the current IP month is shown as well.

**Table 8** shows total products expressed in gross values in billions of chained 1996 dollars at an annual rate. Compiling the IP index using gross-value weights facilitates comparison with other dollar-based data. The gross-value system focuses on products that leave the industrial sector and includes both final and intermediate products. The materials consumed in making final and intermediate products are implicitly included in the value weights applied to product series. The gross-product weights are derived from *Census of Manufactures* and *Annual Survey of Manufactures* data.

**Table 9** shows diffusion indexes, which are calculated as the percentage of IP series that increased over the relevant span (one, three, or six months) plus one-half of the percentage of series that were unchanged. Because available source data for the current IP month only account for about half of the total index, the diffusion indexes are published with a one-month lag.

**Table 10** shows the most recent six months in index form (both seasonally and not seasonally adjusted) of electric power use by industry for the major industry aggregates.

**Tables 11–14** display historical seasonally adjusted data for total IP and manufacturing as well as the aggregates excluding high-technology industries. Monthly changes in output as well as indexes for output, utilization, and capacity are shown.

Note: The summary tables in the G17 release do not include all of the publicly available data. The more detailed series for IP, utilization, capacity, and electric power are available at the Board's web site ([www.federalreserve.gov/releases/G17/download.html](http://www.federalreserve.gov/releases/G17/download.html)).

#### References and Release Dates

**References.** The annual revision published in November 2001 was described in an article published in the *Federal Reserve Bulletin*, vol. 88 (March 2002), pp. 173–187. 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, and March 2002).

#### Release Schedule

At 9:15 a.m. on

**2002:** January 16, February 15, March 15, April 16, May 15, June 14, July 16, August 15, September 17, October 17, November 15, and December 17.