

FEDERAL RESERVE statistical release



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INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Industrial production increased 0.2 percent in February. Mining production rose 0.4 percent, the first increase in a year, while production at utilities decreased 0.6 percent. Manufacturing output increased 0.2 percent, the fifth consecutive month of increase in that industry group. At 132.6 percent of its 1992 average, industrial production in February was 1.9 percent higher than it had been in February 1998. Overall capacity utilization in February slipped 0.1 percentage point, to 80.3 percent, a level 1-3/4 percentage points below its long-term average and 2-1/4 percentage points below its February 1998 level.

Market Groups

The output of durable consumer goods increased 0.9 percent, a rise buoyed by large increases in the production of appliances and home electronics. In contrast, the production of automotive products edged down 0.1 percent after a strong gain in January. The output of nondurable consumer goods excluding energy decreased for the

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INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY

Seasonally adjusted

	Index, 1992=100				Percent change				Feb. 98 to Feb. 99
	1998 Nov. ^r	Dec. ^r	1999 Jan. ^r	Feb. ^p	1998 Nov. ^r	Dec. ^r	1999 Jan. ^r	Feb. ^p	
Industrial Production									
Total index	132.2	132.4	132.4	132.6	-.2	.2	.0	.2	1.9
Previous estimates	132.3	132.5	132.5		-.1	.2	.0		
Major market groups:									
Products, total	124.5	124.4	124.5	124.5	-.3	.0	.0	.0	1.7
Consumer goods	114.8	115.0	115.1	115.1	-.4	.2	.1	.0	-.2
Business equipment	168.1	167.5	167.5	167.8	-.6	-.3	.0	.2	6.9
Construction supplies	129.6	131.1	131.6	131.5	.9	1.1	.4	-.1	4.6
Materials	144.6	145.3	145.2	145.7	.1	.4	.0	.3	2.2
Major industry groups:									
Manufacturing	136.4	136.6	136.7	136.9	.2	.1	.1	.2	2.4
Durable	161.0	161.2	161.5	162.3	-.1	.2	.2	.5	5.4
Nondurable	111.6	111.7	111.6	111.4	.7	.1	-.1	-.2	-1.2
Mining	101.1	100.0	97.0	97.4	-.9	-1.0	-3.0	.4	-9.4
Utilities	110.6	112.5	114.6	114.0	-5.1	1.7	1.9	-.6	4.5
	Percent of capacity								Capacity growth
Capacity Utilization	Average 1967-98	1982 Low	1988-89 High	1998 Feb.	1998 Nov. ^r	Dec. ^r	1999 Jan. ^r	Feb. ^p	Feb. 98 to Feb. 99
Total industry	82.1	71.1	85.4	82.6	80.8	80.7	80.4	80.3	4.8
Previous estimates					80.9	80.8	80.5		
Manufacturing	81.1	69.0	85.7	81.8	80.1	79.9	79.6	79.5	5.3
Advanced processing	80.5	70.4	84.2	80.7	79.4	78.9	78.5	78.4	6.4
Primary processing	82.4	66.2	88.9	84.7	82.4	82.8	83.0	82.6	2.7
Mining	87.5	80.3	88.0	89.9	83.8	82.9	80.3	80.5	1.1
Utilities	87.4	75.9	92.6	86.6	87.3	88.7	90.4	89.8	.8

third consecutive month; part of the decline is attributable to softness for clothing and paper products. The output of consumer energy products, which has been volatile recently, fell 1.1 percent, reversing only part of the 2.8 percent gain in January.

The production of business equipment increased 0.2 percent after having been flat in January. Declines in the output of industrial equipment and transit equipment were more than offset by gains in information processing equipment and other equipment. The gain in the other equipment group resulted from a jump in farm equipment, although output of the latter remains below its level in the first half of 1998. The output of construction supplies edged down 0.1 percent after four consecutive months of increases. The production of business supplies was flat.

A strong increase in the production of semiconductors contributed to the 0.6 percent increase in the production of durable goods materials. The output of basic metals fell 0.1 percent, and the level of production remained more than 6 percent less than in February 1998. The production of nondurable materials slipped 0.3 percent, a decline reflecting weakness in chemicals and paper materials. The production of energy materials edged up 0.2 percent.

Industry Groups

Manufacturing output grew 0.2 percent, with a 1/2 percent gain in the production of durable goods and a slight pullback in the production of nondurable goods. Durable goods industries that posted increases in production included furniture and fixtures, industrial machinery, electrical machinery, and instruments. Those in which output fell included lumber; aircraft, which continued to edge down from the very high level achieved last year; and motor vehicles and parts, which slipped again although remaining at a high level. The production of nondurable goods edged down 0.2 percent after having declined 0.1 percent in January. Losses were widespread; gains were posted in tobacco products, chemicals, and rubber and plastic products. Mining production increased, as gains in coal output outweighed losses elsewhere.

The factory operating rate slid 0.1 percentage point, to 79.5 percent—2-1/4 percentage points below the level of February 1998. The utilization rate for advanced-processing industries inched down just 0.1 percentage point, while the utilization rate for primary-processing industries fell 0.4 percentage point. The utilization rate for mines edged up 0.2 percentage point but remained well below its long-term average. Temperatures were relatively warm, as has been the case all winter, and the operating rate for utilities dipped to 89.8 percent.

Notice

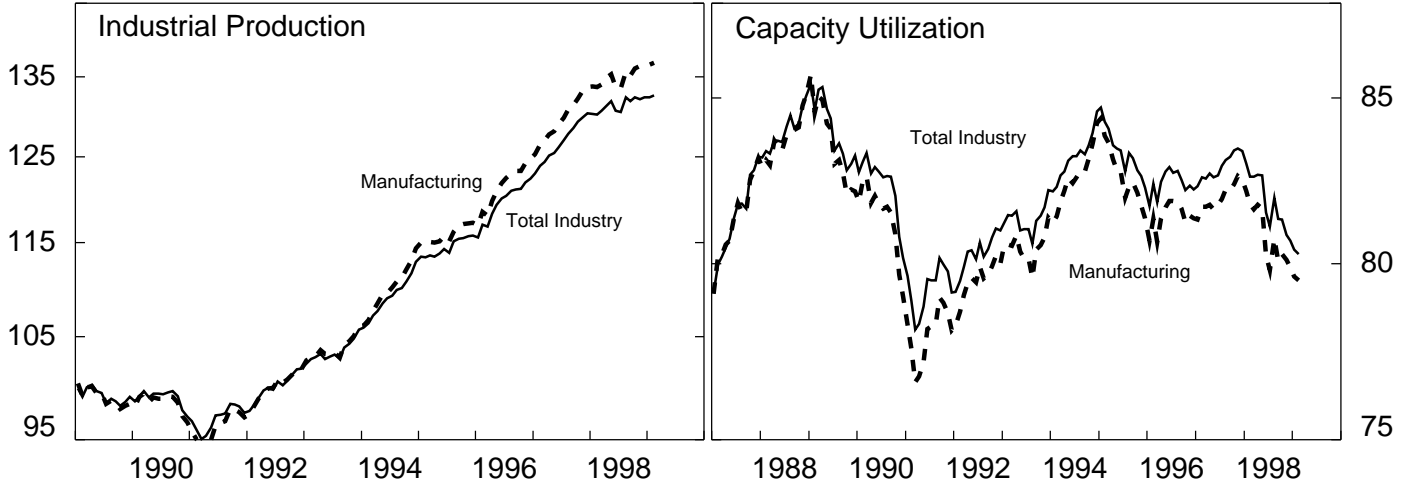
The capacity estimates in this month's release incorporate a small change in the method used to interpolate the annual estimates of capacity growth to the monthly frequency. The previous monthly capacity figures were computed assuming that capacity growth is constant from the beginning of a year to the end, with potentially abrupt changes in growth rates between the last months of one year and the first months of the next. The new procedure allows capacity growth rates to change smoothly over time; it has been applied to data beginning with October 1998. At the most detailed industry level, the new capacity estimates maintain the same fourth quarter over fourth quarter growth rates that were calculated under the previous procedure. Table 4 now shows fourth quarter over fourth quarter growth rates instead of December over December rates.

Industrial Production and Capacity Utilization

(February data, seasonally adjusted)

Ratio scale, 1992=100

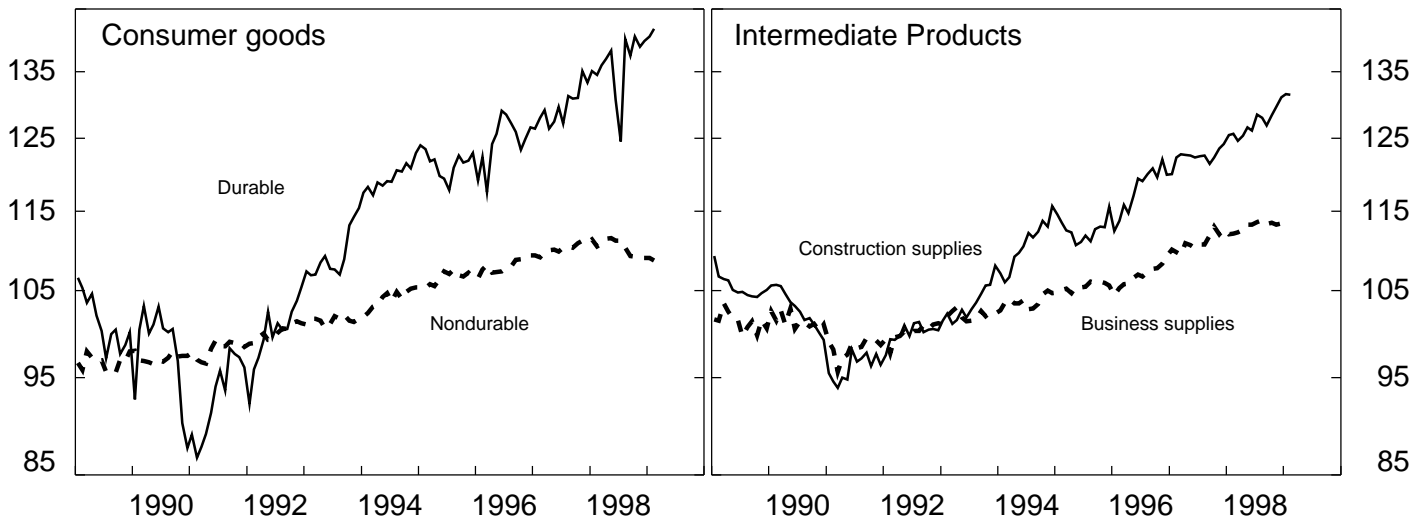
Percent of capacity



Industrial Production, Market Groups

Ratio scale, 1992=100

Ratio scale, 1992=100



Ratio scale, 1992=100

Ratio scale, 1992=100

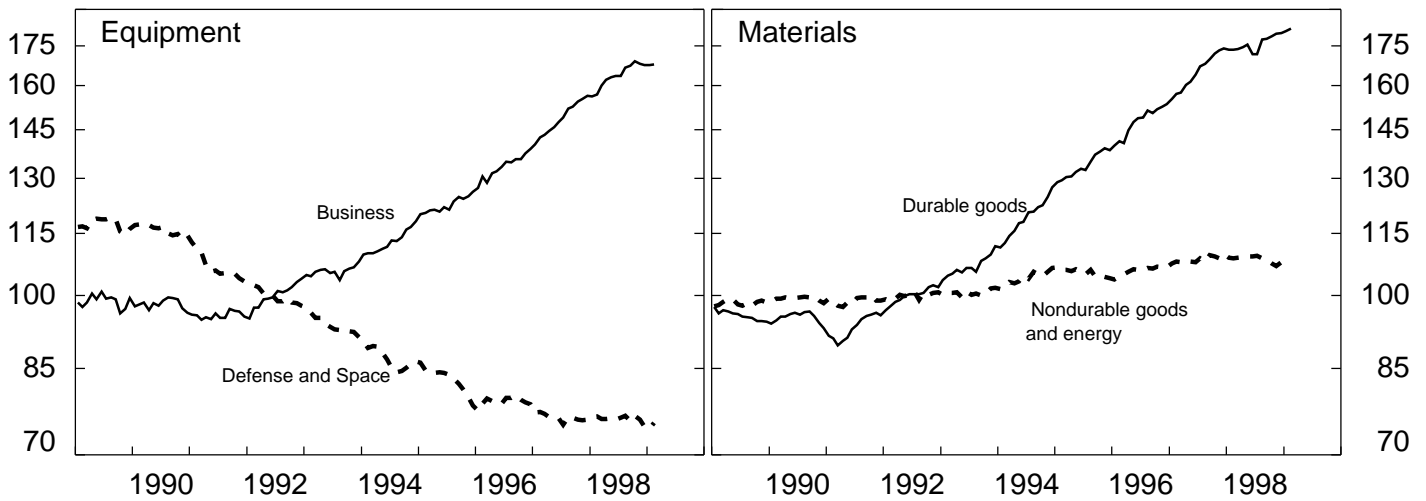


Table 2A
INDUSTRIAL PRODUCTION: INDUSTRY GROUPS

Item	SIC	1998 IP Proportion ¹	Index, 1992=100											
			Seasonally Adjusted						Not seasonally adjusted					
			1998 Sept.	Oct.	Nov. [†]	Dec. [†]	1999 Jan. [†]	Feb. ^p	1998 Sept.	Oct.	Nov. [†]	Dec. [†]	1999 Jan. [†]	Feb. ^p
Total index		100.00	131.9	132.4	132.2	132.4	132.4	132.6	135.9	134.3	131.0	129.7	129.9	132.1
Manufacturing		88.54	135.2	136.1	136.4	136.6	136.7	136.9	140.4	139.5	135.6	133.0	132.6	136.0
Primary processing		27.97	119.3	120.1	120.3	121.3	121.7	121.4	121.5	122.4	120.0	117.9	118.5	120.6
Advanced processing		60.58	143.2	144.2	144.6	144.3	144.1	144.7	149.8	147.8	143.2	140.4	139.4	143.4
Durable		49.27	159.6	161.2	161.0	161.2	161.5	162.3	165.0	164.3	160.2	157.8	156.6	163.2
Lumber and products	24	2.11	117.0	118.0	118.3	121.3	122.3	121.4	120.3	123.6	117.8	113.2	115.7	118.6
Furniture and fixtures	25	1.41	121.6	124.5	123.6	123.0	122.7	124.6	127.6	125.7	122.5	120.8	118.1	123.5
Stone, clay, and glass products	32	2.43	126.6	128.3	130.5	131.5	131.8	131.4	131.7	133.0	130.4	125.2	124.1	125.4
Primary metals	33	3.60	120.1	120.6	118.7	118.8	119.9	119.8	121.3	121.2	118.4	115.1	118.8	123.0
Iron and steel	331,2	1.91	113.4	114.4	109.7	114.3	115.6	115.5	115.0	115.6	109.0	109.8	113.9	119.3
Raw steel		.09	112.6	109.7	100.2	102.0	106.6	106.7	112.1	108.5	99.5	99.4	107.1	111.2
Nonferrous	333-6,9	1.69	128.1	128.0	129.3	124.2	125.0	125.0	128.8	127.9	129.6	121.4	124.5	127.6
Fabricated metal products	34	5.55	126.2	126.9	127.7	128.6	127.8	127.6	129.7	129.4	128.1	128.4	123.4	125.6
Industrial machinery and equipment	35	9.98	207.7	211.2	211.1	212.3	212.7	214.6	214.2	211.5	205.3	203.9	206.0	215.2
Computer and office equip.	357	2.25	695.5	718.5	746.9	761.8	776.5	790.4	740.1	718.3	727.5	740.4	739.4	756.6
Electrical machinery	36	8.56	297.7	302.4	304.8	306.2	309.6	314.3	322.0	305.5	311.8	318.9	296.9	314.4
Semiconductors and related electronic components	3672-9	3.46	725.6	756.3	779.3	791.5	811.8	836.4	838.9	750.3	803.3	863.4	756.3	833.7
Transportation equipment	37	9.43	127.6	128.4	127.1	125.3	124.3	123.9	128.9	134.2	124.5	116.5	122.3	130.3
Motor vehicles and parts	371	5.14	149.9	150.2	148.8	146.7	146.3	146.0	154.0	163.6	143.2	126.2	141.9	159.2
Autos and light trucks		2.55	136.5	140.4	138.1	137.3	137.9	136.9	142.8	156.3	132.4	116.9	128.5	152.3
Aerospace and misc.	372-6,9	4.29	105.8	106.9	105.7	104.3	102.9	102.3	104.6	105.9	105.9	106.2	103.0	102.5
Instruments	38	4.88	114.2	114.6	114.1	113.9	114.9	115.9	116.8	115.0	113.4	113.5	112.1	114.1
Miscellaneous	39	1.32	117.0	115.9	114.1	115.4	114.7	115.6	117.3	118.8	117.8	116.9	111.0	113.9
Nondurable		39.27	110.6	110.9	111.6	111.7	111.6	111.4	115.2	114.1	110.6	107.8	108.0	108.4
Foods	20	9.00	107.7	109.1	111.3	111.0	112.0	111.4	115.4	114.3	110.8	107.4	106.9	105.6
Tobacco products	21	1.29	104.2	101.9	99.8	100.0	96.9	97.2	109.4	111.3	98.8	78.8	96.1	101.8
Textile mill products	22	1.56	111.2	112.4	108.8	109.4	110.9	109.9	114.7	118.9	107.0	97.2	105.1	107.8
Apparel products	23	1.73	98.3	97.3	95.5	95.3	94.4	94.3	100.0	98.6	95.7	95.3	91.4	92.4
Paper and products	26	3.50	113.9	115.4	112.3	115.1	115.4	114.5	113.8	117.3	110.8	111.0	115.9	116.5
Printing and publishing	27	6.79	104.6	104.2	105.4	105.0	103.8	103.1	109.1	107.2	105.8	103.6	99.5	99.3
Chemicals and products	28	9.78	113.3	113.1	114.7	114.3	113.7	114.4	119.1	115.0	111.0	109.5	111.0	111.4
Petroleum products	29	1.59	110.7	110.4	112.8	112.5	115.0	114.0	115.7	111.7	114.3	112.4	106.4	105.2
Rubber and plastics products	30	3.83	132.6	133.4	135.0	135.7	135.6	136.6	133.4	135.3	135.6	135.1	133.5	136.8
Leather and products	31	.21	73.5	72.8	74.3	73.0	71.0	70.8	74.0	74.2	74.7	73.1	69.2	70.1
Mining		5.20	102.4	102.0	101.1	100.0	97.0	97.4	104.2	103.9	101.4	98.4	94.5	95.6
Metal mining	10	.36	106.4	113.6	110.7	108.3	110.4	110.1	110.6	114.0	109.9	108.2	103.9	108.7
Coal mining	12	.82	115.8	110.8	108.6	114.5	102.0	108.6	116.7	116.6	107.5	110.3	104.2	105.3
Oil and gas extraction	13	3.38	96.8	96.8	94.2	92.4	90.6	90.0	96.6	96.3	95.4	93.9	90.8	90.6
Stone and earth minerals	14	.64	120.3	118.8	132.1	127.0	126.4	124.8	138.4	136.0	132.2	109.9	104.0	111.8
Utilities		6.26	120.3	116.5	110.6	112.5	114.6	114.0	113.5	103.3	105.1	121.2	132.6	122.4
Electric	491,3pt	5.28	122.6	120.3	114.6	115.2	116.3	116.3	125.9	111.4	106.6	115.6	122.3	115.3
Gas	492,3pt	.98	109.7	98.7	92.0	100.2	107.0	103.3	59.5	69.1	102.1	152.5	186.5	160.7
SPECIAL AGGREGATES														
Computers, communications eq. and semiconductors ²		7.81	538.3	552.1	562.8	569.6	580.4	590.9	585.3	551.8	571.9	596.6	555.3	583.4
Manufacturing excluding:														
Motor vehicles and parts		83.40	134.4	135.3	135.7	136.0	136.1	136.4	139.6	138.0	135.1	133.4	132.0	134.5
Computer and office equipment		86.29	130.0	130.8	130.9	131.0	131.0	131.2	134.9	134.1	130.2	127.5	127.1	130.4
Computers and semiconductors ²		82.83	119.9	120.4	120.4	120.4	120.2	120.2	123.6	123.5	119.4	116.4	116.8	119.3
Computers, communications eq. and semiconductors ²		80.73	118.1	118.7	118.8	118.8	118.6	118.6	122.0	121.8	117.7	114.6	115.1	117.7
Memo: Motor vehicle assemblies³														
Total			12.8	13.1	12.9	12.8	12.8	12.7	13.5	14.8	12.0	11.6	11.6	13.0
Autos			6.5	6.1	5.8	5.8	5.6	5.4	6.6	6.8	5.4	5.3	5.1	5.5
Trucks			6.3	7.0	7.1	6.9	7.2	7.3	6.9	7.9	6.6	6.3	6.4	7.5
Light			5.9	6.6	6.7	6.5	6.8	6.9	6.5	7.5	6.2	5.9	6.1	7.1
Heavy and medium			0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

1. The IP proportion data are estimates of the industries' relative contributions to overall IP growth in the following year.

2. Semiconductors include related electronic components.

3. Millions of units at an annual rate.

Note—Primary processing manufacturing includes 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, and stone, clay, and glass products. Advanced processing manufacturing includes 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, transportation equipment, instruments, and miscellaneous manufactures.

Table 2B
INDUSTRIAL PRODUCTION: INDUSTRY GROUPS

Percent change

Item	SIC	1997 Q4 to 1998 Q4	Seasonally adjusted annual rate				Seasonally adjusted				Not seasonally adjusted				Feb. 98 to Feb. 99
			1998 Q1	Q2	Q3	Q4 ^r	1998 Nov. ^r	Dec. ^r	1999		1998 Nov. ^r	Dec. ^r	1999		
									Jan. ^r	Feb. ^p			Jan. ^r	Feb. ^p	
Total index		1.9	1.6	2.8	.9	2.2	-.2	.2	.0	.2	-2.5	-1.0	.2	1.7	1.9
Manufacturing		2.5	2.4	2.5	.4	4.8	.2	.1	.1	.2	-2.8	-1.9	-3	2.5	2.4
Primary processing		-4	.8	-6	-2.8	1.2	.2	.8	.4	-.3	-2.0	-1.8	.5	1.8	.3
Advanced processing		3.8	3.2	3.9	1.9	6.4	.3	-.2	-.1	.4	-3.1	-2.0	-.7	2.9	3.4
Durable		5.3	3.5	4.6	4.7	8.4	-.1	.2	.2	.5	-2.5	-1.5	-.7	4.2	5.4
Lumber and products	24	4.2	4.0	2.9	4.4	5.3	.2	2.6	.9	-.8	-4.7	-3.8	2.2	2.5	4.4
Furniture and fixtures	25	3.5	.8	4.8	-1.2	9.8	-.7	-.5	-.2	1.6	-2.6	-1.4	-2.2	4.6	5.1
Stone, clay, and glass products	32	5.0	1.5	-1.3	7.8	12.5	1.7	.8	.3	-.4	-2.0	-3.9	-.9	1.1	5.9
Primary metals	33	-7.1	-.9	-8.6	-9.2	-9.4	-1.6	.1	.9	.0	-2.3	-2.8	3.2	3.6	-6.5
Iron and steel	331,2	-11.8	1.1	-12.7	-16.0	-18.4	-4.1	4.2	1.1	.0	-5.7	.8	3.7	4.7	-9.9
Raw steel		-12.9	8.8	-6.0	-9.7	-37.7	-8.7	1.9	4.4	.2	-8.3	-.1	7.7	3.9	-13.5
Nonferrous	333-6,9	-1.5	-3.2	-3.3	-.6	1.3	1.1	-4.0	.6	.0	1.3	-6.3	2.6	2.5	-2.4
Fabricated metal products	34	.6	.4	3.2	-4.2	3.1	.6	.7	-.7	-.2	-1.0	.3	-3.9	1.8	.7
Industrial machinery and equipment	35	12.8	14.8	19.5	10.1	7.2	.0	.6	.2	.9	-2.9	-.7	1.0	4.5	11.6
Computer and office equip.	357	53.0	72.6	58.1	37.6	46.0	4.0	2.0	1.9	1.8	1.3	1.8	-.1	2.3	43.0
Electrical machinery	36	11.2	6.7	6.8	14.7	17.2	.8	.5	1.1	1.5	2.0	2.3	-6.9	5.9	12.8
Semiconductors and related electronic components	3672-9	25.5	8.9	9.6	37.6	50.9	3.0	1.6	2.6	3.0	7.1	7.5	-12.4	10.2	32.0
Transportation equipment	37	3.0	-4.7	-2.6	3.7	17.0	-1.0	-1.4	-.8	-.4	-7.2	-6.4	5.0	6.5	1.9
Motor vehicles and parts	371	.7	-17.1	-14.5	5.7	37.5	-.9	-1.4	-.3	-.2	-12.5	-11.9	12.5	12.2	3.9
Autos and light trucks		2.6	-15.0	-14.9	-8.7	67.9	-1.7	-.5	.4	-.7	-15.3	-11.7	10.0	18.5	6.8
Aerospace and misc.	372-6,9	6.4	14.2	14.1	2.0	-3.6	-1.1	-1.3	-1.4	-.6	.0	.2	-3.0	-.5	-.3
Instruments	38	1.9	.5	2.9	.8	3.4	-.4	-.2	.9	.8	-1.5	.1	-1.3	1.8	3.1
Miscellaneous	39	-3.4	2.5	-2.1	-5.0	-8.4	-1.5	1.1	-.7	.8	-.9	-.7	-5.0	2.6	-3.6
Nondurable		-.9	1.1	-.2	-4.7	.3	.7	.1	-.1	-.2	-3.1	-2.5	.2	.4	-1.2
Foods	20	1.8	5.8	-.1	-6.5	8.7	1.9	-.2	.9	-.5	-3.1	-3.0	-.5	-1.2	1.3
Tobacco products	21	-8.7	-2.9	-2.6	-10.3	-18.1	-2.0	.2	-3.1	.3	-11.2	-20.3	22.0	5.9	-13.7
Textile mill products	22	-2.9	.5	-1.3	-4.0	-6.5	-3.2	.5	1.4	-.9	-10.0	-9.2	8.1	2.6	-2.9
Apparel products	23	-6.1	-2.1	-4.3	-5.5	-12.0	-1.8	-.2	-.9	-.2	-2.9	-.4	-4.2	1.1	-6.7
Paper and products	26	-1.3	-.9	-1.8	.2	-2.7	-2.7	2.5	.3	-.8	-5.6	.2	4.4	.6	-1.2
Printing and publishing	27	-1.8	-2.8	-2.0	-2.1	-.4	1.1	-.4	-1.1	-.7	-1.3	-2.1	-3.9	-.2	-3.2
Chemicals and products	28	-2.2	.6	.6	-8.3	-1.3	1.4	-.3	-.5	.6	-3.4	-1.3	1.3	.4	-1.9
Petroleum products	29	1.5	4.9	1.3	2.8	-2.9	2.2	-.2	2.2	-.9	2.4	-1.7	-5.4	-1.1	3.1
Rubber and plastics products	30	3.3	2.5	5.4	-1.2	6.7	1.2	.5	-.1	.7	.2	-.3	-1.2	2.5	4.1
Leather and products	31	-7.4	-6.7	-11.2	-6.7	-4.6	2.0	-1.8	-2.7	-.3	.7	-2.1	-5.3	1.3	-9.6
Mining		-4.6	4.3	-6.2	-6.1	-9.6	-.9	-1.0	-3.0	.4	-2.5	-2.9	-4.0	1.2	-9.4
Metal mining	10	-1.2	8.3	-21.4	-2.7	15.0	-2.6	-2.1	1.9	-.2	-3.6	-1.5	-4.0	4.6	-10.6
Coal mining	12	3.0	-4.9	4.5	19.5	-5.2	-2.0	5.4	-10.9	6.4	-7.8	2.6	-5.5	1.1	4.2
Oil and gas extraction	13	-8.1	5.3	-8.2	-12.0	-16.0	-2.7	-1.9	-2.0	-.7	-.9	-1.5	-3.4	-.2	-14.0
Stone and earth minerals	14	3.9	7.7	3.1	-3.6	8.8	11.2	-3.9	-.5	-1.3	-2.8	-16.9	-5.3	7.5	1.4
Utilities		-.9	-11.1	17.9	14.7	-19.8	-5.1	1.7	1.9	-.6	1.7	15.3	9.4	-7.7	4.5
Electric	491,3pt	1.4	-7.9	21.3	10.0	-14.1	-4.7	.5	1.0	.0	-4.3	8.4	5.8	-5.7	4.6
Gas	492,3pt	-12.2	-25.5	1.3	42.2	-44.6	-6.8	8.9	6.8	-3.5	47.8	49.3	22.4	-13.9	4.0
SPECIAL AGGREGATES															
Computers, communications eq. and semiconductors ¹		26.6	22.7	23.5	28.7	31.7	1.9	1.2	1.9	1.8	3.6	4.3	-6.9	5.1	26.4
Manufacturing excluding:															
Motor vehicles and parts		2.6	3.8	3.6	.1	3.0	.3	.2	.1	.2	-2.1	-1.3	-1.0	1.9	2.3
Computer and office equipment		1.3	1.0	1.1	-.5	3.8	.1	.1	.0	.1	-2.9	-2.0	-.3	2.5	1.4
Computers and semiconductors ¹		.3	.6	.7	-2.0	2.1	.0	.0	-.1	.0	-3.3	-2.5	.3	2.2	.2
Computers, communications eq. and semiconductors ¹		.2	.4	.3	-2.3	2.3	.1	.0	-.1	.0	-3.4	-2.6	.4	2.3	.1

1. Semiconductors include related electronic components.

Note—Percent changes shown in the first and last columns are based on seasonally adjusted data.

**Table 3
CAPACITY UTILIZATION: MANUFACTURING, MINING, AND UTILITIES**

Percent of capacity, seasonally adjusted

Item	SIC	1998 Proportion	1967- 1998 Ave.	1978- 1980 High	1982 Low	1988- 1989 High	1990- 1991 Low	1994- 1995 High	1998 Feb.	1998 Sept.	Oct. ^r	Nov. ^r	Dec. ^r	1999 Jan. ^r	1999 Feb. ^p
Total industry		100.00	82.1	87.3	71.1	85.4	78.1	84.7	82.6	81.3	81.3	80.8	80.7	80.4	80.3
Manufacturing		89.41	81.1	86.9	69.0	85.7	76.6	84.4	81.8	80.1	80.3	80.1	79.9	79.6	79.5
Primary processing		27.08	82.4	88.1	66.2	88.9	77.7	89.2	84.7	82.1	82.4	82.4	82.8	83.0	82.6
Advanced processing		62.33	80.5	86.7	70.4	84.2	76.1	82.3	80.7	79.5	79.6	79.4	78.9	78.5	78.4
Durable		50.51	79.5	87.7	63.9	84.6	73.1	84.1	81.0	80.3	80.6	80.0	79.7	79.4	79.4
Lumber and products	24	2.11	82.5	87.9	60.8	93.6	75.5	88.0	81.9	81.1	81.6	81.6	83.5	84.1	83.2
Furniture and fixtures	25	1.46	81.3	85.5	68.9	86.6	72.5	84.3	76.7	78.0	79.7	79.1	78.5	78.2	79.4
Stone, clay, and glass products	32	2.40	78.3	88.0	64.3	83.5	69.7	83.3	80.4	81.9	83.1	84.4	85.0	85.2	84.8
Primary metals	33	3.33	81.3	94.2	45.1	92.7	73.7	93.8	91.0	83.7	83.7	82.2	82.1	82.6	82.4
Iron and steel	331,2	1.83	81.2	95.8	37.0	95.2	71.8	96.4	91.0	78.1	78.4	74.9	77.7	78.3	78.1
Raw steel		.09	81.0	95.8	35.2	92.7	71.5	98.7	91.5	80.4	77.8	70.7	71.6	74.6	74.5
Nonferrous	333-6,9	1.50	81.5	91.1	60.1	89.3	74.2	91.2	91.2	90.6	90.4	91.3	87.6	88.0	87.9
Primary copper	3331	.05	75.6	81.5	42.1	86.3	73.5	102.4	91.0	83.9	87.6	88.9	83.3	84.5	
Primary aluminum	3334	.11	88.4	97.6	58.6	100.4	97.3	83.7	86.5	90.1	88.3	88.9	88.4	88.1	
Fabricated metal products	34	5.86	78.0	83.9	63.7	82.0	71.9	85.5	77.5	75.6	75.7	75.9	76.3	75.7	75.5
Industrial machinery and equipment	35	9.77	81.4	93.2	64.0	85.4	72.3	87.5	84.9	84.5	84.9	83.9	83.4	82.7	82.6
Computer and office equip.	357	2.46	81.2	92.6	65.5	86.9	66.9	86.8	85.7	81.4	80.7	80.6	79.2	78.0	76.8
Electrical machinery	36	9.49	81.0	89.4	71.6	84.0	75.0	90.2	79.3	77.0	77.2	76.8	76.3	76.2	76.5
Semiconductors and related electronic components	3672-9	4.09	80.0	91.6	75.7	81.1	75.6	95.2	79.1	77.1	78.5	79.2	78.7	79.0	
Transportation equipment	37	9.77	75.9	84.8	57.2	85.8	68.5	77.9	78.5	81.5	81.8	80.8	79.6	78.9	78.6
Motor vehicles and parts	371	5.53	76.8	95.0	45.5	89.1	55.9	87.9	76.8	80.9	80.9	80.0	78.7	78.4	78.2
Autos and light trucks ¹		2.58		94.6	40.6	92.3	53.3	92.5	82.7	86.5	88.8	87.1	86.5	86.8	86.2
Aerospace and misc.	372-6,9	4.24	75.2	81.9	66.6	87.3	79.2	69.1	80.8	82.6	83.3	82.3	81.1	79.9	79.4
Instruments	38	4.95	81.6	92.7	78.4	81.4	77.2	77.5	80.7	80.8	80.9	80.4	80.0	80.6	81.1
Miscellaneous	39	1.38	75.7	79.4	65.4	79.0	71.7	79.7	79.9	77.0	76.2	74.9	75.7	75.1	75.5
Nondurable		38.90	83.4	87.5	76.4	87.3	80.7	84.8	83.1	80.2	80.3	80.7	80.6	80.3	80.1
Foods	20	8.95	83.0	84.6	79.1	85.4	82.7	84.4	82.7	79.6	80.5	81.8	81.5	82.0	81.5
Textile mill products	22	1.54	85.6	91.2	72.3	90.4	77.7	93.0	84.0	82.3	83.2	80.5	80.9	82.0	81.3
Apparel products	23	1.90	80.9	87.5	77.5	85.1	75.5	85.5	75.2	73.5	72.9	71.6	71.6	71.0	70.9
Paper and products	26	3.24	89.1	96.1	80.6	93.5	85.0	93.0	88.8	85.7	86.7	84.2	86.1	86.2	85.3
Pulp and paper	261-3	1.27	92.4	98.3	82.0	98.0	89.9	97.0	94.0	91.4	92.4	89.3	90.6	90.1	
Printing and publishing	27	6.64	85.7	93.9	82.0	91.7	79.6	82.2	84.4	81.3	80.8	81.4	80.9	79.8	79.2
Chemicals and products	28	10.16	79.5	84.6	69.9	86.2	79.3	80.4	79.3	75.9	75.7	76.6	76.2	75.7	76.1
Plastics materials	2821	.73	86.7	90.9	63.4	97.0	74.8	102.7	91.0	87.1	89.1	94.1	93.1		
Synthetic fibers	2823,4	.33	85.0	98.6	64.4	99.7	77.6	90.3	90.2	85.5	81.7	79.6	76.2	81.3	
Petroleum products	29	1.33	86.9	90.0	66.8	88.5	85.1	93.1	95.2	94.7	94.4	96.3	96.0	98.0	97.1
Rubber and plastics products	30	3.69	84.5	91.2	72.7	89.6	77.4	91.0	85.0	83.7	83.8	84.5	84.6	84.2	84.4
Leather and products	31	.26	80.3	92.1	75.8	83.3	76.1	85.4	66.5	62.4	61.8	63.0	62.0	60.5	60.5
Mining		4.98	87.5	96.0	80.3	88.0	87.0	88.9	89.9	85.2	84.7	83.8	82.9	80.3	80.5
Metal mining	10	.33	79.4	87.9	44.4	89.4	79.9	89.4	100.7	86.8	92.6	90.2	88.3	89.9	89.7
Coal mining	12	.80	86.6	99.4	76.6	91.5	83.4	90.8	81.2	89.3	85.3	83.6	87.9	78.2	83.1
Oil and gas extraction	13	3.25	88.5	97.3	82.3	88.2	88.7	89.5	91.2	84.2	84.1	81.8	80.2	78.5	78.0
Oil and gas well drilling	138	.84	74.3	104.3	50.9	69.3	60.0	73.8	89.2	69.1	66.8	64.3	57.5	55.3	54.3
Stone and earth minerals	14	.60	84.8	92.7	63.3	89.0	79.4	91.6	86.0	82.1	80.8	89.5	85.7	85.0	83.7
Utilities		5.60	87.4	89.1	75.9	92.6	83.4	93.6	86.6	95.0	92.0	87.3	88.7	90.4	89.8
Electric	491,3pt	4.53	89.4	88.2	78.9	95.0	87.1	96.3	90.0	98.8	96.9	92.2	92.6	93.5	93.4
Gas 492,3pt		1.07	82.1	93.7	69.1	85.0	67.1	87.8	72.6	79.6	71.5	66.5	72.4	77.2	74.4
SPECIAL AGGREGATES															
Computers, communications eq. and semiconductors ²		8.90	80.3	90.9	77.3	81.9	72.4	89.7	80.1	77.6	77.6	77.2	76.3	76.0	75.8
Manufacturing ex. computers, communications eq., and semiconductors ²		80.51	81.2	87.0	68.0	86.1	76.8	83.9	82.0	80.6	80.8	80.7	80.5	80.3	80.2

1. Series begins in 1977.

2. Semiconductors include related electronic components.

Note—Primary processing manufacturing includes textile mill products, paper and products, industrial chemicals, synthetic materials, and fertilizers, petroleum products, rubber and plastic products, lumber and products, primary metals, fabricated metals, and stone, clay, and glass products. Advanced processing manufacturing includes 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, transportation equipment, instruments, and miscellaneous manufactures.

Table 6 (continued)
INDUSTRIAL PRODUCTION: INDUSTRY SUBTOTALS AND INDIVIDUAL SERIES

Item	SIC	1998 IP Proportion ¹	Index, 1992 = 100											
			Seasonally adjusted						Not seasonally adjusted					
			1998 Aug.	Sept.	Oct.	Nov. ^f	Dec. ^f	1999 Jan. ^f	1998 Aug.	Sept.	Oct.	Nov. ^f	Dec. ^f	1999 Jan. ^f
Instruments	38	4.88	113.0	114.2	114.6	114.1	113.9	114.9	115.6	116.8	115.0	113.4	113.5	112.1
Scientific and medical	381-4	4.09	114.1	115.9	116.5	115.9	115.7	117.3	117.3	119.0	116.9	114.9	115.2	114.0
Medical instruments	384	1.60	121.6	126.1	128.3	129.5	129.7	131.0	133.0	138.0	130.6	124.9	123.0	122.1
Misc. manufactures	39	1.32	117.7	117.0	115.9	114.1	115.4	114.7	118.1	117.3	118.8	117.8	116.9	111.0
Consumer goods	391,3,4,6	.62	108.5	107.4	105.1	104.4	105.3	103.7	107.5	107.5	108.4	109.2	107.2	100.5
Business supplies	395,9	.70	127.3	127.0	127.2	124.4	126.1	126.2	129.0	127.4	129.5	126.5	126.8	121.8
Electric utilities	491,3pt	5.28	121.2	122.6	120.3	114.6	115.2	116.3	135.6	125.9	111.4	106.6	115.6	122.3
Generation		1.97	116.3	119.7	116.2	112.2	114.0	113.7	127.0	118.2	105.4	105.6	114.7	118.2
Fossil fuel		.95	121.9	122.5	111.7	107.6	111.1		139.6	127.5	107.6	102.8	109.7	
Hydro and nuclear		1.02	111.0	116.8	120.2	116.2	116.5		115.1	109.2	103.2	108.0	119.1	
Sales		3.31	124.3	124.4	122.9	116.2	115.9	118.0	141.0	130.8	115.3	107.4	116.3	124.9
Residential		1.39	130.9	130.7	130.1	113.4	112.5		154.2	136.8	111.4	100.1	118.9	
Nonresidential		1.92	119.6	119.9	117.7	118.0	118.3	119.7	131.8	126.6	118.1	112.6	114.5	117.6
Commercial and other		1.19	125.7	127.2	124.6	123.7	122.5		142.1	136.6	123.6	115.9	118.2	
Industrial		.73	110.8	109.3	107.7	109.7	112.2		116.9	112.1	110.2	107.7	109.2	
Gas utilities	492,3pt	.98	115.7	109.7	98.7	92.0	100.2	107.0	62.0	59.5	69.1	102.1	152.5	186.5
Residential		.44	105.4	95.1	86.8	82.1	93.5	98.0	29.4	30.6	49.6	97.0	165.1	205.9
Commercial and other		.16	140.0	137.3	114.3	100.0	108.6	119.8	70.6	68.5	76.7	113.5	168.6	212.8
Gas transmission		.32	118.6	116.7	106.6	99.5	104.2	113.3	96.1	89.3	88.5	104.1	133.0	157.3

1. The IP proportion data are estimates of the industries' relative contributions to overall IP growth in the following year.

Table 7
INDUSTRIAL PRODUCTION: GROSS VALUE OF PRODUCTS

Billions of 1992 dollars at annual rates, seasonally adjusted

Item	1992	1998	1997 Q3	1998				1999 Jan. ^f	1999 Feb. ^p					
				Q4	Q1	Q2	Q3			Q4 ^f				
Products, total	2001.9	2490.0	2413.9	2450.4	2464.5	2486.2	2493.6	2515.5	2501.0	2519.7	2511.6	2515.1	2525.0	2520.8
Final products	1552.1	1958.2	1893.3	1924.5	1937.5	1955.3	1956.0	1976.3	1966.4	1982.3	1973.4	1973.2	1980.6	1975.6
Consumer goods	1049.6	1212.5	1199.7	1213.4	1216.5	1217.2	1206.9	1215.5	1208.2	1217.1	1212.6	1216.7	1224.5	1219.4
Durable	238.3	321.0	309.2	318.9	321.5	318.6	314.6	332.6	326.7	334.9	330.4	332.6	334.6	336.7
Automotive products	123.8	165.8	160.6	169.7	165.7	162.8	159.3	175.9	171.0	177.2	175.3	175.4	176.7	176.6
Other durable goods	114.4	155.3	148.7	149.0	156.1	156.2	155.7	156.2	155.4	157.2	154.6	156.8	157.5	159.9
Nondurable	811.3	893.0	890.9	895.4	896.1	899.5	893.2	885.4	883.7	885.0	884.6	886.6	892.4	885.5
Equipment, total	502.5	746.8	695.6	713.5	723.7	741.4	753.2	765.2	762.7	769.8	765.2	760.6	760.0	760.2
Business and defense	483.9	722.1	668.1	686.4	695.3	715.1	729.7	744.0	740.1	747.7	743.5	740.7	740.8	741.4
Business	399.2	658.9	606.4	624.9	633.6	653.9	668.5	683.3	679.5	686.3	682.6	680.8	681.3	681.2
Defense and space	84.7	63.9	64.0	64.1	64.3	63.9	64.1	63.7	63.6	64.4	63.9	62.9	62.5	63.3
Intermediate products	449.9	533.7	521.1	526.7	528.0	532.0	538.1	540.1	535.7	538.7	539.1	542.5	545.0	545.6
Construction supplies	177.2	224.9	216.1	218.1	221.6	223.0	226.1	229.2	224.4	227.4	228.5	231.7	233.1	233.0
Business supplies	272.7	308.4	304.7	308.4	306.0	308.6	311.7	310.5	310.9	310.8	310.2	310.4	311.4	312.2
Commercial energy products	70.4	82.7	82.3	83.0	80.5	82.5	86.0	83.6	86.5	83.8	83.9	82.9	85.3	86.1

Table 8
DIFFUSION INDEXES OF INDUSTRIAL PRODUCTION

Percent

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
One Month Earlier												
1997	53.4	65.7	53.7	51.3	53.7	56.3	58.8	49.8	55.6	55.8	61.4	50.9
1998	55.8	47.2	50.2	53.7	49.1	39.3	54.7	46.8	39.7	56.2	48.3	50.7
1999	48.5											
Three Months Earlier												
1997	58.2	65.7	59.0	62.7	54.9	55.6	60.2	60.9	59.0	58.1	65.5	63.7
1998	59.6	52.1	54.3	49.1	55.4	44.2	46.8	44.6	45.7	47.6	49.1	52.4
1999	51.7											
Six Months Earlier												
1997	65.3	65.7	63.8	61.6	58.4	62.7	67.3	62.8	63.5	66.9	68.8	65.0
1998	63.7	63.3	61.0	58.1	56.6	48.3	46.8	46.4	43.3	47.6	46.4	48.7
1999	52.8											

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 9 (continued)
ELECTRIC POWER USE: MANUFACTURING AND MINING

Item	1987 SIC	1992 Billion KWH	Index, 1992 = 100											
			Seasonally adjusted					Not seasonally adjusted						
			1998 Aug.	Sept.	Oct.	Nov. ^f	Dec. ^f	1999 Jan. ^p	1998 Aug.	Sept.	Oct.	Nov. ^f	Dec. ^f	1999 Jan. ^p
Chemicals and Products (cont.)														
Synthetic materials	282	29.2	104.8	108.0	101.2	104.6	104.9	102.5	107.5	108.5	103.1	103.2	103.2	102.7
Plastics materials	2821	18.3	127.3	131.4	126.5	130.3	128.8	129.2	129.6	133.9	127.8	127.7	129.6	127.5
Drugs and medicines	283	6.7	129.9	131.1	131.5	131.8	132.2	128.8	144.2	145.5	136.6	125.9	125.8	121.9
Soap and toiletries	284	3.0	118.9	117.2	116.6	117.4	115.7	112.3	128.1	127.6	119.3	111.4	110.5	110.3
Industrial organic chemicals	286	39.2	103.9	105.7	101.7	100.2	109.3	107.1	107.6	109.9	105.3	100.3	106.8	106.7
Agricultural chemicals	287	9.7	123.2	118.9	121.6	116.2	113.4	115.5	123.2	117.5	120.6	116.8	115.2	117.1
Petroleum products	29	47.0	110.2	106.5	106.8	108.1	105.3	105.9	113.6	110.5	107.3	107.8	107.8	105.8
Rubber and plastics products														
Rubber products, nec	306	3.2	112.8	116.4	117.5	119.5	123.9	121.7	119.4	121.7	120.6	117.6	118.9	113.4
Plastics products, nec	308	28.9	129.0	132.0	130.5	133.7	134.7	137.1	133.2	137.1	133.1	132.3	129.9	126.3
Leather and products	31	1.0	76.2	75.3	79.4	78.6	79.8	79.6	82.6	81.6	80.0	76.3	75.9	75.3
Shoes	314	.3	69.3	68.6	71.6	72.6	73.8	75.0	78.3	77.8	73.0	69.7	68.7	69.0
Stone, clay, & glass products														
Flat glass	321	1.5	103.3	105.1	105.7	108.9	109.3	107.0	104.8	109.3	106.9	109.3	109.4	102.6
Pressed and blown glass	322	7.3	102.9	106.1	106.7	106.3	109.7	108.6	106.0	109.2	109.4	106.5	106.9	106.3
Cement	324	9.6	110.1	107.3	114.3	112.4	112.3	114.9	117.7	112.1	121.7	117.8	117.1	108.2
Structural clay products	325	1.4	98.9	99.5	97.4	100.1	102.7	104.8	101.1	102.0	97.7	100.4	102.7	99.4
Concrete products	327	4.7	125.5	124.1	127.2	128.0	127.3	128.1	128.3	128.6	130.3	129.7	128.3	125.2
Primary metals														
Basic steel and mill products	331	57.0	110.3	112.0	112.6	109.3	108.2	105.8	110.1	111.0	113.3	107.5	106.2	107.2
Iron and steel foundries	332	9.9	116.2	116.2	114.4	112.7	117.9	117.6	112.5	118.8	117.4	115.9	115.4	111.2
Primary nonferrous metals	333	66.2	79.8	80.3	80.6	81.8	80.3	79.6	80.6	79.2	80.7	80.2	81.4	81.0
Aluminum	3334	60.3	69.2	69.8	71.7	72.7	71.0	70.4	69.2	68.9	71.8	71.8	72.1	71.7
Nonferrous foundries	336	2.7	130.7	134.4	134.2	131.9	136.3	130.2	129.7	137.7	137.2	134.6	135.4	126.9
Fabricated metal products														
Metal containers	341	2.9	104.5	99.2	100.7	100.6	109.1	107.5	106.5	103.3	101.3	100.0	104.0	103.1
Hardware, tools, and cutlery	342	2.7	109.0	109.1	111.8	115.3	112.2	111.8	114.6	116.5	113.6	113.6	108.5	105.3
Structural metal products	344	5.4	119.6	121.5	121.7	118.5	117.8	116.0	123.9	125.3	122.3	117.4	115.9	113.6
Fasteners	345	1.7	112.5	112.2	114.1	116.3	112.7	113.6	117.9	118.6	116.5	113.7	108.5	107.0
Metal stampings	346	6.7	130.0	129.2	131.8	131.9	133.3	133.2	132.0	135.0	135.4	130.6	129.0	125.9
Industrial machinery and equipment														
Engines and turbines	351	2.6	111.3	114.4	113.3	111.6	113.9	112.6	116.4	119.2	113.2	112.5	109.8	108.5
Farm	352	2.0	91.1	92.9	90.7	83.8	85.4	80.5	89.2	91.7	87.5	83.8	84.6	81.7
Construction and allied	353	3.8	123.8	119.4	128.8	124.5	131.3	124.0	131.1	128.2	127.4	124.2	123.2	119.1
Metalworking	354	4.1	117.0	118.0	120.6	122.2	121.8	120.1	126.5	127.6	121.7	117.8	116.4	112.9
Special industry	355	2.4	123.5	121.1	119.4	118.3	121.8	117.8	134.0	131.1	120.8	113.1	116.9	110.7
General industrial	356	5.2	115.9	117.0	119.5	117.2	119.0	116.5	124.4	125.5	120.2	114.1	113.1	109.4
Computer and office equip.	357	5.1	89.1	90.0	90.9	91.9	91.3	90.7	95.3	96.0	91.0	89.7	88.9	86.5
Service industry machines	358	3.5	117.6	109.7	114.0	108.8	114.0	112.6	127.0	117.9	114.7	106.3	106.2	102.3
Electrical machinery														
Electrical distribution	361	1.3	93.3	95.0	93.8	92.6	95.3	91.8	102.9	104.8	95.5	89.9	90.6	86.3
Electrical industrial	362	4.0	93.9	96.3	94.8	96.1	94.2	92.9	97.0	99.9	94.6	93.5	90.7	89.7
Household appliances	363	2.4	97.5	99.1	101.1	103.0	106.4	101.5	106.5	105.7	103.9	98.0	94.7	94.0
Lighting and wiring products	364	3.0	115.1	118.9	118.4	118.8	121.2	117.4	117.4	124.6	120.9	117.4	116.3	111.0
TV and radio sets	365	.8	113.5	118.8	122.0	119.4	119.9	115.8	123.1	126.0	125.9	116.8	116.0	110.8
Communication equipment	366	3.3	103.6	102.9	106.7	104.3	106.5	104.0	112.6	113.6	107.1	100.3	104.4	97.4
Electronic components	367	14.5	118.5	119.1	119.2	118.9	119.8	119.7	126.4	127.2	120.7	115.7	117.0	114.0
Transportation equipment														
Motor vehicles and parts	371	22.8	109.3	118.2	121.1	119.0	121.7	123.0	116.9	127.1	123.5	117.5	115.7	115.9
Aircraft and parts	372	10.7	85.1	87.9	88.9	92.5	92.4	88.1	91.2	94.0	90.9	90.1	88.8	83.2
Ships and boats	373	2.2	106.1	111.0	101.6	105.6	104.3	106.9	106.1	110.5	98.7	103.2	104.5	109.4
Instruments														
Photographic equip. & supplies	386	1.8	95.5	87.5	83.1	85.7	90.5	83.4	102.0	92.5	85.5	81.9	85.3	84.3
Miscellaneous manufactures														
	39	4.5	113.7	119.1	120.5	123.5	123.6	123.7	122.7	127.9	122.5	120.4	117.6	114.6
SUPPLEMENTARY GROUPS														
Total, excluding nuclear nondefense		909.8	107.5	107.4	107.8	108.1	108.5	107.3	111.5	111.4	109.4	107.1	106.7	104.8
Utility sales to industry		835.3	105.4	105.9	106.8	107.5	108.2	106.6	108.9	109.8	108.3	106.7	106.0	104.1
Industrial generation		98.8	103.4	101.6	101.2	97.4	100.2	100.4	105.0	100.2	102.9	97.1	104.4	105.6

Explanatory Note

The statistical release of **Industrial Production and Capacity Utilization** 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 in the release and historical data are available under statistical releases at <http://www.federalreserve.gov>, the Board's World Wide Web site. For paid access to these 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 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 output in the manufacturing, mining, and electric and gas utilities industries; the reference period for the index is 1992. For the period since 1992, the total IP index has been constructed from 264 individual series based on the 1987 Standard Industrial Classification (SIC). These individual series are classified in two ways: (1) market groups (shown in table 1), such as consumer goods, equipment, intermediate products, and materials; and (2) industry groups (shown in tables 2 and 6), such as two-digit SIC industries and major aggregates of these industries—for example, durable and nondurable manufacturing, mining, and utilities.

Market groups. For purposes of analysis, the individual IP series are grouped into final products, intermediate products, and materials. Final products are assumed to be purchased by consumers, businesses, or government for final use. Intermediate products are expected to become inputs in nonindustrial sectors, such as construction, agriculture, and services. Materials are industrial output requiring further processing within the industrial sector. Total products comprise final and intermediate products, and final products are divided into consumer goods and equipment.

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 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 tables.) After the fourth month, indexes are not revised further until the time of an annual revision or a benchmark revision. The last three benchmark revisions were published in 1990, 1985, and 1976.

Source data. In annual or benchmark revisions, 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 Department of the Interior; and publications of the Department of Energy. 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 as well as from government agencies including those listed above; data of this type are used to estimate monthly IP where possible and appropriate. When suitable data on physical product are unavailable, 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 data used to benchmark the IP indexes; these factors also may be influenced by technological or cyclical developments. Especially for the first and second estimates for a given month, the available source data are limited and subject to revision.

Weights. In the index, series that measure the output of an individual industry are weighted according to their proportion in the total value-added output of all industries. The industrial production index, which extends back to 1919, is built as an annually weighted chain-type index since 1977. The components of IP are combined using estimates of value added per unit of output. For months from January to June, the weights are drawn from the year containing the month being estimated and the preceding year; for months from July to December, the weights are drawn from the current and following year. The IP proportions shown in column 1 of tables 1A, 2A, and 6 are estimates of the industries' relative contributions to overall growth in the following year. For example, a 1 percent increase in durable goods manufacturing in 1997 would account for an increase in total IP of nearly 1/2 percent.

Seasonal adjustment. Individual series are seasonally adjusted by the X-11 ARIMA method, developed at Statistics Canada. For series based on production-worker hours, the current seasonal factors were estimated with data through October 1998; for other series, the factors were estimated with data through at least June 1998. Series are preadjusted for the effects of holidays or the business cycle where 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 1987–97 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 1987–97 period. In most cases (about 83 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

Definition. Capacity utilization is calculated for the manufacturing, mining, and electric and gas utilities industries. For a given industry, the utilization rate is equal to an output index divided by a capacity index. Output is measured by seasonally adjusted indexes of industrial production. The capacity indexes attempt to capture the concept of sustainable practical capacity, which is defined as the greatest level of output that a plant can maintain within the framework of a realistic work schedule, taking account of normal downtime, and assuming sufficient availability of inputs to operate the machinery and equipment in place. The 76 individual capacity indexes are based on a variety of data, including capacity data measured in physical units compiled by trade associations, surveys of utilization rates and investment, and estimates of growth of the capital input.

Groups. Estimates of capacity and utilization are available for a variety of groups, including primary and advanced processing industries within manufacturing, durable and nondurable manufacturing, total manufacturing, mining, utilities, and total industry. Component industries of the primary and advanced processing groups within manufacturing are listed in the note on tables 2 and 3 of the release.

Weights. Although each utilization rate is the result of dividing an IP series by a corresponding capacity index, aggregate utilization rates are equivalent to combinations of individual utilization rates aggregated with proportions that reflect current capacity levels of output valued in current-period value added per unit of actual output. The implied proportions of individual industry operating rates in the rate for total industry for the most recent year are shown in the first column of table 3.

Perspective. The historical highs and lows in capacity utilization shown in the tables above are specific to each series and did not all occur in the same month. Industrial plants usually operate at capacity utilization rates that are well below 100 percent: none of the broad aggregates has ever reached 100 percent. For total industry and total manufacturing, utilization rates have exceeded 90 percent only in wartime.

Electric Power

Data on electric power (expressed in kilowatt hours) are collected by the Federal Reserve District Banks from electric utilities and also from manufacturing and mining establishments that generate electric power for their own use (cogenerators). The indexes of power use shown in table 9 are sums of kilowatt hours used by an industry or industry group expressed as a percentage of that industry's or group's usage in 1992. The first column of the table shows, for reference, electric power use in billions of kilowatt hours as reported by manufacturing and mining industries in the 1992 censuses of those industries. The supplementary group, "Total, less nuclear nondefense," is shown separately because the value-added proportion for the nondefense nuclear material series (part of SIC 2819) in total IP is considerably smaller than its share of total electric power use. Excluding this component from total power use facilitates comparisons with total IP.

References

The annual revision published on November 24, 1998 is described more completely in the *Federal Reserve Bulletin*, vol.85 (January 1999).

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. *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. To obtain *Industrial Production—1986 Edition* (\$9.00 per copy), write to Board of Governors of the Federal Reserve System, Publications Services, Washington, DC 20551. 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, and January 1996, February 1997, February 1998, January 1999). The basic methodology used to estimate capacity and utilization is discussed in the June 1990 *Federal Reserve Bulletin*.

Release Schedule for 1999

At 9:15 a.m. on January 15, February 17, March 16, April 16, May 14, June 16, July 16, August 17, September 16, October 15, November 16, and December 15.