

# FEDERAL RESERVE statistical release



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## INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Industrial production decreased 0.4 percent in November, after three months of little overall change. A drop in the output of motor vehicles and parts and a strike at a major producer of construction and mining equipment accounted for much of the November decline. Industrial output in other industries edged down, on balance, last month. At 107.8 percent of its 1987 annual average, total industrial production was 0.5 percent below its year-ago level. Capacity utilization for total industry decreased 0.5 percentage point in November to 79.1 percent.

### Market Groups

Production of consumer goods declined 0.5 percent in November, reflecting the curtailment in output of autos and trucks and a small decrease in the production of nondurable consumer goods, such as food and clothing. Output of other consumer durables, which include appliances and other goods for the home, has changed little, on balance, since July. Output of business equipment fell 0.7 percent in November with the drop in motor vehicles and the strike-related decline in construction and mining equipment more than accounting for the loss. Elsewhere in business equipment, overall production has increased a bit in recent months owing to a pickup in output of information processing equipment, particularly

(over)

### INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY

Seasonally adjusted

	Index, 1987=100				Percent change				Nov 90 to Nov 91
	1991 Aug <sup>f</sup>	Sep <sup>f</sup>	Oct <sup>f</sup>	Nov <sup>P</sup>	1991 Aug <sup>f</sup>	Sep <sup>f</sup>	Oct <sup>f</sup>	Nov <sup>P</sup>	
<b>Industrial Production</b>									
<b>Total Index</b>	108.0	108.2	108.2	107.8	-0.1	0.2	0.0	-0.4	-0.5
Previous estimates	108.0	108.2	108.2		-0.1	0.2	0.0		
<b>Major market groups:</b>									
Products, total	108.5	108.8	108.9	108.4	-0.2	0.3	0.0	-0.4	-0.7
Consumer goods	108.4	109.2	109.3	108.8	0.1	0.7	0.1	-0.5	2.1
Business equipment	121.3	122.3	122.5	121.7	-0.9	0.8	0.2	-0.7	-1.0
Construction supplies	96.7	96.4	95.4	95.5	-0.2	-0.3	-1.1	0.1	-6.2
Materials	107.2	107.3	107.2	106.8	0.1	0.1	-0.1	-0.4	-0.0
<b>Major industry groups:</b>									
Manufacturing	108.4	108.9	108.9	108.3	0.0	0.5	0.0	-0.5	-0.6
Durable	107.8	108.4	108.2	107.3	-0.2	0.5	-0.1	-0.9	-2.4
Nondurable	109.0	109.5	109.7	109.6	0.4	0.4	0.1	0.0	1.7
Mining	101.3	100.8	100.3	100.3	-1.3	-0.5	-0.6	0.0	-2.9
Utilities	110.7	108.9	109.0	109.9	-0.2	-1.5	0.1	0.9	2.8
									Capacity growth
									Nov 90 to Nov 91
<b>Capacity Utilization</b>									
	Average 1967-90	1982 Low	1988-89 High	1990 Nov	1991 Aug <sup>f</sup>	Sep <sup>f</sup>	Oct <sup>f</sup>	Nov <sup>P</sup>	
<b>Total Industry</b>	82.2	71.8	85.0	81.6	79.8	79.8	79.6	79.1	2.6
Manufacturing	81.5	70.0	85.1	80.7	78.6	78.8	78.6	78.0	2.9
Advanced processing	81.1	71.4	83.6	79.6	77.5	77.7	77.5	76.9	3.2
Primary processing	82.4	66.8	89.0	83.2	81.2	81.2	81.1	80.7	2.1
Mining	87.4	80.6	87.2	90.6	88.5	88.0	87.5	87.5	0.6
Utilities	86.8	76.2	92.3	83.8	85.9	84.5	84.5	85.1	1.2

computers; however, production of industrial equipment, even after allowing for the effect of the strike, has continued to fall. Output of construction supplies was estimated to have been little changed in November after falling since June. Output of materials decreased 0.4 percent in November mainly because of a cut in production of motor vehicle parts and supplies; production of other materials was little changed, on average.

### Industry Groups

Manufacturing production decreased 0.5 percent in November, and capacity utilization at factories fell 0.6 percentage point to 78.0 percent. Operating rates for both primary and advanced processing industries decreased last month, and declines were widespread. Utilization for advanced processing industries, which recovered only 1 percentage point between its trough in March and July, fell back in November to near its March level; much of the recent weakness has been concentrated in transportation equipment, electrical machinery, instruments, and furniture. The operating rate for primary processing industries remained well above its spring trough despite some recent declines. Output of iron and steel increased for the fifth consecutive month, but production in most other primary processing industries held steady or fell last month.

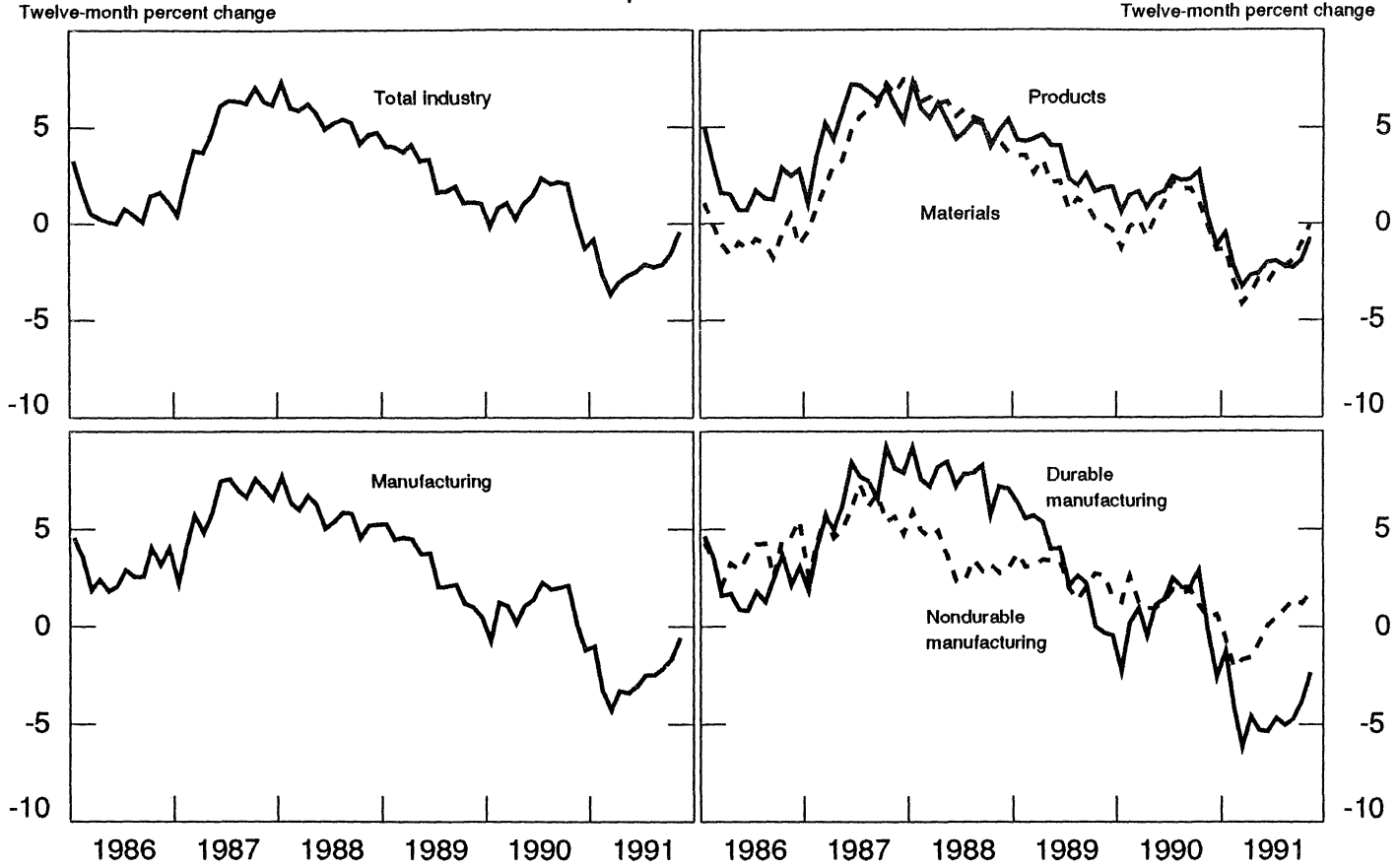
Outside manufacturing, output at mines was unchanged in November, and utilities production was boosted by an increase of more than 1 percent in the output of electric utilities.

# INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Seasonally adjusted

November data

## Industrial production indexes

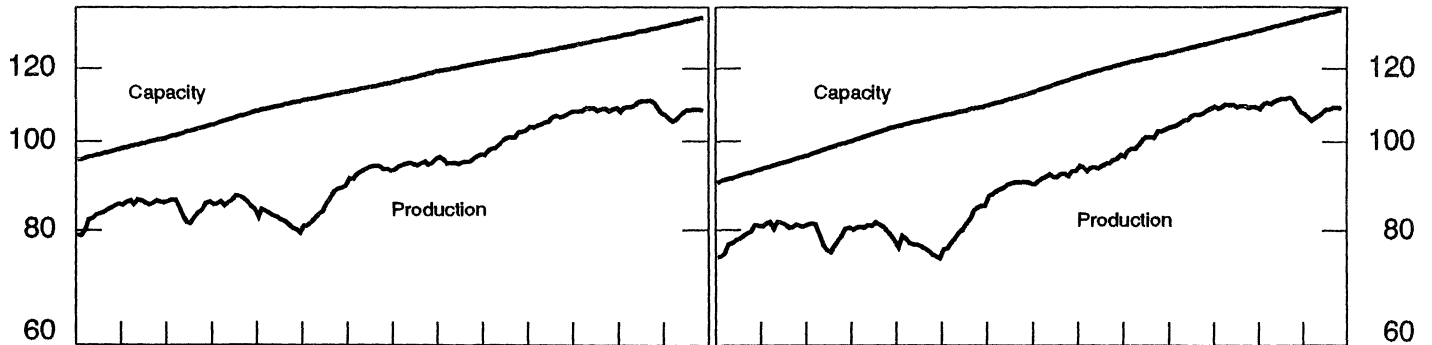


### Total industry

### Manufacturing

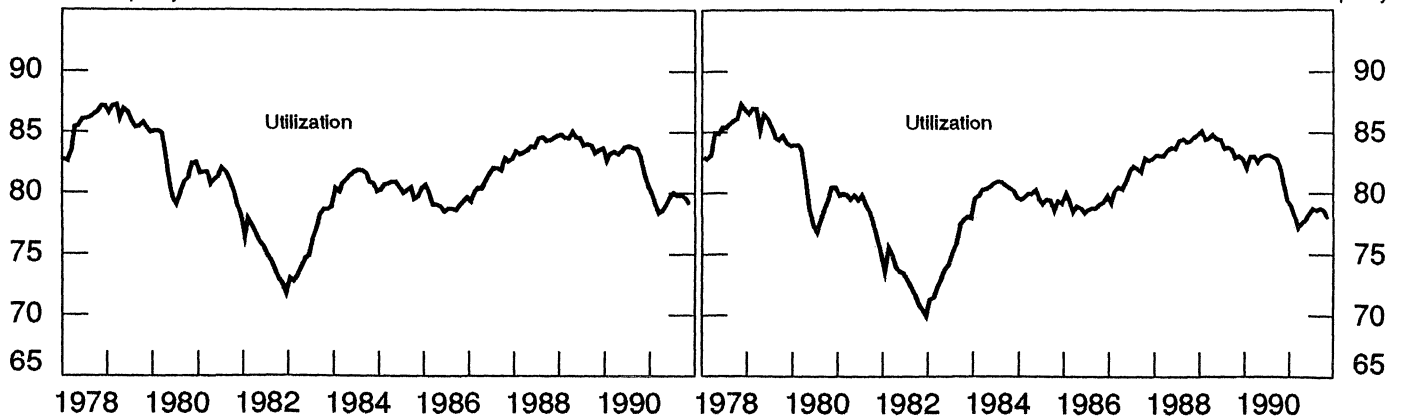
Ratio scale, 1987 production = 100

Ratio scale, 1987 production = 100



Percent of capacity

Percent of capacity









**Table 2B**  
**INDUSTRIAL PRODUCTION: INDUSTRY GROUPS**

Percent change

Item	SIC	1989 Q4 to 1990 Q4 <sup>1</sup>	Seasonally adjusted annual rate				Seasonally adjusted				Not seasonally adjusted				Nov 90 to Nov 91 <sup>1</sup>
			1990 Q4	1991 Q1	Q2	Q3 <sup>r</sup>	1991 Aug <sup>r</sup>	Sep <sup>r</sup>	Oct <sup>r</sup>	Nov <sup>p</sup>	1991 Aug <sup>r</sup>	Sep <sup>r</sup>	Oct <sup>r</sup>	Nov <sup>p</sup>	
<b>Total Index</b>		0.3	-7.0	-9.7	2.6	6.4	-0.1	0.2	0.0	-0.4	3.6	0.8	-1.5	-2.3	-0.5
<b>Manufacturing</b>		0.3	-7.4	-10.4	2.2	7.2	0.0	0.5	0.0	-0.5	4.0	1.3	-1.2	-3.2	-0.6
<b>Primary processing</b>		-1.3	-10.4	-14.6	0.7	13.5	0.3	0.2	0.0	-0.3	4.0	1.7	-0.2	-2.9	-1.0
<b>Advanced processing</b>		1.0	-6.0	-8.5	2.9	4.6	-0.1	0.6	0.0	-0.6	4.0	1.2	-1.6	-3.4	-0.4
<b>Durable</b>		0.0	-12.0	-13.4	2.1	5.5	-0.2	0.5	-0.1	-0.9	3.5	1.9	-0.4	-2.8	-2.4
Lumber and products	24	-8.6	-20.8	-13.6	7.4	4.5	0.5	-0.4	-1.2	2.1	6.6	-0.5	-2.1	-4.3	0.2
Furniture and fixtures	25	-2.0	-15.1	-23.0	10.0	9.4	0.7	-0.1	0.0	-0.8	9.2	0.2	-2.5	-2.2	-1.9
Stone, clay, and glass products	32	-4.8	-10.0	-21.7	-8.4	1.9	-0.4	-1.2	0.1	-1.8	2.1	-1.0	0.1	-3.7	-10.7
<b>Primary metals</b>	33	1.9	-16.3	-30.5	-7.9	27.8	1.5	-0.4	0.1	-0.2	5.1	3.4	0.8	-2.9	-6.3
Iron and steel	331,2	5.3	-14.0	-41.3	-13.8	36.2	1.1	0.2	1.6	0.4	4.5	2.7	2.4	-3.8	-8.7
Raw steel		6.0	-22.3	-32.7	-23.2	55.6	-0.2	-1.5	0.4	1.6	1.5	2.5	1.1	0.8	-6.1
Nonferrous	333-6,9	-2.8	-19.7	-11.7	0.5	17.5	2.0	-1.2	-1.9	-1.0	5.9	4.2	-1.4	-1.7	-2.7
Fabricated metal products	34	-2.1	-11.7	-16.7	-2.2	9.9	0.5	0.4	-0.1	-0.8	2.8	2.1	-0.8	-1.8	-3.2
Nonelectrical machinery	35	3.7	-6.6	-6.1	-2.8	0.0	-0.5	-0.1	0.6	-1.3	1.5	-0.3	-2.0	-4.1	-3.1
Office & computing machines	357	9.0	-3.8	12.3	-1.9	-3.3	-1.9	-0.6	2.8	0.5	2.7	-3.8	0.7	-3.6	5.0
Electrical machinery	36	-0.2	-8.5	-6.3	9.5	2.1	0.5	-0.4	-1.2	0.4	2.6	1.2	0.2	-0.6	-0.2
<b>Transportation equipment</b>	37	-1.1	-24.5	-21.3	9.9	10.4	-2.3	3.2	0.2	-2.7	6.1	7.0	2.9	-4.2	-0.5
Motor vehicles and parts	371	-9.9	-44.9	-33.3	50.7	32.0	-5.2	8.5	0.9	-4.7	13.8	13.5	5.5	-9.4	11.5
Autos and light trucks		-10.4	-50.9	-41.9	66.1	43.2	-8.4	14.1	1.5	-5.4	27.1	20.9	10.1	-13.5	16.7
Aerospace and misc.	372-6,9	6.2	-4.0	-11.7	-12.1	-4.1	0.2	-0.9	-0.4	-1.1	0.7	1.9	0.6	0.6	-8.7
Instruments	38	2.0	0.7	3.7	-2.8	-2.8	0.4	1.1	-0.2	0.3	1.8	0.9	-2.4	-0.7	0.2
Miscellaneous	39	3.7	-0.4	-17.7	12.2	12.6	1.3	-1.1	-0.8	-0.2	7.7	-1.1	-3.2	-6.2	-1.5
<b>Nondurable</b>		0.7	-0.9	-6.3	2.2	9.3	0.4	0.4	0.1	0.0	4.7	0.6	-2.2	-3.8	1.7
Foods	20	1.7	6.5	-5.0	0.9	2.9	0.4	0.6	0.0	-0.1	4.0	0.9	-2.3	-4.1	-0.4
Tobacco products	21	0.3	9.5	0.5	-3.4	18.3	0.5	-0.4	-0.5	-2.5	22.7	-1.8	5.3	-10.8	0.6
Textile mill products	22	-2.1	-11.7	-14.1	22.0	20.0	0.5	-1.5	0.0	0.0	12.5	-1.0	-0.6	-5.3	5.9
Apparel products	23	-7.3	-11.3	-12.2	9.2	14.4	0.4	0.0	0.6	-0.3	6.3	0.4	-0.8	-1.4	3.2
Paper and products	26	1.5	-5.4	-11.5	0.3	20.5	-1.5	1.4	-0.5	0.1	3.3	1.4	1.3	-3.2	2.4
Printing and publishing	27	2.9	5.1	-5.5	-1.1	6.0	0.4	0.7	0.7	0.3	5.0	-0.9	-4.3	-4.7	1.6
Chemicals and products	28	1.2	-2.2	-3.8	0.6	10.9	0.8	0.2	0.4	0.4	1.6	1.4	-3.9	-2.3	3.2
Petroleum products	29	0.5	-9.3	-0.1	1.0	1.7	-1.0	1.2	-1.1	-1.6	0.1	-0.4	-3.9	-2.6	-2.0
Rubber and plastics products	30	-0.3	-7.1	-9.1	9.0	12.2	2.3	0.6	0.0	-0.5	7.5	3.0	-0.1	-4.4	2.8
Leather and products	31	-8.8	-28.7	-8.2	-2.3	-8.7	-4.3	-1.1	-2.7	1.2	15.6	-2.7	-0.7	-0.5	-5.7
<b>Mining</b>		2.4	-1.4	-4.0	-3.8	2.2	-1.3	-0.5	-0.6	0.0	2.7	-0.6	1.0	1.7	-2.9
Metal mining	10	4.0	-16.8	-18.9	11.3	10.0	1.6	-1.5	0.4	-1.0	5.7	0.3	-1.3	-2.7	-0.9
Coal	11,12	5.2	-8.3	-8.0	-13.4	23.7	-4.5	-0.6	-2.0	0.7	16.7	-3.7	-1.5	-0.7	-3.7
Oil and gas extraction	13	2.1	3.9	-0.3	-0.2	-2.9	-0.8	-0.5	-0.1	0.0	-0.6	-0.1	2.0	3.0	-2.2
Stone and earth minerals	14	-0.9	-13.7	-12.3	-19.8	1.5	-0.8	0.3	-2.0	-0.1	1.1	1.3	0.3	-0.4	-7.4
<b>Utilities</b>		-2.1	-7.6	-7.6	13.5	2.0	-0.2	-1.5	0.1	0.9	-0.6	-4.4	-7.4	6.6	2.8
Electric	491,3pt	-0.6	-5.7	-6.6	20.1	2.5	-0.9	-2.0	0.1	1.1	-1.0	-4.8	-11.2	1.9	4.6
Gas	492,3pt	-8.1	-15.2	-11.5	-11.7	-0.1	3.0	0.6	-0.2	-0.1	2.4	-1.3	23.4	33.1	-4.5
<b>SPECIAL AGGREGATES</b>															
<b>Manufacturing excluding:</b>															
Motor vehicles and parts		0.9	-4.9	-9.2	0.4	6.1	0.3	0.1	-0.1	-0.3	3.6	0.8	-1.6	-2.9	-1.1
Office and computing machines		0.0	-7.5	-11.2	2.3	7.6	0.1	0.5	-0.1	-0.5	4.1	1.6	-1.3	-3.2	-0.8

1. Based on seasonally adjusted data.

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

Percent of capacity, seasonally adjusted

Item	SIC	1990 Proportion	1967- 1990 Ave.	1973 High	1975 Low	1978- 1980 High	1982 Low	1988 1989 High	1990 Nov	1991 Jun	Jul	Aug <sup>r</sup>	Sep <sup>r</sup>	Oct <sup>r</sup>	Nov <sup>P</sup>
<b>Total Industry</b>		100.0	82.2	89.2	72.6	87.3	71.8	85.0	81.6	79.6	80.0	79.8	79.8	79.6	79.1
<b>Manufacturing</b>		85.7	81.5	88.9	70.8	87.3	70.0	85.1	80.7	78.3	78.7	78.6	78.8	78.6	78.0
<b>Primary processing</b>		25.4	82.4	92.2	68.9	89.7	66.8	89.0	83.2	79.9	81.1	81.2	81.2	81.1	80.7
<b>Advanced processing</b>		60.3	81.1	87.5	72.0	86.3	71.4	83.6	79.6	77.6	77.8	77.5	77.7	77.5	76.9
<b>Durable</b>		49.4	79.5	88.8	68.5	86.9	65.0	84.0	79.1	76.0	76.4	76.0	76.2	75.9	75.1
Lumber and products	24	1.9	82.7	90.1	62.2	87.6	60.9	91.2	76.6	77.2	75.6	76.0	75.6	74.6	76.1
Furniture and fixtures	25	1.4	82.7	96.8	64.3	86.6	68.9	88.3	80.8	77.6	78.3	78.8	78.6	78.5	77.7
Stone, clay, and glass products	32	2.4	78.5	89.2	67.2	87.0	63.1	86.4	79.9	72.7	73.3	73.0	72.0	72.1	70.7
<b>Primary metals</b>		3.2	80.0	100.6	66.2	102.4	46.8	91.6	85.3	74.9	78.5	79.6	79.2	79.2	79.0
Iron and steel	331,2	2.0	79.5	105.8	66.6	110.4	38.3	92.0	84.8	69.5	74.3	75.0	75.1	76.2	76.4
Raw steel		0.1	79.0	102.7	66.0	95.7	35.2	94.1	83.3	70.9	77.3	77.0	75.8	76.0	77.1
Nonferrous	333-6,9	1.3	81.1	92.9	61.3	90.5	62.2	95.0	85.9	83.5	85.1	86.7	85.6	83.9	83.1
Primary copper		0.0	71.7	92.1	55.0	80.8	42.1	97.9	82.4	76.0	87.3	87.7	84.3	83.5	
Primary aluminum	3334	0.1	88.7	95.7	73.3	97.6	58.6	103.5	101.5	102.2	104.1	104.1	101.8	101.2	
<b>Fabricated metal products</b>		5.4	77.9	87.8	65.9	83.9	62.9	85.1	79.1	75.2	75.9	76.2	76.5	76.3	75.6
Nonelectrical machinery	35	10.0	81.4	96.4	74.5	92.1	64.9	83.5	80.8	77.1	77.2	76.5	76.2	76.4	75.2
Electrical machinery	36	9.1	80.4	87.8	63.8	89.4	71.1	83.1	78.1	77.2	76.6	76.8	76.2	75.1	75.2
<b>Transportation equipment</b>		10.0	75.3	83.8	58.2	82.7	56.7	84.6	74.4	73.1	74.1	72.3	74.5	74.5	72.3
Motor vehicles and parts	371	4.7	76.6	93.4	51.1	93.0	44.5	85.5	64.5	68.9	71.8	67.9	73.6	74.2	70.6
Autos and light trucks <sup>1</sup>		2.5				92.2	40.1	83.6	60.8	65.5	69.7	63.7	72.5	73.5	69.3
Aerospace and misc.	372-6,9	5.3	75.7	77.0	66.6	81.1	66.9	86.2	83.1	76.8	76.1	76.1	75.3	74.9	73.9
Instruments	38	3.7	82.9	89.9	75.2	92.5	79.0	83.9	78.1	75.6	74.8	74.8	75.4	75.0	74.9
Miscellaneous	39	1.3	76.3	82.9	65.4	78.7	66.1	85.5	86.5	83.2	84.3	85.2	84.1	83.2	82.9
<b>Nondurable</b>		36.3	83.7	87.9	71.8	87.0	76.9	86.7	82.9	81.4	82.0	82.1	82.2	82.1	81.9
Foods	20	8.8	82.4	86.0	78.1	84.3	78.8	83.0	82.1	80.2	79.8	79.9	80.2	80.0	79.8
Textile mill products	22	1.6	86.0	92.0	60.4	91.7	73.8	91.2	83.3	86.4	88.4	88.8	87.3	87.3	87.2
Apparel products	23	2.3	81.4	84.2	61.9	86.0	78.9	84.2	74.2	74.2	75.4	75.6	75.6	75.9	75.7
Paper and products	26	3.1	89.8	96.9	69.0	94.2	82.0	95.8	90.9	89.7	91.9	90.4	91.4	90.8	90.7
Pulp and paper	261-3	1.4	92.2	97.1	70.0	98.2	82.1	97.7	92.7	91.6	94.3	91.1	93.1	92.7	
Printing and publishing	27	6.3	87.1	89.7	75.2	92.2	83.0	90.4	84.5	81.4	81.6	81.6	81.8	82.1	82.0
<b>Chemicals and products</b>		8.8	79.8	87.9	69.9	85.1	70.1	86.8	80.2	78.2	79.3	79.7	79.6	79.7	79.7
Plastics materials	2821	0.8	85.9	102.0	50.6	90.9	63.4	98.9	90.2	84.1	89.6	87.1	87.0		
Synthetic fibers	2823,4	0.4	84.1	93.8	51.7	98.5	64.4	94.5	84.0	78.3	86.3	86.4	83.1	88.7	
<b>Petroleum products</b>		1.2	85.3	96.7	81.1	89.5	68.2	90.3	88.9	90.2	89.2	88.4	89.4	88.5	87.1
Rubber and plastics products	30	3.0	83.9	94.0	58.8	90.4	73.5	90.4	83.9	82.9	82.3	83.9	84.2	83.9	83.2
Leather and products	31	0.3	82.4	81.3	67.7	92.4	78.1	88.4	76.8	77.9	78.0	74.7	73.9	71.9	72.8
<b>Mining</b>		6.9	87.4	94.4	88.4	96.6	80.6	87.2	90.6	89.2	89.6	88.5	88.0	87.5	87.5
Metal mining	10	0.5	77.1	90.3	74.4	87.6	43.4	87.2	79.7	79.7	77.5	78.5	77.1	77.1	76.1
Coal	11,12	1.1	87.5	90.8	82.5	95.7	75.4	94.4	90.4	86.7	91.1	86.8	86.0	84.1	84.5
Oil and gas extraction	13	4.7	88.0	96.6	91.9	96.9	82.5	86.6	92.5	92.5	92.2	91.6	91.2	91.2	91.3
Oil and gas well drilling	138	0.7	73.8	93.0	95.3	104.3	50.8	58.8	70.7	68.4	65.1	57.9	53.6	53.0	
Stone and earth minerals	14	0.7	84.9	93.7	73.3	93.3	63.3	94.3	85.5	78.0	78.7	77.8	77.7	75.9	75.5
<b>Utilities</b>		7.4	86.8	95.6	82.5	88.3	76.2	92.3	83.8	86.7	86.2	85.9	84.5	84.5	85.1
Electric	491,3pt	5.6	89.1	99.0	82.7	88.3	78.7	96.2	88.9	94.1	93.6	92.7	90.7	90.7	91.6
Gas	492,3pt	1.8	82.6	93.2	81.0	93.6	70.8	80.3	67.4	63.0	62.3	64.2	64.6	64.4	64.3

1. Series begins in 1977.

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, nonelectrical machinery, electrical machinery, transportation equipment, instruments, miscellaneous manufactures, and government owned-and-operated ordnance.



**Table 4**  
**INDUSTRIAL CAPACITY: MANUFACTURING, MINING, AND UTILITIES**

Item	SIC	Percent change								Capacity indexes						
		Annual rate			December to December					Percent of 1987 output						
		1967- 1990 Ave.	1967- 1975 Ave.	1975- 1990 Ave.	1986	1987	1988	1989	1990	1990 Nov	1991 Jun	Jul	Aug	Sep	Oct	Nov
<b>Total Industry</b>		3.0	3.7	2.6	2.1	2.0	2.2	2.4	2.5	132.8	134.8	135.1	135.3	135.6	135.9	136.2
<b>Manufacturing</b>		3.5	3.9	3.2	3.2	2.6	2.8	2.9	2.9	135.0	137.2	137.6	137.9	138.2	138.5	138.9
<b>Primary processing</b>		2.3	4.0	1.3	0.3	1.0	2.0	2.4	2.2	126.1	127.7	127.9	128.1	128.4	128.6	128.8
<b>Advanced processing</b>		4.0	3.9	4.1	4.5	3.3	3.2	3.2	3.3	139.1	141.7	142.0	142.4	142.8	143.1	143.5
<b>Durable</b>		3.6	3.7	3.6	3.9	2.6	2.6	2.7	2.8	139.0	141.2	141.5	141.8	142.2	142.5	142.8
Lumber and products	24	2.2	2.9	1.9	4.0	4.6	4.1	2.8	1.8	124.6	125.3	125.4	125.4	125.5	125.6	125.7
Furniture and fixtures	25	3.3	4.5	2.6	2.2	3.4	2.5	2.7	2.2	126.6	128.1	128.3	128.5	128.8	129.0	129.2
Stone, clay, and glass products	32	1.6	2.5	1.0	0.5	1.0	0.9	1.3	0.9	129.9	130.6	130.7	130.8	130.9	131.0	131.1
<b>Primary metals</b>		0.0	1.7	-1.0	-6.1	-3.5	0.9	1.5	0.8	127.9	128.7	128.8	129.0	129.1	129.2	129.3
Iron and steel	331,2	-0.9	0.7	-1.9	-9.9	-5.9	1.3	2.1	0.7	132.7	133.7	133.9	134.0	134.2	134.4	134.5
Raw steel		-1.1	0.3	-1.9	-10.0	-5.9	1.3	1.8	1.0	131.5	132.6	132.8	132.9	133.1	133.3	133.4
Nonferrous	333-6,9	1.5	3.6	0.3	-0.4	0.4	0.2	0.5	0.8	121.1	121.6	121.7	121.7	121.8	121.9	121.9
Primary copper	3331	0.0	1.8	-1.1	-3.3	-1.1	5.0	6.3	1.0	146.4	146.8	146.8	146.9	146.9	147.0	147.0
Primary aluminum	3334	1.4	5.2	-0.7	-12.7	0.2	1.0	0.3	1.0	121.3	121.9	122.1	122.3	122.5	122.5	122.5
<b>Fabricated metal products</b>		1.8	3.1	1.1	0.5	0.2	0.4	1.5	1.5	131.7	132.7	132.9	133.0	133.1	133.3	133.4
Nonelectrical machinery	35	6.7	4.7	8.0	8.8	4.0	3.5	3.6	4.2	156.3	160.1	160.6	161.2	161.7	162.2	162.8
Electrical machinery	36	5.3	6.1	4.9	4.1	3.3	3.7	3.8	3.9	141.4	144.4	144.9	145.3	145.7	146.2	146.6
<b>Transportation equipment</b>		2.6	3.0	2.4	3.6	3.1	2.2	1.6	1.8	134.6	136.4	136.6	136.9	137.2	137.4	137.7
Motor vehicles and parts	371	2.8	4.5	1.8	2.9	3.7	1.5	0.0	0.8	132.9	134.4	134.6	134.9	135.1	135.4	135.6
Autos and light trucks <sup>1</sup>					5.4	6.0	1.4	-1.5	-0.9	137.6	139.2	139.6	139.9	140.2	140.5	140.9
Aerospace and misc.	372-6,9	2.3	1.3	2.9	4.2	2.5	2.9	3.1	2.7	136.1	138.1	138.4	138.7	139.0	139.3	139.6
Instruments	38	6.2	7.6	5.3	4.7	6.0	5.4	5.1	4.8	151.1	155.1	155.7	156.2	156.8	157.4	157.9
Miscellaneous	39	2.2	4.4	1.0	0.7	1.5	1.9	2.2	2.5	141.6	143.9	144.3	144.6	145.0	145.3	145.7
<b>Nondurable</b>		3.2	4.3	2.5	2.2	2.6	3.1	3.3	3.2	129.9	132.2	132.5	132.9	133.2	133.5	133.8
Foods	20	2.8	3.0	2.7	2.2	2.2	2.5	2.7	2.7	133.5	135.5	135.7	136.0	136.3	136.6	136.9
Textile mill products	22	2.2	4.3	0.9	0.6	2.2	1.7	2.0	1.2	117.0	117.8	117.9	118.0	118.1	118.2	118.3
Apparel products	23	1.8	2.3	1.5	2.6	1.7	2.4	2.3	1.8	128.7	129.7	129.8	129.9	130.1	130.2	130.3
Paper and products	26	2.7	3.9	2.0	2.5	2.1	2.5	2.0	2.1	115.7	117.4	117.6	117.9	118.2	118.4	118.7
Pulp and paper	261-3	2.4	3.0	2.1	2.1	3.2	3.6	2.4	2.2	114.7	116.9	117.2	117.5	117.9	118.2	118.5
Printing and publishing	27	3.9	3.0	4.4	4.4	5.2	5.7	5.6	5.4	133.0	136.7	137.2	137.7	138.2	138.7	139.2
<b>Chemicals and products</b>		4.0	6.8	2.4	1.1	2.4	3.3	4.0	3.8	137.1	140.2	140.6	141.0	141.5	141.9	142.3
Plastics materials	2821	7.7	12.7	4.9	-0.2	5.7	9.8	8.9	7.3	132.9	140.3	141.5	142.6	143.8	144.9	146.1
Synthetic fibers	2823,4	4.2	9.7	1.1	-3.5	1.7	2.9	1.0	0.1	112.9	112.9	112.9	112.9	112.9	112.9	112.9
Petroleum products	29	2.0	4.2	0.7	1.0	2.5	-1.2	0.7	0.3	121.4	121.4	121.4	121.4	121.4	121.4	121.4
Rubber and plastics products	30	5.9	8.6	4.3	4.4	3.2	4.9	4.4	4.1	130.6	133.4	133.7	134.1	134.5	134.9	135.3
Leather and products	31	-3.3	-1.5	-4.3	-6.1	-5.8	-4.6	-3.3	-1.0	117.1	116.8	116.7	116.7	116.6	116.6	116.6
<b>Mining</b>		0.1	-0.1	0.2	-2.5	-3.6	-3.8	-1.9	-1.9	114.0	114.5	114.5	114.6	114.6	114.6	114.7
Metal mining	10	1.6	0.7	2.2	-0.2	2.9	14.3	10.7	6.9	192.5	197.0	197.5	198.0	198.6	199.1	199.6
Coal	11,12	2.7	2.5	2.8	1.8	1.8	1.7	1.6	3.0	124.9	127.0	127.4	127.7	128.0	128.3	128.6
Oil and gas extraction	13	-0.6	-1.0	-0.3	-3.1	-5.6	-6.8	-4.5	-4.7	105.1	104.7	104.6	104.5	104.4	104.2	104.1
Oil and gas well drilling	138	1.4	0.8	1.8	-9.9	-16.4	-25.5	-9.1	-9.9	155.1	150.7	150.3	149.9	149.5	149.0	148.6
Stone and earth minerals	14	1.5	2.6	0.9	0.9	1.5	2.3	5.0	5.0	132.7	136.5	137.0	137.5	138.1	138.6	139.1
<b>Utilities</b>		3.2	6.0	1.5	0.8	1.5	2.2	0.7	1.6	127.6	128.6	128.7	128.8	128.9	129.0	129.2
Electric	491,3pt	4.4	7.8	2.4	1.5	2.3	2.2	0.9	2.2	123.2	124.4	124.6	124.7	124.9	125.0	125.2
Gas	492,3pt	0.3	2.3	-0.8	-1.3	-0.7	2.0	0.1	0.0	144.0	144.0	144.0	144.0	144.0	144.0	144.0

1. Series begins in 1977.











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

Item	SIC	Proportion in total IP		Index, 1987=100											
		1987	1990	Seasonally adjusted						Not seasonally adjusted					
				1991 May	Jun	Jul	Aug <sup>r</sup>	Sep <sup>r</sup>	Oct <sup>r</sup>	1991 May	Jun	Jul	Aug <sup>r</sup>	Sep <sup>r</sup>	Oct <sup>r</sup>
<b>Instruments</b>	<b>38</b>	3.26	3.49	118.2	117.3	116.5	116.9	118.2	118.0	116.2	120.3	118.7	120.8	121.9	118.9
Scientific and medical	381-4	2.21	2.44	119.6	119.3	117.8	118.0	119.1	119.0	117.3	122.6	121.5	123.8	124.7	119.8
Photographic equip. & supplies	386	0.94	0.93	115.4	113.4	113.7	114.1	116.4	115.4	113.7	115.6	113.0	114.5	115.9	117.0
<b>Misc. manufactures</b>	<b>39</b>	1.24	1.37	118.7	119.8	121.6	123.2	121.9	120.9	116.4	123.7	121.6	130.9	129.5	125.3
Consumer goods	391,3,4,6	0.65	0.68	112.8	114.7	115.7	116.4	117.1	117.6	111.3	119.8	113.0	123.5	125.9	123.5
Business supplies	395,9	0.59	0.68	125.9	125.9	128.2	130.7	126.4	124.6	122.0	128.0	131.0	139.0	132.5	127.3
<b>Electric utilities</b>	<b>491,3pt</b>	6.01	6.10	116.4	117.1	116.6	115.6	113.3	113.4	105.7	120.9	125.3	124.1	118.2	104.9
Generation		2.55	2.61	117.3	117.8	118.5	116.8	114.5	114.6	111.1	121.9	128.1	125.0	112.9	105.0
Fossil fuel		1.45	1.39	109.4	102.3	101.6	102.3	106.1		100.2	109.6	117.7	118.3	106.7	
Hydro and nuclear		1.10	1.22	127.8	138.3	140.9	135.9	125.5		125.6	138.1	141.9	133.9	121.2	
<b>Sales</b>		3.46	3.49	115.8	116.6	115.2	114.7	112.4	112.5	101.7	120.1	123.2	123.4	122.0	104.8
Residential		1.40	1.40	116.7	119.3	117.9	117.4	109.8		93.2	116.1	131.2	128.9	121.2	
Nonresidential		2.06	2.09	115.1	114.7	113.3	112.8	114.1		107.5	122.8	117.8	119.7	122.6	
Industrial		0.91	0.92	112.5	110.5	112.0	111.6	113.3		109.2	118.8	111.4	114.2	115.5	
Commercial and other		1.15	1.17	117.2	118.0	114.4	113.8	114.7		106.1	126.0	122.9	124.0	128.2	
<b>Gas utilities</b>	<b>492,3pt</b>	1.62	1.44	92.8	90.7	89.7	92.4	93.0	92.7	69.2	54.8	54.9	56.2	55.5	68.4

**Table 7**  
**INDUSTRIAL PRODUCTION: GROSS VALUE OF PRODUCTS**

Billions of 1982 dollars at annual rates, seasonally adjusted

Item	1982	1990	1990			1991			1991					
			Q2	Q3	Q4	Q1	Q2	Q3 <sup>r</sup>	Jun	Jul	Aug <sup>r</sup>	Sep <sup>r</sup>	Oct <sup>r</sup>	Nov <sup>P</sup>
<b>Products, total</b>	1376.8	1911.9	1921.8	1931.5	1895.5	1851.4	1873.2	1893.5	1890.5	1895.3	1885.5	1899.8	1907.7	1891.1
<b>Final products</b>	1084.5	1498.2	1507.8	1518.0	1483.4	1456.0	1477.7	1493.6	1490.5	1496.1	1484.5	1500.1	1508.7	1490.9
Consumer goods	703.7	883.2	887.9	889.0	872.8	856.0	873.9	889.2	884.2	888.3	882.7	896.6	900.4	890.4
Durable	133.3	220.3	230.5	228.0	205.9	192.0	209.8	220.5	215.9	220.0	214.4	227.1	229.3	223.8
Automotive products	65.8	124.6	132.9	132.1	114.6	103.7	118.9	125.8	123.1	125.8	120.0	131.7	134.6	128.5
Other durable goods	67.4	95.7	97.6	95.9	91.3	88.2	90.9	94.7	92.8	94.3	94.4	95.4	94.7	95.3
Nondurable	570.5	662.9	657.4	661.0	667.0	664.0	664.1	668.7	668.3	668.3	668.3	669.5	671.1	666.6
Equipment, total	380.8	615.0	619.9	629.0	610.6	600.0	603.9	604.4	606.2	607.8	601.8	603.5	608.3	600.5
Business and defense	345.5	595.0	598.8	608.9	591.0	580.9	584.9	587.4	587.1	589.6	584.9	587.7	592.6	584.9
Business	278.0	499.0	502.4	512.7	496.0	488.4	494.7	499.4	497.5	501.1	496.7	500.4	505.7	498.4
Defense and space	67.4	96.0	96.4	96.2	95.0	92.5	90.3	88.0	89.6	88.5	88.2	87.3	87.0	86.4
<b>Intermediate products</b>	292.3	413.7	414.0	413.5	412.1	395.4	395.5	399.9	400.1	399.2	401.0	399.6	399.0	400.2
Construction supplies	108.4	157.8	158.8	157.9	152.6	144.2	144.3	145.6	146.5	145.7	145.9	145.1	143.6	143.4
Business supplies	184.0	255.9	255.3	255.6	259.5	251.2	251.2	254.4	253.5	253.5	255.1	254.6	255.4	256.8
Commercial energy products	63.4	82.7	81.7	82.4	86.8	80.7	82.1	81.3	82.9	80.9	81.5	81.6	82.1	82.7

**Table 8**  
**DIFFUSION INDEXES OF INDUSTRIAL PRODUCTION**

Percent

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>One Month Earlier</b>												
1989	60.8	43.6	48.0	65.5	40.0	55.2	48.8	55.2	41.2	51.6	51.2	45.6
1990	56.0	52.8	47.6	49.6	58.4	56.8	57.0	49.2	45.2	37.3	34.5	36.5
1991	40.6	41.6	37.6	63.9	52.8	63.7	58.0	54.8	47.6	45.4		
<b>Three Months Earlier</b>												
1989	63.1	55.2	48.4	56.0	56.4	59.2	48.4	50.0	48.8	50.8	47.6	49.6
1990	53.6	52.8	57.6	51.2	54.8	59.8	65.5	59.6	51.4	39.6	32.1	28.1
1991	27.7	32.1	34.5	43.2	52.0	67.5	63.9	65.1	56.8	49.2		
<b>Six Months Earlier</b>												
1989	64.7	57.6	52.8	66.7	58.8	54.8	51.2	56.4	55.6	44.0	51.6	45.2
1990	51.2	52.8	54.4	52.8	58.4	59.6	61.6	60.4	56.8	54.4	44.4	37.3
1991	22.5	26.5	22.9	30.5	38.8	47.6	58.8	62.4	69.5	63.5		

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	SIC	1987 Billion KWH	Index, 1987 = 100											
			Seasonally adjusted						Not seasonally adjusted					
			1991 May	Jun	Jul	Aug <sup>f</sup>	Sep <sup>f</sup>	Oct <sup>p</sup>	1991 May	Jun	Jul	Aug <sup>f</sup>	Sep <sup>f</sup>	Oct <sup>p</sup>
<b>Chemicals and Products (cont.)</b>														
Synthetic materials	282	26.5	107.3	108.9	108.6	109.7	109.1	105.8	106.2	111.7	111.7	111.4	113.3	106.3
Plastics materials	2821	14.2	111.5	114.6	110.5	113.3	109.1	106.1	110.8	113.8	112.8	112.2	113.3	107.0
Drugs and medicines	283	5.5	115.7	112.7	112.1	113.9	113.0	113.5	111.7	122.2	125.4	127.3	127.1	114.1
Soap and toiletries	284	3.1	118.6	117.7	118.2	118.0	118.2	113.9	115.0	122.0	126.2	128.1	125.8	115.5
Industrial organic chemicals	286	36.0	102.4	106.8	100.5	102.2	107.1	103.3	101.0	107.0	102.8	107.2	109.8	106.7
Agricultural chemicals	287	8.5	105.7	107.6	109.0	108.1	105.9	101.4	107.1	108.7	104.9	104.6	106.9	102.6
<b>Petroleum products</b>														
	29	40.1	101.8	99.7	99.4	101.9	98.8	98.2	99.7	101.5	104.0	106.8	104.6	99.5
<b>Rubber and plastics products</b>														
Tires	301	3.6	102.9	103.0	99.7	106.2	106.5	110.4	103.6	107.6	99.9	113.9	114.0	112.5
Rubber products, nec	306	3.1	109.3	109.4	111.4	112.6	111.9	114.6	108.5	113.8	108.3	114.7	115.3	115.6
Plastics products, nec	307	24.9	109.9	112.1	114.3	113.2	115.6	114.2	110.2	115.3	113.0	115.6	120.1	117.8
<b>Leather and products</b>														
Shoes	314	0.4	95.2	94.7	98.1	95.2	93.4	96.5	92.8	99.7	92.7	107.6	102.1	95.0
<b>Stone, clay, &amp; glass products</b>														
Flat glass	321	1.7	112.0	107.1	106.0	113.8	112.0	111.0	109.6	109.3	107.2	114.8	113.6	111.5
Pressed and blown glass	322	6.7	99.1	93.4	98.1	95.7	94.4	94.4	100.6	96.8	98.7	99.4	97.8	96.4
Cement	324	10.1	97.3	95.3	98.8	92.8	90.1	97.2	102.7	99.9	101.7	100.2	99.2	104.0
Structural clay products	325	1.6	96.3	97.5	97.7	99.9	97.7	101.5	95.6	98.6	95.9	101.0	99.5	100.9
Concrete products	327	5.1	89.4	89.2	89.4	87.2	86.0	83.8	88.6	90.3	89.3	88.9	87.9	86.1
<b>Primary metals</b>														
Basic steel and mill products	331	54.4	97.8	101.1	105.5	109.6	111.2	111.9	102.8	101.4	102.0	107.1	107.9	110.4
Iron and steel foundries	332	9.9	95.8	96.2	100.2	97.4	99.4	101.8	98.1	99.9	93.8	93.9	100.6	103.4
Primary nonferrous metals	333	55.8	92.4	87.8	108.5	97.3	99.0	96.6	95.5	89.9	109.2	95.7	93.8	96.9
Aluminum	3334	51.2	116.2	118.6	118.7	114.9	112.1	112.3	118.9	116.6	119.7	115.0	109.2	114.8
Nonferrous foundries	336	2.7	97.1	101.1	102.6	100.5	99.2	102.0	96.6	102.6	96.6	101.1	103.2	104.3
<b>Fabricated metal products</b>														
Metal containers	341	2.5	117.3	113.3	116.1	115.9	116.6	118.5	117.4	121.1	120.7	119.7	123.1	118.7
Hardware, tools, and cutlery	342	2.7	102.6	104.1	106.3	106.0	105.1	107.4	101.9	106.9	105.8	108.3	110.5	109.3
Structural metal products	344	5.6	98.1	101.1	100.2	95.6	97.6	95.1	95.9	100.6	100.1	95.6	100.7	95.8
Fasteners	345	1.7	90.0	96.0	96.1	99.7	103.3	102.9	88.0	99.5	97.3	103.2	105.3	103.7
Metal stampings	346	7.1	102.5	108.0	104.8	104.2	107.1	104.3	101.8	110.5	99.9	102.0	107.5	105.6
<b>Nonelectrical machinery</b>														
Engines and turbines	351	2.5	112.7	108.3	108.7	115.3	108.9	104.6	106.8	112.9	112.9	119.9	112.1	105.6
Farm	352	1.6	104.3	107.7	109.3	106.9	111.4	110.0	102.7	108.9	107.6	109.0	111.9	107.5
Construction and allied	353	4.2	98.7	95.6	94.9	89.6	91.8	92.2	96.1	98.4	98.4	92.9	99.8	93.3
Metalworking	354	4.2	114.8	116.4	114.5	114.8	115.8	115.2	110.0	119.8	117.9	120.9	122.3	116.3
Special industry	355	2.5	106.2	109.4	109.5	107.5	110.7	111.9	102.5	112.5	111.7	115.5	115.5	110.9
General industrial	356	4.8	103.7	103.8	105.3	103.5	105.4	107.3	102.3	106.9	106.9	108.5	110.9	108.6
Office and computing machines	357	6.1	101.2	105.1	100.9	100.5	97.8	105.8	100.6	109.0	105.3	110.4	103.7	105.8
Service industry machines	358	3.3	119.7	121.3	122.5	124.1	122.0	125.0	118.6	127.5	131.3	130.9	130.7	126.9
<b>Electrical machinery</b>														
Electrical distribution	361	1.4	89.3	91.0	92.6	89.9	90.0	88.8	87.0	96.0	91.6	95.6	94.2	91.0
Electrical industrial	362	4.1	102.1	105.9	110.6	109.6	108.3	108.4	101.8	109.6	113.1	111.5	111.3	108.6
Household appliances	363	2.5	92.9	91.3	95.4	93.0	90.1	89.8	93.4	97.0	92.7	95.4	95.0	92.2
Lighting and wiring products	364	2.9	110.2	111.4	111.3	110.5	113.9	110.7	107.8	115.5	111.2	108.3	119.0	111.8
TV and radio sets	365	0.6	107.3	106.4	108.5	102.4	107.9	106.7	104.6	111.0	111.3	113.9	113.9	109.3
Communication equipment	366	3.1	91.7	94.0	90.8	87.1	87.5	85.4	88.6	96.7	98.5	95.2	95.9	87.9
Electronic components	367	12.8	116.1	114.3	116.1	113.8	116.4	116.0	114.0	119.0	122.2	121.4	125.3	118.7
<b>Transportation equipment</b>														
Motor vehicles and parts	371	21.9	91.5	91.9	97.2	95.7	95.5	93.7	92.5	96.7	93.4	98.9	98.8	95.9
Aircraft and parts	372	10.1	107.4	109.0	110.1	106.6	107.4	110.7	105.1	112.7	114.6	112.7	115.8	113.4
Ships and boats	373	2.1	106.4	84.8	88.8	93.9	100.0	101.4	103.5	86.9	91.0	92.5	96.8	99.1
<b>Instruments</b>														
Photographic equip. & supplies	386	1.7	106.9	99.1	107.8	104.9	104.1	111.4	104.9	103.2	112.4	114.0	109.7	114.6
<b>Miscellaneous manufactures</b>														
	39	4.6	113.5	114.4	116.4	115.1	114.5	112.0	109.8	117.4	117.1	122.1	122.0	115.7
<b>SUPPLEMENTARY GROUPS</b>														
Total, excluding nuclear nondefense		832.5	106.7	106.2	108.7	108.4	107.9	107.5	106.4	108.9	109.1	111.4	111.3	109.1
Utility sales to industry		765.4	107.2	107.1	108.2	108.8	108.1	108.2	107.4	109.7	108.8	111.8	112.0	110.0
Industrial generation		85.3	120.7	117.9	129.7	118.5	115.7	118.1	117.7	115.1	131.2	121.2	113.3	117.0

## Explanatory Note

The **Industrial Production and Capacity Utilization** release reports measures of output, capacity, and capacity utilization in the manufacturing, mining, and electric and gas utilities industries. Survey data on electric power use in manufacturing and mining also are included. Data shown the release are available on the day of issue through the Department of Commerce's online Economic Bulletin Board (202-377-3870). Historical data are available on magnetic tape from the National Technical Information Service (703-487-4650).

### Industrial Production

**Coverage.** The industrial production index (IP) measures output in the manufacturing, mining, and electric and gas utilities industries. The total IP index is constructed from 250 individual series. These individual series are classified and grouped two ways: 1) market groups (shown in table 1), such as consumer goods, equipment, intermediate products, and materials, from which the seasonally adjusted total index is derived; and 2) industry groups (shown in tables 2 and 6), such as two-digit Standard Industrial Classification (SIC) industries and major aggregates of these industries, for example, durable and nondurable manufacturing, mining, and utilities. The 1977 SIC is the basis for industry classification of IP.

**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 comprises 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 Bureau of Mines; 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. Physical product data, such as tons of steel or barrels of oil, are obtained from private trade associations, as well as the government agencies listed above; data of this type are used to estimate monthly IP where possible and appropriate. When suitable physical product data are unavailable, estimates of output are based on either production-worker hours, kilowatt hours, or a combination of the two. Hours of production workers are collected in the monthly establishment survey conducted by the Bureau of Labor Statistics. The kilowatt hours data 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 (censuses, annual surveys, and the like); 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 in chronological segments that are linked together to form a continuous index expressed as a percentage of output in a comparison-base year (currently 1987). Each segment, which usually spans five years, is a Laspeyres quantity index showing changes in quantities with prices (Census value added per unit of output) held at base-year values for the segment. For the period from 1987 to the present, IP is aggregated on the basis of 1987 value-added weights. The aggregation of the index for the 1982-86 period is based on 1982 weights, while 1977 weights are used for the 1977-81 period. The other weight years in the postwar period are 1972, 1967, 1963, 1958, 1954, and 1947. The 1987 value-added weights used to aggregate the index are shown in the first column of tables 1, 2, and 6 under the heading "Proportion in total IP - 1987". To the extent that a given industry grows faster (slower) than the total index after 1987, its current proportion will rise (fall). Proportions for the most recent complete year of data are shown in the second column of tables 1, 2, and 6.

**Seasonal adjustment.** Individual series are seasonally adjusted by the X-11 Arima Method, which was developed at Statistics Canada. The current seasonal factors are based on data through 1988. Individual series and major aggregates are seasonally adjusted independently. The seasonally adjusted total index is calculated by aggregating the seasonally adjusted major market groups, and may not precisely equal an aggregation of the seasonally adjusted industry groups. In addition, because the seasonal adjustment of aggregates is done separately, the seasonally adjusted value of a given market or industry group may not be equal to an aggregation of its seasonally adjusted components.

**Reliability.** The average revision to the level of the total IP index, without regard to sign, between the preliminary estimate and its third revision (or from the first and the fourth estimates) was 0.36 percent during the 1972-88 period. The average revision to the percent change in total IP, without regard to sign, from the first to the fourth estimates was 0.27 percentage point during the same period. In most cases (about 85 percent), the direction of change in output indicated by the first estimate for a given month is the same as that shown by the fourth estimate.

**Rounding.** In some cases, components may not add to totals because of independent rounding. In addition, the published percent changes are calculated from indexes with three digits of precision to the right of the decimal point, and may not be the same as percent changes calculated from the rounded indexes shown in the release.

**References.** *Industrial Production - 1986 Edition* contains a more detailed description of the methods used to compile the index, plus a history of its development, a glossary of terms, and a bibliography. To obtain *Industrial Production - 1986 Edition* at a price of \$9.00 per copy, write to Publication Services, Mail Stop 138, Board of Governors of the Federal Reserve System, Washington, D.C. 20551. The 1990 revision to the index is described in Kenneth Armitage and Dixon A. Tranum, "Industrial Production: 1989 Developments and Historical Revision", *Federal Reserve Bulletin*, Vol. 76 (April 1990), pp. 187-204.

### 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 74 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 stock.

**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, 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.** Value-added proportions are used to weight the individual capacity indexes in aggregations in the same manner as individual IP series are aggregated to the total index of industrial production. 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 base-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 mining, manufacturing, and utilities as a whole, and for total manufacturing, utilization rates as high as 90 percent have been exceeded only in wartime.

**References.** The basic methodology used to estimate capacity and utilization is discussed in Richard D. Raddock, "Revised Federal Reserve Rates of Capacity Utilization," *Federal Reserve Bulletin*, Vol. 71 (October 1985), pp. 754-66. The 1990 revision of capacity and capacity utilization is described in Richard D. Raddock, "Recent Developments in Industrial Capacity and Utilization," *Federal Reserve Bulletin*, vol. 76 (June 1990), pp. 412-35.

### Electric Power

Electric power (kilowatt hour) data 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 1987. 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 1987 censuses of those industries except for the components in group 2819, which are estimates. The supplementary group, "Total, less nuclear nondefense," is shown separately because the nondefense nuclear material series (part of SIC 2819) accounts for a disproportionately large part of total electric power use. Because the value-added proportion for this industry 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.

### Release Schedule for 1991

At 9:15 a.m. on January 16, February 15, March 15, April 16, May 13, June 14, July 16, August 16, September 17, October 17, November 15, and December 16.