

FEDERAL RESERVE statistical release



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INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Industrial production rose 0.2 percent in March, after increasing a revised 0.5 percent in February; despite these recent gains, total industrial output in March was still about 1 percent below its level of last October. The increase in March was led by gains in the production of durable consumer goods and a pickup in energy output, mainly at utilities. At 107.2 percent of its 1987 annual average, total industrial production in March was 2.1 percent above its year-ago level. For the first quarter as a whole, industrial production declined at an annual rate of 4.1 percent, after falling 0.7 percent in the previous quarter. Total industrial capacity utilization in March rose 0.1 percentage point to 78.1 percent.

Market Groups

Production of durable consumer goods increased 0.5 percent in March, owing to gains in the production of trucks, appliances, and furniture; output of autos declined last month. Output of nondurable consumer goods rose 0.4 percent in March, boosted by a sharp increase in energy for residential use. Production of business equipment excluding motor vehicles increased 0.2 percent as most major categories posted gains; however, even after allowing for the effects of a strike at a major producer of construction-related machinery, output in this sector has remained weak and has changed little,

(over)

INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY

Seasonally adjusted

Industrial Production	Index, 1987=100				Percent change				Mar 91 to Mar 92
	1991 Dec ^r	1992 Jan ^r	Feb ^r	Mar ^P	1991 Dec ^r	1992 Jan ^r	Feb ^r	Mar ^P	
Total Index	107.4	106.4	106.9	107.2	-0.6	-0.9	0.5	0.2	2.1
Previous estimate	107.4	106.6	107.2		-0.6	-0.8	0.6		
Major market groups:									
Products, total	108.4	107.4	107.9	108.3	-0.5	-1.0	0.5	0.3	1.7
Consumer goods	109.1	108.0	108.5	109.0	-0.9	-1.0	0.5	0.5	4.1
Business equipment	121.4	119.8	121.2	121.4	-0.3	-1.2	1.2	0.2	1.0
Construction supplies	95.0	95.3	95.3	95.1	-1.0	0.3	0.0	-0.2	1.2
Materials	105.8	104.9	105.2	105.4	-0.8	-0.8	0.3	0.2	2.7
Major industry groups:									
Manufacturing	108.1	107.2	107.8	107.9	-0.4	-0.8	0.5	0.1	2.6
Durable	107.1	105.8	106.7	106.8	-0.7	-1.2	0.9	0.1	1.7
Nondurable	109.5	109.0	109.1	109.3	-0.1	-0.4	0.1	0.2	3.7
Mining	98.8	97.5	98.1	97.9	-0.8	-1.4	0.7	-0.2	-3.5
Utilities	107.9	106.8	106.6	108.8	-2.8	-1.0	-0.3	2.1	2.3
<hr/>									
Capacity Utilization									
	Percent of Capacity								Capacity growth
	Average 1967-91	1982 Low	1988-89 High	1991 Mar	1991 Dec ^r	1992 Jan ^r	Feb ^r	Mar ^P	Mar 91 to Mar 92
Total Industry	82.1	71.8	85.0	78.4	78.7	77.8	78.0	78.1	2.5
Manufacturing	81.4	70.0	85.1	77.2	77.7	76.9	77.1	77.0	2.7
Advanced processing	81.0	71.4	83.6	76.8	76.6	75.7	76.0	75.9	3.1
Primary processing	82.3	66.8	89.0	77.9	80.2	79.7	79.8	79.7	1.9
Mining	87.4	80.6	87.2	89.0	86.2	85.0	85.6	85.4	0.6
Utilities	86.7	76.2	92.3	83.0	83.4	82.6	82.3	84.0	1.1

on balance, over the past year. Production of construction supplies edged lower last month and, on average, output in the first quarter was a bit below the previous quarter. Materials output rose 0.2 percent because production of energy materials, which had declined during the relatively mild winter, rebounded in March. Output of non-energy materials, which fell noticeably in December and January, rebounded partially in February, but was unchanged in March; the recent weakness in both durables and nondurables has been widespread.

Industry Groups

Manufacturing output edged up 0.1 percent in March, but capacity utilization at factories declined 0.1 percentage point to 77.0 percent. In March, the operating rates for both primary and advanced processing edged down. Within primary processing, capacity utilization for chemicals, stone, clay, and glass products, and fabricated metals declined, but most other industries posted gains. Within advanced processing industries, the factory operating rate increased noticeably for furniture and fixtures, but declined for instruments; most other major industries posted small and nearly offsetting changes. On the whole, utilization rates for both advanced and primary processing industries have weakened since last fall, with large drops occurring in transportation equipment, paper and products, rubber and plastic products, primary chemicals, and miscellaneous manufactures.

Outside manufacturing, production at mines decreased 0.2 percent in March. Output at utilities jumped 2.1 percent, after having been curtailed over the winter months because of the unseasonably warm weather.

This month the indexes of industrial electric power use shown in table 9 are being revised beginning in October 1991. (Typically, the beginning month for regular revisions of electric power use is the same as for the industrial production index.) The special revisions this month affect previously published estimates of electric power consumed in the primary production of aluminum (SIC 3334). Electric power use in this industry is now higher than previously shown.

INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Seasonally adjusted

March data

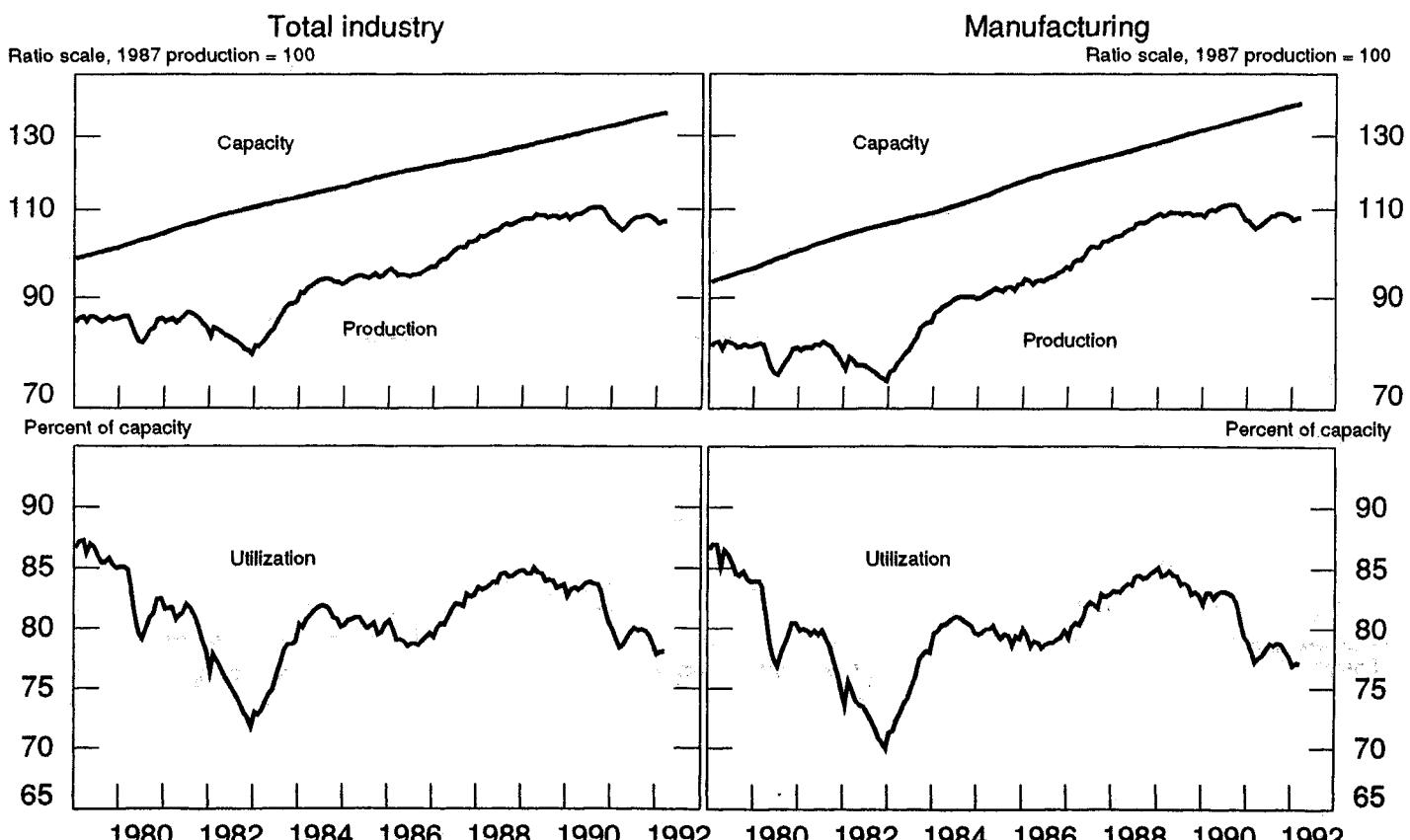
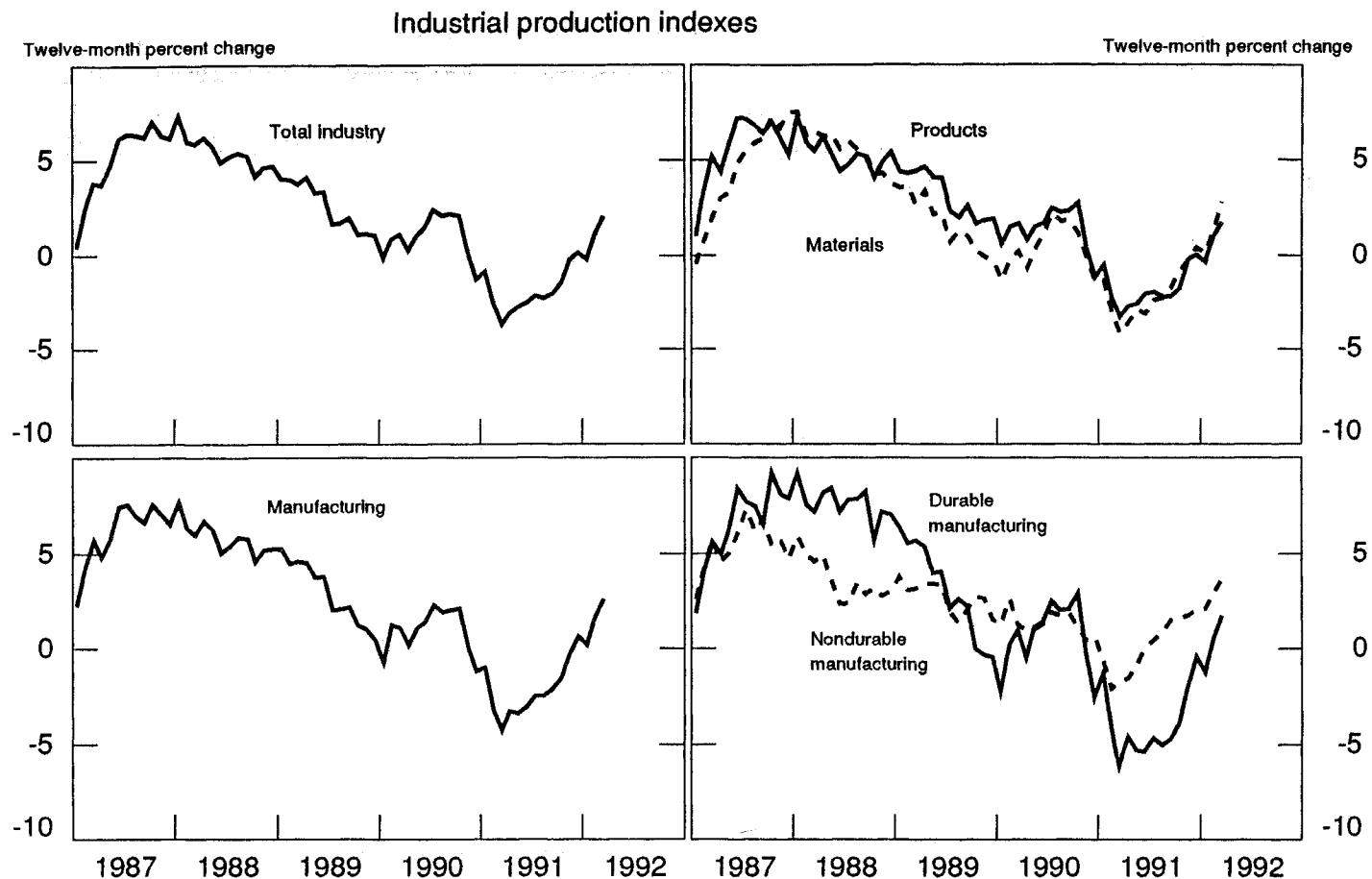


Table 2B
INDUSTRIAL PRODUCTION: INDUSTRY GROUPS

Percent change

Item	SIC	1990 Q4 to 1991 Q4 ¹	Seasonally adjusted annual rate				Seasonally adjusted				Not seasonally adjusted				Mar 91 to Mar 92 ¹	
			1991 Q2	Q3	Q4 ^r	1992 Q1P	1991 Dec ^r	1992 Jan ^r	Feb ^r	MarP	1991 Dec ^r	1992 Jan ^r	Feb ^r	MarP		
			-0.5	2.6	6.6	-0.7	-4.1	-0.6	-0.9	0.5	0.2	-2.2	-0.4	2.5	-0.6	2.1
Total index																
Manufacturing			-0.4	2.2	7.2	0.2	-3.5	-0.4	-0.8	0.5	0.1	-3.3	-1.3	3.1	0.3	2.6
Primary processing			-0.6	0.7	13.7	0.1	-3.8	-0.6	-0.5	0.2	-0.1	-3.8	-0.2	4.2	-0.1	4.1
Advanced processing			-0.3	2.9	4.6	0.2	-3.3	-0.4	-0.9	0.6	0.2	-3.0	-1.7	2.7	0.5	1.9
Durable			-2.1	2.1	5.5	-1.5	-4.5	-0.7	-1.2	0.9	0.1	-3.1	-1.3	3.4	0.5	1.7
Lumber and products	24	-0.6	7.4	4.8	0.2	11.0	-1.3	2.1	0.7	0.0	-5.0	2.0	4.5	1.1	7.4	
Furniture and fixtures	25	-2.5	10.0	9.4	-2.6	-4.9	0.7	-1.9	-0.2	1.6	-2.3	-2.4	6.1	-1.6	4.9	
Stone, clay, and glass products	32	-9.3	-8.4	2.1	-7.5	-0.4	0.2	-0.4	1.7	-1.0	-4.3	-2.3	1.8	1.4	-1.3	
Primary metals	33	-4.5	-7.9	28.0	1.7	-7.1	-2.1	0.6	-1.8	-0.1	-6.2	5.4	3.1	0.3	5.6	
Iron and steel	331,2	-6.2	-13.8	36.3	12.2	-5.3	-3.7	2.3	-3.2	0.2	-7.1	8.3	2.2	0.1	9.6	
Raw steel		-7.7	-23.2	55.6	-10.0	11.4	-1.5	5.8	-0.6	-2.5	-3.3	6.5	3.5	2.8	11.5	
Nonferrous	333-6,9	-1.9	0.5	17.6	-11.2	-9.7	0.3	-1.9	0.2	-0.5	-4.8	1.4	4.4	0.6	0.2	
Fabricated metal products	34	-2.4	-2.2	10.1	1.0	-6.1	-0.5	-1.6	0.8	-0.3	-0.9	-4.8	4.7	-0.4	2.3	
Nonelectrical machinery	35	-2.9	-2.8	-0.1	-2.3	-2.7	-0.7	-0.5	0.3	0.7	-2.2	-1.7	3.4	0.5	-0.4	
Office & computing machines	357	4.1	-1.9	-3.3	10.5	11.3	0.8	0.9	1.0	0.5	-2.6	0.1	1.0	1.7	5.1	
Electrical machinery	36	0.4	9.5	2.1	-2.9	0.7	-0.1	-0.2	0.4	-0.1	-1.0	-1.9	0.3	-0.1	1.9	
Transportation equipment	37	-1.9	9.9	10.4	-3.0	-15.0	-1.7	-4.4	3.7	0.2	-7.1	-0.8	6.1	2.2	2.5	
Motor vehicles and parts	371	8.5	50.7	32.1	4.4	-20.1	-1.4	-8.0	7.7	0.4	-14.6	3.2	14.8	4.8	17.9	
Autos and light trucks		11.5	66.1	43.3	11.8	-31.0	-2.2	-12.5	11.2	0.9	-25.7	8.6	25.4	7.4	22.2	
Aerospace and misc.	372-6,9	-9.3	-12.1	-4.2	-8.8	-10.4	-1.9	-1.4	0.5	0.1	-0.9	-3.5	-0.4	0.0	-7.8	
Instruments	38	0.7	-2.8	-2.9	5.0	-0.6	0.3	-0.6	0.4	-0.5	-0.9	-2.6	2.1	-0.6	-0.2	
Miscellaneous	39	-0.2	12.2	12.1	-4.4	-4.8	0.2	-0.6	-1.1	-0.4	-2.1	-2.6	6.7	-1.7	2.8	
Nondurable			1.8	2.2	9.5	2.3	-2.2	-0.1	-0.4	0.1	0.2	-3.5	-1.2	2.7	0.1	3.7
Foods	20	0.5	0.9	3.1	3.2	-1.6	-0.5	-0.3	0.1	-0.3	-2.6	-2.5	0.2	0.0	1.6	
Tobacco products	21	-1.1	-3.4	18.3	-16.7	2.5	-3.0	4.3	-0.3	0.6	-23.1	28.4	8.9	-0.6	0.9	
Textile mill products	22	6.0	22.0	20.1	0.2	-4.9	-1.8	-0.4	0.9	0.3	-9.4	0.2	8.0	1.9	8.2	
Apparel products	23	8.1	9.2	14.1	3.2	-6.4	0.2	-1.5	-0.5	0.1	-0.9	-3.8	1.4	0.2	5.0	
Paper and products	26	1.5	0.3	20.5	-0.7	-9.5	0.9	-2.5	0.1	0.8	-4.1	4.4	2.2	0.1	4.0	
Printing and publishing	27	1.5	-1.1	6.2	6.8	-0.5	0.3	0.1	-0.6	0.3	-2.9	-5.1	2.3	1.2	3.4	
Chemicals and products	28	2.6	0.6	10.9	3.2	-0.4	-0.3	-0.2	0.7	0.2	-1.9	-0.3	2.6	-0.5	4.7	
Petroleum products	29	-0.2	1.0	1.7	-3.4	-1.0	1.7	-2.2	0.6	0.5	0.7	-7.8	-1.7	0.6	-1.0	
Rubber and plastics products	30	3.6	9.0	13.0	2.9	-0.8	0.4	0.0	-0.5	0.3	-4.8	-1.0	9.6	-1.2	8.0	
Leather and products	31	-9.5	-2.3	-9.1	-17.8	-9.6	-1.3	-0.2	-2.4	0.1	-10.3	2.7	5.0	-1.2	-11.4	
Mining			-3.3	-3.8	3.0	-8.0	-7.2	-0.8	-1.4	0.7	-0.2	-1.9	-1.1	1.4	-1.7	-3.5
Metal mining	10	-2.2	11.3	10.0	-8.0	-0.8	1.7	-6.0	5.8	0.0	-0.7	-4.0	11.7	-3.0	3.8	
Coal	11,12	-4.2	-13.4	23.7	-14.5	-3.1	-0.7	-0.3	0.5	-1.5	-7.4	2.3	7.2	-2.1	-3.4	
Oil and gas extraction	13	-2.3	-0.2	-1.9	-6.7	-8.8	-1.2	-1.1	0.4	-0.1	-0.2	-0.3	-0.6	-2.0	-4.2	
Stone and earth minerals	14	-9.2	-19.8	1.5	-4.9	-6.7	0.6	-2.2	-0.5	1.2	-5.5	-11.6	-0.4	3.4	-2.9	
Utilities			1.0	13.5	2.9	-3.6	-7.1	-2.8	-1.0	-0.3	2.1	10.9	8.6	-3.2	-8.5	2.3
Electric	491,3pt	0.3	20.1	2.7	-12.0	-5.8	-2.5	-0.5	-0.2	2.0	4.2	4.6	0.3	-8.3	1.4	
Gas	492,3pt	3.9	-11.7	4.1	43.2	-12.4	-4.1	-2.8	-0.6	2.7	36.3	20.1	-12.1	-9.1	6.4	
SPECIAL AGGREGATES																
Manufacturing excluding:																
Motor vehicles and parts		-0.8	0.4	6.1	0.0	-2.6	-0.4	-0.5	0.2	0.1	-2.7	-1.5	2.6	0.1	1.9	
Office and computing machines		-0.6	2.3	7.7	-0.2	-4.1	-0.5	-0.9	0.5	0.1	-3.3	-1.3	3.2	0.3	2.5	

1. Based on seasonally adjusted data.

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 1992

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