

FEDERAL RESERVE statistical release



G.17 (419)

For release at 9:15 a.m. (EST)
March 15, 2000

INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Industrial production increased 0.3 percent in February after having posted advances of 1.1 percent in January and 0.5 percent in December. The output of utilities increased 0.7 percent, manufacturing increased 0.3 percent, and mining output fell 0.7 percent. At 142.1 percent of its 1992 average, industrial production in February was 5.6 percent higher than in February 1999. The rate of capacity utilization for total industry held steady at 81.7 percent, about 1/4 percentage point below its long-term average.

Market Groups

The output of consumer goods was flat in February; a 0.2 percent increase in the production of nondurable goods was offset by a 1.0 percent decrease in durable goods. The output of durable consumer goods was pulled down by a 1.7 percent decline in the production of automotive products. After a rebound in January, motor vehicle assemblies fell back to a still-high level of 12.9 million units (annual rate). After strong increases in the previous two months, the

(over)

INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY

Seasonally adjusted

Industrial Production	Index, 1992=100				Percent change				Feb. 99 to Feb. 00
	1999 Nov. ^r	Dec. ^r	2000 Jan. ^r	Feb. ^P	1999 Nov. ^r	Dec. ^r	2000 Jan. ^r	Feb. ^P	
Total index	139.4	140.2	141.7	142.1	.3	.5	1.1	.3	5.6
Previous estimates	139.5	140.1	141.5		.3	.4	1.0		
Major market groups:									
Products, total	128.0	128.5	130.1	130.2	-.4	.4	1.3	.1	3.5
Consumer goods	117.6	118.2	119.6	119.5	-.5	.5	1.2	.0	2.0
Business equipment	175.0	174.9	179.4	179.6	.1	-.1	2.6	.1	8.0
Construction supplies	134.3	135.0	136.6	137.4	-.8	.5	1.1	.6	3.7
Materials	158.8	160.1	161.3	162.3	1.3	.8	.7	.6	9.2
Major industry groups:									
Manufacturing	145.0	145.6	147.0	147.5	.5	.4	1.0	.3	5.9
Durable	177.4	178.5	181.3	181.9	.5	.6	1.6	.4	9.1
Nondurable	113.6	113.7	113.9	114.2	.6	.1	.2	.2	1.7
Mining	99.7	99.8	100.5	99.8	.5	.2	.6	-.7	2.4
Utilities	110.9	114.3	117.3	118.1	-3.7	3.1	2.7	.7	4.9
Capacity Utilization	Percent of capacity								Capacity growth
	Average 1967-99	1982 Low	1988-89 High	1999 Feb.	1999 Nov. ^r	Dec. ^r	2000 Jan. ^r	Feb. ^P	Feb. 99 to Feb. 00
Total industry	82.0	71.1	85.4	80.4	80.9	81.1	81.7	81.7	3.9
Previous estimates					81.0	81.1	81.6		
Manufacturing	81.1	69.0	85.7	79.7	80.3	80.4	80.9	80.9	4.3
Advanced processing	80.5	70.4	84.2	78.7	79.2	79.2	79.9	79.7	5.3
Primary processing	82.4	66.2	88.9	82.8	83.8	83.8	84.0	84.2	2.1
Mining	87.3	80.3	88.0	80.9	83.0	83.1	83.7	83.3	-.5
Utilities	87.5	75.9	92.6	88.7	86.5	89.1	91.3	91.9	1.3

production of other durable consumer goods slipped 0.3 percent, with cutbacks in the output of carpeting and appliances accounting for most of the decrease. The production of nondurable consumer goods excluding energy inched up 0.1 percent. The output of consumer energy products, which posted a 1.3 percent gain, was pushed up by increases in the production of consumer fuels and in utilities' sales to residences.

The production of business equipment edged up 0.1 percent after a strong gain in January. The production of information processing and related equipment, which was led by gains in the output of computers, rose 1.2 percent after having increased about 4.5 percent over the previous two months. The output of transit equipment dropped back 2.2 percent because of a slowing in the assembly of motor vehicles and aircraft. The output of industrial equipment, which had risen a brisk 2.7 percent in January, decreased only a bit.

The production index for construction supplies increased 0.6 percent, its third consecutive monthly gain. The output of materials was up 0.6 percent, slightly less than the average gain in the preceding three months. The output of durable goods materials rose 0.8 percent, with another strong increase in equipment parts, particularly semiconductors. The output of nondurable goods materials jumped 1.2 percent, and the output of energy materials, which had increased 1.1 percent in January, fell 0.7 percent.

Industry Groups

Manufacturing output rose 0.3 percent in February; most major durable goods industries posted gains, while the changes in nondurable goods industries were more mixed. Production in durable manufacturing strengthened 0.4 percent after a 1.6 percent increase in January. The robust growth in the production of electrical machinery eased to 1.7 percent, about half the pace set in the previous two months; although semiconductor production remained strong, the production of communications equipment was little changed after having risen sharply in January. The production of industrial machinery and equipment (which includes computers) increased 0.6 percent after a 2.5 percent pickup in January; the deceleration was widespread across categories of industrial machinery. After small gains in the previous two months, production in nondurable manufacturing increased another 0.2 percent, to a level 1.7 percent higher than in February 1999.

The factory operating rate, at 80.9 percent, was unchanged. The utilization rate for primary-processing industries increased slightly, to 84.2 percent, while that for advanced-processing industries dipped 0.2 percentage point, to 79.7 percent.

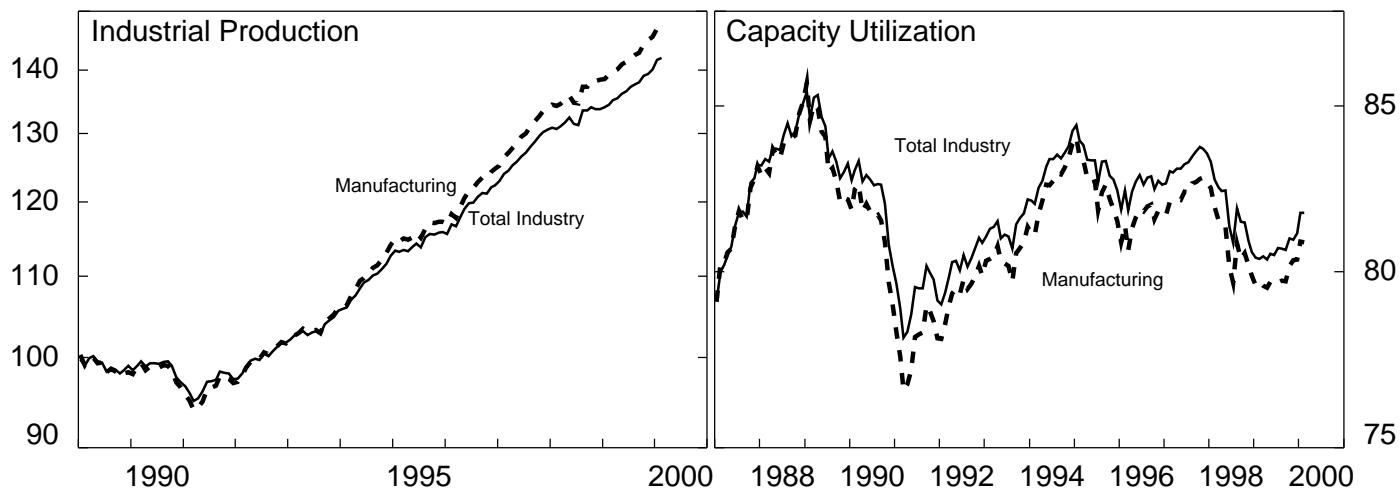
The output of utilities, which had rebounded 3.1 percent in December and had increased a further 2.7 percent in January, rose another 0.7 percent; the operating rate at utilities rose to 91.9 percent. Mine production fell 0.7 percent, more than reversing the gain in January.

Industrial Production and Capacity Utilization

(February data, seasonally adjusted)

Ratio scale, 1992=100

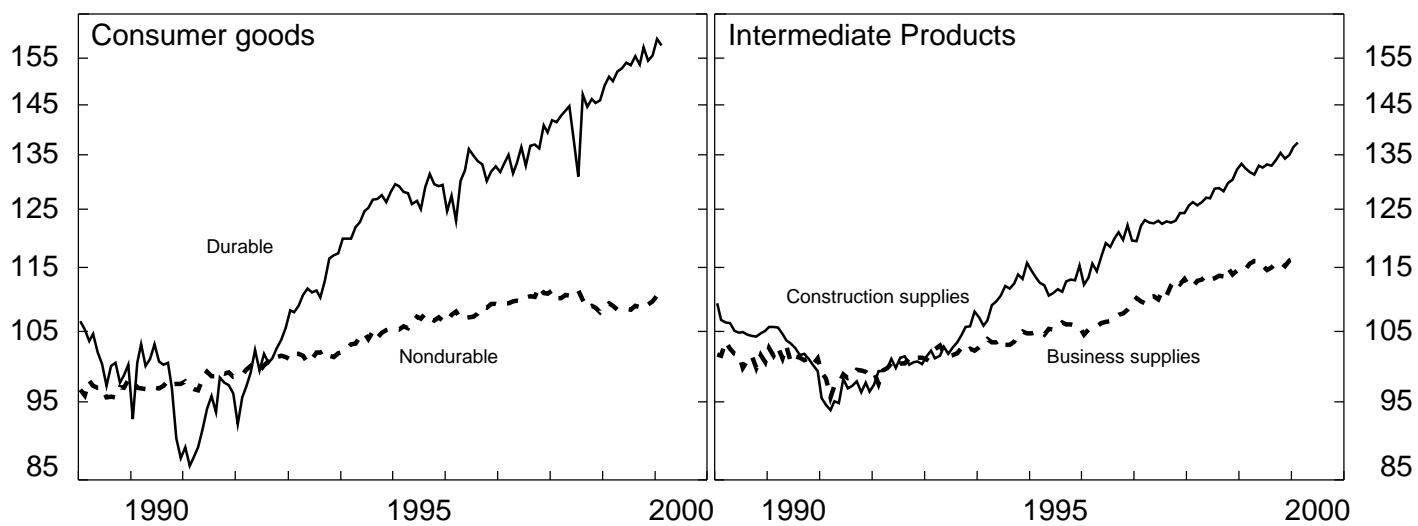
Percent of capacity



Ratio scale, 1992=100

Industrial Production, Market Groups

Ratio scale, 1992=100



Ratio scale, 1992=100

Ratio scale, 1992=100

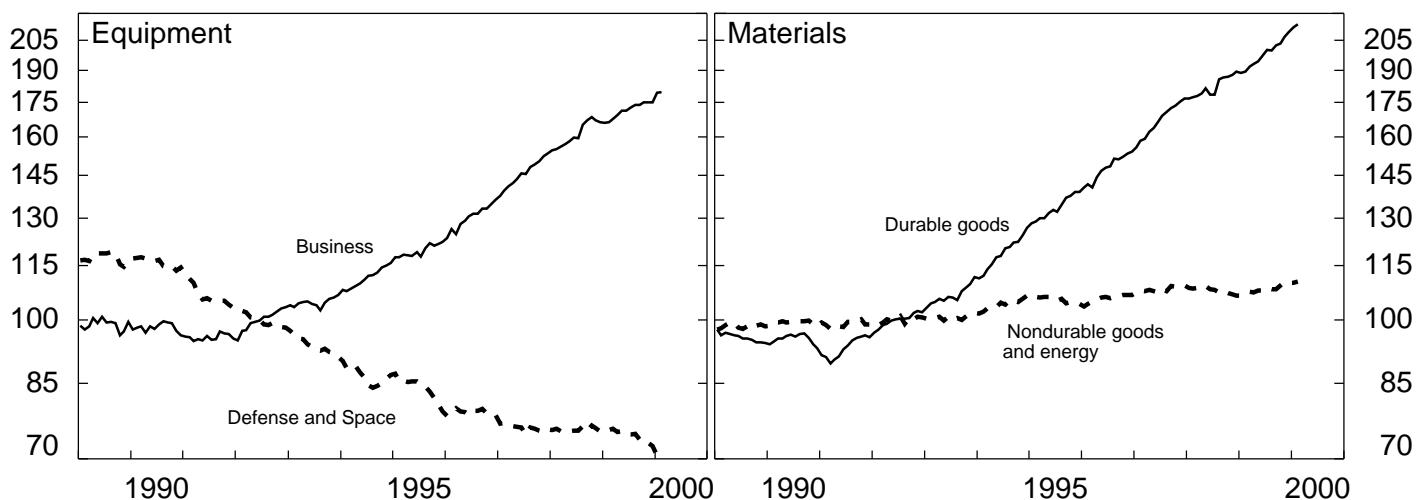


Table 2B
INDUSTRIAL PRODUCTION: INDUSTRY GROUPS

Percent change

Item	SIC	1998 Q4 to 1999 Q4	Seasonally adjusted annual rate				Seasonally adjusted				Not seasonally adjusted				Feb. 99 to Feb. 00	
			1999 Q1		Q2		Q3		Q4 ^r		1999 Nov. ^r	Dec. ^r	2000 Jan. ^r	Feb.P		
Total index		4.2	2.0	4.7	4.8	5.4	.3	.5	1.1	.3	-2.3	-9	1.3	1.4	5.6	
Manufacturing		4.8	2.5	4.9	4.7	7.1	.5	.4	1.0	.3	-2.7	-2.0	.6	2.2	5.9	
Primary processing		3.5	3.6	.9	3.1	6.5	.7	.1	.4	.3	-1.5	-2.3	.3	2.5	3.8	
Advanced processing		5.3	2.0	6.6	5.4	7.4	.5	.5	1.2	.3	-3.2	-1.8	.7	2.1	6.7	
Durable		7.0	3.1	9.3	8.7	7.1	.5	.6	1.6	.4	-1.9	-1.4	.4	3.3	9.1	
Lumber and products	24	-.1	5.1	1.0	-6.6	.4	-.6	1.3	.9	-.4	-5.2	-4.6	2.6	3.0	-.2	
Furniture and fixtures	25	2.1	2.0	-.5	8.2	-1.0	-1.4	1.4	-.9	.6	-4.5	-.5	-3.6	4.9	1.6	
Stone, clay, and glass products	32	1.2	6.1	-10.8	4.3	6.1	.9	-.8	-.2	.3	-2.2	-5.6	-1.2	1.2	-.6	
Primary metals	33	7.4	1.6	9.2	12.0	7.1	1.7	1.1	.1	.3	.1	-1.8	2.5	3.7	10.8	
Iron and steel	331,2	12.3	7.0	16.1	18.3	8.3	4.7	.9	-.4	.8	.7	-1.3	2.6	5.1	15.5	
Raw steel		17.7	10.0	12.4	10.0	41.3	1.8	.1	-.8	1.2	1.0	-1.0	2.7	5.0	16.7	
Nonferrous	333-6,9	2.0	-4.1	1.6	5.1	5.7	-1.8	1.4	.6	-.2	-6	-2.3	2.4	1.9	5.6	
Fabricated metal products		34	.2	-.6	-2.5	2.1	1.8	.7	-.6	1.2	.1	-.8	-.6	-2.8	1.9	1.7
Industrial machinery and equipment	35	11.3	10.8	12.5	8.0	13.9	.6	.9	2.5	.6	-1.9	-.5	1.6	1.7	12.4	
Computer and office equip.	357	51.2	59.1	59.0	47.0	40.6	2.2	1.9	3.1	2.5	1.1	-2.0	-2.3	-1.7	45.2	
Electrical machinery	36	23.1	9.4	32.2	31.1	21.1	1.3	3.0	3.9	1.7	2.4	4.8	-4.5	5.7	31.1	
Semiconductors and related electronic components	3672-9	45.4	15.6	61.2	53.0	56.7	6.1	5.7	3.9	3.7	10.4	11.5	-10.8	10.0	61.7	
Transportation equipment	37	-3.2	-7.7	-.2	.6	-5.2	-.4	-1.6	1.4	-.8	-6.5	-8.5	9.3	5.0	-2.1	
Motor vehicles and parts	371	4.0	-3.4	8.9	7.4	3.7	.1	-2.0	2.8	-.7	-10.1	-13.9	18.2	8.4	5.4	
Autos and light trucks		.6	-8.3	10.8	5.8	-4.9	.2	-4.2	4.6	-2.5	-12.9	-15.4	19.5	9.5	1.9	
Aerospace and misc.	372-6,9	-12.5	-13.0	-11.5	-8.3	-17.0	-1.1	-1.1	-.6	-1.0	-.4	-.3	-2.3	-.3	-12.2	
Instruments	38	4.9	-.5	10.9	3.8	5.7	.5	.7	-1.2	.4	-1.7	.5	-2.8	1.4	5.1	
Miscellaneous	39	4.3	5.1	10.2	1.4	1.0	.0	1.1	.5	-1.1	-.6	-.5	-3.9	.8	3.2	
Nondurable		1.9	1.8	-.8	-.4	7.2	.6	.1	.2	.2	-3.7	-2.8	.9	.8	1.7	
Foods	20	-.1	3.2	-2.5	-4.6	3.9	.1	-.2	.0	.5	-4.9	-3.3	-.4	-.8	-.7	
Tobacco products	21	-2.8	2.3	-7.2	-3.2	-2.9	1.4	1.8	2.1	-2.2	-8.8	-20.8	34.6	3.5	-4.7	
Textile mill products	22	4.6	11.2	5.6	1.9	.2	-1.2	-5.5	2.0	-.8	-8.3	-9.3	7.4	4.1	1.4	
Apparel products	23	-5.0	-6.9	-2.9	-8.9	-1.0	.0	.1	.6	.2	-1.5	-1.2	-2.7	2.3	-2.5	
Paper and products	26	3.0	4.8	-2.5	3.1	6.8	.1	-.3	.1	.8	-3.0	-2.0	4.4	2.5	2.4	
Printing and publishing	27	.6	-4.0	-.6	-1.0	8.3	-.3	-.1	-.1	-.2	-3.8	-2.2	-3.1	-.1	.9	
Chemicals and products	28	5.7	2.9	1.4	2.2	17.0	2.4	-.3	-.2	.9	-3.1	-.9	.8	.9	5.7	
Petroleum products	29	.0	8.4	-7.7	1.9	-1.8	-1.5	2.0	-.7	1.0	-1.2	-.3	-7.3	.5	-1.4	
Rubber and plastics products	30	3.8	2.7	3.2	4.9	4.6	.3	1.5	.8	-.5	-.3	.4	-.7	1.3	4.6	
Leather and products	31	-9.9	-14.6	-3.4	-7.4	-13.8	-.8	-3.7	4.5	-2.6	-1.8	-3.8	.4	-.7	-7.2	
Mining		-.8	-10.5	-2.2	4.8	5.7	.5	.2	.6	-.7	-.9	-1.3	.2	1.4	2.4	
Metal mining	10	-11.7	-22.3	-4.1	-23.0	5.8	.3	1.4	.0	-2.4	.2	1.6	-5.1	1.9	-7.7	
Coal mining	12	-1.2	-13.7	-.1	12.7	-2.1	1.1	-.5	-3.0	-4.2	-1.4	-3.4	-.8	2.3	-6.5	
Oil and gas extraction	13	.3	-11.7	-.0	6.7	7.4	.6	-.5	1.6	-.8	1.0	1.0	.9	-.2	5.7	
Stone and earth minerals	14	-.4	8.1	-13.9	.0	5.6	-1.0	-1.9	-.8	5.1	-10.5	-14.5	-.6	11.6	.7	
Utilities		.4	5.9	7.0	6.6	-15.8	-3.7	3.1	2.7	.7	2.2	16.7	11.6	-7.9	4.9	
Electric	491,3pt	.0	.3	8.1	6.6	-13.4	-.9	1.0	1.8	.5	-2.0	8.5	7.8	-6.2	4.1	
Gas	492,3pt	2.7	42.1	1.7	6.5	-27.8	-18.3	16.3	7.0	1.6	31.3	59.2	25.0	-13.2	8.9	
SPECIAL AGGREGATES																
Computers, communications eq. and semiconductors ¹		37.9	23.7	51.7	44.9	32.9	2.8	3.3	4.7	2.6	4.6	4.9	-4.9	3.7	45.7	
Manufacturing excluding:																
Motor vehicles and parts		4.8	2.9	4.6	4.5	7.4	.6	.6	.9	.4	-2.1	-1.2	-.4	1.8	5.9	
Computer and office equipment		3.5	1.1	3.3	3.4	6.1	.5	.3	.9	.2	-2.8	-2.0	.7	2.4	4.6	
Computers and semiconductors ¹		1.7	.4	.8	1.4	4.1	.2	.1	.7	.0	-3.4	-2.7	1.4	2.0	2.3	
Computers, communications eq. and semiconductors ¹		1.3	.3	.0	.6	4.4	.3	.0	.5	.0	-3.5	-2.9	1.4	2.0	1.7	

1. Semiconductors include related electronic components.

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

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 267 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 2000

At 9:15 a.m. on:

January 14, February 15, March 15, April 14, May 15, June 15, July 14, August 15, September 15, October 17, November 15, and December 15