FEDERAL RESERVE statistical release

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INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION

Industrial production rose 0.5 percent in April after moving sideways the previous two months. In April, manufacturing increased 1.0 percent, bolstered by a strong gain in the output of motor vehicles and parts; factory output excluding motor vehicles and parts moved up 0.4 percent. The index for mining rose 0.6 percent, while

(over)

Industrial Production and Capacity Utilization: Summary
Seasonally adjusted

	2017=100						Percent change						
	2022		2023				2022		2023				Apr. '22 to
Industrial production	Nov.[r]	Dec.[r]	Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]	Nov.[r]	Dec.[r]	Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]	Apr. '23
Total index	103.1	101.5	102.5	102.5	102.5	103.0	-.3	-1.5	1.0	.0	.0	.5	.2
Previous estimates	103.1	101.5	102.4	102.6	103.0		-.3	-1.5	.9	.2	.4		
Major market groups													
Final Products	102.2	101.3	101.3	101.1	101.4	102.2	-.4	-.9	.0	-.2	.3	.7	.0
Consumer goods	103.1	102.4	102.1	102.2	103.0	103.6	-.2	-.6	-.3	.1	.8	.6	-.2
Business equipment	97.5	95.8	96.9	96.0	94.7	95.8	-1.1	-1.7	1.1	-.9	-1.4	1.2	.2
Nonindustrial supplies	102.1	100.0	101.2	100.8	100.8	100.8	-.2	-2.1	1.2	-.4	.0	.0	-2.1
Construction	102.9	101.0	104.0	103.1	100.9	101.3	-.5	-1.8	2.9	-.9	-2.1	.4	-3.1
Materials	104.1	102.1	104.0	104.3	104.1	104.5	-.3	-1.9	1.8	.3	-.2	.4	1.2
Major industry groups													
Manufacturing (see note below)	100.0	97.9	99.4	99.7	98.9	99.8	-.7	-2.1	1.6	.3	-.8	1.0	-.9
Previous estimates	100.1	98.0	99.4	100.0	99.5		-.7	-2.1	1.5	.6	-.5		
Mining	116.6	114.4	119.0	118.1	116.7	117.4	-.7	-1.9	4.0	-.7	-1.3	.6	5.6
Utilities	105.8	109.2	101.4	100.6	109.0	105.6	3.4	3.2	-7.2	-.8	8.4	-3.1	-.4

	Percent of capacity												Capacity growth
	Average	1988-	1990-	1994-			2022		2023				
	1972-	89	91	95	2009	2022							Apr. '22 to
Capacity utilization	2022	high	low	high	low	Apr.	Nov.[r]	Dec.[r]	Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]	Apr. '23
Total industry	79.7	85.2	78.8	85.0	66.6	80.7	80.3	78.9	79.6	79.5	79.4	79.7	1.5
Previous estimates							80.3	78.9	79.5	79.6	79.8		
Manufacturing (see note below)	78.2	85.6	77.3	84.6	63.4	79.9	78.9	77.1	78.2	78.4	77.6	78.3	1.1
Previous estimates							78.9	77.2	78.3	78.6	78.1		
Mining	86.4	86.3	84.3	88.6	78.9	88.4	91.3	89.5	93.0	92.4	91.2	91.8	1.7
Utilities	84.7	93.2	84.7	93.2	78.1	75.5	74.0	76.1	70.4	69.7	75.3	72.7	3.4
Stage-of-process groups													
Crude	85.6	87.9	84.8	90.0	76.9	88.1	89.1	86.5	89.9	90.2	89.4	89.8	1.2
Primary and semifinished	80.2	86.5	78.0	87.8	63.6	79.8	78.6	77.5	76.8	76.8	77.6	77.3	1.5
Finished	76.7	83.4	77.5	80.7	66.3	77.9	77.4	76.5	77.5	77.2	76.3	77.3	1.7

r Revised. p Preliminary.

Note. The statistics in this release cover output, capacity, and capacity utilization in the U.S. industrial sector, which is defined by the Federal Reserve to comprise manufacturing, mining, and electric and gas utilities. Mining is defined as all industries in sector 21 of the North American Industry Classification System (NAICS); electric and gas utilities are those in NAICS sectors 2211 and 2212. Manufacturing comprises NAICS manufacturing industries (sector 31-33) plus the logging industry and the newspaper, periodical, book, and directory publishing industries. Logging and publishing are classified elsewhere in NAICS (under agriculture and information, respectively), but historically they were considered to be manufacturing and were included in the industrial sector under the Standard Industrial Classification (SIC) system. In December 2002 the Federal Reserve reclassified all its industrial output data from the SIC system to NAICS.

the index for utilities dropped 3.1 percent, as milder temperatures in April lowered demand for heating. At 103.0 percent of its 2017 average, total industrial production in April was 0.2 percent above its year-earlier level. Capacity utilization edged up to 79.7 percent in April, a rate that is equal to its long-run (1972–2022) average.

Market Groups

Most major market groups recorded growth in April. The production of consumer durables was boosted by an 8.4 percent jump in the output of automotive products. Elsewhere, there were gains in business equipment (1.2 percent), defense and space equipment (1.1 percent), non-energy materials (0.8 percent), and construction supplies (0.4 percent). In contrast, nondurable consumer goods, business supplies, and energy materials all posted slight declines for the month.

Industry Groups

Manufacturing output increased 1.0 percent in April; however, the growth rates for both February and March were revised down 0.3 percentage point. All told, the index for manufacturing in April was 0.9 percent below its year-earlier level. Durable and nondurable manufacturing advanced 1.4 percent and 0.6 percent in April, respectively. Other manufacturing (publishing and logging) ticked down 0.1 percent. Industry groups within durable manufacturing posted somewhat mixed results, with the largest increase coming from motor vehicles and parts (9.3 percent) and the largest decrease coming from miscellaneous manufacturing (1.4 percent). Within nondurables, plastics and rubber products recorded the largest gain (1.2 percent), while apparel and leather recorded the largest loss (0.8 percent).

Mining output climbed 0.6 percent in April, with growth primarily coming from oil and gas extraction. The output of utilities declined 3.1 percent, as both electric and natural gas utilities production moved down.

Capacity utilization for manufacturing moved up 0.7 percentage point in April to 78.3 percent, a rate that is 0.1 percentage point above its long-run (1972–2022) average. The operating rate for mining rose 0.6 percentage point to 91.8 percent, while the operating rate for utilities fell 2.6 percentage points to 72.7 percent. The rate for mining was 5.4 percentage points above its long-run average, while the rate for utilities remained well below its long-run average.

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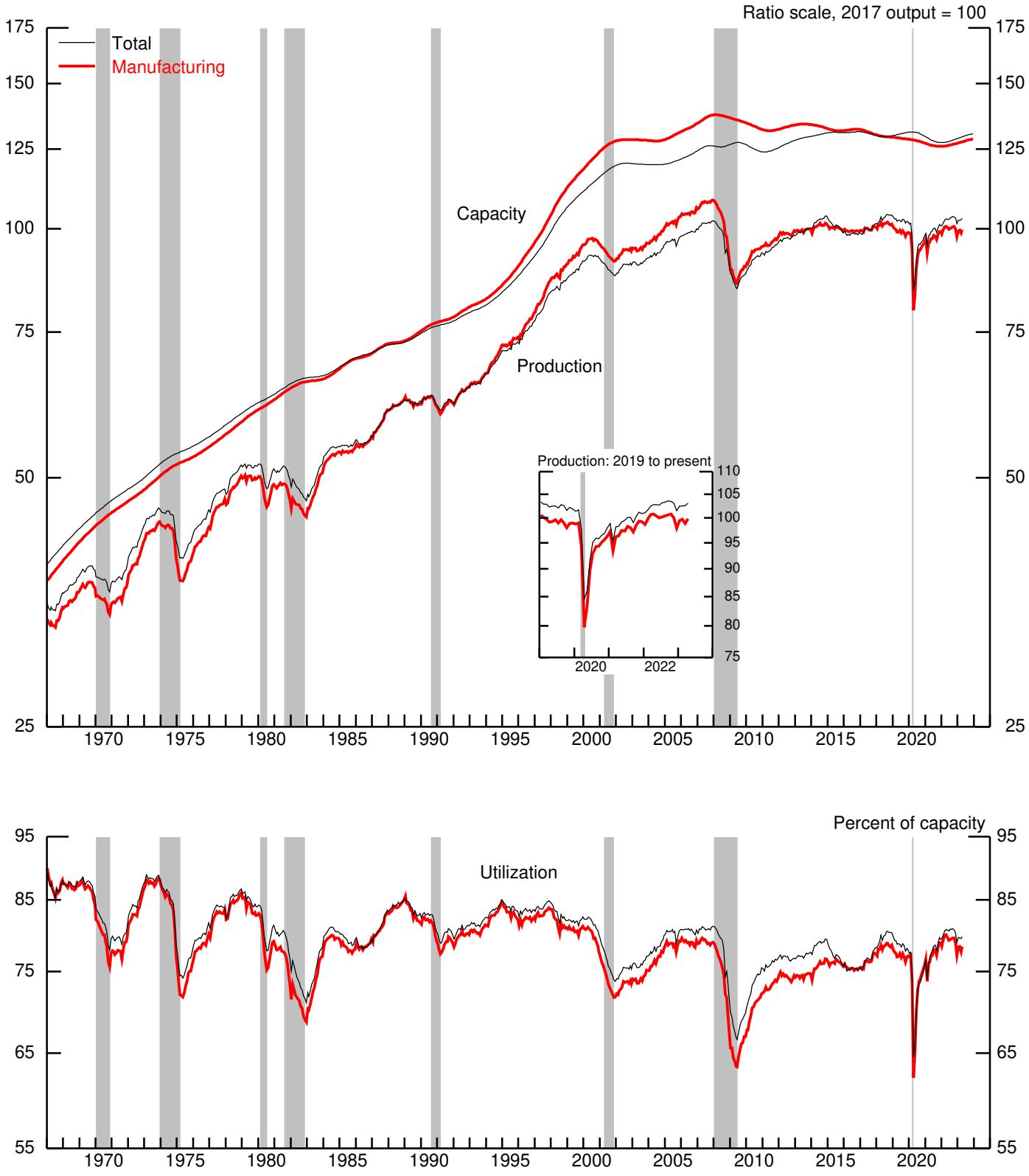
Further detail is available on the Board's website (**www.federalreserve.gov/releases/G17/**).

Revision of Industrial Production and Capacity Utilization

The Federal Reserve Board issued its annual revision to the indexes of industrial production (IP) and the related measures of capacity utilization on March 28, 2023. New annual benchmark data for manufacturing for 2021 were incorporated, as well as other annual data, including information on the mining of metallic and nonmetallic minerals (except fuels). The updated IP indexes included revisions to the monthly indicator—either product data or input data—and to seasonal factors for each industry. In addition, the estimation methods for some series were changed. Any modifications to the methods for estimating the output of an industry affected the index from 1972 to the present.

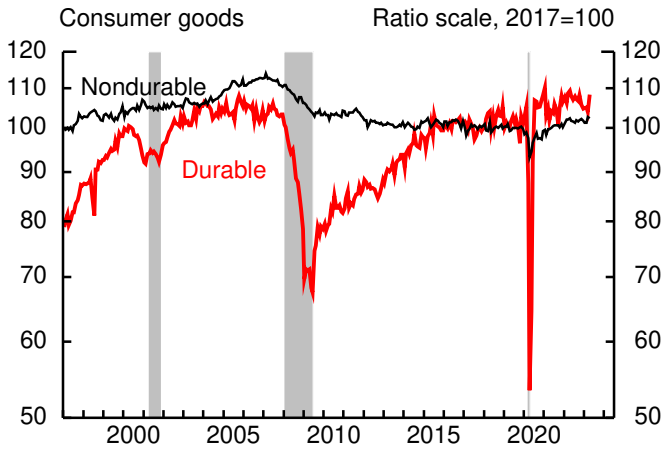
Capacity and capacity utilization were revised to incorporate data for manufacturing through the fourth quarter of 2022 from the U.S. Census Bureau's Quarterly Survey of Plant Capacity Utilization, along with new data on capacity from the U.S. Geological Survey, the U.S. Department of Energy, and other organizations.

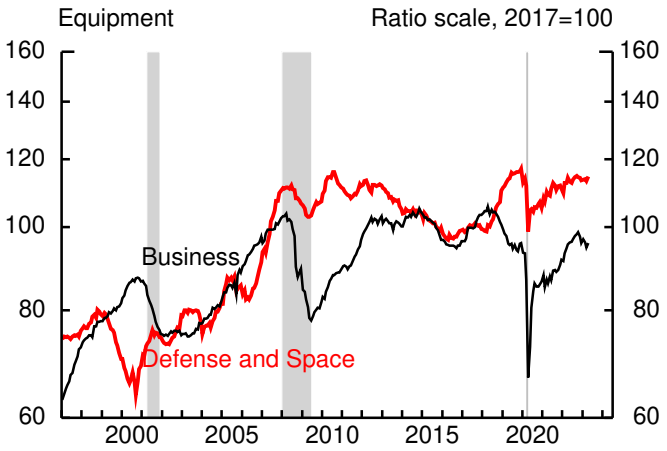
1. Industrial production, capacity, and utilization

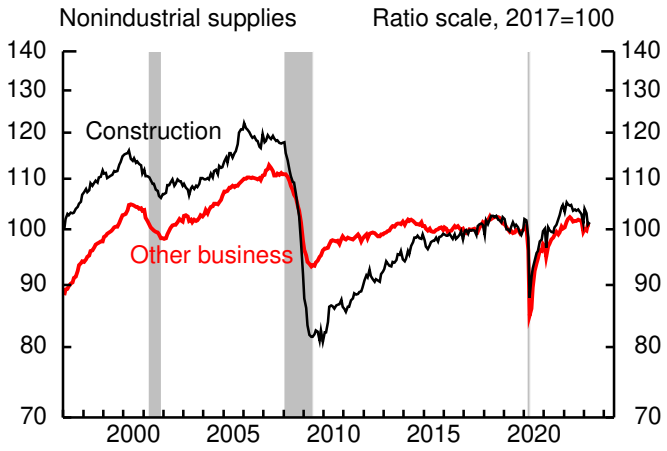


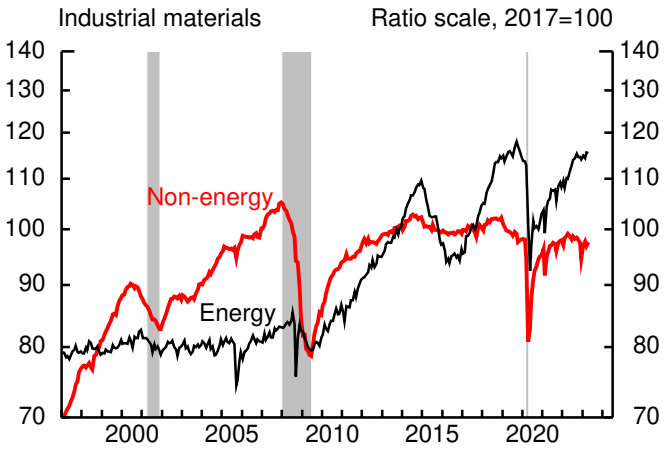
Note: The shaded areas are periods of business recession as defined by the National Bureau of Economic Research (NBER).

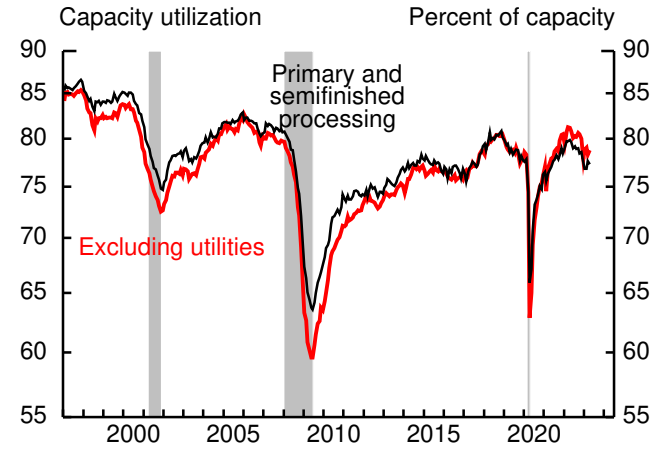
2. Industrial production and capacity utilization

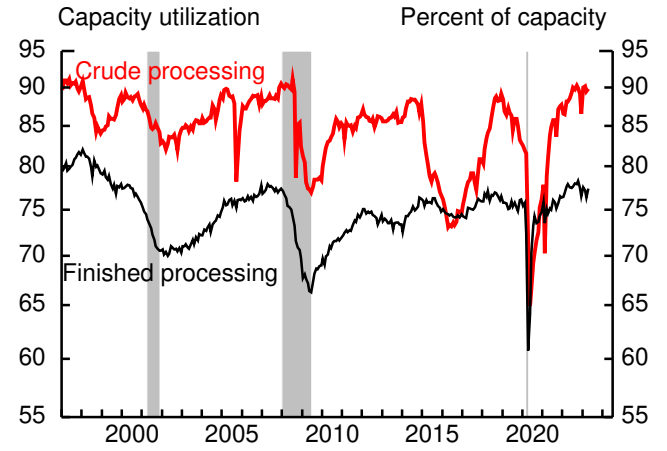






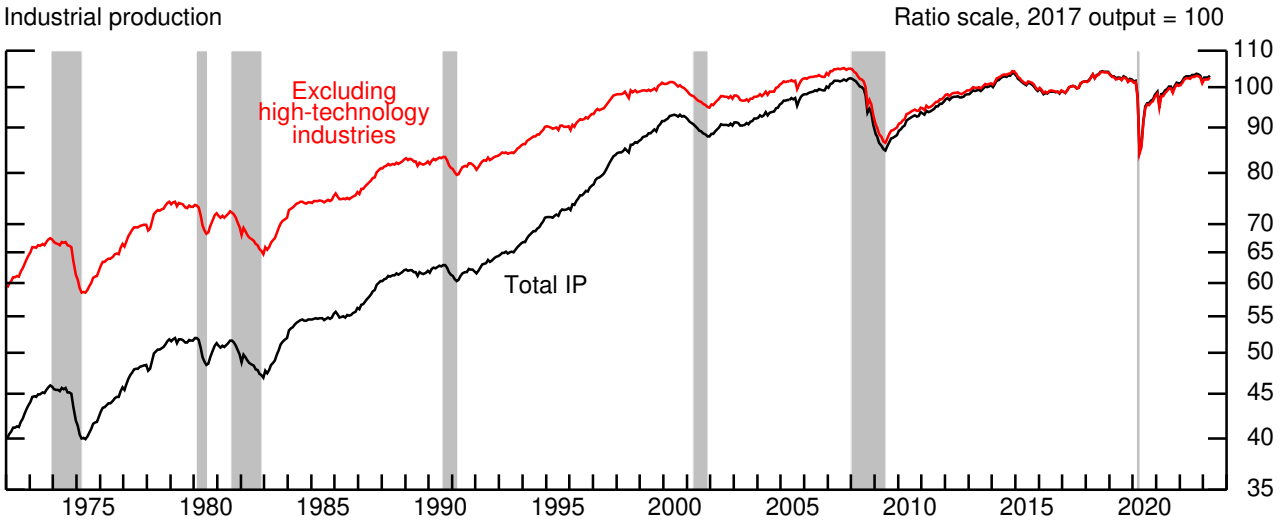


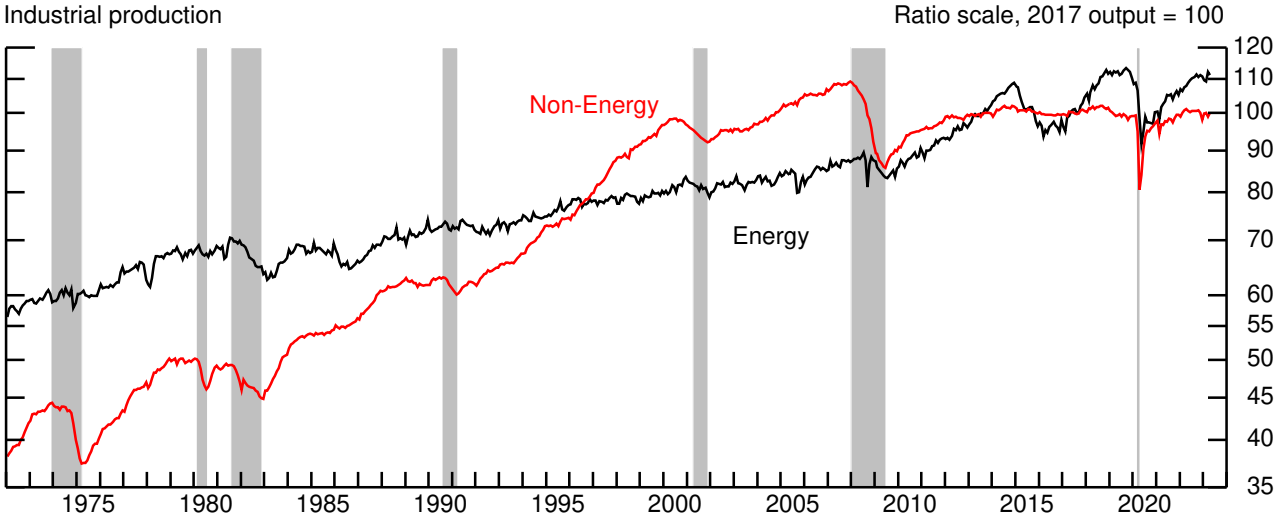


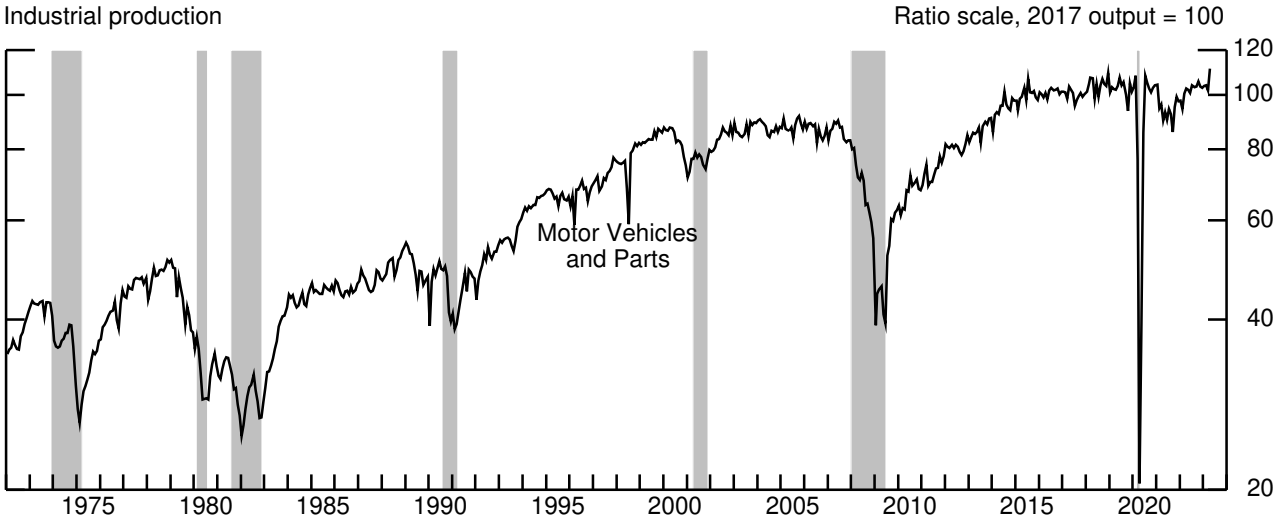


Note: The shaded areas are periods of business recession as defined by the National Bureau of Economic Research (NBER).

3. Industrial production of selected industries







Notes: High-technology industries are defined as semiconductors and related electronic components (NAICS 3344), computers (NAICS 3341), and communications equipment (NAICS 3342).
The shaded areas represent periods of business recession as defined by the NBER.

Table 1
Industrial Production: Market and Industry Group Summary

Percent change, seasonally adjusted

Item	2022 proportion[1]	Fourth quarter to fourth quarter			Annual rate			Monthly rate						Apr. '22 to Apr. '23
		2020	2021	2022	2022 Q3	Q4[r]	2023 Q1[r]	2022 Nov.[r]	Dec.[r]	2023 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]	
Total IP	100.00	-4.7	3.8	1.8	2.1	-2.5	-.5	-.3	-1.5	1.0	.0	.0	.5	.2
Market Groups														
Final products and nonindustrial supplies	53.69	-3.3	3.4	2.0	.1	-1.0	-2.7	-.3	-1.2	.3	-.2	.2	.5	-.6
Consumer goods	27.36	.0	1.6	1.2	-1.7	.4	-1.8	-.2	-.6	-.3	.1	.8	.6	-.2
Durable	5.93	6.7	-.3	-.3	-3.4	-3.8	-5.6	-2.2	-1.0	.2	.2	-1.1	4.2	-1.0
Automotive products	3.20	10.0	-5.5	2.0	-2.5	-5.2	-3.9	-3.1	-.9	1.5	-.5	-1.7	8.4	2.7
Home electronics	.14	13.9	10.8	2.9	8.5	-7.2	-4.0	1.2	-3.8	2.4	-2.0	.5	.9	.6
Appliances, furniture, carpeting	.92	4.1	1.8	-8.0	-15.1	4.3	-13.6	-.9	-1.0	-3.6	2.1	-1.2	-2.8	-11.9
Miscellaneous goods	1.67	.2	9.3	-.5	.6	-5.0	-4.7	-1.4	-1.1	-.4	.6	.0	.3	-2.2
Nondurable	21.43	-2.0	2.4	1.6	-1.3	1.6	-.7	.4	-.5	-.5	.1	1.3	-.4	.0
Non-energy	15.34	-.4	1.4	.9	-.4	1.6	3.8	-.2	-1.0	1.9	.0	-.6	.7	1.2
Foods and tobacco	9.43	.7	.0	.0	-2.8	-1.5	2.5	-.4	-1.4	1.9	.2	-1.2	.5	-1.2
Clothing	.17	-8.3	6.1	2.5	10.2	6.4	7.4	.5	-.4	3.9	-3.4	1.1	-1.2	5.3
Chemical products	4.61	-1.6	3.9	3.3	5.4	7.5	7.4	.2	.1	1.7	-.2	.3	1.3	6.8
Paper products	.75	-3.0	-.8	-4.5	-11.0	8.3	2.1	-.3	-1.6	2.5	-.9	-.6	-.1	-3.0
Energy	6.09	-7.8	6.4	3.1	-3.6	1.5	-11.4	1.9	.5	-6.2	.4	6.8	-3.1	-2.9
Business equipment	8.39	-9.7	5.3	7.6	7.2	-1.2	-5.8	-1.1	-1.7	1.1	-.9	-1.4	1.2	.2
Transit	1.63	-18.6	-5.9	21.3	21.3	4.7	-12.4	-1.7	-.9	-.8	-1.3	-1.5	3.6	6.4
Information processing	1.71	-6.2	9.5	-.8	.3	-1.7	-8.1	-.3	-2.5	.4	-.3	-1.6	2.2	-1.2
Industrial and other	5.05	-7.1	7.2	6.8	5.4	-2.9	-2.6	-1.2	-1.7	2.0	-.9	-1.3	.0	-1.2
Defense and space equipment	1.64	-8.6	4.9	2.3	3.4	-.7	-1.8	-.2	-.6	.0	.3	-.5	1.1	.2
Construction supplies	5.15	-.9	5.5	-1.3	-2.1	-4.7	.7	-.5	-1.8	2.9	-.9	-2.1	.4	-3.1
Business supplies	10.56	-3.2	3.7	1.0	-1.0	-2.6	-3.1	.0	-2.2	.4	-.2	1.1	-.2	-1.6
Materials	46.31	-6.5	4.4	1.6	4.4	-4.1	2.0	-.3	-1.9	1.8	.3	-.2	.4	1.2
Non-energy	27.30	-3.1	3.1	-1.1	-.9	-6.8	2.1	-.6	-2.9	2.5	.8	-.9	.8	-1.6
Durable	16.44	-4.5	2.8	1.2	2.1	-3.1	-1.6	-.9	-1.8	1.2	.6	-1.5	1.0	-1.0
Consumer parts	2.72	-1.4	-5.2	4.1	7.9	5.4	2.5	-.1	.2	.5	1.6	-3.2	4.9	5.5
Equipment parts	4.39	-6.9	6.9	1.0	.8	-1.7	-3.3	-1.0	-2.1	.7	.6	-.5	.5	-1.4
Other	9.34	-4.3	3.5	.4	1.1	-6.2	-2.0	-1.0	-2.3	1.7	.4	-1.5	.2	-2.7
Nondurable	10.86	-.8	3.5	-4.6	-5.2	-12.3	8.0	-.2	-4.7	4.6	1.1	-.1	.3	-2.5
Textile	.33	-6.3	1.3	-6.0	-4.8	-13.0	-.8	.9	-1.4	3.9	-5.3	.8	1.2	-5.4
Paper	1.60	-8.4	.0	-4.7	-12.3	-14.3	-.4	2.7	-5.9	3.2	-.7	1.4	-.1	-6.3
Chemical	5.54	1.4	6.5	-6.8	-4.7	-16.3	15.7	-.9	-6.2	6.9	2.6	-.5	.4	-1.9
Energy	19.01	-12.6	7.2	5.4	11.5	-.3	1.9	.0	-.5	.8	-.5	1.0	-.1	5.0
Industry Groups														
Manufacturing	74.33	-3.0	3.5	.6	.1	-3.3	-.9	-.7	-2.1	1.6	.3	-.8	1.0	-.9
Manufacturing (NAICS)	**31–33**	72.78	-3.0	3.7	.7	.4	-3.7	-1.0	-.8	-2.2	1.6	.3	-.8	1.0	-.9
Durable manufacturing		36.25	-3.9	3.5	2.5	2.0	-2.7	-3.2	-1.1	-1.3	.8	.1	-1.3	1.4	-.8
Wood products	321	1.83	2.1	.0	-3.7	-6.1	-15.9	-7.3	.3	-3.4	1.6	-.3	-3.1	.6	-9.1
Nonmetallic mineral products	327	2.24	.4	2.8	6.9	6.4	3.2	4.1	-.7	.0	1.7	.8	-2.9	-.2	2.3
Primary metals	331	2.94	-4.4	6.0	-5.2	-2.9	-12.7	-.5	-3.4	-1.7	1.4	1.2	-.1	.9	-2.6
Fabricated metal products	332	5.88	-7.3	6.0	1.5	1.3	.5	-1.9	-.4	-.7	.1	.5	-1.1	.0	-1.5
Machinery	333	5.45	-6.8	8.2	4.9	.3	.5	-2.7	-.4	-2.1	1.7	-.2	-1.7	-.5	-3.5
Computer and electronic products	334	4.27	-2.1	6.7	-1.4	.2	-2.2	-6.6	.1	-2.6	-.1	.6	-.9	2.1	-.4
Electrical equip., appliances, and components	335	2.01	-.3	3.2	.9	-4.2	-3.7	-2.1	-2.9	-.6	1.5	-.4	-1.2	.1	-3.6
Motor vehicles and parts	3361–3	5.06	2.7	-5.2	7.0	6.9	2.1	-3.5	-2.1	-.5	.6	.3	-1.9	9.3	8.5
Aerospace and miscellaneous transportation equipment	3364–9	2.94	-13.7	-.3	9.3	9.2	-2.5	-5.9	-.6	-.4	-.1	-1.0	-.6	-.4	-1.1
Furniture and related products	337	1.08	-6.8	2.4	-2.8	-6.0	-11.1	-10.8	-3.0	-.9	-.9	.1	-1.2	-.4	-8.8
Miscellaneous	339	2.54	-1.3	8.1	4.6	9.3	-4.6	-2.4	-1.3	-1.8	1.4	-.7	.1	-1.4	-.5
Nondurable manufacturing		36.54	-2.1	3.9	-1.2	-1.2	-4.7	1.4	-.4	-3.0	2.4	.4	-.3	.6	-.9
Food, beverage, and tobacco products	311,2	11.91	.7	.1	.3	-1.7	-1.7	2.1	-.4	-1.5	1.9	.3	-1.1	.7	-.8
Textile and product mills	313,4	.57	-4.5	3.3	-8.2	-9.4	-12.4	-4.1	-.6	-.8	2.0	-3.6	.3	-.1	-8.6
Apparel and leather	315,6	.19	-8.3	6.7	3.3	11.1	4.9	7.6	.6	-.7	3.9	-3.0	1.0	-.8	5.6
Paper	322	2.37	-4.1	-1.1	-5.9	-13.8	-14.6	-.3	1.7	-5.1	3.0	-.6	.9	-.1	-7.5
Printing and support	323	1.28	-8.1	3.1	.7	-6.1	3.5	-8.1	1.6	-4.2	.7	-.5	-.2	-.4	-3.4
Petroleum and coal products	324	4.59	-18.9	18.2	-2.5	2.1	-.9	-6.3	-.1	-4.0	.3	.5	1.6	.6	.3
Chemicals	325	11.89	-.1	5.9	-1.5	.3	-5.7	9.5	-.4	-4.1	4.6	1.5	-.8	.7	1.3
Plastics and rubber products	326	3.73	-.7	3.6	-.8	1.5	-10.7	-10.4	-2.5	-1.8	-.2	-.8	.4	1.2	-4.4
Other manufacturing (non-NAICS)	**1133,5111**	1.55	-1.9	-2.8	-4.0	-13.2	13.3	1.0	-.5	-.2	1.5	-.8	-1.1	-.1	-3.8
Mining	**21**	15.20	-17.6	10.0	5.8	13.9	-.1	6.4	-.7	-1.9	4.0	-.7	-1.3	.6	5.6
Utilities	**2211,2**	10.47	-2.4	.0	4.3	-2.4	-.4	-7.9	3.4	3.2	-7.2	-.8	8.4	-3.1	-.4
Electric	2211	8.89	-1.5	.4	2.6	-1.3	-3.9	-4.7	4.3	2.3	-5.5	-1.1	6.9	-1.9	1.0
Natural gas	2212	1.58	-8.2	-2.4	14.7	-8.2	21.4	-24.0	-1.5	8.3	-16.5	1.4	16.9	-10.0	-8.3

r Revised. p Preliminary.

1. The proportion data are the relative weights for the rates of change for each series in the computation of the change in total industrial production in the following year.

Note. Under the industry groups, the figures to the right of the series descriptions are 2017 North American Industry Classification System (NAICS) codes. The abbreviation pt denotes part of a NAICS code. Additional industry detail is available on the Board's website (www.federalreserve.gov/releases/G17/20230516/default_sup.htm). Under market groups, in the products category, miscellaneous consumer nondurables, oil and gas well drilling, and manufactured homes are not shown separately; in the nondurable materials category, containers and miscellaneous nondurable materials are not shown separately.

Table 2
Industrial Production: Special Aggregates and Selected Detail
Percent change, seasonally adjusted

Item		2022 proportion	Fourth quarter to fourth quarter			Annual rate			Monthly rate						Apr. '22 to Apr. '23
			2020	2021	2022	2022 Q3	Q4[r]	2023 Q1[r]	2022 Nov.[r]	Dec.[r]	2023 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]	
Total industry		100.00	-4.7	3.8	1.8	2.1	-2.5	-.5	-.3	-1.5	1.0	.0	.0	.5	.2
Energy		28.36	-12.2	7.6	5.0	7.7	.3	-1.9	.5	-.3	-1.1	-.3	2.7	-.9	3.1
Consumer products		6.09	-7.8	6.4	3.1	-3.6	1.5	-11.4	1.9	.5	-6.2	.4	6.8	-3.1	-2.9
Commercial products		2.75	-8.2	6.1	5.5	2.6	1.2	-3.7	1.5	-.9	-2.9	.0	6.4	-1.9	1.9
Oil and gas well drilling	213111	.51	-48.0	53.1	11.8	27.4	7.6	-15.3	-.2	-.4	-2.4	-2.9	2.0	1.3	8.9
Converted fuel		5.24	-3.8	4.2	2.7	4.0	-3.8	-6.4	1.2	1.9	-5.1	.8	4.1	-.9	1.6
Primary energy		13.76	-16.4	8.6	6.2	14.2	.8	5.0	-.4	-1.4	3.0	-1.0	-.2	.2	6.1
Non-energy		71.64	-2.4	2.8	.5	-.2	-3.6	.0	-.7	-2.1	1.9	.1	-1.0	1.0	-1.0
Selected high-technology industries		1.85	2.7	7.0	1.7	7.3	-1.4	-8.6	.8	-2.5	-1.6	1.1	.3	1.5	1.8
Computers and peripheral equipment	3341	.23	-8.8	18.4	12.5	15.2	13.1	22.3	2.2	-1.2	4.2	.6	1.8	1.5	17.4
Communications equipment	3342	.39	2.3	18.5	10.4	29.1	-4.8	-38.8	.2	-3.4	-6.0	-4.4	-2.7	-.6	-7.8
Semiconductors and related electronic components	3344	1.23	4.7	2.1	-2.7	-.4	-2.9	-2.5	.7	-2.4	-1.4	2.9	.9	2.1	1.8
Excluding selected high-technology industries		69.79	-2.5	2.7	.5	-.4	-3.7	.3	-.7	-2.0	2.0	.1	-1.0	1.0	-1.1
Motor vehicles and parts	**3361–3**	5.06	2.7	-5.2	7.0	6.9	2.1	-3.5	-2.1	-.5	.6	.3	-1.9	9.3	8.5
Motor vehicles	3361	2.37	7.1	-10.4	13.1	21.0	4.9	-4.3	-3.7	-.7	2.0	-.3	-3.1	13.9	17.1
Motor vehicle parts	3363	2.08	-1.2	-3.8	8.0	12.6	5.7	.7	.4	.4	-.3	1.0	-1.8	6.1	9.4
Excluding motor vehicles and parts		64.73	-3.0	3.5	.0	-1.0	-4.1	.6	-.6	-2.2	2.1	.1	-1.0	.3	-1.8
Consumer goods		18.52	.0	2.1	.3	-1.1	.5	1.9	-.4	-1.0	1.4	.1	-.6	.4	-.1
Business equipment		7.20	-9.1	4.6	6.8	4.9	-2.7	-4.8	-1.1	-1.8	1.4	-.9	-1.4	.3	-1.4
Construction supplies		5.15	-.9	5.4	-1.3	-2.2	-4.7	.8	-.5	-1.8	2.9	-.9	-2.1	.4	-3.1
Business supplies		7.43	-1.8	2.9	-.3	-2.4	-3.9	-2.7	-.6	-2.7	1.8	-.3	-.8	.3	-3.0
Materials		24.77	-3.7	3.9	-1.9	-2.1	-7.9	2.4	-.7	-3.2	2.9	.7	-.9	.2	-2.6
Measures excluding selected high-technology industries															
Total industry		98.15	-4.9	3.8	1.8	2.0	-2.5	-.4	-.4	-1.5	1.1	.0	.0	.5	.2
Manufacturing[1]		72.48	-3.2	3.4	.5	-.1	-3.4	-.7	-.8	-2.1	1.7	.2	-.8	1.0	-1.0
Durable		34.55	-4.3	3.2	2.6	1.8	-2.8	-2.9	-1.2	-1.2	.9	.1	-1.4	1.4	-.9
Measures excluding motor vehicles and parts															
Total industry		94.94	-5.2	4.5	1.5	1.9	-2.7	-.4	-.2	-1.6	1.0	.0	.2	.0	-.2
Manufacturing[1]		69.27	-3.5	4.3	.1	-.4	-3.7	-.7	-.6	-2.2	1.6	.3	-.7	.4	-1.6
Durable		31.34	-5.1	5.1	1.8	1.4	-3.5	-3.2	-.9	-1.4	.8	.1	-1.2	.1	-2.3
Measures excluding selected high-technology industries and motor vehicles and parts															
Total industry		93.09	-5.4	4.4	1.5	1.7	-2.8	-.2	-.3	-1.6	1.1	.0	.2	.0	-.3
Manufacturing[1]		67.43	-3.7	4.2	.0	-.6	-3.8	-.5	-.7	-2.2	1.7	.2	-.8	.3	-1.7
Stage-of-process components of non-energy materials, measures of the input to															
Finished processors		9.02	-5.5	1.8	.6	.2	-2.3	-1.0	.0	-2.0	1.1	.5	-1.0	1.8	-.4
Primary and semifinished processors		18.28	-1.7	3.8	-2.0	-1.5	-9.0	3.6	-.9	-3.4	3.2	1.0	-.9	.3	-2.2

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1. The composition of manufacturing is specified in a note for the summary table.

Table 3
Motor Vehicle Assemblies
Millions of units, seasonally adjusted annual rate

Item	2022 average	2022 Q2	Q3	Q4	2023 Q1	2022 Nov.	Dec.	2023 Jan.	Feb.	Mar.	Apr.
Total	10.10	10.03	10.45	10.44	10.21	10.35	10.22	10.31	10.30	10.03	11.40
Autos	1.77	1.75	1.85	1.80	1.79	1.78	1.74	1.71	1.79	1.88	1.95
Trucks	8.34	8.27	8.60	8.64	8.42	8.57	8.49	8.60	8.51	8.14	9.45
Light	8.02	7.95	8.27	8.30	8.11	8.23	8.16	8.29	8.20	7.82	9.12
Medium and heavy	.32	.32	.33	.34	.31	.35	.33	.31	.31	.32	.33
Memo											
Autos and light trucks	9.78	9.71	10.12	10.10	9.90	10.01	9.89	10.00	9.99	9.70	11.06

Note. Seasonal factors and underlying data for auto, light truck, and medium and heavy truck production are available on the Board's website, www.federalreserve.gov/releases/G17/mvsf.htm

Table 4
Industrial Production Indexes: Market and Industry Group Summary

2017 = 100, seasonally adjusted

Item		2022 proportion	2022 Aug.	Sept.	Oct.	Nov.[r]	Dec.[r]	2023 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]
Total IP		100.00	103.2	103.5	103.4	103.1	101.5	102.5	102.5	102.5	103.0
Market Groups											
Final products and nonindustrial supplies		53.69	102.2	102.3	102.5	102.2	100.9	101.2	101.0	101.2	101.8
Consumer goods		27.36	103.0	102.7	103.2	103.1	102.4	102.1	102.2	103.0	103.6
Durable		5.93	107.1	106.7	108.1	105.7	104.7	104.9	105.1	103.9	108.3
Automotive products		3.20	108.7	107.1	109.7	106.2	105.3	106.9	106.5	104.7	113.4
Home electronics		.14	167.4	166.8	164.9	166.8	160.5	164.4	161.1	161.8	163.3
Appliances, furniture, carpeting		.92	89.8	91.3	91.7	90.9	90.0	86.7	88.5	87.5	85.1
Miscellaneous goods		1.67	110.0	110.6	110.6	109.0	107.8	107.4	108.0	108.1	108.3
Nondurable		21.43	101.8	101.6	101.9	102.3	101.7	101.2	101.3	102.7	102.3
Non-energy		15.34	101.5	101.2	102.1	101.9	100.9	102.8	102.8	102.1	102.8
Foods and tobacco		9.43	101.8	100.7	101.5	101.2	99.8	101.7	101.9	100.7	101.3
Clothing		.17	91.8	94.1	94.6	95.2	94.8	98.4	95.1	96.1	95.0
Chemical products		4.61	104.7	105.4	106.4	106.6	106.7	108.5	108.3	108.6	110.0
Paper products		.75	79.7	81.8	82.8	82.6	81.3	83.3	82.5	82.1	82.0
Energy		6.09	101.9	101.8	100.7	102.6	103.1	96.6	97.0	103.6	100.4
Business equipment		8.39	97.7	98.2	98.6	97.5	95.8	96.9	96.0	94.7	95.8
Transit		1.63	72.2	73.0	74.3	73.0	72.3	71.8	70.9	69.8	72.3
Information processing		1.71	109.6	109.9	110.0	109.6	106.9	107.3	107.0	105.3	107.7
Industrial and other		5.05	107.4	108.0	108.0	106.7	104.8	106.9	105.9	104.6	104.6
Defense and space equipment		1.64	114.3	114.8	114.4	114.2	113.5	113.5	113.8	113.2	114.5
Construction supplies		5.15	103.5	103.8	103.4	102.9	101.0	104.0	103.1	100.9	101.3
Business supplies		10.56	101.5	101.9	101.7	101.7	99.5	99.9	99.8	100.9	100.7
Materials		46.31	104.4	105.0	104.5	104.1	102.1	104.0	104.3	104.1	104.5
Non-energy		27.30	98.1	98.4	98.0	97.4	94.6	96.9	97.7	96.8	97.6
Durable		16.44	98.1	98.6	98.8	97.9	96.1	97.3	97.9	96.4	97.4
Consumer parts		2.72	88.8	90.2	90.3	90.2	90.4	90.9	92.4	89.4	93.7
Equipment parts		4.39	102.3	102.8	103.1	102.1	100.0	100.6	101.2	100.7	101.3
Other		9.34	99.1	99.4	99.4	98.4	96.1	97.7	98.1	96.6	96.8
Nondurable		10.86	98.3	98.1	96.9	96.8	92.2	96.5	97.5	97.5	97.8
Textile		.33	86.0	86.4	83.5	84.3	83.1	86.3	81.7	82.4	83.3
Paper		1.60	88.1	88.0	85.7	88.0	82.8	85.5	84.9	86.1	86.0
Chemical		5.54	98.8	98.4	97.1	96.2	90.2	96.5	99.0	98.6	99.0
Energy		19.01	114.4	115.3	114.6	114.7	114.1	115.0	114.4	115.6	115.5
Industry Groups											
Manufacturing		74.33	100.4	100.6	100.8	100.0	97.9	99.4	99.7	98.9	99.8
Manufacturing (NAICS)	**31–33**	72.78	100.9	101.1	101.2	100.5	98.3	99.8	100.1	99.3	100.3
Durable manufacturing		36.25	101.6	102.0	102.2	101.1	99.8	100.5	100.7	99.4	100.8
Wood products	321	1.83	100.7	98.7	97.0	97.3	94.1	95.5	95.2	92.3	92.8
Nonmetallic mineral products	327	2.24	109.0	111.3	111.1	110.3	110.4	112.2	113.1	109.8	109.6
Primary metals	331	2.94	95.4	95.0	95.2	92.0	90.4	91.7	92.9	92.7	93.6
Fabricated metal products	332	5.88	99.8	100.5	100.8	100.4	99.7	99.8	100.4	99.3	99.3
Machinery	333	5.45	104.4	105.8	105.6	105.1	102.9	104.6	104.3	102.5	102.0
Computer and electronic products	334	4.27	110.9	111.4	111.1	111.2	108.4	108.3	108.9	107.9	110.3
Electrical equip., appliances, and components	335	2.01	103.5	103.8	104.9	101.9	101.3	102.9	102.5	101.2	101.3
Motor vehicles and parts	3361–3	5.06	103.0	103.3	105.6	103.4	102.9	103.6	103.8	101.8	111.3
Aerospace and miscellaneous transportation equipment	3364–9	2.94	88.1	87.7	87.6	87.0	86.7	86.6	85.7	85.1	84.8
Furniture and related products	337	1.08	89.9	90.7	89.7	87.1	86.3	85.5	85.6	84.5	84.2
Miscellaneous	339	2.54	111.4	111.0	111.0	109.6	107.6	109.2	108.4	108.6	107.1
Nondurable manufacturing		36.54	100.3	100.3	100.3	99.9	96.9	99.2	99.6	99.3	99.9
Food, beverage, and tobacco products	311,2	11.91	102.9	102.4	102.9	102.5	101.0	102.9	103.1	102.0	102.7
Textile and product mills	313,4	.57	88.4	88.0	86.3	85.7	85.1	86.8	83.7	83.9	83.9
Apparel and leather	315,6	.19	93.0	95.1	95.5	96.1	95.4	99.1	96.1	97.0	96.3
Paper	322	2.37	91.8	91.9	89.6	91.2	86.5	89.1	88.6	89.4	89.4
Printing and support	323	1.28	88.8	87.4	89.2	90.6	86.8	87.4	86.9	86.7	86.4
Petroleum and coal products	324	4.59	89.9	92.1	91.1	91.0	87.4	87.6	88.1	89.5	90.1
Chemicals	325	11.89	102.6	102.5	102.6	102.2	98.0	102.5	104.0	103.2	103.9
Plastics and rubber products	326	3.73	105.0	104.8	104.4	101.8	99.9	99.7	98.9	99.2	100.4
Other manufacturing (non-NAICS)	**1133,5111**	1.55	80.3	82.3	84.0	83.5	83.4	84.6	83.9	83.0	82.8
Mining	**21**	15.20	115.8	117.2	117.4	116.6	114.4	119.0	118.1	116.7	117.4
Utilities	**2211,2**	10.47	106.0	104.9	102.4	105.8	109.2	101.4	100.6	109.0	105.6
Electric	2211	8.89	105.0	103.8	100.2	104.5	106.9	101.1	100.0	106.9	104.9
Natural gas	2212	1.58	111.7	111.5	115.5	113.8	123.3	102.9	104.3	122.0	109.8

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Note. Refer to the notes for table 1.

Table 5
Industrial Production Indexes: Special Aggregates

2017 = 100, seasonally adjusted

Item		2022 proportion	2022 Aug.	Sept.	Oct.	Nov.[r]	Dec.[r]	2023 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]
Total industry		100.00	103.2	103.5	103.4	103.1	101.5	102.5	102.5	102.5	103.0
Energy		28.36	110.6	111.4	110.5	111.1	110.8	109.5	109.2	112.2	111.2
Consumer products		6.09	101.9	101.8	100.7	102.6	103.1	96.6	97.0	103.6	100.4
Commercial products		2.75	106.8	108.6	107.1	108.8	107.8	104.7	104.6	111.3	109.2
Oil and gas well drilling	213111	.51	106.4	107.3	108.3	108.1	107.6	105.0	101.9	103.9	105.3
Converted fuel		5.24	109.3	108.8	106.7	108.0	110.0	104.5	105.3	109.6	108.7
Primary energy		13.76	115.9	117.4	117.2	116.8	115.2	118.6	117.5	117.3	117.6
Non-energy		71.64	100.5	100.6	100.7	100.0	98.0	99.8	100.0	99.0	100.0
Selected high-technology industries		1.85	129.7	131.0	130.0	131.1	127.8	125.7	127.1	127.5	129.4
Computers and peripheral equipment	3341	.23	143.3	146.2	146.7	149.9	148.1	154.4	155.3	158.0	160.4
Communications equipment	3342	.39	169.2	169.4	168.0	168.4	162.7	153.0	146.2	142.3	141.4
Semiconductors and related electronic components	3344	1.23	116.7	117.9	116.8	117.7	114.8	113.2	116.4	117.5	119.9
Excluding selected high-technology industries		69.79	99.7	99.7	99.9	99.2	97.2	99.1	99.2	98.2	99.2
Motor vehicles and parts	**3361–3**	5.06	103.0	103.3	105.6	103.4	102.9	103.6	103.8	101.8	111.3
Motor vehicles	3361	2.37	112.6	112.9	117.4	113.0	112.2	114.4	114.0	110.5	125.9
Motor vehicle parts	3363	2.08	95.1	96.0	96.6	97.0	97.4	97.2	98.1	96.4	102.2
Excluding motor vehicles and parts		64.73	99.4	99.5	99.5	98.9	96.7	98.7	98.8	97.9	98.2
Consumer goods		18.52	101.9	101.6	102.3	101.9	101.0	102.4	102.5	101.8	102.3
Business equipment		7.20	94.6	94.9	95.1	94.0	92.4	93.6	92.8	91.5	91.8
Construction supplies		5.15	103.4	103.7	103.3	102.8	100.9	103.9	102.9	100.8	101.2
Business supplies		7.43	99.0	98.8	99.2	98.6	95.9	97.7	97.4	96.6	97.0
Materials		24.77	97.4	97.6	97.1	96.4	93.4	96.0	96.7	95.9	96.1
Measures excluding selected high-technology industries											
Total industry		98.15	102.7	103.0	102.8	102.5	100.9	102.0	102.0	102.0	102.5
Manufacturing[1]		72.48	99.6	99.8	99.9	99.2	97.1	98.7	98.9	98.1	99.0
Durable		34.55	100.1	100.4	100.6	99.4	98.2	99.1	99.2	97.8	99.2
Measures excluding motor vehicles and parts											
Total industry		94.94	103.3	103.6	103.3	103.1	101.4	102.5	102.5	102.6	102.6
Manufacturing[1]		69.27	100.2	100.4	100.4	99.8	97.5	99.1	99.4	98.7	99.0
Durable		31.34	101.4	101.8	101.7	100.7	99.3	100.1	100.2	99.0	99.1
Measures excluding selected high-technology industries and motor vehicles and parts											
Total industry		93.09	102.7	103.0	102.7	102.5	100.8	101.9	101.9	102.0	102.0
Manufacturing[1]		67.43	99.3	99.5	99.5	98.9	96.6	98.3	98.5	97.8	98.1
Stage-of-process components of non-energy materials, measures of the input to											
Finished processors		9.02	95.0	95.7	95.3	95.3	93.4	94.5	94.9	94.0	95.7
Primary and semifinished processors		18.28	100.0	100.0	99.6	98.7	95.4	98.4	99.4	98.5	98.7

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1. The composition of manufacturing is specified in a note for the summary table.

Table 6
Diffusion Indexes of Industrial Production

Percent

Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
One month earlier												
2021	63.5	28.7	71.6	53.7	62.8	54.4	59.8	54.4	45.6	60.8	57.8	45.3
2022	42.2	62.5	59.1	57.4	44.6	49.3	58.8	40.2	54.7	52.0	41.9	32.1
2023	64.2	51.7	41.2									
Three months earlier												
2021	67.9	44.3	57.8	52.0	65.2	57.8	57.4	59.8	53.0	57.1	59.5	60.8
2022	50.7	57.3	63.8	69.3	54.1	52.0	53.7	52.0	56.8	52.4	48.3	32.1
2023	42.9	48.6	58.1									
Six months earlier												
2021	77.0	56.1	67.2	60.5	60.1	58.4	53.4	65.2	58.4	63.9	68.2	64.2
2022	59.1	62.8	67.6	65.5	59.7	57.0	63.2	52.7	51.0	50.7	50.0	42.2
2023	42.9	45.9	40.9									

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 7
CAPACITY UTILIZATION
Percent of capacity, seasonally adjusted

Item		2022 proportion	1972-2022 ave.	1994-95 high	2009 low	2022 Q3	Q4[r]	2023 Q1[r]	2022 Nov.[r]	Dec.[r]	2023 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]
Total industry		100.00	79.7	85.0	66.6	80.8	79.9	79.5	80.3	78.9	79.6	79.5	79.4	79.7
Manufacturing[1]		74.13	78.2	84.6	63.4	79.4	78.5	78.1	78.9	77.1	78.2	78.4	77.6	78.3
Manufacturing (NAICS)	**31–33**	72.54	78.2	84.7	63.3	79.5	78.5	78.0	78.9	77.1	78.2	78.3	77.6	78.3
Durable manufacturing		37.23	76.8	83.7	58.2	77.2	76.3	75.4	76.4	75.3	75.7	75.7	74.6	75.6
Wood products	321	1.82	76.8	86.6	48.4	84.4	80.5	78.7	81.5	78.7	79.8	79.5	77.0	77.4
Nonmetallic mineral products	327	2.09	73.4	82.4	43.8	82.8	83.5	84.4	83.3	83.3	84.7	85.4	82.9	82.7
Primary metals	331	3.37	77.8	95.1	49.4	72.3	69.3	68.8	68.8	67.5	68.3	69.1	68.9	69.5
Fabricated metal products	332	5.85	78.0	83.7	63.5	78.8	78.9	78.5	79.0	78.5	78.5	78.9	78.1	78.0
Machinery	333	4.97	77.9	87.5	58.6	84.6	84.5	83.7	85.0	83.1	84.4	84.2	82.6	82.1
Computer and electronic products	334	4.77	77.1	84.5	69.9	70.9	69.8	67.8	70.4	68.3	68.0	68.1	67.2	68.3
Electrical equip., appliances, and components	335	1.96	81.8	92.4	66.5	78.9	77.9	77.2	77.3	76.7	77.8	77.4	76.3	76.3
Motor vehicles and parts	3361–3	5.52	74.9	87.6	33.0	73.3	73.2	72.1	72.8	72.3	72.6	72.6	71.1	77.5
Aerospace and miscellaneous transportation equipment	3364–9	3.47	73.9	72.0	72.2	69.0	68.5	67.5	68.5	68.2	68.1	67.4	67.0	66.7
Furniture and related products	337	1.07	77.5	82.8	53.4	78.0	75.6	73.4	75.0	74.3	73.7	73.7	72.8	72.5
Miscellaneous	339	2.33	77.0	81.0	68.1	86.6	84.2	82.5	84.3	82.4	83.2	82.3	82.0	80.5
Nondurable manufacturing		35.31	80.0	86.1	68.7	81.9	80.8	80.8	81.5	79.0	80.8	81.0	80.7	81.1
Food, beverage, and tobacco products	311,2	11.45	80.4	85.3	75.3	80.9	80.3	80.5	80.6	79.4	80.7	80.8	79.8	80.3
Textile and product mills	313,4	.63	78.3	91.7	54.1	71.2	69.1	68.8	69.2	68.7	70.3	67.9	68.2	68.3
Apparel and leather	315,6	.19	75.8	87.3	58.6	75.8	76.1	77.1	76.4	75.7	78.5	76.0	76.7	76.0
Paper	322	2.09	86.6	92.7	72.7	86.9	83.6	83.7	85.5	81.2	83.7	83.3	84.1	84.2
Printing and support	323	1.19	79.5	85.4	58.8	82.7	84.1	82.9	85.7	82.3	83.1	82.8	82.8	82.6
Petroleum and coal products	324	4.28	85.3	91.1	75.9	88.0	87.6	86.1	88.8	85.2	85.4	85.8	87.2	87.8
Chemicals	325	11.95	76.5	82.1	64.9	79.6	78.4	80.0	79.4	76.0	79.5	80.6	79.9	80.3
Plastics and rubber products	326	3.53	82.1	93.2	56.9	83.5	80.6	77.9	80.4	78.7	78.4	77.6	77.8	78.6
Other manufacturing (non-NAICS)	**1133,5111**	1.59	79.6	83.3	64.3	75.1	78.6	79.8	78.5	78.7	80.2	79.9	79.3	79.6
Mining	**21**	15.11	86.4	88.6	78.9	91.5	91.0	92.2	91.3	89.5	93.0	92.4	91.2	91.8
Utilities	**2211,2**	10.77	84.7	93.2	78.1	74.6	73.9	71.8	74.0	76.1	70.4	69.7	75.3	72.7
Selected high-technology industries		1.97	77.4	86.3	71.3	76.1	74.2	70.9	75.1	72.6	70.9	71.1	70.7	71.2
Computers and peripheral equipment	3341	.26	76.7	86.8	82.7	74.0	75.3	77.9	76.1	74.8	77.6	77.6	78.6	79.3
Communications equipment	3342	.44	75.5	86.1	77.3	75.1	72.5	62.6	73.4	70.3	65.6	62.2	60.1	59.2
Semiconductors and related electronic components	3344	1.27	79.1	92.4	63.0	76.8	74.5	72.2	75.3	72.9	71.2	72.6	72.6	73.4
Measures excluding selected high-technology industries														
Total industry		98.03	79.8	84.9	66.3	80.9	80.0	79.7	80.4	79.0	79.8	79.7	79.6	79.9
Manufacturing[1]		72.16	78.3	84.5	62.9	79.5	78.6	78.3	79.0	77.2	78.4	78.6	77.8	78.5
STAGE-OF-PROCESS GROUPS														
Crude		19.34	85.6	90.0	76.9	89.9	88.5	89.8	89.1	86.5	89.9	90.2	89.4	89.8
Primary and semifinished		45.61	80.2	87.8	63.6	79.0	78.1	77.1	78.6	77.5	76.8	76.8	77.6	77.3
Finished		35.05	76.7	80.7	66.3	77.8	77.4	77.0	77.4	76.5	77.5	77.2	76.3	77.3

r Revised. p Preliminary.
1. The composition of manufacturing is specified in a note for the summary table.

Table 8
INDUSTRIAL CAPACITY
Percent change

Item	Average annual rate				Fourth quarter to fourth quarter				Annual rate				Monthly rate
	1972-79	1980-88	1989-94	1995-2023	2020	2021	2022	2023	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Apr.
Total industry	3.1	1.9	2.3	1.6	-.8	-2.0	.9	1.5	1.4	1.6	1.6	1.6	.1
Manufacturing[1]	3.3	2.2	2.6	1.4	-1.0	-1.0	.7	1.3	1.0	1.2	1.3	1.3	.1
Mining	.7	.1	-.7	.9	-2.8	-9.9	1.9	-.4	3.1	2.1	.8	-.3	.0
Utilities	4.4	2.2	1.8	1.8	2.4	2.3	3.1	3.5	3.3	3.4	3.5	3.5	.3
Selected high-technology industries	18.6	16.7	16.0	15.9	5.2	3.7	6.5	10.5	7.2	8.7	9.8	10.5	.8
Manufacturing[1] ex. selected high-technology industries	2.6	1.3	1.6	.4	-1.2	-1.2	.6	1.1	.8	1.0	1.0	1.1	.1
STAGE-OF-PROCESS GROUPS													
Crude	1.5	.5	-.5	.7	-2.5	-8.1	1.2	-.4	2.1	1.5	.6	-.3	.0
Primary and semifinished	3.0	1.4	2.5	1.6	-.3	-.8	1.1	1.4	1.4	1.5	1.5	1.4	.1
Finished	3.9	3.2	2.8	1.5	-.7	.1	1.3	2.2	1.4	1.7	2.0	2.2	.2

1. The composition of manufacturing is specified in a note for the summary table.

Table 9
GROSS VALUE OF FINAL PRODUCTS AND NONINDUSTRIAL SUPPLIES
Billions of 2012 dollars at annual rate, seasonally adjusted

Item	2012	2022	2022 Q3	Q4[r]	2023 Q1[r]	2022 Nov.[r]	Dec.[r]	2023 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]
Final products and nonindustrial supplies	4,005.8	4,190.4	4,209.4	4,197.7	4,160.9	4,214.9	4,149.9	4,156.9	4,155.0	4,170.7	4,202.7
Final products	2,986.7	3,098.8	3,114.7	3,112.8	3,082.5	3,121.1	3,083.3	3,078.4	3,080.2	3,089.1	3,122.7
Consumer goods	2,189.9	2,356.9	2,358.7	2,358.0	2,339.3	2,365.6	2,338.4	2,328.2	2,336.0	2,353.8	2,375.1
Durable	431.0	543.8	547.3	543.0	535.8	539.7	534.8	537.6	538.5	531.3	563.0
Automotive products	284.6	382.7	388.3	384.7	381.1	381.2	378.5	383.7	383.2	376.4	410.6
Other durable goods	146.4	161.2	159.4	158.5	155.1	158.7	156.6	154.5	155.8	155.2	153.8
Nondurable	1,758.9	1,809.7	1,807.6	1,811.1	1,799.6	1,821.8	1,799.6	1,786.8	1,793.5	1,818.4	1,808.3
Equipment, total	796.8	753.7	768.2	767.0	755.2	767.6	756.8	762.3	756.2	747.1	759.6
Business and defense	761.5	730.8	744.3	743.7	733.6	744.3	733.8	740.2	734.9	725.6	738.0
Business	632.8	600.4	612.6	612.0	602.7	612.5	602.9	609.0	603.7	595.2	606.0
Defense and space	128.8	129.7	130.9	130.8	130.3	131.0	130.3	130.4	130.5	129.9	131.4
Nonindustrial supplies	1,019.1	1,092.2	1,095.2	1,085.5	1,078.8	1,094.3	1,067.3	1,079.0	1,075.4	1,082.1	1,080.6
Construction supplies	243.9	276.1	275.8	272.6	272.6	273.7	269.3	275.7	273.7	268.5	269.4
Business supplies	775.2	814.7	818.3	812.0	804.9	820.0	796.7	801.0	799.8	813.7	810.9
Commercial energy products	273.7	308.6	312.0	312.3	308.9	316.7	307.4	302.5	302.2	321.9	316.1

r Revised. p Preliminary.

Table 10
GROSS-VALUE-WEIGHTED INDUSTRIAL PRODUCTION: STAGE-OF-PROCESS GROUPS
Percent change, seasonally adjusted

Item	2022 gross value[1]	Fourth quarter to fourth quarter			Annual rate			Monthly rate						Apr. '22 to Apr. '23
		2020	2021	2022	2022 Q3	Q4[r]	2023 Q1[r]	2022 Nov.[r]	Dec.[r]	2023 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[p]	
Finished	2,381.3	-1.5	1.4	4.0	3.6	-.6	-1.1	-1.0	-1.3	1.5	-.4	-1.1	2.3	1.8
Semifinished	1,993.4	-2.7	2.7	1.5	-.4	-1.7	-3.0	.8	-1.2	-.4	.0	.5	.4	-1.1
Primary	1,821.3	-8.8	7.3	-.6	-.8	-3.9	-4.7	-.6	-1.7	-1.3	1.2	1.9	-.6	-1.4
Crude	930.8	-7.9	5.8	-.4	3.8	-8.7	8.4	-.8	-3.6	4.6	.8	-.6	.1	1.1

r Revised. p Preliminary.
1. Billions of 2012 dollars.

Table 11
HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Total Industry
Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
IP (*percent change*)[1]																	
2001	-.5	-.7	-.3	-.4	-.5	-.5	-.6	-.1	-.5	-.3	-.6	.0	-4.8	-5.0	-5.4	-4.3	-3.0
2002	.7	.0	.7	.5	.4	.8	.0	-.1	.1	-.3	.5	-.6	3.0	6.3	2.5	-.2	.3
2003	.8	.1	-.3	-.6	.0	.1	.5	-.2	.7	.1	.7	.0	2.5	-2.9	2.7	3.9	1.3
2004	.2	.6	-.4	.4	.7	-.8	.7	.1	.1	.9	.2	.8	2.9	2.3	2.3	5.8	2.7
2005	.4	.7	-.1	.2	.1	.4	-.3	.3	-1.9	1.2	1.1	.5	5.7	2.3	-1.7	3.7	3.4
2006	.2	.0	.2	.3	.0	.3	-.1	.4	-.2	-.1	.0	1.0	3.9	2.4	1.6	1.0	2.3
2007	-.4	1.0	.2	.7	.0	.0	-.2	.2	.2	-.3	.6	.1	4.2	4.7	.3	1.3	2.6
2008	-.1	-.4	-.3	-.7	-.6	-.3	-.4	-1.6	-4.4	1.0	-1.3	-2.8	-1.0	-5.9	-12.5	-16.0	-3.5
2009	-2.5	-.6	-1.6	-.8	-1.0	-.3	1.2	1.1	.9	.2	.4	.3	-20.7	-10.6	7.0	6.4	-11.4
2010	1.1	.3	.7	.4	1.4	.2	.4	.4	.3	-.3	.1	1.0	7.8	8.0	5.4	1.7	5.5
2011	-.2	-.4	1.1	-.4	.1	.3	.5	.6	-.1	.7	.0	.5	2.2	1.6	4.5	4.2	3.1
2012	.6	.3	-.5	.7	.2	.0	.2	-.4	-.1	.3	.4	.3	4.1	2.5	-.1	2.0	3.1
2013	.0	.5	.4	-.1	.1	.2	-.3	.6	.5	-.1	.2	.2	3.1	1.8	1.6	2.7	2.0
2014	-.4	.8	1.0	.1	.4	.3	.2	-.2	.3	.0	.6	.0	2.8	5.6	2.3	2.4	3.0
2015	-.8	-.7	-.3	-.6	-.5	-.3	.6	-.2	-.3	-.5	-.7	-.5	-4.4	-5.5	.3	-5.4	-1.4
2016	.5	-.5	-.7	.3	-.2	.5	.1	-.1	-.1	.1	-.4	.7	-2.7	-1.5	1.1	-.2	-2.2
2017	-.2	-.4	.6	1.0	.1	.2	-.2	-.4	.1	1.2	.3	.2	.3	5.7	-1.2	5.7	1.3
2018	-.1	.4	.5	1.1	-.9	.8	.1	.7	.0	-.2	.1	.0	2.2	4.7	3.4	.5	3.2
2019	-.6	-.5	.0	-.6	.2	.1	-.5	.7	-.2	-.9	.5	-.3	-3.7	-2.4	.2	-2.2	-.7
2020	-.5	.3	-3.9	-13.4	1.6	6.5	3.8	.9	.0	.6	.4	1.2	-6.3	-42.2	43.2	6.4	-7.2
2021	.8	-3.5	2.9	.2	.9	.4	.6	.0	-1.1	1.3	.9	-.3	1.4	6.5	3.2	4.2	4.4
2022	.1	.6	.8	.3	.0	-.1	.4	.1	.3	-.1	-.3	-1.5	3.7	4.1	2.1	-2.5	3.4
2023	1.0	.0	.0	.5									-.5				
IP (*2017=100*)																	
2021	98.8	95.4	98.1	98.3	99.2	99.5	100.1	100.1	99.1	100.3	101.2	100.9	97.4	99.0	99.8	100.8	99.2
2022	101.0	101.7	102.5	102.8	102.8	102.7	103.1	103.2	103.5	103.4	103.1	101.5	101.7	102.8	103.3	102.7	102.6
2023	102.5	102.5	102.5	103.0									102.5				
Capacity (*percent of 2017 output*)																	
2021	129.3	129.0	128.7	128.4	128.2	127.9	127.7	127.5	127.4	127.3	127.2	127.2	129.0	128.2	127.5	127.2	128.0
2022	127.2	127.2	127.3	127.4	127.5	127.6	127.7	127.9	128.1	128.2	128.4	128.6	127.2	127.5	127.9	128.4	127.8
2023	128.8	128.9	129.1	129.3									128.9				
Utilization (*percent*)																	
2001	79.3	78.6	78.1	77.6	77.0	76.3	75.7	75.4	74.8	74.4	73.8	73.7	78.7	77.0	75.3	74.0	76.2
2002	74.1	74.0	74.4	74.7	75.0	75.5	75.5	75.4	75.5	75.3	75.7	75.3	74.1	75.1	75.4	75.4	75.0
2003	76.0	76.1	75.9	75.5	75.5	75.6	76.0	75.8	76.3	76.4	77.0	77.0	76.0	75.5	76.1	76.8	76.1
2004	77.2	77.6	77.4	77.7	78.3	77.7	78.2	78.3	78.4	79.1	79.2	79.8	77.4	77.9	78.3	79.4	78.2
2005	80.0	80.5	80.4	80.4	80.4	80.7	80.3	80.5	78.8	79.6	80.4	80.7	80.3	80.5	79.9	80.2	80.2
2006	80.7	80.6	80.7	80.8	80.7	80.8	80.6	80.8	80.5	80.2	80.0	80.6	80.7	80.7	80.6	80.3	80.6
2007	80.1	80.7	80.7	81.1	81.0	80.8	80.6	80.7	80.9	80.6	81.1	81.1	80.5	81.0	80.7	80.9	80.8
2008	81.1	80.8	80.6	80.1	79.7	79.5	79.1	77.8	74.3	75.0	73.9	71.7	80.8	79.8	77.1	73.5	77.8
2009	69.8	69.3	68.1	67.5	66.8	66.6	67.3	68.1	68.8	69.0	69.4	69.7	69.1	66.9	68.1	69.4	68.4
2010	70.6	71.0	71.6	72.0	73.2	73.5	73.9	74.3	74.7	74.5	74.7	75.5	71.1	72.9	74.3	74.9	73.3
2011	75.3	75.0	75.8	75.5	75.6	75.7	76.0	76.4	76.2	76.6	76.5	76.8	75.4	75.6	76.2	76.6	76.0
2012	77.1	77.2	76.6	77.1	77.1	76.9	77.0	76.5	76.4	76.5	76.7	76.8	77.0	77.0	76.6	76.6	76.8
2013	76.7	76.9	77.1	77.0	77.0	77.0	76.7	77.1	77.5	77.3	77.5	77.6	76.9	77.0	77.1	77.4	77.1
2014	77.2	77.8	78.5	78.5	78.7	78.9	79.0	78.8	79.0	78.9	79.4	79.3	77.8	78.7	78.9	79.2	78.7
2015	78.6	78.1	77.8	77.3	77.0	76.7	77.2	77.1	76.9	76.6	76.0	75.6	78.2	77.0	77.1	76.1	77.1
2016	76.0	75.6	75.1	75.3	75.1	75.4	75.5	75.4	75.3	75.3	75.0	75.5	75.6	75.2	75.4	75.3	75.4
2017	75.4	75.1	75.6	76.4	76.6	76.8	76.7	76.4	76.6	77.7	77.9	78.2	75.4	76.6	76.6	77.9	76.6
2018	78.2	78.6	79.0	79.9	79.2	79.8	79.9	80.4	80.4	80.3	80.3	80.2	78.6	79.6	80.3	80.3	79.7
2019	79.7	79.2	79.1	78.6	78.7	78.7	78.2	78.7	78.5	77.7	78.1	77.8	79.3	78.7	78.5	77.9	78.6
2020	77.4	77.6	74.5	64.6	65.6	70.0	72.7	73.4	73.5	74.1	74.6	75.6	76.5	66.7	73.2	74.8	72.8
2021	76.4	73.9	76.2	76.5	77.4	77.8	78.4	78.5	77.8	78.8	79.5	79.3	75.5	77.2	78.2	79.2	77.6
2022	79.4	79.9	80.5	80.7	80.6	80.5	80.7	80.7	80.8	80.6	80.3	78.9	80.0	80.6	80.8	79.9	80.3
2023	79.6	79.5	79.4	79.7									79.5				

1. Quarterly percentage changes are at annual rates. Annual percentage changes are calculated from annual averages.

Table 12
HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Manufacturing[1]
Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
IP (*percent change*)[2]																	
2001	-.4	-.7	-.2	-.4	-.5	-.6	-.5	-.4	-.4	-.4	-.4	.2	-5.6	-5.3	-5.8	-4.0	-3.6
2002	.7	.0	.7	.3	.5	1.0	-.1	.1	.1	-.3	.5	-.6	3.6	5.8	3.2	-.4	.5
2003	.8	-.1	.1	-.8	.1	.4	.3	-.5	.8	.1	.9	-.1	2.1	-2.2	2.5	4.4	1.3
2004	-.1	.8	.0	.4	.7	-.7	.9	.5	.0	.9	.0	.8	2.6	3.4	4.0	5.5	3.1
2005	.6	.8	-.5	.4	.3	.2	-.4	.5	-1.1	1.4	.9	.1	6.4	2.6	-.6	6.1	4.1
2006	.8	-.3	.0	.3	-.2	.3	-.3	.7	.1	-.4	.1	1.5	3.9	.7	1.1	1.6	2.6
2007	-.3	.3	.8	.6	-.1	.3	-.1	-.3	.3	-.2	.5	.2	4.7	5.5	.1	1.3	2.8
2008	-.2	-.7	-.4	-1.0	-.6	-.7	-1.1	-1.3	-3.4	-.6	-2.5	-3.4	-2.0	-8.4	-14.0	-22.0	-4.8
2009	-3.2	-.1	-1.8	-.7	-1.0	-.2	1.6	1.1	1.0	.1	1.0	-.2	-24.7	-10.3	9.1	7.1	-13.8
2010	1.0	-.1	1.3	.8	1.3	.0	.5	.1	.1	.1	.1	.5	6.6	10.4	4.3	1.6	5.9
2011	.1	.1	.6	-.6	.0	.1	.6	.4	.3	.5	-.2	.7	3.0	-.2	4.2	3.9	2.9
2012	.9	.4	-.5	.5	-.4	.3	-.2	-.1	-.2	-.2	.6	.7	5.5	.5	-1.2	1.0	2.6
2013	-.2	.4	-.1	-.3	.3	.2	-.8	.9	.1	.1	.0	-.2	2.8	.1	.2	1.6	.9
2014	-1.1	.9	.9	.0	.3	.3	.4	-.6	.0	-.1	.7	-.2	-1.1	4.8	1.4	.3	1.1
2015	-.6	-.8	.4	.0	.0	-.4	.7	-.3	-.3	-.1	-.3	-.3	-3.4	-.6	.8	-2.7	-.5
2016	.4	-.4	-.1	-.2	-.1	.2	.0	-.3	.2	.1	-.1	.0	-.6	-1.2	.0	.5	-.8
2017	.2	-.1	-.4	1.1	-.1	.0	-.4	-.2	.0	1.1	.1	-.2	-.1	3.0	-2.0	4.0	.6
2018	-.4	1.0	-.1	.7	-.9	.6	.0	.3	.0	-.5	-.3	.3	.4	2.3	1.6	-1.7	1.3
2019	-.9	-.5	-.3	-.6	.0	.4	-.7	.7	-.6	-.9	.9	.1	-4.6	-3.2	-.6	-2.1	-2.0
2020	-.2	.2	-4.6	-15.5	4.4	7.7	3.6	1.5	.0	.8	.6	.6	-5.0	-44.0	53.9	8.0	-6.6
2021	1.0	-3.9	3.0	.1	1.1	-.1	1.0	-.3	-.9	1.3	.9	-.1	-.1	5.9	3.4	4.9	5.0
2022	-.6	1.2	.8	.1	-.4	-.4	.2	.2	.2	.1	-.7	-2.1	3.0	2.7	.1	-3.3	2.7
2023	1.6	.3	-.8	1.0									-.9				
IP (*2017=100*)																	
2021	97.2	93.4	96.2	96.3	97.4	97.3	98.3	98.0	97.1	98.4	99.3	99.2	95.6	97.0	97.8	99.0	97.4
2022	98.7	99.8	100.6	100.8	100.4	100.0	100.2	100.4	100.6	100.8	100.0	97.9	99.7	100.4	100.4	99.5	100.0
2023	99.4	99.7	98.9	99.8									99.3				
Capacity (*percent of 2017 output*)																	
2021	126.9	126.8	126.6	126.5	126.3	126.2	126.1	126.0	126.0	125.9	125.9	125.9	126.8	126.3	126.0	125.9	126.3
2022	125.9	125.9	126.0	126.1	126.1	126.2	126.3	126.4	126.6	126.7	126.8	126.9	125.9	126.1	126.4	126.8	126.3
2023	127.1	127.2	127.3	127.5									127.2				
Utilization (*percent*)																	
2001	77.0	76.2	75.8	75.2	74.6	73.9	73.4	72.9	72.5	72.0	71.7	71.7	76.3	74.6	72.9	71.8	73.9
2002	72.1	72.0	72.5	72.6	73.0	73.7	73.6	73.6	73.7	73.5	73.8	73.4	72.2	73.1	73.6	73.5	73.1
2003	74.0	73.9	74.0	73.4	73.5	73.8	74.1	73.7	74.4	74.5	75.1	75.1	73.9	73.6	74.1	74.9	74.1
2004	75.1	75.7	75.7	76.0	76.5	76.0	76.7	77.0	77.0	77.7	77.6	78.1	75.5	76.2	76.9	77.8	76.6
2005	78.5	79.0	78.5	78.7	78.8	78.8	78.4	78.6	77.6	78.6	79.1	79.0	78.7	78.8	78.2	78.9	78.6
2006	79.5	79.2	79.0	79.1	78.8	78.9	78.5	78.9	78.8	78.3	78.2	79.2	79.2	79.0	78.8	78.6	78.9
2007	78.7	78.8	79.2	79.5	79.3	79.3	79.1	78.7	78.8	78.5	78.8	78.9	78.9	79.4	78.9	78.8	79.0
2008	78.7	78.2	77.8	77.1	76.7	76.2	75.4	74.5	72.0	71.6	69.9	67.7	78.2	76.6	74.0	69.8	74.7
2009	65.6	65.6	64.4	64.1	63.5	63.4	64.5	65.3	66.1	66.2	66.9	66.9	65.2	63.7	65.3	66.7	65.2
2010	67.7	67.7	68.7	69.3	70.3	70.4	70.9	71.1	71.3	71.5	71.7	72.1	68.0	70.0	71.1	71.8	70.2
2011	72.2	72.4	72.9	72.6	72.6	72.7	73.1	73.4	73.5	73.9	73.7	74.1	72.5	72.6	73.3	73.9	73.1
2012	74.7	74.9	74.4	74.7	74.3	74.5	74.2	74.1	73.8	73.6	74.0	74.5	74.7	74.5	74.0	74.0	74.3
2013	74.2	74.5	74.4	74.1	74.3	74.5	73.9	74.5	74.6	74.7	74.7	74.6	74.4	74.3	74.4	74.7	74.4
2014	73.9	74.6	75.3	75.3	75.6	75.9	76.3	76.0	76.1	76.0	76.7	76.6	74.6	75.6	76.1	76.4	75.7
2015	76.2	75.7	76.1	76.2	76.2	76.0	76.6	76.4	76.2	76.1	75.9	75.7	76.0	76.1	76.4	75.9	76.1
2016	76.0	75.6	75.5	75.4	75.3	75.4	75.4	75.1	75.3	75.4	75.3	75.4	75.7	75.4	75.3	75.4	75.4
2017	75.5	75.5	75.3	76.3	76.3	76.4	76.2	76.2	76.3	77.2	77.4	77.3	75.5	76.3	76.2	77.3	76.3
2018	77.1	77.9	77.9	78.5	77.9	78.4	78.5	78.8	78.8	78.5	78.3	78.5	77.6	78.3	78.7	78.4	78.3
2019	77.9	77.5	77.3	76.9	77.0	77.3	76.8	77.4	76.9	76.2	76.9	77.1	77.6	77.1	77.1	76.7	77.1
2020	76.9	77.1	73.6	62.2	65.0	70.1	72.7	73.8	73.9	74.6	75.2	75.7	75.9	65.8	73.5	75.2	72.6
2021	76.6	73.7	76.0	76.2	77.1	77.1	78.0	77.8	77.1	78.2	78.9	78.8	75.4	76.8	77.6	78.6	77.1
2022	78.4	79.3	79.9	79.9	79.6	79.2	79.3	79.4	79.5	79.5	78.9	77.1	79.2	79.6	79.4	78.5	79.2
2023	78.2	78.4	77.6	78.3									78.1				

1. The composition of manufacturing is specified in a note for the summary table.
2. Quarterly percentage changes are at annual rates. Annual percentage changes are calculated from annual averages.

Table 13
HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Total Industry Excluding Selected High-Technology Industries[1]
Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
IP (*percent change*)[2]																	
2001	-.5	-.6	-.3	-.3	-.5	-.4	-.4	-.1	-.6	-.3	-.5	-.2	-5.6	-4.4	-4.3	-4.5	-3.9
2002	.8	-.1	.7	.5	.4	.8	-.1	-.2	.1	-.3	.5	-.6	2.7	6.0	1.9	-.8	.3
2003	.8	-.1	-.4	-.8	-.2	.0	.3	-.4	.6	.0	.6	.0	1.5	-4.6	.8	2.6	.2
2004	.1	.6	-.4	.4	.7	-.8	.8	.0	.1	.9	.2	.7	1.9	2.2	2.0	5.3	1.8
2005	.2	.6	-.2	.1	.0	.4	-.4	.2	-2.2	1.2	1.1	.5	4.7	1.3	-2.9	2.5	2.6
2006	.1	.0	.2	.3	-.1	.3	-.1	.3	-.3	-.1	-.1	1.0	3.3	1.7	.8	.2	1.4
2007	-.4	.9	.0	.5	.1	.1	-.2	.1	.1	-.5	.4	-.1	3.3	3.8	.3	-.5	1.8
2008	-.2	-.5	-.5	-.8	-.7	-.3	-.4	-1.6	-4.5	1.2	-1.1	-2.7	-2.3	-6.9	-12.5	-14.9	-4.3
2009	-2.5	-.7	-1.7	-.9	-1.1	-.3	1.2	1.1	.8	.2	.3	.3	-20.6	-11.5	6.7	5.8	-11.4
2010	1.0	.2	.6	.3	1.4	.2	.3	.3	.3	-.3	.0	.9	6.7	7.4	5.1	1.1	4.9
2011	-.3	-.5	1.1	-.4	.1	.3	.5	.6	-.1	.7	.0	.5	1.6	1.6	4.4	4.2	2.8
2012	.6	.3	-.6	.7	.2	.0	.2	-.4	-.1	.3	.4	.3	3.7	2.1	-.2	1.7	2.8
2013	.0	.5	.4	-.2	.1	.2	-.4	.6	.5	-.2	.2	.2	3.0	1.4	1.3	2.5	1.8
2014	-.4	.7	1.0	.0	.4	.3	.2	-.2	.3	.0	.6	.0	2.6	5.3	2.2	2.3	2.8
2015	-.8	-.7	-.3	-.6	-.5	-.3	.7	-.2	-.3	-.5	-.7	-.5	-4.5	-5.7	.3	-5.5	-1.5
2016	.5	-.6	-.8	.3	-.2	.5	.1	-.1	-.2	.0	-.4	.7	-2.9	-1.7	.8	-.7	-2.4
2017	-.2	-.4	.6	.9	.1	.2	-.2	-.4	.1	1.2	.2	.2	.2	5.5	-1.2	5.5	1.1
2018	-.1	.4	.5	1.1	-1.0	.8	.1	.7	.0	-.2	.1	.0	2.2	4.6	3.1	.6	3.0
2019	-.6	-.6	.0	-.6	.2	.1	-.5	.7	-.2	-.9	.5	-.3	-3.9	-2.5	.1	-2.3	-.8
2020	-.5	.3	-4.0	-13.6	1.7	6.6	3.8	.9	-.1	.6	.4	1.2	-6.4	-42.8	44.1	6.2	-7.4
2021	.8	-3.5	2.9	.1	.9	.4	.7	.0	-1.1	1.3	.9	-.3	1.2	6.2	3.5	4.1	4.3
2022	.1	.6	.8	.3	.0	-.1	.4	.1	.3	-.1	-.4	-1.5	3.8	4.2	2.0	-2.5	3.4
2023	1.1	.0	.0	.5									-.4				
IP (*2017=100*)																	
2021	98.3	94.8	97.6	97.7	98.5	98.9	99.6	99.6	98.5	99.8	100.6	100.3	96.9	98.4	99.2	100.2	98.7
2022	100.5	101.1	101.9	102.3	102.3	102.1	102.6	102.7	103.0	102.8	102.5	100.9	101.2	102.2	102.7	102.1	102.1
2023	102.0	102.0	102.0	102.5									102.0				
Capacity (*percent of 2017 output*)																	
2021	128.6	128.3	128.0	127.7	127.5	127.2	127.0	126.8	126.6	126.5	126.5	126.4	128.3	127.5	126.8	126.5	127.3
2022	126.4	126.4	126.5	126.6	126.7	126.8	126.9	127.1	127.2	127.4	127.5	127.7	126.4	126.7	127.1	127.5	126.9
2023	127.8	128.0	128.1	128.3									128.0				
Utilization (*percent*)																	
2001	79.0	78.4	78.1	77.8	77.3	76.9	76.5	76.4	75.8	75.5	75.0	74.8	78.5	77.4	76.2	75.1	76.8
2002	75.3	75.2	75.7	76.0	76.3	76.9	76.9	76.7	76.8	76.6	77.1	76.6	75.4	76.4	76.8	76.8	76.4
2003	77.3	77.3	77.1	76.5	76.5	76.5	76.8	76.5	77.0	77.0	77.5	77.5	77.2	76.5	76.8	77.4	77.0
2004	77.6	78.1	77.8	78.1	78.7	78.1	78.8	78.8	78.9	79.6	79.8	80.4	77.8	78.3	78.8	79.9	78.7
2005	80.6	81.0	80.9	80.9	80.9	81.1	80.7	80.8	79.0	79.8	80.6	80.8	80.8	81.0	80.2	80.4	80.6
2006	80.8	80.7	80.7	80.8	80.6	80.7	80.5	80.7	80.3	80.0	79.8	80.5	80.7	80.7	80.5	80.1	80.5
2007	80.1	80.7	80.6	81.0	81.0	81.1	81.0	81.1	81.3	80.9	81.3	81.3	80.5	81.0	81.1	81.2	81.0
2008	81.2	80.9	80.5	80.0	79.4	79.2	78.8	77.5	73.9	74.7	73.8	71.6	80.9	79.5	76.8	73.4	77.6
2009	69.7	69.2	67.9	67.3	66.5	66.3	67.1	67.9	68.6	68.8	69.2	69.5	68.9	66.7	67.9	69.2	68.2
2010	70.4	70.7	71.3	71.8	72.9	73.3	73.7	74.1	74.4	74.3	74.4	75.2	70.8	72.7	74.1	74.7	73.0
2011	75.1	74.8	75.6	75.4	75.5	75.7	76.0	76.4	76.2	76.7	76.6	76.9	75.2	75.5	76.2	76.7	75.9
2012	77.2	77.3	76.8	77.2	77.2	77.1	77.1	76.7	76.5	76.6	76.8	77.0	77.1	77.1	76.8	76.8	77.0
2013	76.9	77.2	77.4	77.2	77.2	77.3	76.9	77.4	77.7	77.6	77.7	77.8	77.1	77.2	77.3	77.7	77.4
2014	77.5	78.0	78.8	78.7	79.0	79.1	79.2	79.0	79.2	79.1	79.5	79.5	78.1	78.9	79.1	79.4	78.9
2015	78.8	78.2	77.9	77.4	77.1	76.8	77.3	77.2	77.0	76.7	76.2	75.8	78.3	77.1	77.2	76.2	77.2
2016	76.2	75.8	75.2	75.4	75.2	75.6	75.6	75.6	75.4	75.4	75.1	75.6	75.7	75.4	75.5	75.4	75.5
2017	75.5	75.2	75.7	76.5	76.6	76.8	76.7	76.5	76.6	77.7	77.9	78.1	75.5	76.6	76.6	77.9	76.7
2018	78.2	78.5	79.0	79.9	79.2	79.8	79.9	80.4	80.5	80.3	80.3	80.3	78.6	79.6	80.3	80.3	79.7
2019	79.7	79.2	79.2	78.6	78.7	78.7	78.3	78.8	78.5	77.7	78.1	77.8	79.4	78.7	78.5	77.9	78.6
2020	77.4	77.6	74.5	64.4	65.5	69.9	72.7	73.5	73.5	74.1	74.6	75.6	76.5	66.6	73.2	74.8	72.8
2021	76.4	73.9	76.2	76.5	77.3	77.8	78.4	78.6	77.8	78.8	79.6	79.4	75.5	77.2	78.3	79.3	77.6
2022	79.5	80.0	80.6	80.8	80.7	80.6	80.8	80.8	80.9	80.7	80.4	79.0	80.0	80.7	80.9	80.0	80.4
2023	79.8	79.7	79.6	79.9									79.7				

1. Selected high-technology industries are computers, communications equipment, and semiconductors and related electronic components.
2. Quarterly percentage changes are at annual rates. Annual percentage changes are calculated from annual averages.

Table 14
HISTORICAL STATISTICS FOR INDUSTRIAL PRODUCTION, CAPACITY, AND UTILIZATION: Manufacturing[1] Excluding Selected High-Technology Industries[2]
Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
IP (*percent change*)[3]																	
2001	-.4	-.6	-.3	-.3	-.5	-.5	-.3	-.4	-.4	-.5	-.3	.1	-6.6	-4.5	-4.4	-4.2	-4.7
2002	.8	-.2	.7	.3	.5	1.0	-.2	.0	.0	-.3	.4	-.7	3.4	5.4	2.6	-1.1	.4
2003	.7	-.3	.0	-.9	-.1	.3	.1	-.7	.7	-.1	.8	-.2	.8	-4.2	.1	2.7	.0
2004	-.2	.7	-.1	.4	.7	-.7	.9	.4	-.1	.9	-.1	.7	1.5	3.3	3.8	4.9	2.0
2005	.5	.7	-.6	.3	.2	.1	-.5	.4	-1.4	1.4	.8	.0	5.1	1.4	-2.1	4.7	3.1
2006	.8	-.4	-.1	.3	-.4	.2	-.4	.6	-.1	-.5	.1	1.5	3.2	-.2	.0	.6	1.5
2007	-.4	.2	.6	.4	.0	.5	-.1	-.4	.1	-.4	.3	.0	3.7	4.3	.0	-1.0	1.8
2008	-.3	-.9	-.6	-1.2	-.7	-.8	-1.0	-1.3	-3.5	-.4	-2.3	-3.2	-3.9	-9.8	-14.1	-20.8	-5.9
2009	-3.3	-.2	-2.0	-.8	-1.1	-.3	1.6	1.2	1.0	.0	.9	-.2	-24.8	-11.5	8.9	6.4	-13.9
2010	.9	-.3	1.2	.8	1.3	.0	.5	.1	.0	.0	.0	.4	5.0	9.6	3.8	.9	5.1
2011	.0	.1	.7	-.6	.0	.1	.6	.4	.3	.6	-.2	.6	2.2	-.3	4.0	3.9	2.5
2012	.8	.4	-.6	.5	-.4	.2	-.2	-.1	-.3	-.3	.7	.7	5.0	-.1	-1.5	.6	2.3
2013	-.3	.4	-.1	-.4	.3	.2	-.9	.9	.1	.1	-.1	-.2	2.6	-.4	-.4	1.3	.5
2014	-1.1	.9	.9	-.1	.2	.3	.4	-.6	.0	-.1	.7	-.2	-1.4	4.3	1.2	.2	.8
2015	-.6	-.8	.4	-.1	.0	-.4	.8	-.3	-.3	-.1	-.2	-.3	-3.6	-.8	.9	-2.8	-.7
2016	.4	-.4	-.1	-.2	-.1	.2	.0	-.4	.1	.1	-.1	.0	-.8	-1.4	-.4	-.1	-1.0
2017	.2	-.1	-.4	1.1	-.2	.1	-.4	-.2	.0	1.0	.1	-.3	-.1	2.7	-2.1	3.7	.3
2018	-.4	1.1	-.1	.7	-.9	.6	.0	.3	.0	-.5	-.2	.3	.3	2.1	1.1	-1.7	1.1
2019	-.9	-.5	-.3	-.6	.1	.4	-.7	.7	-.6	-1.0	.8	.1	-5.0	-3.4	-.8	-2.3	-2.2
2020	-.2	.2	-4.8	-15.9	4.6	7.9	3.6	1.5	.0	.8	.6	.6	-5.1	-44.7	55.5	7.7	-6.8
2021	1.0	-4.1	3.1	.0	1.1	.0	1.1	-.3	-.9	1.4	.8	.0	-.5	5.5	3.8	4.8	4.8
2022	-.6	1.2	.8	.2	-.4	-.5	.2	.2	.2	.2	-.8	-2.1	3.0	2.8	-.1	-3.4	2.7
2023	1.7	.2	-.8	1.0									-.7				
IP (*2017=100*)																	
2021	96.5	92.6	95.5	95.5	96.5	96.5	97.5	97.3	96.4	97.7	98.5	98.5	94.9	96.2	97.1	98.2	96.6
2022	97.9	99.0	99.9	100.0	99.6	99.2	99.4	99.6	99.8	99.9	99.2	97.1	98.9	99.6	99.6	98.7	99.2
2023	98.7	98.9	98.1	99.0									98.5				
Capacity (*percent of 2017 output*)																	
2021	126.0	125.8	125.7	125.5	125.4	125.2	125.1	125.0	124.9	124.9	124.9	124.8	125.8	125.4	125.0	124.9	125.3
2022	124.8	124.9	124.9	125.0	125.0	125.1	125.2	125.3	125.4	125.5	125.6	125.7	124.9	125.0	125.3	125.6	125.2
2023	125.8	125.9	126.0	126.1									125.9				
Utilization (*percent*)																	
2001	76.4	75.8	75.5	75.2	74.8	74.4	74.2	73.8	73.5	73.1	72.8	72.9	75.9	74.8	73.8	72.9	74.4
2002	73.4	73.3	73.8	74.0	74.4	75.1	75.0	75.0	75.1	74.9	75.2	74.8	73.5	74.5	75.1	75.0	74.5
2003	75.4	75.2	75.2	74.5	74.5	74.7	74.9	74.4	75.0	75.0	75.7	75.6	75.2	74.6	74.8	75.4	75.0
2004	75.5	76.0	76.0	76.4	77.0	76.4	77.2	77.5	77.5	78.2	78.1	78.7	75.8	76.6	77.4	78.3	77.1
2005	79.0	79.5	79.0	79.2	79.3	79.3	78.8	79.0	77.8	78.7	79.2	79.1	79.2	79.2	78.5	79.0	79.0
2006	79.6	79.2	79.0	79.1	78.7	78.7	78.3	78.7	78.5	78.0	77.9	79.0	79.2	78.8	78.5	78.3	78.7
2007	78.5	78.7	79.1	79.3	79.2	79.6	79.5	79.1	79.2	78.8	79.0	79.0	78.8	79.4	79.2	78.9	79.1
2008	78.8	78.1	77.6	76.7	76.2	75.6	74.9	74.0	71.4	71.2	69.6	67.4	78.1	76.2	73.4	69.4	74.3
2009	65.3	65.2	64.0	63.6	63.0	62.9	64.1	64.9	65.7	65.8	66.6	66.5	64.8	63.2	64.9	66.3	64.8
2010	67.3	67.2	68.2	68.8	69.9	70.0	70.5	70.7	70.9	71.1	71.2	71.6	67.5	69.6	70.7	71.3	69.8
2011	71.8	72.0	72.6	72.3	72.3	72.5	72.9	73.2	73.5	73.9	73.7	74.1	72.1	72.3	73.2	73.9	72.9
2012	74.7	75.0	74.5	74.8	74.4	74.5	74.3	74.2	73.9	73.7	74.1	74.6	74.7	74.5	74.1	74.1	74.4
2013	74.4	74.7	74.6	74.3	74.6	74.7	74.1	74.8	74.9	75.0	75.0	74.9	74.6	74.5	74.6	75.0	74.7
2014	74.1	74.9	75.6	75.6	75.8	76.1	76.5	76.1	76.2	76.2	76.8	76.7	74.8	75.8	76.3	76.6	75.9
2015	76.4	75.8	76.2	76.3	76.3	76.1	76.7	76.6	76.4	76.3	76.1	75.9	76.1	76.2	76.6	76.1	76.3
2016	76.1	75.8	75.7	75.6	75.5	75.6	75.6	75.3	75.4	75.5	75.4	75.5	75.9	75.6	75.5	75.5	75.6
2017	75.7	75.7	75.5	76.3	76.3	76.4	76.3	76.2	76.3	77.2	77.4	77.2	75.6	76.4	76.3	77.3	76.4
2018	77.0	77.9	77.9	78.5	77.8	78.4	78.4	78.7	78.8	78.4	78.3	78.6	77.6	78.2	78.6	78.4	78.2
2019	77.9	77.5	77.3	76.9	77.0	77.3	76.8	77.4	76.9	76.2	76.9	77.0	77.6	77.1	77.0	76.7	77.1
2020	76.9	77.2	73.6	61.9	64.8	70.0	72.7	73.9	74.0	74.6	75.2	75.7	75.9	65.6	73.5	75.2	72.5
2021	76.6	73.6	76.0	76.1	77.0	77.1	78.0	77.8	77.1	78.2	78.9	78.9	75.4	76.7	77.6	78.7	77.1
2022	78.4	79.3	79.9	80.1	79.7	79.3	79.4	79.5	79.6	79.7	79.0	77.2	79.2	79.7	79.5	78.6	79.2
2023	78.4	78.6	77.8	78.5									78.3				

1. The composition of manufacturing is specified in a note for the summary table.
2. Selected high-technology industries are computers, communications equipment, and semiconductors and related electronic components.
3. Quarterly percentage changes are at annual rates. Annual percentage changes are calculated from annual averages.

Table 15
INDUSTRIAL PRODUCTION: RELIABILITY ESTIMATES

Seasonally adjusted

Item	Annualized change		2017=100						Percent change					
	2022	2023	2022	2023					2022	2023				
	Q4	Q1	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Total index														
85th percentile	-2.40	.26	103.07	101.53	102.61	102.70	102.89	103.44	-.33	-1.50	1.11	.17	.35	.83
Current estimate	-2.48	-.53	103.07	101.47	102.50	102.50	102.55	103.04	-.33	-1.55	1.01	.00	.05	.48
15th percentile	-2.55	-1.26	103.07	101.42	102.39	102.32	102.24	102.60	-.33	-1.60	.91	-.11	-.20	.12
Manufacturing (SIC)														
85th percentile	-3.25	-.31	100.00	97.94	99.54	99.87	99.14	100.23	-.75	-2.06	1.67	.38	-.63	1.28
Current estimate	-3.34	-.92	100.00	97.88	99.42	99.67	98.86	99.84	-.75	-2.13	1.57	.25	-.81	.99
15th percentile	-3.41	-1.71	100.00	97.82	99.30	99.43	98.56	99.31	-.75	-2.18	1.46	.11	-.99	.67
Mining														
85th percentile	.04	8.43	116.61	114.50	119.29	118.70	117.90	118.82	-.66	-1.81	4.30	-.21	-.38	1.54
Current estimate	-.13	6.36	116.61	114.36	118.96	118.14	116.66	117.35	-.66	-1.93	4.02	-.68	-1.25	.59
15th percentile	-.34	4.14	116.61	114.18	118.59	117.54	115.41	115.58	-.66	-2.09	3.73	-1.07	-2.01	-.35
Electric and gas utilities														
85th percentile	-.40	-4.45	105.84	109.24	101.42	101.24	111.03	107.67	3.35	3.21	-7.12	-.16	10.20	-1.24
Current estimate	-.42	-7.92	105.84	109.22	101.36	100.60	109.02	105.60	3.35	3.20	-7.20	-.75	8.38	-3.14
15th percentile	-.45	-9.86	105.84	109.20	101.27	100.37	107.76	104.39	3.35	3.18	-7.30	-.98	6.96	-4.91

Note. The reliability measures show the likely range of values for the IP indexes after their fifth and final monthly revision. The 15th (85th) percentile estimate is equal to the current estimate plus an amount such that the equivalent measure revised by a lower (higher) amount for only 15 percent of the months since 2008. More information is available at https://www.federalreserve.gov/releases/g17/g17_technical_qa.htm#reliability

Explanatory Note

The **Industrial Production and Capacity Utilization** statistical release, which is published around the middle of the month, reports measures of output, capacity, and capacity utilization in manufacturing, mining, and the electric and gas utilities industries. More detailed descriptions of industrial production and capacity utilization are available on the Board's website at **www.federalreserve.gov/releases/G17**. In addition, files containing data shown in the release, more detailed series that were published in the G.17 prior to December 2000, and historical data are available from the Data Download Program on the Board's website. Instructions for searching for and downloading specific series are provided as well.

Industrial Production

Coverage. The industrial production (IP) index measures the real output of the manufacturing, mining, and electric and gas utilities industries; the reference period for the index is 2017. Manufacturing consists of those industries included in the North American Industry Classification System, or NAICS, definition of manufacturing *plus* those industries— logging and newspaper, periodical, book, and directory publishing—that have traditionally been considered to be manufacturing and included in the industrial sector. For the period since 2012, the total IP index has been constructed from 296 individual series based on the 2017 NAICS codes. These individual series are classified in two ways: (1) market groups, and (2) industry groups. Market groups consist of products and materials. Total products are the aggregate of final products, such as consumer goods and equipment, and nonindustrial supplies (which are inputs to nonindustrial sectors). Materials are inputs in the manufacture of products. Major industry groups include three-digit NAICS industries and aggregates of these industries—for example, durable and nondurable manufacturing, mining, and utilities. A complete description of the market and industry structures, including details regarding series classification, relative importance weights, and data sources, is available on the Board's website at **www.federalreserve.gov/releases/G17/About.htm**.

Source Data. 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 typically obtained from private trade associations and from government agencies; data of this type are used to estimate monthly IP wherever possible and appropriate. Production indexes for a few industries are derived by dividing estimated nominal output (calculated using unit production and unit values or sales) by a corresponding Fisher price index; the most notable of these fall within the high-technology grouping and include semiconductors. When suitable data on physical product are not available, estimates of output are based on production-worker hours by industry. Data on hours worked by production workers are collected in the monthly establishment survey conducted by the Bureau of Labor Statistics. The factors used to convert inputs into estimates of production are based on historical relationships between the inputs and the comprehensive annual data used to benchmark the IP indexes; these factors also may be influenced by technological or cyclical developments. The annual data used in benchmarking 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 U.S. Geological Survey of the Department of the Interior; and publications of the Department of Energy.

Aggregation Methodology and Weights. The aggregation method for the IP index is a version of the Fisher-ideal index formula. (For a detailed discussion of the aggregation method, see the *Federal Reserve Bulletin* February 1997 and March 2001.) In the IP index, series that measure the output of an individual industry are combined using weights derived from their proportion in the total value-added output of all industries. The IP index, which extends back to 1919, is built as a chain-type index since 1972. The current formula for the growth in monthly IP (or any of the sub-aggregates) since 1972 is the geometric mean of the change in output (I), and, as can be seen below, is computed using the unit value added estimate for the current month (p_m) and the estimate for previous month:

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

The IP proportions (typically shown in the first column of the relevant tables in the monthly G.17 release) are estimates of the industries' relative contributions to overall growth in the following year. For example, the relative importance weight of the motor vehicles and parts industry is about 5 percent. If output in this industry increased 10 percent in a month, then this gain would boost growth in total IP by $5/10$ percentage point (0.05 x 10% = 0.5%). To assist users with calculations, the Federal Reserve's website provides supplemental monthly statistics that represent the exact proportionate contribution of a monthly change in a component index to the monthly change in the total index (**www.federalreserve.gov/releases/G17/ipdisk/ipweightssa.txt**).

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 five months as new source data become available. (Revised estimates are denoted by the superscript "r" in tables.) For the first estimate of output for a given month, about 76 percent of the source data (in value-added terms) are available; the fraction of available source data increases to 86 percent for estimates in the second month that the estimate is published, 94 percent in the third month, 98 percent in the fourth month, 98 percent in the fifth month, and 98 percent in the sixth month. Data availability by data type in 2022 is summarized in the table below:

Availability of Monthly IP Data in Publication Window
(Percent of value added in 2022; the numbers may not sum because of rounding.)

	Month of estimate					
Type of data	1st	2nd	3rd	4th	5th	6th
Physical product	35	44	53	56	57	57
Production-worker hours	42	42	42	42	42	42
IP data received	76	86	94	98	98	98
IP data estimated	24	14	6	2	2	2

The physical product group includes series based on either monthly or quarterly data. As can be seen in the first row of the table, in the first month, a physical product indicator is available for more than one-half of the series (in terms of value added) that ultimately are based on physical product data (35 percent out of a total of 57 percent). Of the 35 percent, about two-thirds (24 percent of total IP) include series that are derived from weekly physical product data and for which actual monthly data may lag up to several months. On average, quarterly product data are received for the fourth estimate of industrial production. Specifically, quarterly data are available for the third estimate of the last month of a quarter, the fourth estimate of the second month of a quarter, and the fifth estimate of the first month of a quarter.

Seasonal Adjustment. Individual series are seasonally adjusted using Census X-13 ARIMA. For series based on production-worker hours, the current seasonal factors were estimated with data through February 2023; for other series, the factors were estimated with data through at least December 2022. Series are pre-adjusted for the effects of holidays or the business cycle when appropriate. For the data since 1972, all seasonally adjusted aggregate indexes are calculated by aggregating the seasonally adjusted indexes of the individual series. Additional documentation and X-13 specifications can be found on the Board's website at **www.federalreserve.gov/releases/G17/About.htm**.

Reliability. The average revision to the *level* of the total IP index, without regard to sign, between the first and the fourth estimates was

0.30 percent during the 1987–2022 period. The average revision to the *percent change* in total IP, without regard to sign, from the first to the fourth estimates was 0.24 percentage point during the 1987–2022 period. In most cases (about 86 percent), the direction of the 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

Overview. The Federal Reserve Board constructs estimates of capacity and capacity utilization for industries in manufacturing, mining, and electric and gas utilities. For a given industry, the capacity utilization rate is equal to an output index (seasonally adjusted) divided by a capacity index. The Federal Reserve Board's capacity indexes attempt to capture the concept of *sustainable maximum output*—the greatest level of output a plant can maintain within the framework of a realistic work schedule, after factoring in normal downtime and assuming sufficient availability of inputs to operate the capital in place.

Coverage. Capacity indexes are constructed for 89 detailed industries (71 in manufacturing, 16 in mining, and 2 in utilities), which mostly correspond to industries at the three- and four-digit North American Industry Classification System, or NAICS, level. Estimates of capacity and utilization are available for a variety of groups, including durable and nondurable manufacturing, total manufacturing, mining, utilities, and total industry. Manufacturing consists of those industries included in the NAICS definition of manufacturing *plus* those industries—logging and newspaper, periodical, book, and directory publishing—that have traditionally been considered to be manufacturing and included in the industrial sector. Also, special aggregates are available, such as high-technology industries and manufacturing excluding high-technology industries.

Source Data. The monthly rates of capacity utilization are designed to be consistent with both the monthly data on production and the periodically available data on capacity and utilization. Because there is no direct monthly information on overall industrial capacity or utilization rates, the Federal Reserve first estimates annual capacity indexes from the source data. Capacity data reported in physical units from government sources (primarily from the U.S. Geological Survey and the Department of Energy's Energy Information Administration) and trade sources are available for portions of several industries in manufacturing (for example, paper, industrial chemicals, petroleum refining, motor vehicles), as well as for electric utilities and mining; these industries represent about 26 percent of total industrial capacity. When physical product data are unavailable for manufacturing industries, capacity indexes are based on responses to the Bureau of the Census's *Quarterly Survey of Plant Capacity* (QSPC); these industries account for about 64 percent of total industry capacity. In the absence of utilization data for a few mining and petroleum series, capacity is based on trends through peaks in production (roughly 10 percent of total industry capacity). A detailed description of the methodology used to construct the capacity indexes is available on the Board's website (**www.federalreserve.gov/releases/G17/Meth/MethCap.htm**).

Aggregation Methodology. Monthly capacity aggregates are calculated in three steps: (1) utilization aggregates are calculated on an annual basis through the most recent full year as capacity-weighted aggregates of individual utilization rates; (2) the annual aggregate capacity is derived from the corresponding production and utilization aggregates; (3) the monthly capacity aggregate is obtained by interpolating with a Fisher index of its constituent monthly capacity series. Utilization rates for the individual series and aggregates are calculated by dividing the pertinent monthly production index by the related capacity index.

Consistency. A major aim is that the Federal Reserve utilization rates be consistent over time so that, for example, a rate of 85 percent means about the same degree of tightness that it meant in the past. A major task for the Federal Reserve in developing reasonable and consistent time series of capacity and utilization is dealing with inconsistencies between the movements of the industrial production index and the survey-based utilization rates. The McGraw-Hill/DRI Survey, now discontinued, was the primary source of manufacturing utilization rates for many years. This survey of large companies reported, on average, higher utilization rates than those reported by establishments covered by the annual *Survey of Plant Capacity* (the primary source of factory operating rates through 2006, after which it was discontinued) for the fourteen years they overlapped. Adjustments have been made to keep the industry utilization rates currently reported by the Federal Reserve (now based on the QSPC) roughly in line with rates formerly reported by McGraw-Hill. As a consequence, the rates reported by the Federal Reserve tend to be higher than the rates reported in the Census utilization surveys.

Perspective. Over the 1972–2022 period, the average total industry utilization rate was 79.7 percent; for manufacturing, the average factory operating rate was 78.2 percent. Industrial plants usually operate at capacity utilization rates that are well below 100 percent: none of the broad aggregates has ever reached 100 percent. For total manufacturing, utilization rates have exceeded 90 percent only in wartime. The highs and lows in capacity utilization are specific to each series and do not all occur in the same month.

References and Release Dates

References. The release for the annual revision that was published on March 28, 2023, is available on the Board's website (**www.federalreserve.gov/releases/g17/revisions/Current/DefaultRev.htm**). A summary of the annual revision that incorporated back to 1972 production and capacity indexes reclassified according to the North American Industry Classification System is available in an article in the *Federal Reserve Bulletin*, vol. 89 (April 2003), pp. 151–176. A description of the aggregation methods for industrial production and capacity utilization is included in an article in the *Federal Reserve Bulletin*, vol. 83 (February 1997), pp. 67–92. The Federal Reserve methodology for constructing industry-level measures of capital is detailed in "Capital Stock Estimates for Manufacturing Industries: Methods and Data" by Mike Mohr and Charles Gilbert (1996), which can be obtained at **www.federalreserve.gov/releases/g17/CapitalStockDocLatest.pdf.**

Industrial Production—1986 Edition contains a more detailed description of the other methods used to compile the industrial production index, plus a history of its development, a glossary of terms, and a bibliography. The major revisions to the IP indexes and capacity utilization since 1990 have been described in the *Federal Reserve Bulletin* (April 1990, June 1990, June 1993, March 1994, January 1995, January 1996, February 1997, February 1998, January 1999, March 2000, March 2001, March 2002, April 2003, Winter 2004, Winter 2005, March 2006, May 2007, August 2008, August 2009) or in online staff studies (www.federalreserve.gov/releases/g17/articles/rev2010/industrial10.pdf, www.federalreserve.gov/releases/g17/articles/rev2012/industrial12.pdf, www.federalreserve.gov/releases/g17/articles/rev2013/industrial13.pdf).

Release Schedule

The G.17 release on Industrial Production and Capacity Utilization is published at 9:15 a.m. on:

2023: January 18, February 15, March 17, April 14, May 16, June 15, July 18, August 16, September 15, October 17, November 16, December 15

This release schedule is available on the Board's website at **http://www.federalreserve.gov/releases/g17**.