FEDERAL RESERVE statistical release

G.17 (419) 2022 Historical and Annual Revision

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Industrial Production and Capacity Utilization: The 2022 Annual Revision

The Federal Reserve has revised its index of industrial production (IP) and the related measures of capacity and capacity utilization.[1] On net, revisions to the growth rates for total IP for recent years were very small. In contrast, the utilization rates for total industry are now reported to be appreciably higher in recent years.

Detailed data for manufacturing from the U.S. Census Bureau's 2020 Annual Survey of Manufactures (ASM) were incorporated in this revision. The aggregate effect on IP of those data was minimal, as the rates of change for total IP have revised no more than 0.2 percentage point in any year.[2] The contour of the pandemic period was little changed from the previously reported estimates, and total IP in May 2022 was 3½ percent above its pre-pandemic (February 2020) level, about 1 percentage point less than reported previously.

In the fourth quarter of 2021, capacity utilization for total industry stood at 78.8 percent, about 2½ percentage points above its previous estimate and about 1 percentage point below its long-run (1972–2020) average. A portion of this upward revision reflects higher industry-level utilization rates resulting from downward revisions to industry-level capacity. Another portion, however, results from revisions to industry weights that increased the importance of some industries with generally higher utilization rates, in particular the oil and gas sector. The utilization rates for 2018 to 2020 are about 1 percentage point higher than the previous estimates, on average, and revisions to utilization rates for earlier years are very small.

Annual capacity growth is revised down, 1½ percentage points in 2021 and about ½ percentage point, on average, from 2018 to 2020. Capacity for total industry at the end of 2021 is now estimated to be about ¾ percent lower than at the end of 2017; previously, it was estimated to have increased about 2¼ percent over this period.

This revision incorporated newly available annual data on both output and prices. As noted earlier, the updated IP indexes incorporated new data for manufacturing from the U.S. Census Bureau's 2020 ASM. For publishing, the IP indexes folded in data for 2020 from the Census Bureau's Service Annual Survey. The IP index for logging is based on special calculations provided by the U.S. Forest Service that extended previously published data; the IP index incorporated new data for 2020 and revised data for 2019. In addition, the indexes for metallic and nonmetallic minerals were updated with revised annual data for 2019 and with new data for 2020 from the U.S. Geological Survey (USGS). Data on prices from the Bureau of Labor Statistics (BLS) were also incorporated into most of the manufacturing indexes.

The monthly estimates of production have been updated to include late-arriving or revised quarterly or monthly indicator data, including information from the BLS's benchmark revisions to the Current Employment Statistics. The monthly IP estimates also reflect updated seasonal factors.

[1] The revision affected rates of change for IP from 1972 forward. When necessary to maintain consistency with any revisions to the data for 1972 and subsequent years, the levels of production for the years before 1972 were multiplied by a constant. However, the rates of change in IP for the years before 1972 were not revised. Utilization rates and capacity growth rates were revised minimally between 1968 and 1971 but were unchanged before then.

[2] Rates of change are calculated as the percentage change in the seasonally adjusted index from the fourth quarter of the previous year to the fourth quarter of the year specified.

The revised estimates of capacity and capacity utilization incorporated data from the Census Bureau's Quarterly Survey of Plant Capacity Utilization (QSPC) for the fourth quarters of 2020 and 2021 along with new data on capacity from the USGS, the Energy Information Administration, and other organizations. The revised capacity estimates also included new data on capital spending from the 2020 ASM.

RESULTS OF THE REVISION

Industrial Production

Manufacturing output is now estimated to have fallen about 2½ percent in both 2019 and 2020 before moving up about 4¼ percent in 2021; these rates of change are identical to the estimates published previously. Manufacturing output is now estimated to have dropped about 18½ percent between February 2020 and April 2020 because of the pandemic, only slightly less than was originally reported. Factory output has moved up robustly since then, and the index for May 2022 is currently reported to be 3½ percent above its pre-pandemic level, about 1 percentage point less of a gain than the pre-revision estimate.

The revised contour for mining output shows a modest increase in 2019, a sharp drop in 2020, and a substantial rebound thereafter. The rates of change are broadly similar to those published previously, although the gains in 2019 and 2021 are now each about 1 percentage point stronger, and the decline in 2020 is about 1½ percentage points steeper. The index for mining currently stands about 4 percent below its pre-pandemic level; before the revision, the index was 2 percent below its pre-pandemic level. The rates of change for utilities output are moderately higher in 2020 and little different in other recent years.

Production by Industry Group

The output of durables decreased sharply in 2019 and 2020 before increasing rapidly in 2021. Relative to the previous estimates, the declines in 2019 and 2020 are somewhat steeper, and the gain in 2021 is modestly larger. The cumulative downward revision to output growth for durables from 2019 through 2021 was about 1¼ percentage points.

The index for nondurables now shows smaller declines in 2019 and 2020 and a slightly smaller gain in 2021 than reported previously. Within nondurables, the revisions to the rates of change were primarily upward, but the estimates for petroleum and coal products were revised downward appreciably. The cumulative upward revision to output growth from 2019 through 2021 was about ¾ percentage point.

The output index for industries in scope for manufacturing IP that are not part of manufacturing under the North American Industry Classificiation System (NAICS)—that is, logging and publishing—has been recording declines for several years, and it continued to fall each year in the 2019–21 period. However, the declines in 2019 and 2020 are now reported to have been noticeably smaller than previously published.

Production by Market Group

The index for consumer goods now shows notably more output in the 2019–21 period than previously reported; in particular, it is now estimated to have increased 1 percent in 2020, whereas it was previously reported to have declined ¾ percent. The rate of change for business equipment revised down noticeably in 2019, is somewhat stronger in 2020, and revised up in 2021. Relative to earlier reports, the index for defense and space equipment now increases more in 2019, records a decline rather than a gain in 2020, and increases less in 2021.

Revisions to the index for construction supplies were modest with the exception of a larger decline in 2020 and a larger subsequent increase in 2021. The index for business supplies revised up, on balance, for recent years relative to earlier reports. The output of materials decreased more in 2020 than was previously reported,

and the rates of change were modestly stronger in other recent years.

Capacity Utilization

Capacity utilization for total industry decreased in 2019 and 2020 and moved up in 2021 and early 2022; the reading in May 2022 was 80.8 percent, about 1 percentage point above its 1972–2021 average.[3] Earlier estimates displayed a similar contour, but now the declines in 2019 and 2020 are a bit smaller, and the increase in 2021 is substantially larger. Both manufacturing and mining contributed to the declines in the overall operating rate in 2019 and 2020 and its rise in 2021 and early 2022; the latter reflected a particularly large advance in the operating rate at mines. Compared with earlier estimates, capacity utilization for total industry is now reported to have been about 2½ percentage points higher in 2021 and roughly 1 percentage point higher in 2019 and 2020.

Utilization at manufacturers moved down 3 percentage points from 2018 to 2020 before rebounding in 2021 to above its 2018 level. The factory operating rate in May 2022 was 80.3 percent, about 2 percentage points above its long-run average. The current readings for manufacturing utilization are higher than the previous estimates for 2018 through 2021; the estimate at the end of 2021 was revised up about 1½ percentage points. Upward revisions to utilization rates were widespread among manufacturing.

The capacity utilization rate for mining moved down 19 percentage points from 2018 to 2020 before rebounding in 2021 to 85.8 percent, just below its long-run average. Relative to its previously published rate, utilization at mines for the fourth quarter of 2021 is about 8½ percentage points higher. The operating rate for utilities declined roughly 6 percentage points from 2018 to 2021 to 74.3 percent (using annual average rates), 10½ percentage points below its long-run average.

Capacity

Total industrial capacity moved down ¾ percent and 1 percent in 2020 and 2021, respectively, with declines in capacity for manufacturing and mining partly offset by rising capacity for utilities. In contrast, overall capacity is expected to rise about 1½ percent in 2022. The overall decline in 2020 and 2021 is significantly larger than published earlier. Notably, capacity is now reported to have fallen from 2019 to 2021, whereas it was previously reported to have increased slightly.

Manufacturing capacity is now reported to have contracted 0.6 percent per year, on average, from 2018 to 2021. The new contour displays larger and more consistent declines than the path previously reported, which showed declines averaging 0.1 percent over the 2018–21 period. Downward revisions to capacity growth were widespread across manufacturing industries and were particularly pronounced for nondurable manufacturing industries. New data for 2021 from the QSPC contributed to the downward revision to capacity growth.

Capacity at mines rose in 2018 and 2019 and then moved down through 2021, returning to roughly its 2017 level. The decrease in 2021 was led by a decline in capacity for mining support activities. Relative to earlier reports, the overall growth in mining capacity in 2018 and 2019 was larger, as was the subsequent decline. Capacity for electric and gas utilities rose from 2018 to 2021, with particularly large increases in 2020 and 2021. The rates of increase are now modestly lower from 2019 through 2021 than stated earlier.

[3] Unless otherwise noted, rates of capacity utilization are reported for the fourth quarter of the reference year.

TECHNICAL ASPECTS OF THE REVISION

The IP indexes represent the level of real output relative to a base year. At the monthly frequency, movements of the indexes are based on indicators that are derived using industry-specific data from a variety of government and private sources. The monthly production indexes are anchored to annual benchmarks that are less timely but typically based on more comprehensive data. In most cases, the annual benchmark is nominal gross output reported by the Census Bureau deflated by a suitable price index.

Annual revisions to the IP and capacity measures generally involve (1) incorporating new and revised annual benchmark data on output, prices, and value-added proportions; (2) incorporating new monthly or quarterly data that were revised or that arrived too late to be included in the regular six-month reporting window for monthly IP; (3) updating seasonal adjustment factors; (4) updating the methods used to construct the indexes; and (5) introducing changes to the industry- or market-group structure of the indexes based on changes to underlying data sources.

Annual Benchmark Data on Output, Prices, and Value-Added Proportions

Output

The annual benchmark output indexes for IP are measures of real gross output at the six-digit NAICS (2017) level. The Census Bureau provides annual figures for value added and the cost of materials for manufacturing industries, which can be summed to obtain nominal gross output. The benchmark indexes for manufacturing for this revision incorporated information for 2020 from the ASM.

New annual data were also incorporated into many other indexes not in the scope of the ASM. The benchmark indexes for metallic and nonmetallic mineral mining were updated with any newly available data from 2019 through 2021 from the USGS, and the benchmark indexes for logging and for publishing were advanced through 2020 based on data from the U.S. Forest Service and from the U.S. Census Bureau, respectively.

Prices

Individual benchmarks of real gross output are obtained by deflating the measures of nominal gross output by annual price deflators. In general, the benchmark industry price deflators consist of price indexes from the Bureau of Economic Analysis (BEA) through 2011 that are extended through 2020 with the related producer price indexes (PPIs) from the BLS.[4] However, for a few selected industries, the annual price deflators are constructed by the Federal Reserve.[5]

Value-Added Proportions (Weights for Aggregation)

The IP system is organized as a hierarchical structure where individual production indexes are combined using a version of the Fisher-ideal index formula to construct aggregate indexes of production. Utilization rate aggregates are calculated on an annual basis through the most recent year as capacity-weighted aggregates of individual utilization rates.

The weights that are used to combine individual IP indexes into more aggregate indexes are based on the value added from the industry, calculated as gross output less cost of materials. For individual IP indexes that are defined at the six-digit (or more aggregate) NAICS level, the value-added weights are derived from either the

[4]The BEA price deflators were discontinued at the six-digit NAICS level after 2011. Overall, at the industry level, the BEA and PPI measures are quite similar, as the BEA used weighted product-level PPIs to derive its industry-level shipments deflator.

[5]For selected industries, the Federal Reserve constructs price indexes from alternative sources. These industries include communications equipment (NAICS 3342), computer storage devices (NAICS 334112), semiconductors (NAICS 334413), and pharmaceuticals (NAICS 325412).

Economic Census or the ASM. For IP indexes that cover only part of a six-digit NAICS industry, the aggregation weights were constructed by allocating value added (as defined by the Census Bureau) for a six-digit industry across the various components of IP that compose that industry.

The allocation of value added across each component was determined by that component's share of the industry's overall product shipments. As in the 2021 annual revision, this annual revision used data on product shipments based on the new 2017 North American Product Classification System (NAPCS). In earlier revisions, product shipments were classified based on NAICS and were included as part of the Census of Manufactures or ASM. NAPCS is coded independently of NAICS, and a concordance was required to align the recent data with the historical data for the period before 2017. Missing values for specific NAPCS-based products were imputed where necessary.

The Federal Reserve derives estimates of value added for the electric and gas utility industries from annual revenue and expense data issued by other organizations. For electric utilities, the measures of value added incorporate data from the Energy Information Administration of the U.S. Department of Energy and from the Edison Electric Institute. For gas utilities, the value-added estimates incorporate data from the American Gas Association. The weights for aggregation for mining industries are derived from value-added data from the Economic Census. Figures for value added for mining industries in the years between the quinquennial Economic Censuses are estimated based on both output and price changes for the industry.

The weights for aggregation, expressed as value added per unit output, were estimated with data on producer prices for the period after 2020.

Revised Quarterly and Monthly Data

This revision incorporated source data on production, shipments, and inventories that became available or were revised after the regular six-month reporting window for monthly IP was closed. These data were released with too great of a lag to be included with monthly IP estimates but were available for inclusion in the annual revision.

Revised Seasonal Factors

IP indexes are adjusted to remove from the underlying data the predictable movements related to timing, holiday, workday, and monthly or quarterly seasonal patterns. Individual indexes are adjusted using the Census X-13ARIMA-SEATS seasonal adjustment program. The seasonal factors are based on the full history of data back to 1972, where available.

Seasonal factors for indexes based on production-worker hours were updated with data through January 2022. The updated factors for the physical-product-based indexes used data through December 2021 where available. Extreme movements in indexes are often explicitly treated as additive outliers in the seasonal adjustment procedure and thus excluded from the calculation of seasonal factors. In recent years, the pandemic-related swings in most of the indexes were deemed outliers; in addition, February 2021 was deemed an outlier for many industries because of the extreme cold weather that caused widespread outages.

Seasonal factors for unit motor vehicle assemblies have been updated, and projections through June 2023 are available on the Board's website at https://www.federalreserve.gov/releases/g17/mvsf.htm. These factors are based on production data through January 2022 and were revised back to January 2017. The seasonal factors explicitly incorporate the holiday schedule for the vehicle assembly lines specified in the latest collective bargaining agreements with domestic manufacturers. The seasonal factors identify production data for February and September 2021 as outliers due to intense supply chain disruptions.

Methodological Changes to Individual Production and Capacity Indexes

Change in Source Data for Five Production Indexes

With this revision, three indexes that previously were based on physical product data are now based on production-worker hours. For two other indexes, the source for the underlying physical product data was changed from one organization to another. In all cases, the change in source data arose because the organization issuing the original data source discontinued the report.

The three indexes that are now based on production-worker hours are for farm machinery (NAICS 333111), construction machinery (NAICS 33312), and engines (NAICS 333618). Each of these IP indexes is based on production-worker hours for the first several years of their existence; each is based on data from Stark's News Service from 1987 (for construction machinery) or 1992 (for farm machinery and engines) through 2016, and on production-worker hours thereafter.

The two IP indexes now based on physical product data from a new organization are for pig iron (NAICS 3311,2 pt.) and for metal can, box, and other metal containers (NAICS 33243). The index for pig iron is now based on data from the American Iron and Steel Institute for the period from 1972 through 2016, and on data from the USGS beginning in 2017. The index for metal can, box, and other containers is based on production-worker hours for 1972 through 1976, on data from the Can Manufacturers Institute (CMI) from 1977 through 2016, and on data from the Aluminum Association combined with data from the CMI for the period beginning in 2017. The new estimates replace data on beverage can production, which were discontinued by the CMI, with data on the production of aluminum can stock.

Change in Source Data for Allocating Motor Vehicle Production to Business and Consumer Segments

The indexes for automobiles (NAICS 336111) and light trucks (NAICS 336112) each comprise two components—one for vehicles purchased by businesses (such as rental fleets) and one for vehicles purchased by consumers. This annual revision incorporates data on vehicle registrations from IHS Automotive to allocate vehicles to business or consumer segments. Previously, the business and consumer allocations were made using data from other sources, including the National Truck Equipment Association and Ward's Communication.

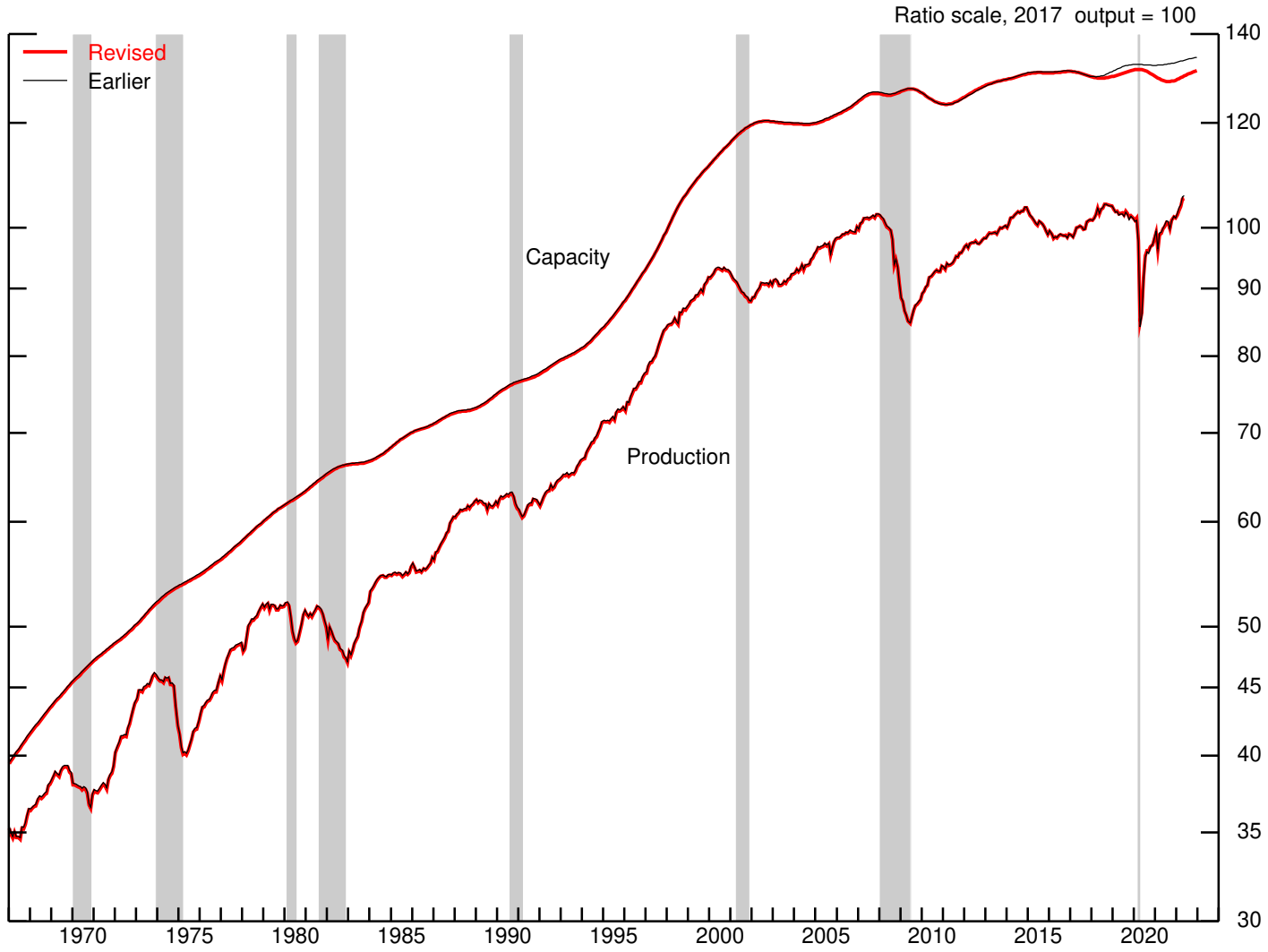
Change to Capacity Index for Fertilizer

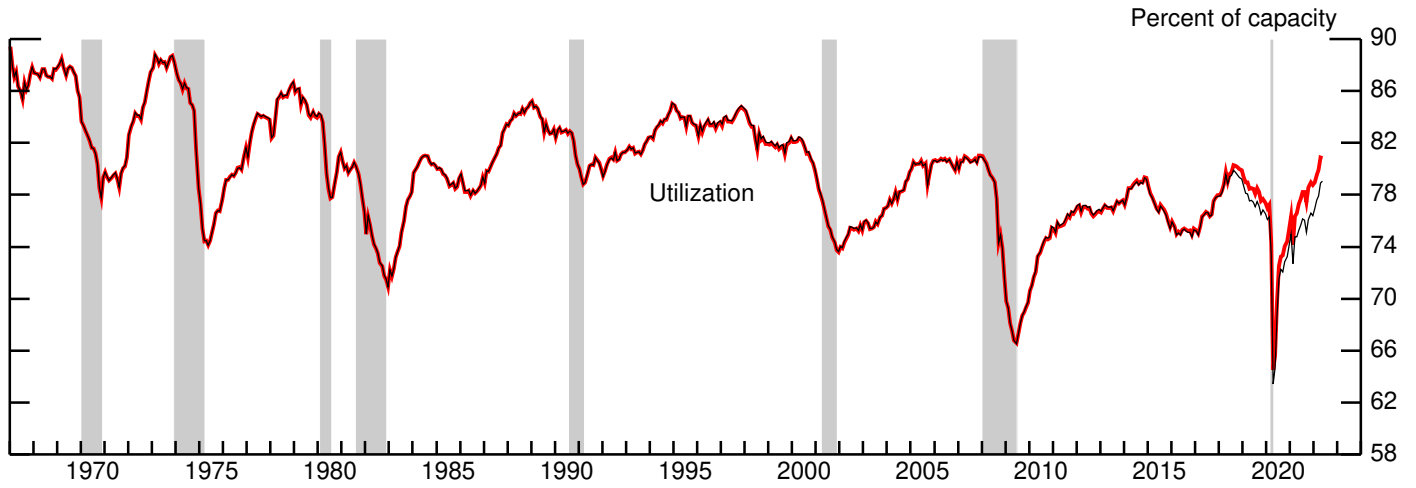
With this revision, the capacity index for fertilizer (NAICS 32531) for the period beginning in 2017 is based on data from the QSPC. For the 1997–2016 period, the capacity index is based on data for capacity in thousands of short tons from the Fertilizer Institute. For the 1972–96 period, the capacity index is based on data from the Census Bureau's Survey of Plant Capacity, which only covered the fourth quarter of every year.

Data Availability and Publication Changes

Files containing the revised data and the text and tables from this release are available on the Board's website at https://www.federalreserve.gov/releases/g17, as are updated data for the annual revision and for all of the regularly issued series on IP, capacity, and capacity utilization. Other changes are listed on the Board's website at https://www.federalreserve.gov/releases/g17/g17_revision_series.htm.

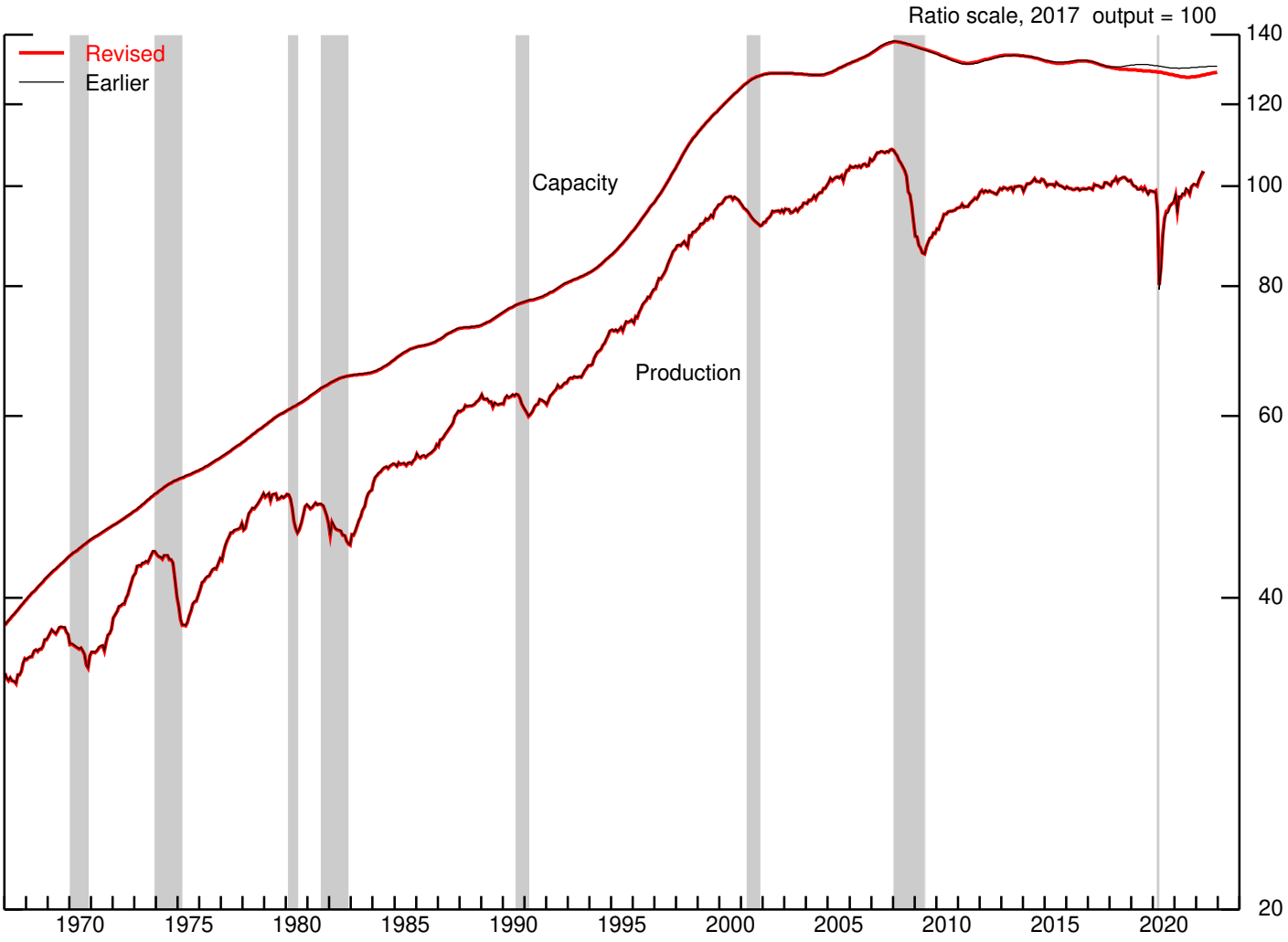
1. Total industrial production, capacity, and utilization

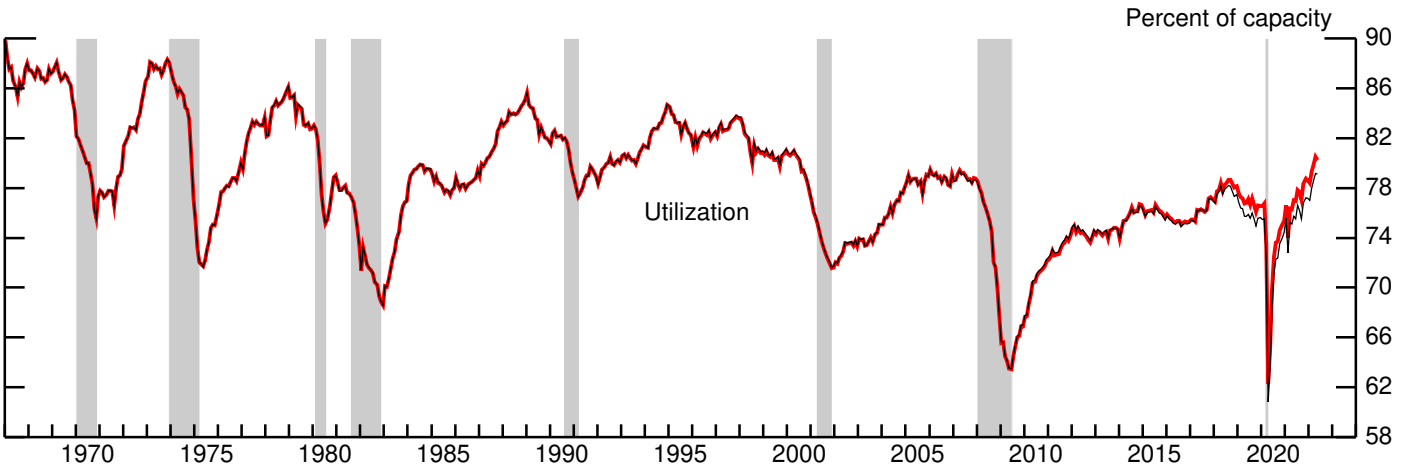




Note: The shaded areas represent periods of business recession as defined by the National Bureau of Economic Research (NBER).

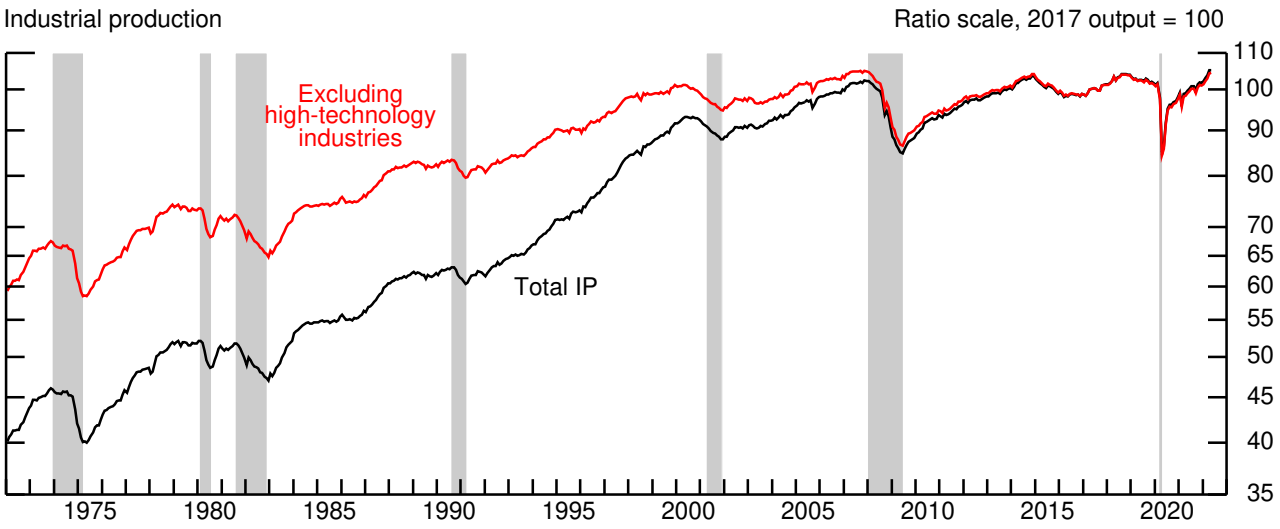
2. Manufacturing industrial production, capacity, and utilization

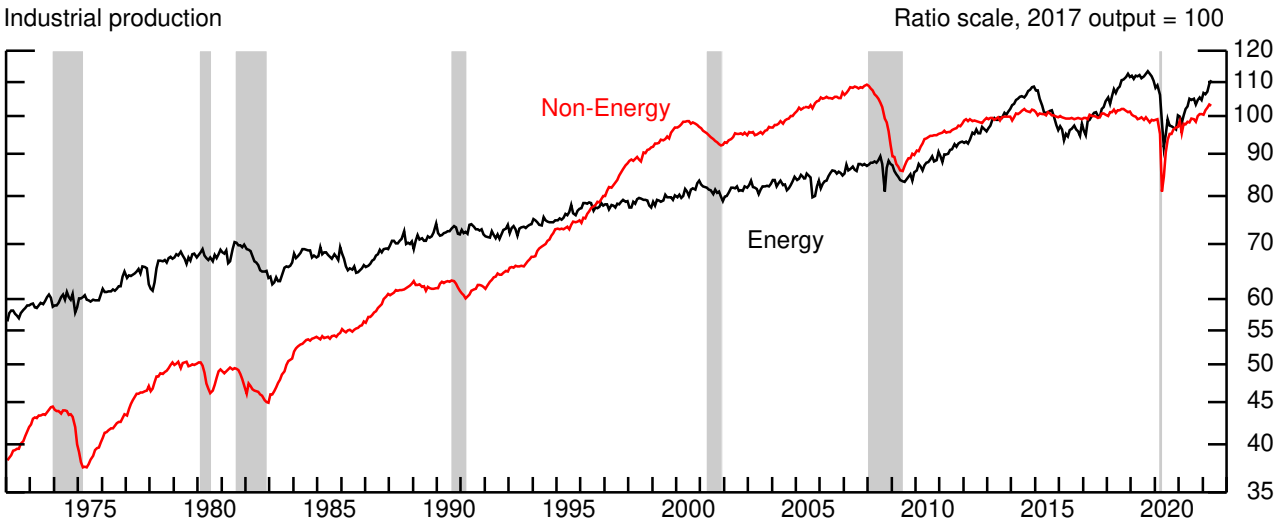


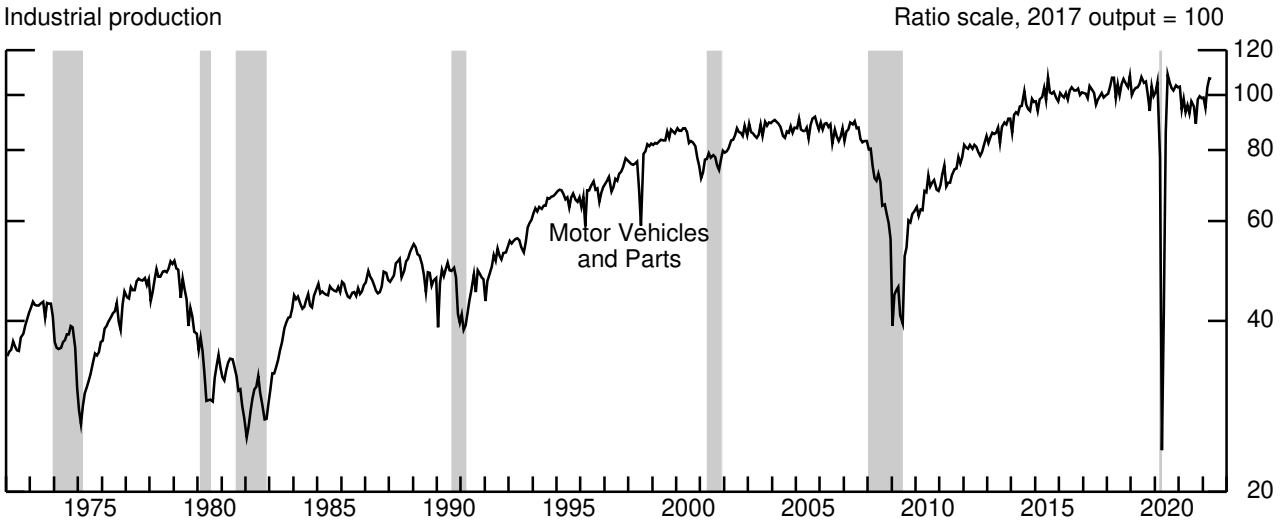


Notes: Manufacturing consists of those industries in the North American Industry Classification System, or NAICS, definition of manufacturing plus those industries--logging and newspaper, periodical, book, and directory publishing--that have traditionally been considered to be manufacturing and included in the industrial sector.
The shaded areas represent periods of business recession as defined by the NBER.

3. Industrial production of selected industries

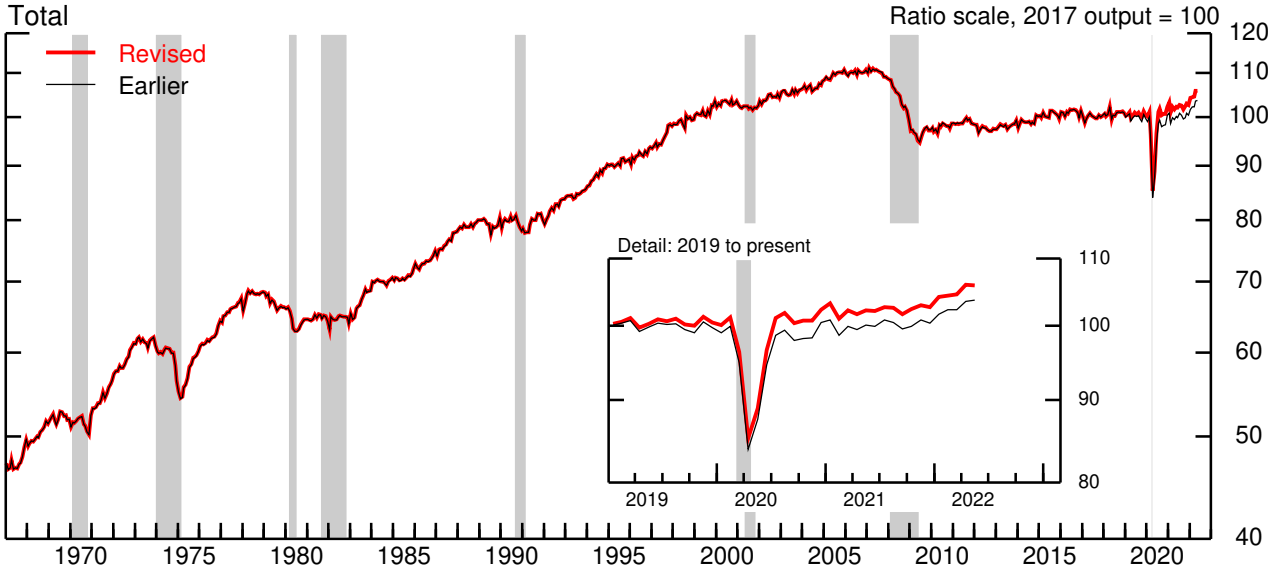


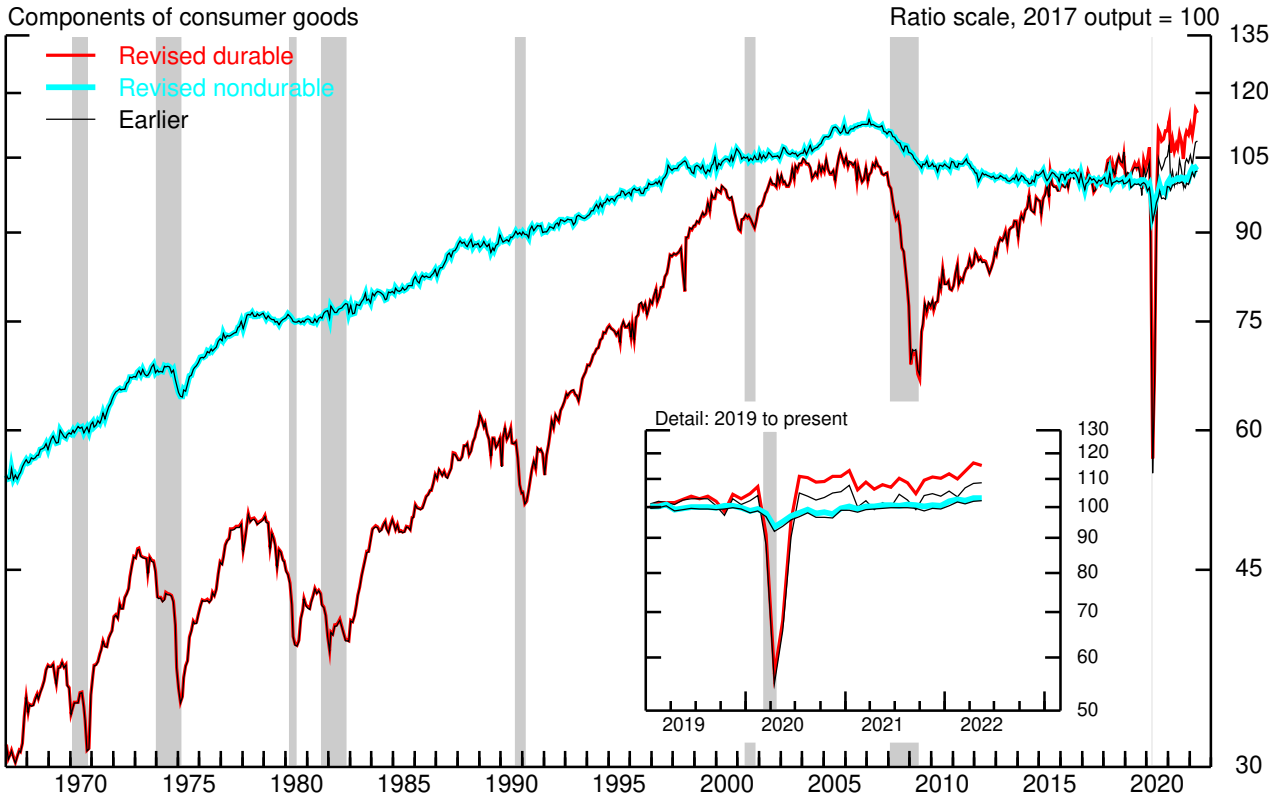




Notes: High-technology industries are defined as semiconductors and related electronic components (NAICS 3344), computers (NAICS 3341), and communications equipment (NAICS 3342).
The shaded areas represent periods of business recession as defined by the NBER.

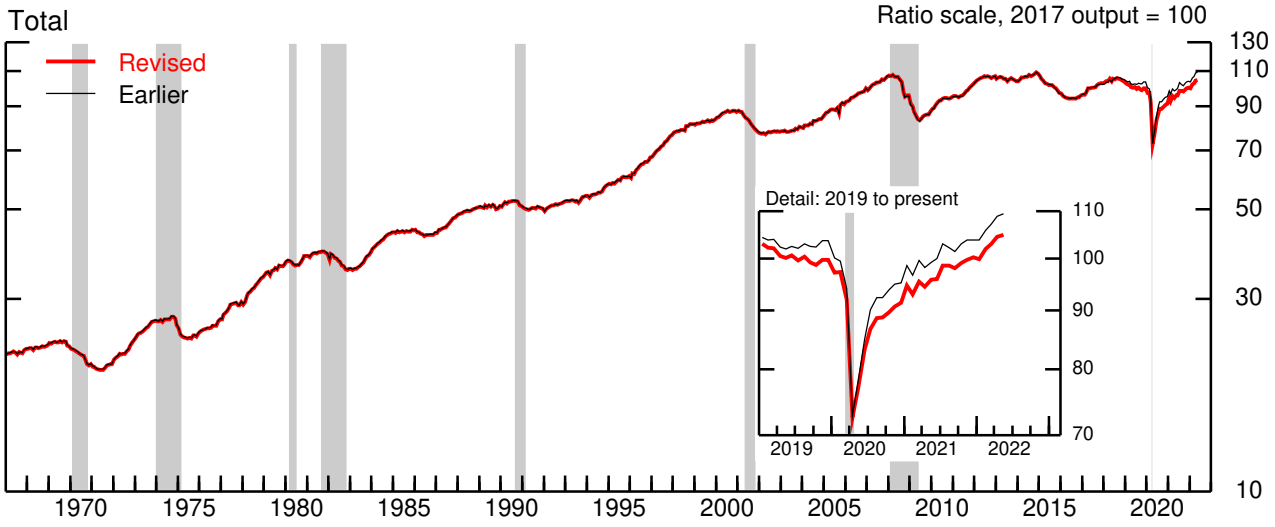
4. Consumer goods



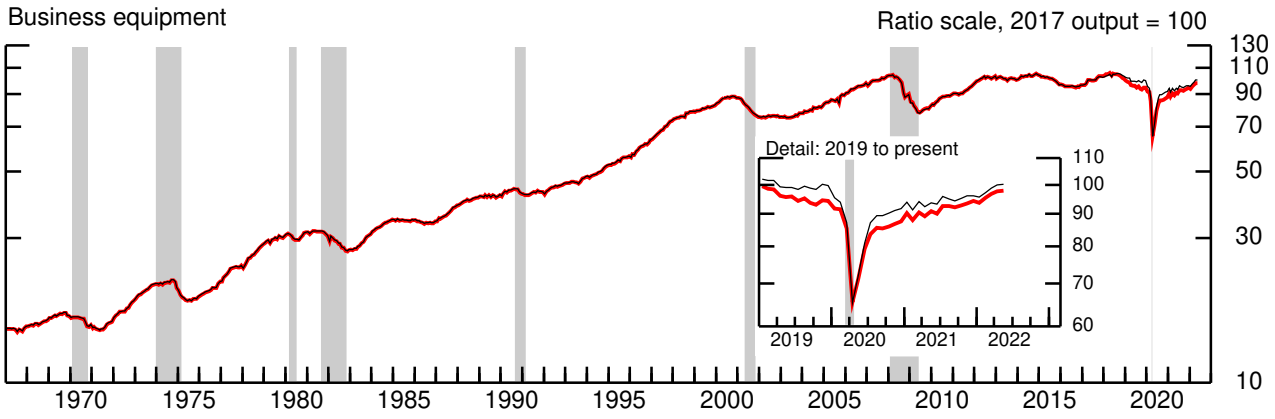


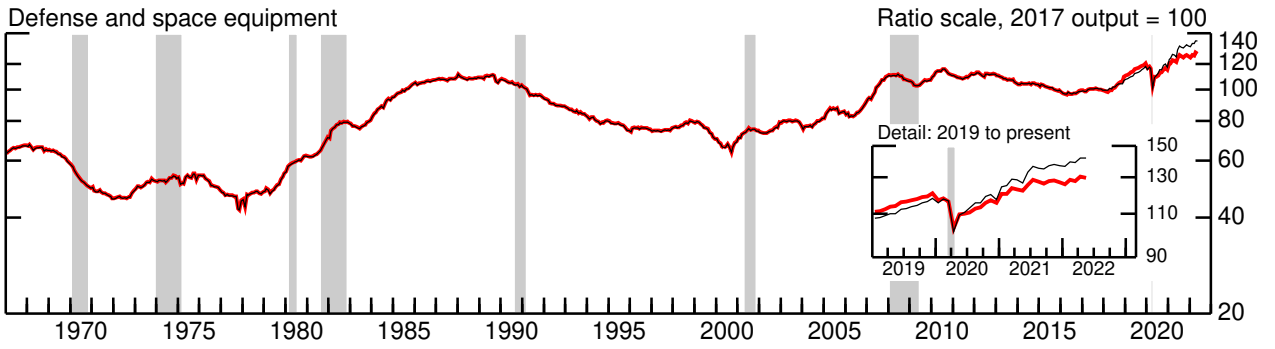
Note: The shaded areas represent periods of business recession as defined by the NBER.

5. Equipment



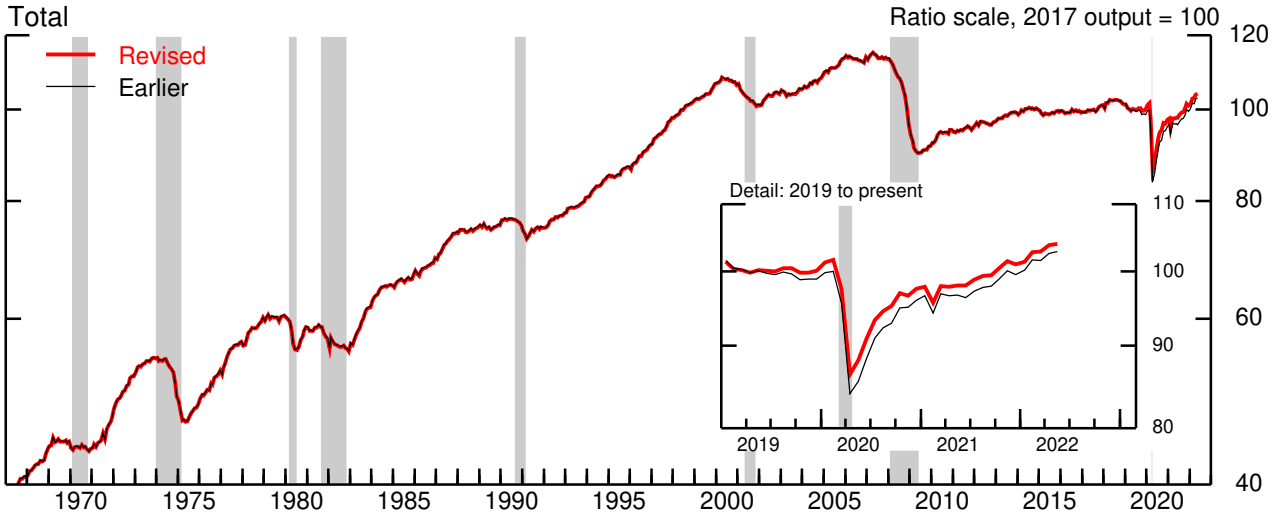
Note: Includes business equipment, defense and space equipment, oil and gas well drilling, and manufactured homes.

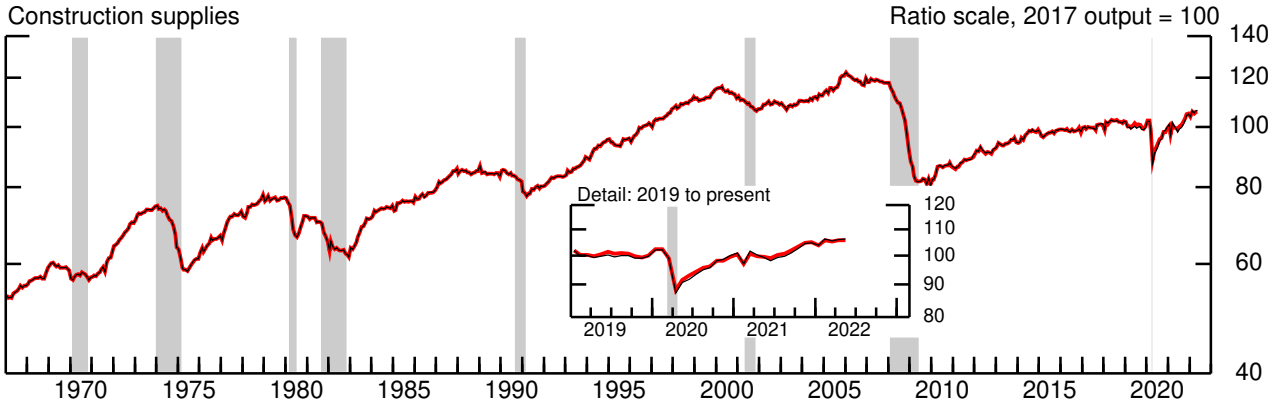


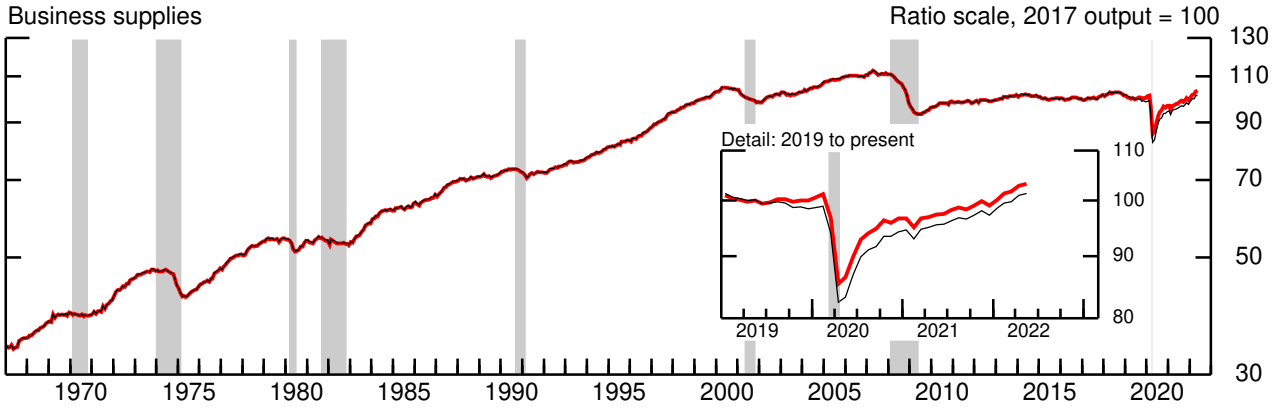


Note: The shaded areas represent periods of business recession as defined by the NBER.

6. Nonindustrial supplies

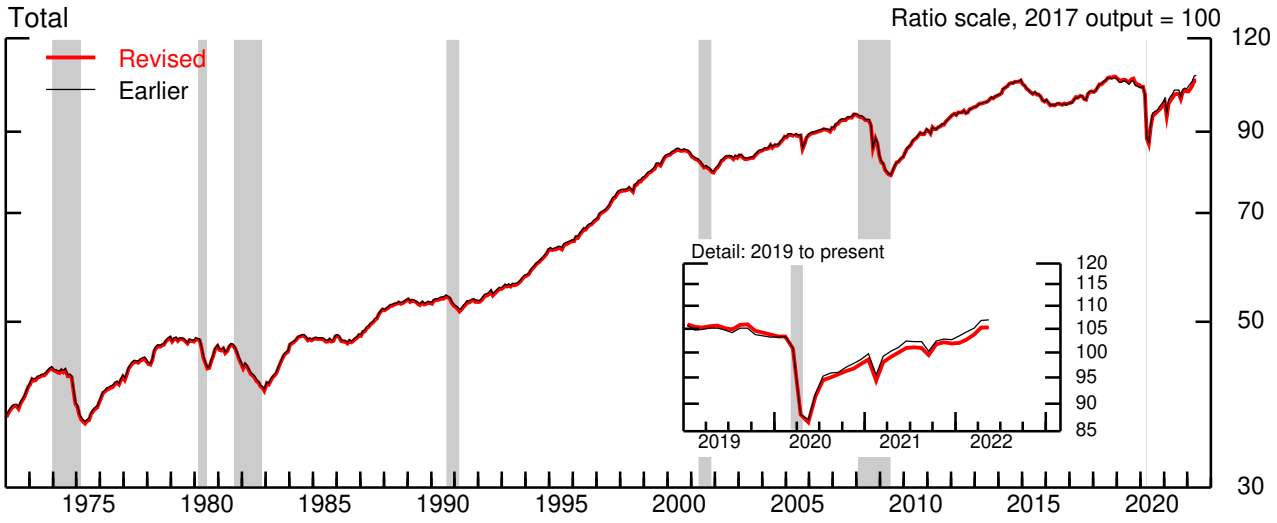


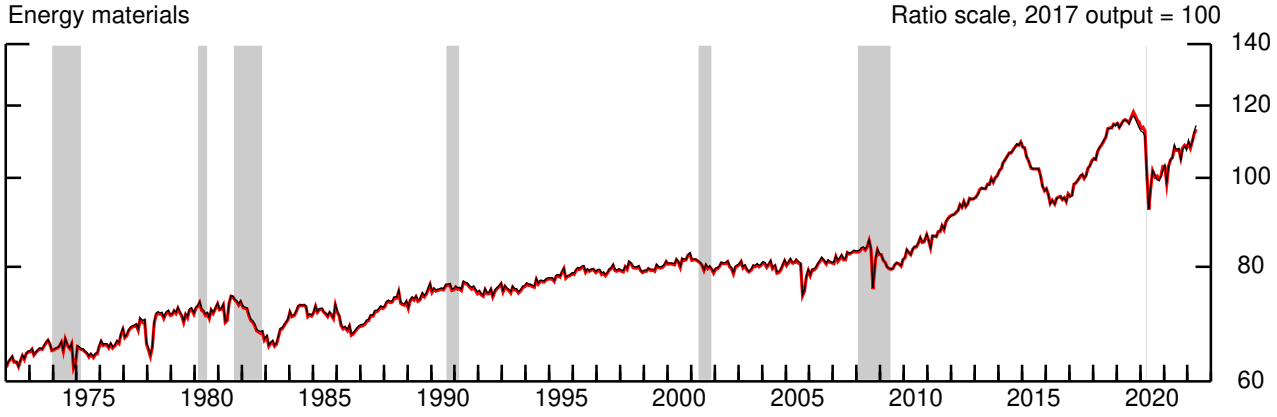


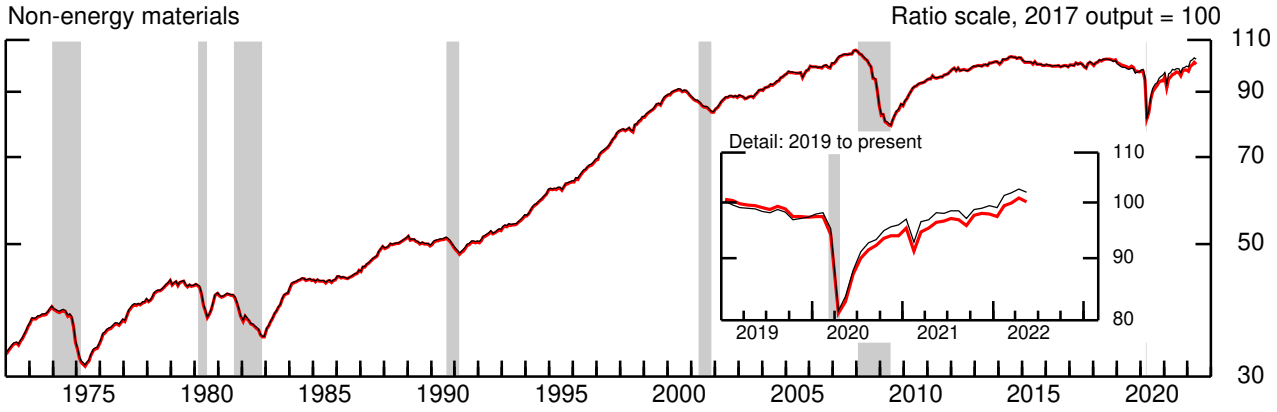


Note: The shaded areas represent periods of business recession as defined by the NBER.

7. Industrial materials

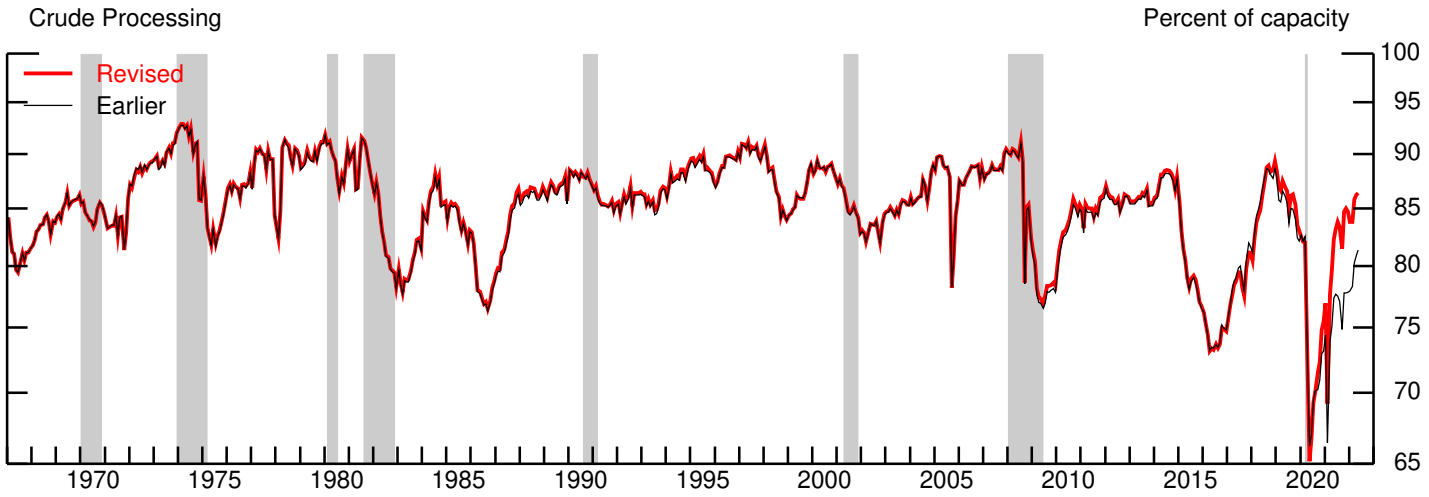


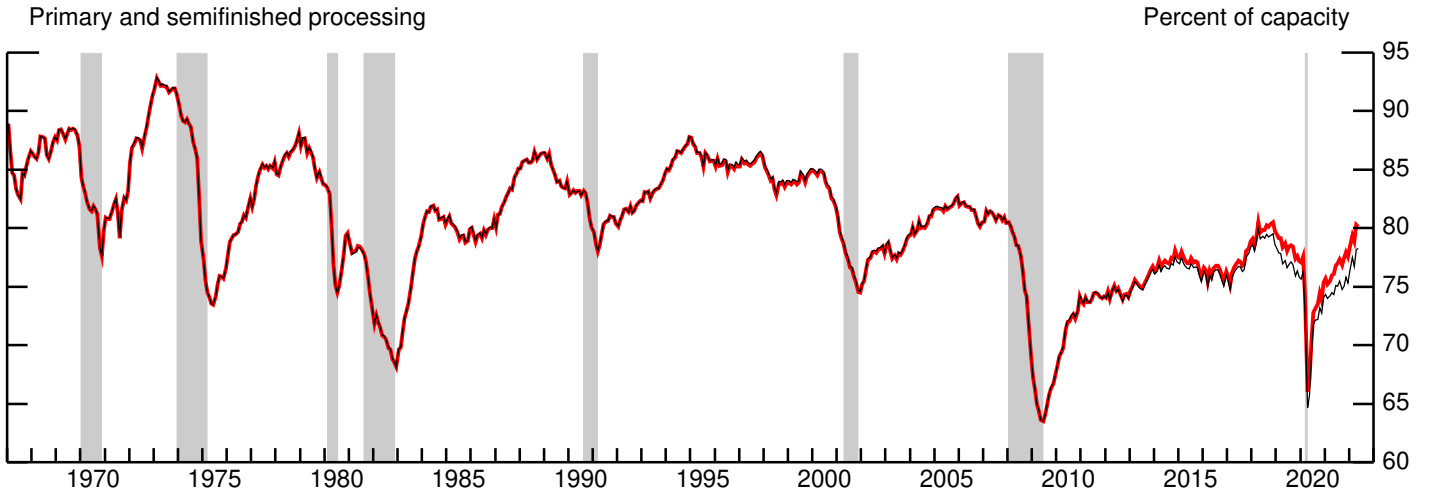


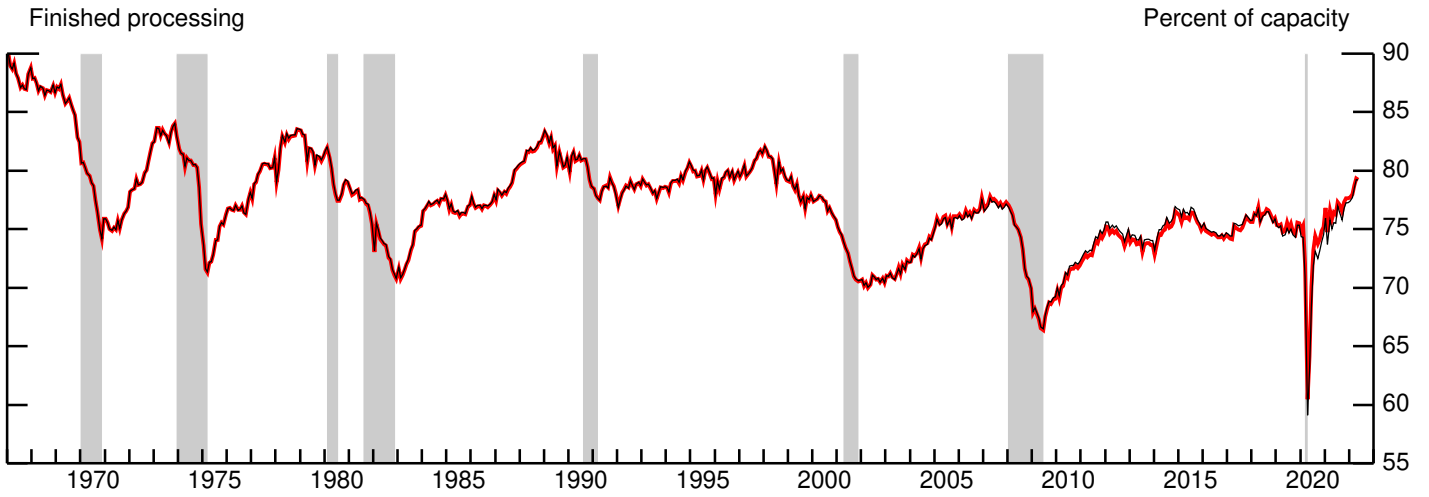


Note: The shaded areas represent periods of business recession as defined by the NBER.

8. Capacity utilization by stage of process







Note: The shaded areas represent periods of business recession as defined by the NBER.

Table 1A

INDUSTRIAL PRODUCTION: Total

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual[1]
IP (*percent change*)																	
1992	-.5	.7	.8	.8	.3	.1	.9	-.6	.3	.7	.4	.2	-.5	7.4	3.1	4.2	2.9
1993	.4	.5	-.1	.3	-.4	.2	.2	-.1	.5	.7	.5	.6	3.8	.8	1.5	6.4	3.3
1994	.3	.1	1.0	.6	.5	.7	.1	.7	.3	.8	.7	1.0	5.0	7.5	5.2	8.4	5.3
1995	.2	-.1	.2	-.2	.5	.3	-.4	1.3	.4	-.2	.2	.3	4.2	1.3	3.9	3.3	4.6
1996	-.5	1.4	-.2	1.0	.7	.7	.0	.5	.6	.0	.9	.6	2.7	8.8	5.3	5.7	4.5
1997	.2	1.2	.6	.1	.6	.5	.8	1.0	.9	.9	.8	.5	7.8	5.8	9.6	10.5	7.2
1998	.4	.2	.0	.4	.6	-.6	-.4	2.1	-.1	.7	-.1	.4	4.6	2.7	3.0	5.7	5.9
1999	.4	.6	.2	.2	.6	-.1	.6	.4	-.4	1.3	.5	.8	4.6	3.8	3.7	7.3	4.4
2000	-.1	.4	.4	.6	.3	.1	-.2	-.3	.4	-.3	.0	-.3	4.1	5.0	-.4	-1.1	3.9
2001	-.5	-.7	-.3	-.3	-.6	-.6	-.6	-.1	-.5	-.3	-.6	.0	-5.1	-5.0	-5.5	-4.3	-3.1
2002	.7	.0	.8	.5	.4	.8	.0	-.1	.1	-.3	.5	-.5	2.9	6.4	2.5	-.2	.3
2003	.8	.1	-.3	-.6	.0	.1	.5	-.2	.7	.1	.7	.1	2.5	-3.0	2.7	3.9	1.3
2004	.2	.6	-.4	.4	.7	-.8	.7	.1	.1	.9	.2	.8	2.9	2.3	2.2	5.7	2.7
2005	.4	.7	-.1	.2	.1	.4	-.3	.3	-1.9	1.2	1.1	.5	5.7	2.3	-1.6	3.7	3.3
2006	.2	.0	.2	.3	.0	.3	-.1	.4	-.2	-.1	-.1	1.0	3.9	2.4	1.5	.8	2.3
2007	-.4	1.0	.2	.7	.1	.0	-.1	.2	.2	-.3	.6	.0	4.0	4.9	.6	1.3	2.5
2008	-.1	-.4	-.4	-.7	-.6	-.2	-.4	-1.6	-4.4	1.0	-1.3	-2.8	-1.3	-5.8	-12.3	-16.0	-3.5
2009	-2.5	-.6	-1.6	-.8	-1.0	-.3	1.2	1.1	.8	.2	.4	.4	-20.7	-10.7	6.6	6.3	-11.4
2010	1.1	.4	.7	.4	1.4	.2	.4	.4	.3	-.3	.1	1.0	8.0	8.1	5.4	1.6	5.5
2011	-.2	-.4	1.0	-.3	.1	.3	.5	.6	-.1	.7	.0	.5	2.2	1.6	4.7	4.2	3.2
2012	.6	.3	-.5	.7	.2	.0	.2	-.4	-.1	.3	.4	.3	4.0	2.5	.0	2.0	3.0
2013	.0	.5	.4	-.1	.1	.1	-.3	.6	.5	-.1	.2	.2	3.1	1.8	1.5	2.7	2.0
2014	-.4	.8	1.0	.1	.4	.3	.3	-.2	.3	.0	.6	.0	2.8	5.5	2.5	2.2	3.0
2015	-.8	-.6	-.3	-.6	-.5	-.3	.7	-.2	-.3	-.5	-.8	-.5	-4.3	-5.5	.2	-5.4	-1.4
2016	.6	-.5	-.8	.3	-.2	.5	.2	-.1	-.1	.1	-.4	.6	-2.6	-1.5	1.2	-.4	-2.2
2017	-.2	-.3	.7	1.0	.1	.2	-.2	-.5	.1	1.3	.2	.2	.4	5.9	-1.2	5.5	1.4
2018	.0	.4	.6	1.1	-.9	.8	.2	.7	.0	-.1	-.1	-.1	2.2	5.1	3.5	.1	3.2
2019	-.6	-.4	.1	-.5	.2	.0	-.4	.7	-.3	-.8	.3	-.3	-3.7	-1.8	.2	-2.6	-.7
2020	-.5	.4	-3.8	-13.2	1.6	6.3	3.8	.9	.0	.8	.3	1.1	-6.1	-41.6	42.6	6.6	-7.0
2021	1.1	-3.1	2.7	.2	.8	.4	.7	.0	-1.0	1.5	.6	-.2	3.1	6.5	3.5	4.8	4.9
2022	.4	.8	.7	1.3	.1								5.1				
IP (*2017=100*)																	
1992	61.6	62.1	62.6	63.1	63.3	63.3	63.9	63.5	63.7	64.2	64.4	64.5	62.1	63.2	63.7	64.4	63.3
1993	64.8	65.1	65.0	65.2	64.9	65.1	65.3	65.2	65.5	66.0	66.3	66.7	65.0	65.1	65.3	66.3	65.4
1994	66.9	67.0	67.6	68.0	68.4	68.8	68.9	69.3	69.6	70.1	70.6	71.3	67.2	68.4	69.3	70.7	68.9
1995	71.4	71.3	71.4	71.3	71.7	71.9	71.6	72.5	72.8	72.7	72.9	73.1	71.4	71.6	72.3	72.9	72.1
1996	72.7	73.8	73.7	74.4	75.0	75.5	75.5	75.9	76.4	76.4	77.1	77.6	73.4	75.0	75.9	77.0	75.3
1997	77.7	78.6	79.1	79.2	79.6	80.0	80.6	81.5	82.2	82.9	83.6	84.0	78.5	79.6	81.4	83.5	80.7
1998	84.3	84.5	84.5	84.8	85.4	84.8	84.5	86.2	86.2	86.8	86.7	87.1	84.5	85.0	85.6	86.8	85.5
1999	87.4	87.9	88.1	88.3	88.8	88.8	89.3	89.7	89.3	90.5	91.0	91.7	87.8	88.7	89.5	91.0	89.2
2000	91.6	92.0	92.3	92.9	93.2	93.2	93.0	92.8	93.2	92.8	92.8	92.5	92.0	93.1	93.0	92.7	92.7
2001	92.0	91.4	91.2	90.9	90.4	89.9	89.3	89.2	88.7	88.5	88.0	87.9	91.5	90.4	89.1	88.1	89.8
2002	88.5	88.5	89.2	89.6	90.0	90.8	90.7	90.6	90.7	90.5	91.0	90.5	88.8	90.1	90.7	90.7	90.1
2003	91.2	91.3	91.1	90.5	90.5	90.6	91.1	90.8	91.4	91.6	92.2	92.3	91.2	90.5	91.1	92.0	91.2
2004	92.4	93.0	92.6	93.0	93.6	92.9	93.6	93.7	93.8	94.6	94.8	95.6	92.7	93.2	93.7	95.0	93.6
2005	95.9	96.6	96.5	96.7	96.8	97.2	96.9	97.2	95.3	96.5	97.6	98.0	96.3	96.9	96.5	97.4	96.8
2006	98.2	98.2	98.5	98.8	98.8	99.1	99.0	99.5	99.3	99.2	99.1	100.1	98.3	98.9	99.2	99.5	99.0
2007	99.7	100.7	100.9	101.6	101.6	101.7	101.6	101.8	102.0	101.7	102.3	102.3	100.4	101.6	101.8	102.1	101.5
2008	102.2	101.8	101.4	100.7	100.1	99.9	99.5	97.9	93.7	94.6	93.3	90.7	101.8	100.3	97.0	92.9	98.0
2009	88.5	87.9	86.6	85.9	85.0	84.7	85.7	86.6	87.4	87.5	87.9	88.2	87.7	85.2	86.6	87.9	86.8
2010	89.2	89.5	90.1	90.5	91.7	91.9	92.3	92.6	92.9	92.6	92.7	93.6	89.6	91.4	92.6	93.0	91.6
2011	93.4	93.0	94.0	93.7	93.8	94.0	94.5	95.1	95.1	95.7	95.7	96.2	93.5	93.8	94.9	95.9	94.5
2012	96.8	97.1	96.6	97.3	97.5	97.5	97.7	97.3	97.2	97.6	98.0	98.2	96.8	97.4	97.4	97.9	97.4
2013	98.2	98.7	99.1	99.0	99.1	99.2	98.9	99.5	100.0	99.9	100.1	100.4	98.7	99.1	99.5	100.1	99.3
2014	100.0	100.7	101.7	101.8	102.2	102.6	102.8	102.6	103.0	103.0	103.6	103.6	100.8	102.2	102.8	103.4	102.3
2015	102.8	102.2	101.8	101.2	100.8	100.5	101.1	100.9	100.6	100.2	99.4	98.9	102.3	100.8	100.9	99.5	100.8
2016	99.4	98.9	98.1	98.4	98.2	98.7	98.8	98.7	98.6	98.7	98.3	98.9	98.8	98.4	98.7	98.6	98.7
2017	98.7	98.4	99.1	100.1	100.1	100.3	100.1	99.7	99.8	101.0	101.2	101.4	98.7	100.2	99.9	101.2	100.0
2018	101.3	101.7	102.3	103.4	102.5	103.3	103.5	104.2	104.2	104.0	104.0	103.9	101.8	103.1	103.9	104.0	103.2
2019	103.3	102.8	102.9	102.4	102.6	102.6	102.2	102.9	102.6	101.8	102.1	101.8	103.0	102.5	102.6	101.9	102.5
2020	101.3	101.7	97.9	85.0	86.3	91.8	95.2	96.1	96.1	96.8	97.1	98.1	100.3	87.7	95.8	97.4	95.3
2021	99.3	96.2	98.9	99.0	99.8	100.2	100.9	100.8	99.8	101.4	102.0	101.8	98.1	99.7	100.5	101.7	100.0
2022	102.2	103.0	103.7	105.1	105.2								103.0				

NOTE: Estimates from January 2022 through May 2022 are subject to further revision in the upcoming monthly releases.

1. Annual averages of industrial production are calculated from not seasonally adjusted indexes.

Table 1B

CAPACITY AND UTILIZATION: Total

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
Capacity (*percent of 2017 output*)																	
1992	77.6	77.8	77.9	78.1	78.2	78.4	78.6	78.8	78.9	79.1	79.2	79.4	77.8	78.2	78.8	79.2	78.5
1993	79.5	79.6	79.8	79.9	80.0	80.1	80.2	80.4	80.5	80.6	80.8	81.0	79.6	80.0	80.4	80.8	80.2
1994	81.1	81.3	81.5	81.8	82.0	82.2	82.5	82.8	83.0	83.3	83.6	83.9	81.3	82.0	82.8	83.6	82.4
1995	84.1	84.4	84.7	85.0	85.3	85.7	86.0	86.3	86.7	87.0	87.4	87.8	84.4	85.3	86.3	87.4	85.9
1996	88.2	88.6	89.0	89.4	89.8	90.2	90.6	91.1	91.5	91.9	92.4	92.8	88.6	89.8	91.1	92.4	90.4
1997	93.2	93.7	94.2	94.7	95.2	95.7	96.2	96.8	97.4	98.0	98.6	99.3	93.7	95.2	96.8	98.6	96.1
1998	99.9	100.6	101.2	101.9	102.5	103.1	103.7	104.3	104.8	105.3	105.8	106.3	100.6	102.5	104.3	105.8	103.3
1999	106.8	107.2	107.7	108.1	108.5	108.9	109.3	109.7	110.1	110.5	110.9	111.3	107.2	108.5	109.7	110.9	109.1
2000	111.7	112.0	112.4	112.8	113.2	113.6	113.9	114.3	114.7	115.1	115.4	115.8	112.0	113.2	114.3	115.4	113.7
2001	116.2	116.6	116.9	117.3	117.6	117.9	118.2	118.5	118.8	119.0	119.3	119.5	116.5	117.6	118.5	119.3	118.0
2002	119.7	119.8	120.0	120.1	120.2	120.3	120.3	120.3	120.3	120.3	120.3	120.2	119.8	120.2	120.3	120.3	120.2
2003	120.2	120.1	120.1	120.0	120.0	120.0	119.9	119.9	119.9	119.9	119.8	119.8	120.1	120.0	119.9	119.8	120.0
2004	119.8	119.8	119.8	119.7	119.7	119.7	119.7	119.7	119.7	119.7	119.8	119.8	119.8	119.7	119.7	119.8	119.7
2005	119.9	120.0	120.1	120.3	120.4	120.6	120.7	120.9	121.1	121.2	121.4	121.6	120.0	120.4	120.9	121.4	120.7
2006	121.7	121.9	122.1	122.3	122.5	122.7	122.9	123.2	123.4	123.7	124.0	124.3	121.9	122.5	123.2	124.0	122.9
2007	124.6	124.9	125.2	125.4	125.7	125.9	126.1	126.2	126.3	126.3	126.3	126.3	124.9	125.7	126.2	126.3	125.8
2008	126.2	126.1	126.0	126.0	125.9	125.9	125.9	126.0	126.1	126.2	126.4	126.5	126.1	125.9	126.0	126.4	126.1
2009	126.7	126.9	127.0	127.1	127.2	127.3	127.3	127.2	127.1	127.0	126.8	126.6	126.9	127.2	127.2	126.8	127.0
2010	126.3	126.1	125.8	125.5	125.3	125.0	124.8	124.5	124.4	124.2	124.1	124.0	126.1	125.3	124.6	124.1	125.0
2011	123.9	123.9	123.9	124.0	124.1	124.2	124.3	124.5	124.7	124.9	125.1	125.3	123.9	124.1	124.5	125.1	124.4
2012	125.6	125.8	126.0	126.3	126.5	126.7	126.9	127.2	127.4	127.6	127.7	127.9	125.8	126.5	127.2	127.7	126.8
2013	128.1	128.3	128.4	128.6	128.7	128.8	128.9	129.0	129.1	129.2	129.3	129.3	128.3	128.7	129.0	129.3	128.8
2014	129.4	129.5	129.6	129.7	129.8	129.9	130.0	130.2	130.3	130.4	130.5	130.6	129.5	129.8	130.2	130.5	130.0
2015	130.7	130.8	130.8	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.9	130.8	130.9	130.9	130.9	130.9
2016	130.9	130.9	130.9	130.9	131.0	131.0	131.0	131.1	131.1	131.2	131.2	131.2	130.9	131.0	131.1	131.2	131.0
2017	131.2	131.2	131.1	131.0	130.9	130.8	130.7	130.6	130.4	130.3	130.2	130.0	131.2	130.9	130.6	130.2	130.7
2018	129.9	129.8	129.8	129.7	129.7	129.7	129.7	129.7	129.8	129.8	129.9	130.0	129.8	129.7	129.7	129.9	129.8
2019	130.1	130.2	130.4	130.5	130.6	130.7	130.9	131.0	131.2	131.3	131.4	131.5	130.2	130.6	131.0	131.4	130.8
2020	131.6	131.7	131.7	131.7	131.6	131.5	131.4	131.2	131.0	130.8	130.5	130.2	131.6	131.6	131.2	130.5	131.2
2021	130.0	129.7	129.5	129.3	129.1	129.0	128.9	128.9	128.9	129.0	129.1	129.2	129.8	129.2	128.9	129.1	129.2
2022	129.4	129.6	129.8	130.0	130.2								129.6				
Utilization (*percent*)																	
1992	79.4	79.8	80.3	80.8	80.9	80.7	81.3	80.7	80.7	81.1	81.3	81.3	79.9	80.8	80.9	81.2	80.7
1993	81.5	81.7	81.5	81.6	81.2	81.3	81.3	81.1	81.4	81.9	82.1	82.4	81.6	81.4	81.3	82.1	81.6
1994	82.5	82.3	82.9	83.2	83.4	83.7	83.5	83.8	83.8	84.2	84.5	85.0	82.6	83.4	83.7	84.5	83.6
1995	84.9	84.5	84.3	83.9	84.0	83.9	83.3	84.0	84.0	83.6	83.4	83.3	84.6	83.9	83.8	83.4	83.9
1996	82.5	83.3	82.8	83.3	83.5	83.7	83.3	83.4	83.5	83.1	83.4	83.6	82.9	83.5	83.4	83.4	83.3
1997	83.3	83.9	84.0	83.6	83.7	83.6	83.8	84.2	84.4	84.6	84.8	84.6	83.7	83.6	84.1	84.7	84.0
1998	84.4	84.0	83.5	83.3	83.3	82.3	81.5	82.7	82.2	82.4	81.9	81.9	84.0	82.9	82.1	82.1	82.8
1999	81.9	82.0	81.8	81.7	81.9	81.5	81.7	81.8	81.1	81.9	82.0	82.4	81.9	81.7	81.5	82.1	81.8
2000	82.1	82.1	82.1	82.3	82.3	82.1	81.7	81.2	81.2	80.7	80.4	79.9	82.1	82.2	81.3	80.3	81.5
2001	79.2	78.4	78.0	77.5	76.9	76.2	75.6	75.3	74.7	74.3	73.8	73.6	78.5	76.9	75.2	73.9	76.1
2002	74.0	73.9	74.3	74.6	74.9	75.5	75.4	75.3	75.4	75.2	75.6	75.3	74.1	75.0	75.4	75.4	75.0
2003	75.9	76.0	75.8	75.4	75.4	75.5	75.9	75.8	76.3	76.4	76.9	77.0	75.9	75.4	76.0	76.8	76.0
2004	77.1	77.6	77.3	77.7	78.2	77.6	78.2	78.3	78.4	79.0	79.2	79.8	77.4	77.8	78.3	79.3	78.2
2005	80.0	80.5	80.3	80.4	80.4	80.6	80.3	80.4	78.8	79.6	80.4	80.6	80.3	80.5	79.8	80.2	80.2
2006	80.7	80.6	80.7	80.8	80.7	80.8	80.6	80.8	80.4	80.1	79.9	80.5	80.6	80.7	80.6	80.2	80.5
2007	80.0	80.6	80.6	81.0	80.9	80.8	80.6	80.7	80.8	80.5	81.0	81.0	80.4	80.9	80.7	80.9	80.7
2008	81.0	80.7	80.5	80.0	79.5	79.4	79.0	77.7	74.3	74.9	73.9	71.7	80.7	79.6	77.0	73.5	77.7
2009	69.8	69.3	68.1	67.5	66.8	66.6	67.3	68.1	68.7	69.0	69.3	69.7	69.1	67.0	68.1	69.3	68.4
2010	70.6	71.0	71.7	72.1	73.2	73.5	74.0	74.4	74.7	74.6	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	76.3	76.7	76.5	76.8	75.4	75.6	76.2	76.7	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	77.2	77.0	77.0	77.0	76.7	77.1	77.5	77.3	77.5	77.6	76.9	77.0	77.1	77.5	77.1
2014	77.3	77.8	78.5	78.5	78.7	79.0	79.1	78.9	79.0	79.0	79.4	79.3	77.9	78.7	79.0	79.2	78.7
2015	78.6	78.1	77.8	77.3	77.0	76.7	77.2	77.1	76.9	76.5	75.9	75.5	78.2	77.0	77.0	76.0	77.1
2016	76.0	75.6	75.0	75.2	75.0	75.3	75.4	75.3	75.2	75.3	74.9	75.4	75.5	75.2	75.3	75.2	75.3
2017	75.3	75.0	75.6	76.4	76.5	76.7	76.6	76.3	76.5	77.5	77.8	78.0	75.3	76.5	76.5	77.8	76.5
2018	78.0	78.3	78.8	79.7	79.0	79.6	79.8	80.3	80.3	80.1	80.0	79.9	78.4	79.5	80.1	80.0	79.5
2019	79.4	78.9	78.9	78.5	78.5	78.5	78.1	78.5	78.2	77.5	77.7	77.4	79.1	78.5	78.3	77.5	78.3
2020	77.0	77.3	74.3	64.5	65.6	69.8	72.5	73.3	73.3	74.0	74.4	75.3	76.2	66.6	73.0	74.6	72.6
2021	76.4	74.2	76.3	76.6	77.3	77.7	78.2	78.2	77.4	78.6	79.0	78.7	75.6	77.2	78.0	78.8	77.4
2022	79.0	79.5	79.9	80.9	80.8								79.5				

NOTE: Estimates from January 2022 through May 2022 are subject to further revision in the upcoming monthly releases.

Table 2
Rates Of Change in Industrial Production, Market and Industry Group Summary: 2017–21[1]

Item		Revised change (percent)					Difference between revised and earlier changes (percentage points)				
		2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Total IP		2.6	2.7	-2.0	-4.4	4.5	.0	.0	.1	-.2	.0
Market Groups											
Final products and nonindustrial supplies		1.9	1.0	-1.9	-2.5	3.9	.1	-.3	.0	.9	.0
Consumer goods		-.6	.9	-.5	.6	1.4	-.1	.2	.7	1.4	.0
Durable		-.9	4.2	-2.1	8.2	-.1	-.3	-.3	2.1	4.1	.2
Automotive products		1.1	4.3	-1.3	12.6	-5.5	-.4	-.7	3.9	7.5	.3
Home electronics		5.5	19.0	2.2	14.1	12.3	.1	-.7	-1.2	-2.0	6.3
Appliances, furniture, carpeting		-2.3	-.8	-4.5	2.7	4.5	-.3	.9	-1.6	-2.5	3.8
Miscellaneous goods		-4.8	5.3	-3.0	1.3	8.8	.0	-.1	1.0	.6	-1.6
Nondurable		-.5	-.1	-.1	-1.6	2.0	-.1	.3	.3	.6	.1
Non-energy		-1.2	-1.4	1.6	.1	1.9	.0	.0	1.2	.9	-.6
Foods and tobacco		.4	-2.0	2.5	.5	-.1	.0	-.2	1.1	.9	-.5
Clothing		-8.2	-1.1	-.7	-9.7	6.0	-.4	1.6	-2.6	-8.4	1.4
Chemical products		-3.4	-.7	2.1	.7	6.4	-.1	.4	2.1	1.5	-1.2
Paper products		-3.8	-2.9	-7.2	-5.2	-4.4	.7	-.2	-1.2	-.9	-1.2
Energy		2.0	4.0	-4.9	-8.0	3.1	-.4	1.2	-2.4	-1.4	2.5
Business equipment		8.1	-1.1	-7.9	-7.6	7.7	1.0	-2.5	-3.7	.8	2.5
Transit		13.0	-12.5	-18.8	-12.0	2.2	4.0	-8.5	-12.7	11.7	4.4
Information processing		4.3	5.6	.3	-3.9	10.1	-.5	1.4	-1.3	-7.5	2.0
Industrial and other		6.9	3.2	-5.6	-7.2	8.9	-.1	-.4	-.3	-2.7	1.3
Defense and space equipment		1.0	7.3	11.4	-2.9	10.0	-.7	2.4	.5	-4.8	-5.4
Construction supplies		2.0	.9	-2.1	-1.1	5.9	-.2	.2	.3	-.7	.8
Business supplies		1.1	.7	-1.6	-3.6	3.2	.0	-.2	1.4	1.4	-.9
Materials		3.6	4.8	-2.1	-7.0	5.2	-.2	.4	.4	-1.5	.2
Non-energy		1.0	1.3	-4.3	-3.7	4.3	-.3	.5	.0	-2.0	.5
Durable		1.7	2.3	-5.6	-5.5	4.5	-.4	.3	-.5	-2.6	.3
Consumer parts		-3.1	3.1	-12.8	-3.1	1.3	-.6	.6	-2.2	-4.2	.9
Equipment parts		3.7	2.5	-3.2	-7.4	8.6	-.5	.5	-1.5	-5.8	1.2
Other		2.3	2.0	-4.5	-5.2	3.4	-.2	.1	.7	-.4	-.4
Nondurable		-.2	-.4	-2.3	-.8	4.0	-.3	1.0	.7	-1.0	.9
Textile		-6.0	-.1	-4.6	-3.8	4.7	-.1	-.6	-.8	1.0	-1.1
Paper		-5.3	1.6	-.5	-8.2	2.0	.0	.3	.9	-.7	.5
Chemical		1.7	-1.7	-5.1	.3	6.2	-.5	1.7	.5	-2.7	1.8
Energy		8.6	10.4	1.5	-12.7	7.0	.1	.0	.9	-.5	.0
Industry Groups											
Manufacturing[2]		1.3	.6	-2.6	-2.6	4.2	.0	.0	.0	.0	.0
Manufacturing (NAICS)	31–33	1.3	.8	-2.6	-2.6	4.5	.0	.0	-.1	-.2	.0
Durable manufacturing		2.8	2.0	-4.3	-3.1	5.1	.0	-.4	-1.0	-.5	.2
Wood products	321	.9	-3.7	-.2	3.0	1.6	.1	-.3	.9	2.8	-.9
Nonmetallic mineral products	327	.2	.3	-.3	-1.0	-.1	-.5	1.2	1.9	-2.0	-.8
Primary metals	331	3.0	3.0	-7.6	-4.6	7.8	.5	-1.1	-.1	2.1	-2.1
Fabricated metal products	332	2.8	3.9	-4.7	-7.8	5.9	-.2	.4	-.7	-1.9	.3
Machinery	333	8.3	3.5	-7.4	-6.7	10.3	.0	-.3	-.7	-6.5	2.9
Computer and electronic products	334	5.8	3.3	1.3	-1.0	9.0	-.5	1.1	-1.0	-5.1	.7
Electrical equip., appliances, and components	335	-1.3	3.7	-3.2	-.5	5.8	.1	-.3	.0	1.5	.7
Motor vehicles and parts	3361–3	-1.4	5.5	-6.0	3.9	-4.0	-.2	-.3	2.3	1.1	1.6
Aerospace and miscellaneous transportation equipment	3364–9	6.3	-6.4	-4.0	-7.8	7.0	1.0	-3.6	-7.8	5.7	-2.4
Furniture and related products	337	-1.1	.1	-6.6	-8.3	4.8	-.2	.4	-2.7	-2.8	1.6
Miscellaneous	339	-2.4	4.0	-5.2	-.1	7.5	.1	-.4	-.5	1.3	.2
Nondurable manufacturing		-.3	-.5	-.7	-2.0	3.9	-.1	.5	.8	.1	-.2
Food, beverage, and tobacco products	311,2	.3	-1.3	2.6	.7	.0	.0	-.2	1.2	.9	-.5
Textile and product mills	313,4	-7.7	.8	-4.0	-3.6	4.8	.0	-.6	-.2	2.1	.1
Apparel and leather	315,6	-7.9	-1.2	-1.3	-9.4	6.7	-.5	1.7	-2.8	-8.6	2.2
Paper	322	-3.7	2.5	-1.1	-4.6	.5	-.1	.5	.3	-1.0	1.5
Printing and support	323	-.8	-1.2	-2.0	-8.1	3.4	.3	-.9	1.7	.2	-4.5
Petroleum and coal products	324	3.0	.7	-4.5	-16.4	18.7	-.5	1.8	-3.4	-4.3	7.5
Chemicals	325	-.7	-1.7	-1.5	-.1	5.9	-.2	1.0	1.6	-.1	-.2
Plastics and rubber products	326	.9	2.4	-3.3	-1.3	2.3	-.1	.1	1.8	.9	-1.6
Other manufacturing (non-NAICS)	**1133,5111**	-.2	-5.2	-3.5	-2.9	-5.6	.5	-1.3	4.1	6.2	-1.5
Mining	**21**	12.6	14.6	1.7	-18.0	10.9	.3	.5	1.2	-1.4	1.0
Utilities	**2211,2**	2.6	3.0	-1.7	-2.5	-.3	-.1	.0	.0	.7	-.1
Electric	2211	1.7	1.5	-1.2	-1.6	.4	.0	.0	.0	.5	-.4
Natural gas	2212	8.8	12.7	-4.7	-8.5	-4.6	-.6	-.2	-.5	1.4	1.9

1. Rates of change are calculated as the percent change in the seasonally adjusted index from the fourth quarter of the previous year to the fourth quarter of the year specified in the column heading.
2. 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 a part of manufacturing and are included in the industrial sector.

Table 3
Rates Of Change in Industrial Production, Special Aggregates and Selected Detail: 2017–21[1]

Item		Revised change (percent)					Difference between revised and earlier changes (percentage points)				
		2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Total industry		2.6	2.7	-2.0	-4.4	4.5	.0	.0	.1	-.2	.0
Energy		7.1	8.7	-.2	-12.3	7.2	.0	.3	.2	-.5	.7
Consumer products		2.0	4.0	-4.9	-8.0	3.1	-.4	1.2	-2.4	-1.4	2.5
Commercial products		1.8	2.5	.7	-7.7	7.0	.0	.0	.4	1.8	-.3
Oil and gas well drilling	213111	44.2	30.7	-11.5	-50.2	73.1	2.0	2.8	-.4	-1.9	9.4
Converted fuel		2.9	4.9	-2.5	-3.9	3.1	.0	.1	.1	.6	.0
Primary energy		11.4	12.6	3.2	-16.5	8.8	.2	-.1	1.1	-.6	.0
Non-energy		1.3	.6	-2.6	-2.0	3.8	-.1	-.1	.1	-.1	.0
Selected high-technology industries		8.2	6.2	5.3	6.3	11.1	-.6	1.2	-.8	-2.8	2.4
Computers and peripheral equipment	3341	-13.4	27.2	8.9	13.7	20.8	.6	-1.9	-3.2	-5.3	12.6
Communications equipment	3342	11.3	14.4	2.1	6.2	14.1	-.7	2.2	-2.2	-6.8	8.2
Semiconductors and related electronic components	3344	11.2	.5	5.9	5.1	8.6	-.7	1.2	.3	-.8	-1.5
Excluding selected high-technology industries		1.1	.5	-2.8	-2.2	3.6	.0	-.1	.2	.0	-.1
Motor vehicles and parts	3361–3	-1.4	5.5	-6.0	3.9	-4.0	-.2	-.3	2.3	1.1	1.6
Motor vehicles	3361	-4.7	9.9	-4.0	9.2	-8.8	.0	-1.1	4.5	5.9	2.7
Motor vehicle parts	3363	-.7	3.2	-9.2	-2.3	-1.0	-.5	.3	-1.1	-2.9	.4
Excluding motor vehicles and parts		1.3	.0	-2.5	-2.8	4.3	.0	-.1	.0	-.1	-.2
Consumer goods		-1.2	-.7	.6	.4	2.6	.0	.0	1.1	.7	-.5
Business equipment		9.4	-3.7	-8.5	-7.8	7.7	1.0	-2.9	-4.5	3.0	1.2
Construction supplies		2.0	.9	-2.1	-1.2	5.9	-.2	.2	.3	-.7	.8
Business supplies		.4	.1	-2.9	-2.7	1.6	.0	-.3	1.8	1.4	-1.1
Materials		.9	1.2	-4.1	-4.0	4.6	-.3	.5	.1	-1.9	.6
Measures excluding selected high-technology industries											
Total industry		2.5	2.6	-2.2	-4.7	4.3	.0	.0	.2	-.1	.0
Manufacturing[2]		1.1	.5	-2.9	-2.8	4.0	.0	-.1	.0	.1	-.1
Durable		2.5	1.7	-4.8	-3.6	4.7	.1	-.5	-1.0	-.3	.0
Measures excluding motor vehicles and parts											
Total industry		2.9	2.5	-1.7	-5.0	5.1	.0	.0	.0	-.3	.0
Manufacturing[2]		1.5	.2	-2.3	-3.1	5.0	.0	.0	-.2	-.2	-.1
Durable		3.6	1.4	-3.9	-4.3	6.8	.1	-.4	-1.5	-.8	.2
Measures excluding selected high-technology industries and motor vehicles and parts											
Total industry		2.7	2.4	-1.9	-5.2	4.9	.0	.0	.0	-.2	.0
Manufacturing[2]		1.3	.0	-2.6	-3.4	4.7	.0	.0	-.2	-.1	-.2
Stage-of-process components of non-energy materials, measures of the input to											
Finished processors		-.3	2.4	-5.6	-6.2	5.3	-.4	.5	-1.3	-4.2	.9
Primary and semifinished processors		1.7	.6	-3.6	-2.2	3.8	-.3	.6	.7	-.7	.3
STAGE-OF-PROCESS GROUPS											
Crude		6.4	9.7	.3	-12.1	5.8	.0	.4	1.1	-1.5	.5
Primary and semifinished		1.9	1.6	-3.7	-4.3	3.8	-.2	.3	-.1	-.5	.3
Finished		2.0	.9	-.8	-1.4	4.8	.1	-.4	.0	1.0	-.2

1. See footnote 1 to table 2.
2. See footnote 2 to table 2.

Table 4

Annual Rates of Change for Industrial Production: 2017–21[1]

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Total IP	1.4	3.2	-.7	-7.0	4.9	.0	.0	.1	.2	-.6
Market Groups										
Consumer goods	-1.1	.8	-.3	-2.6	4.4	.0	.0	.5	1.3	.0
Durable	-.3	3.2	-1.0	-3.4	10.1	-.2	.0	.6	3.9	.6
Nondurable	-1.3	.1	.0	-2.3	2.8	.0	.0	.5	.6	-.3
Business equipment	4.7	3.9	-7.8	-13.0	9.7	.1	.0	-3.8	.6	.0
Defense and space equipment	2.3	2.3	13.0	-2.1	10.4	.0	.0	3.2	-3.9	-5.1
Construction supplies	1.3	1.7	-1.3	-3.9	4.7	.0	-.1	.6	-.2	-.3
Business supplies	.1	2.0	-1.8	-5.8	3.8	.0	-.1	.4	2.4	-1.0
Materials	2.1	4.7	.4	-8.9	4.2	.1	.0	.5	-.9	-.6
Non-energy	.5	1.4	-2.4	-7.8	5.2	.1	.0	.6	-1.5	-.6
Energy	5.1	10.3	4.8	-10.9	2.5	.0	.0	.4	.1	-.2
Industry Groups										
Manufacturing[2]	.6	1.3	-2.0	-6.3	5.7	.0	.0	.0	.3	-.7
Manufacturing (NAICS)	.7	1.5	-1.9	-6.3	5.8	.0	.0	.0	.1	-.8
Durable manufacturing	1.7	3.1	-2.8	-8.7	7.8	.0	.0	-.8	-.4	-.9
Nondurable manufacturing	-.4	-.3	-.8	-3.7	3.8	.0	.0	.9	.7	-.7
Other manufacturing (non-NAICS)	-1.0	-3.3	-4.3	-7.9	-.2	-.1	.1	.2	6.8	2.4
Mining	9.2	13.3	6.7	-15.0	3.2	.5	.3	.8	-.9	.7
Utilities	-.8	4.9	-.8	-2.9	1.9	.0	.0	.0	.5	-.3

1. The rates of change are calculated as the percent change in the annual averages of not seasonally adjusted industrial production indexes rather than as the percent change between the fourth quarter of one year and the fourth quarter of the next.
2. See footnote 2 to table 2.

Table 5

Rates of Change in Capacity, by Industry Groups: 2018–22[1]

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Total industry	-.2	1.1	-.7	-1.1	1.6	-.7	-.2	-.6	-1.5	.7
Manufacturing[2]	-.7	-.4	-.8	-.5	1.0	-.8	-.5	-.1	-.6	.7
Manufacturing (NAICS)	-.5	-.2	-.6	-.3	1.1	-.8	-.5	-.1	-.6	.6
Durable manufacturing	-.4	.1	-.2	.0	1.5	-1.2	-.4	.2	-.3	.3
Nondurable manufacturing	-.6	-.6	-1.2	-.5	.7	-.3	-.7	-.5	-.8	.9
Other manufacturing (non-NAICS)	-4.4	-5.7	-4.9	-6.3	-6.4	-.1	-.4	.9	-.8	.5
Mining	2.4	8.9	-3.3	-7.3	3.5	-.5	1.5	-3.6	-6.2	1.5
Utilities	.5	1.5	2.5	2.4	2.6	.0	-.3	-.4	-.2	.2
Selected high-technology industries	6.8	8.0	2.3	7.7	11.5	.4	-2.4	-.8	-.5	3.3
Manufacturing[2] ex. selected high-technology industries	-.9	-.6	-.9	-.7	.7	-.8	-.5	-.1	-.6	.6
Stage-of-process groups										
Crude	.4	5.7	-2.8	-6.0	2.6	-.9	.5	-2.9	-5.5	1.0
Primary and semifinished	-.8	-.3	-.1	-.3	1.0	-.5	-.6	-.1	-1.0	.3
Finished	.4	.3	-.5	.4	1.6	-.8	-.2	-.1	.4	1.1

1. Rates of change are calculated as the percent change in the seasonally adjusted index from the fourth quarter of the previous year to the fourth quarter of the year specified in the column heading.
2. See footnote 2 to table 2.

Table 6

Revised and Earlier Capacity Utilization Rates, by Industry Groups

Percent of capacity, seasonally adjusted

Item		Revised Rate					Difference between revised and earlier rates (percentage points)			
		1972-2021 Ave.	2018 Q4	2019 Q4	2020 Q4	2021 Q4	2018 Q4	2019 Q4	2020 Q4	2021 Q4
Total industry		79.6	80.0	77.5	74.6	78.8	.6	.9	1.2	2.4
Manufacturing[1]		78.2	78.2	76.4	75.0	78.6	.7	1.0	1.0	1.5
Manufacturing (NAICS)	31–33	78.1	78.4	76.5	75.0	78.7	.7	1.0	.9	1.4
Durable manufacturing		76.8	78.4	75.0	72.8	76.5	.8	.3	-.3	.1
Wood products	321	76.7	77.6	79.6	81.7	81.2	-2.1	.5	2.9	.7
Nonmetallic mineral products	327	73.4	71.2	74.1	75.1	77.0	2.5	5.1	3.0	3.5
Primary metals	331	77.9	74.3	71.3	66.4	75.2	2.3	2.6	1.0	2.6
Fabricated metal products	332	77.6	82.0	78.2	72.6	77.7	1.4	.4	-1.4	-.8
Machinery	333	77.8	82.5	77.7	73.9	82.4	2.2	2.2	-2.3	-.1
Computer and electronic products	334	77.3	75.3	73.7	73.3	75.4	.7	1.7	-.2	-.9
Electrical equip., appliances, and components	335	81.5	76.3	73.8	75.4	80.9	-.3	-.4	.9	1.1
Motor vehicles and parts	3361–3	75.0	79.0	72.4	73.0	70.3	-.1	.0	-.6	.8
Aerospace and miscellaneous transportation equipment	3364–9	73.9	74.5	69.9	63.6	68.2	-1.1	-7.2	-2.6	-4.5
Furniture and related products	337	77.3	88.2	82.5	76.1	79.9	5.7	1.2	-3.5	-3.0
Miscellaneous	339	76.8	82.9	79.8	82.0	86.2	-.3	1.7	4.5	5.8
Nondurable manufacturing		80.0	78.4	78.3	77.7	81.1	.5	1.7	2.2	2.8
Food, beverage, and tobacco products	311,2	80.3	76.1	77.6	80.0	79.3	-.3	.8	3.6	3.4
Textile and product mills	313,4	78.4	73.1	71.5	69.6	73.5	1.4	2.4	4.4	4.8
Apparel and leather	315,6	75.8	70.2	73.2	69.5	74.5	1.8	.1	-5.1	-5.4
Paper	322	86.6	87.8	87.8	85.6	86.1	-.9	1.2	1.6	3.6
Printing and support	323	79.4	73.9	76.4	72.7	77.6	-1.0	.4	1.2	.0
Petroleum and coal products	324	85.4	90.6	84.7	70.6	86.1	7.5	6.2	.6	8.2
Chemicals	325	76.6	74.2	75.1	75.0	80.6	.0	2.0	1.1	1.3
Plastics and rubber products	326	82.1	86.5	83.2	83.0	85.5	.2	.9	1.6	2.3
Other manufacturing (non-NAICS)	**1133,5111**	79.5	70.4	72.1	73.6	74.2	-.4	3.0	6.9	6.5
Mining	21	86.3	90.4	84.5	71.7	85.8	1.0	.8	2.1	8.4
Utilities	2211,2	84.7	80.6	78.1	74.3	72.3	-.1	.0	.8	.9
Selected high-technology industries		77.5	78.2	76.2	79.2	81.7	1.6	2.6	1.3	3.5
Computers and peripheral equipment	3341	77.7	75.6	70.2	77.4	93.3	-.2	1.8	-4.5	5.4
Communications equipment	3342	75.6	69.0	67.5	64.3	65.1	5.9	6.0	-.6	-.2
Semiconductors and related electronic components	3344	79.1	82.8	80.9	85.7	86.6	-.6	.4	1.3	3.8
Measures excluding selected high-technology industries										
Total industry		79.7	80.1	77.6	74.5	78.7	.6	.9	1.2	2.4
Manufacturing[1]		78.2	78.2	76.4	74.9	78.5	.6	1.0	1.0	1.5
STAGE-OF-PROCESS GROUPS										
Crude		85.5	88.7	83.9	74.2	84.8	.6	1.1	1.8	7.0
Primary and semifinished		80.1	80.2	77.4	74.6	77.6	1.0	1.4	1.2	2.2
Finished		76.7	76.0	75.2	74.7	77.5	.1	.2	.8	.4

1. See footnote 2 to table 2.

Table 7A
INDUSTRIAL PRODUCTION: Manufacturing[1]
Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual[2]
IP (*percent change*)																	
1992	-.6	.9	1.0	.5	.6	.3	.9	-.5	.1	.6	.4	.0	.6	8.3	4.1	3.0	3.7
1993	.9	.3	-.2	.5	-.1	-.1	.2	-.2	.7	.8	.5	.6	4.8	1.3	.7	7.3	3.5
1994	.1	.2	1.3	.9	.6	.3	.4	.9	.4	.9	.8	1.1	4.9	9.5	6.0	10.0	5.9
1995	.2	-.2	.3	-.3	.4	.5	-.7	1.2	.9	-.1	.1	.3	4.4	.7	3.3	4.2	5.1
1996	-.6	1.4	-.2	1.2	.8	.9	.4	.4	.8	-.1	.9	.9	1.9	10.0	7.8	5.9	4.9
1997	.1	1.4	1.0	-.1	.7	.6	.8	1.2	.9	.9	1.0	.5	9.3	7.0	10.7	11.5	8.4
1998	.8	.2	-.2	.5	.5	-.7	-.4	2.4	-.1	.9	.1	.6	6.2	2.1	3.3	7.8	6.7
1999	.3	.9	.0	.4	.8	-.2	.4	.6	-.4	1.5	.7	.7	5.2	4.4	3.3	8.7	5.1
2000	.0	.3	.6	.6	.0	.2	.1	-.7	.5	-.4	-.3	-.6	4.5	4.9	-.4	-2.7	4.1
2001	-.5	-.7	-.2	-.4	-.6	-.6	-.5	-.5	-.4	-.4	-.4	.2	-5.9	-5.3	-5.9	-4.0	-3.7
2002	.6	.0	.7	.3	.5	1.0	-.1	.1	.1	-.3	.5	-.6	3.6	5.8	3.2	-.4	.4
2003	.8	-.1	.1	-.8	.0	.5	.3	-.5	.9	.1	.9	.0	2.1	-2.3	2.5	4.4	1.3
2004	-.1	.8	.0	.4	.7	-.7	.9	.5	.0	.9	.0	.8	2.7	3.3	4.0	5.4	3.1
2005	.6	.9	-.5	.4	.3	.2	-.3	.5	-1.1	1.4	.9	.1	6.4	2.6	-.5	6.1	4.1
2006	.8	-.3	.0	.4	-.3	.3	-.3	.7	.0	-.5	.1	1.5	4.0	.8	.9	1.5	2.6
2007	-.4	.3	.8	.6	.0	.3	.0	-.3	.3	-.2	.5	.1	4.6	5.7	.5	1.3	2.8
2008	-.2	-.7	-.5	-1.0	-.6	-.7	-1.0	-1.3	-3.4	-.7	-2.5	-3.3	-2.5	-8.3	-13.7	-22.0	-4.8
2009	-3.2	-.1	-1.8	-.7	-1.1	-.2	1.6	1.1	1.0	.0	1.0	-.1	-24.7	-10.4	8.7	7.0	-13.8
2010	1.0	-.1	1.3	.8	1.3	.0	.5	.1	.1	.1	.1	.5	6.9	10.5	4.3	1.5	5.9
2011	.1	.2	.6	-.6	.0	.1	.6	.5	.3	.5	-.2	.6	3.0	-.2	4.4	3.9	2.9
2012	.9	.4	-.5	.5	-.3	.2	-.2	-.1	-.2	-.2	.6	.7	5.4	.5	-1.2	1.1	2.6
2013	-.3	.4	-.1	-.3	.3	.1	-.8	.9	.1	.1	.0	-.2	2.7	.1	.1	1.6	.9
2014	-1.1	.9	.9	.0	.3	.3	.5	-.6	.0	-.1	.7	-.2	-1.1	4.7	1.7	.1	1.1
2015	-.6	-.7	.4	.0	.0	-.4	.8	-.4	-.3	-.1	-.3	-.3	-3.4	-.7	.7	-2.8	-.5
2016	.4	-.3	-.1	-.2	-.1	.2	.1	-.4	.2	.2	-.1	.0	-.5	-1.2	.1	.3	-.8
2017	.2	.0	-.3	1.1	-.2	.0	-.3	-.2	.0	1.1	.0	-.3	.1	3.2	-1.9	3.8	.6
2018	-.4	1.0	.1	.7	-.9	.6	.1	.3	.0	-.4	-.4	.1	.4	2.8	1.6	-2.2	1.3
2019	-.8	-.4	-.1	-.6	.1	.3	-.6	.7	-.7	-.8	.7	-.1	-4.6	-2.7	-.8	-2.4	-2.0
2020	-.1	.3	-4.3	-15.3	4.3	7.4	3.6	1.6	.1	1.1	.5	.3	-4.6	-43.3	53.2	8.7	-6.3
2021	1.6	-3.5	3.1	-.1	.9	-.1	1.1	-.2	-.7	1.7	.5	-.1	2.4	5.1	3.6	5.8	5.7
2022	-.2	1.3	.8	.9	-.2								4.1				
IP (*2017=100*)																	
1992	61.5	62.0	62.7	63.0	63.4	63.6	64.1	63.8	63.9	64.3	64.5	64.5	62.1	63.3	64.0	64.4	63.4
1993	65.1	65.3	65.2	65.5	65.4	65.3	65.4	65.3	65.8	66.3	66.6	67.0	65.2	65.4	65.5	66.7	65.7
1994	67.1	67.2	68.1	68.7	69.1	69.3	69.5	70.1	70.4	71.1	71.7	72.4	67.5	69.0	70.0	71.7	69.6
1995	72.6	72.4	72.6	72.4	72.6	73.0	72.5	73.3	74.0	73.9	73.9	74.2	72.5	72.6	73.2	74.0	73.1
1996	73.7	74.8	74.6	75.5	76.1	76.8	77.1	77.5	78.1	78.0	78.7	79.4	74.4	76.1	77.6	78.7	76.7
1997	79.5	80.6	81.4	81.3	81.9	82.4	83.0	84.0	84.8	85.6	86.4	86.9	80.5	81.9	84.0	86.3	83.1
1998	87.5	87.7	87.5	88.0	88.4	87.8	87.4	89.5	89.4	90.2	90.3	90.8	87.6	88.0	88.8	90.4	88.7
1999	91.1	91.9	91.9	92.2	92.9	92.7	93.1	93.7	93.3	94.7	95.3	96.0	91.6	92.6	93.3	95.3	93.2
2000	96.0	96.2	96.9	97.5	97.5	97.6	97.7	97.1	97.5	97.1	96.9	96.3	96.4	97.5	97.4	96.8	97.0
2001	95.8	95.2	94.9	94.6	94.0	93.5	93.0	92.6	92.2	91.8	91.5	91.7	95.3	94.0	92.6	91.7	93.4
2002	92.3	92.3	92.9	93.2	93.7	94.6	94.5	94.5	94.6	94.3	94.8	94.2	92.5	93.8	94.5	94.4	93.8
2003	95.0	94.9	94.9	94.2	94.3	94.7	95.0	94.5	95.3	95.4	96.3	96.2	94.9	94.4	95.0	96.0	95.1
2004	96.1	96.9	96.8	97.2	97.8	97.2	98.1	98.5	98.5	99.4	99.4	100.2	96.6	97.4	98.4	99.7	98.0
2005	100.8	101.7	101.2	101.6	101.9	102.1	101.8	102.3	101.2	102.6	103.5	103.6	101.2	101.9	101.7	103.3	102.0
2006	104.5	104.2	104.2	104.6	104.3	104.6	104.2	104.9	105.0	104.5	104.6	106.1	104.3	104.5	104.7	105.1	104.6
2007	105.7	106.1	107.0	107.7	107.6	108.0	108.0	107.7	108.0	107.8	108.4	108.5	106.3	107.7	107.9	108.2	107.5
2008	108.2	107.5	106.9	105.9	105.3	104.6	103.5	102.2	98.7	98.0	95.6	92.4	107.5	105.2	101.4	95.3	102.4
2009	89.4	89.3	87.7	87.1	86.2	86.0	87.3	88.2	89.1	89.2	90.1	90.0	88.8	86.4	88.2	89.7	88.3
2010	90.9	90.8	92.0	92.7	93.9	93.9	94.4	94.5	94.6	94.6	94.7	95.2	91.2	93.5	94.5	94.9	93.5
2011	95.2	95.4	96.0	95.5	95.5	95.6	96.1	96.6	96.9	97.4	97.2	97.8	95.6	95.5	96.5	97.5	96.3
2012	98.7	99.1	98.5	99.0	98.7	98.9	98.7	98.6	98.4	98.2	98.8	99.5	98.7	98.9	98.6	98.8	98.7
2013	99.2	99.7	99.6	99.3	99.6	99.7	98.9	99.8	99.9	100.0	100.0	99.8	99.5	99.5	99.5	99.9	99.6
2014	98.8	99.7	100.5	100.5	100.8	101.1	101.6	101.0	101.0	100.9	101.6	101.4	99.7	100.8	101.2	101.3	100.7
2015	100.8	100.0	100.4	100.4	100.4	100.0	100.8	100.4	100.1	100.0	99.7	99.4	100.4	100.2	100.4	99.7	100.2
2016	99.8	99.5	99.4	99.3	99.2	99.4	99.5	99.1	99.3	99.5	99.4	99.3	99.6	99.3	99.3	99.4	99.4
2017	99.5	99.5	99.2	100.3	100.1	100.2	99.9	99.6	99.7	100.8	100.8	100.5	99.4	100.2	99.7	100.7	100.0
2018	100.1	101.1	101.1	101.8	101.0	101.5	101.7	102.0	101.9	101.5	101.1	101.2	100.8	101.4	101.9	101.3	101.3
2019	100.4	100.0	99.9	99.3	99.3	99.7	99.1	99.7	99.0	98.2	98.9	98.8	100.1	99.4	99.2	98.6	99.4
2020	98.7	99.0	94.7	80.2	83.7	89.9	93.1	94.6	94.7	95.7	96.2	96.5	97.5	84.6	94.1	96.1	93.1
2021	98.0	94.6	97.5	97.3	98.2	98.1	99.2	98.9	98.2	99.8	100.4	100.3	96.7	97.9	98.8	100.1	98.4
2022	100.0	101.3	102.1	103.0	102.8								101.1				

NOTE: Estimates from January 2022 through May 2022 are subject to further revision in the upcoming monthly releases.
1. See footnote 2 to table 2.
2. Annual averages of industrial production are calculated from not seasonally adjusted indexes.

Table 7B
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
Capacity (*percent of 2017 output*)																	
1992	78.5	78.7	78.9	79.0	79.2	79.4	79.7	79.9	80.1	80.2	80.4	80.6	78.7	79.2	79.9	80.4	79.6
1993	80.8	80.9	81.1	81.2	81.3	81.4	81.6	81.7	81.9	82.0	82.2	82.4	80.9	81.3	81.7	82.2	81.5
1994	82.6	82.8	83.0	83.2	83.5	83.8	84.0	84.3	84.6	84.9	85.3	85.6	82.8	83.5	84.3	85.3	84.0
1995	85.9	86.2	86.6	86.9	87.3	87.7	88.0	88.4	88.9	89.3	89.7	90.2	86.2	87.3	88.4	89.7	87.9
1996	90.7	91.2	91.7	92.2	92.7	93.2	93.7	94.2	94.7	95.2	95.7	96.3	91.2	92.7	94.2	95.8	93.4
1997	96.8	97.4	97.9	98.5	99.1	99.7	100.3	101.0	101.7	102.4	103.2	104.0	97.4	99.1	101.0	103.2	100.2
1998	104.7	105.5	106.3	107.1	107.8	108.6	109.2	109.9	110.5	111.2	111.8	112.3	105.5	107.8	109.9	111.8	108.7
1999	112.9	113.5	114.0	114.5	115.0	115.5	116.0	116.5	117.0	117.5	118.0	118.5	113.5	115.0	116.5	118.0	115.7
2000	119.0	119.4	119.9	120.4	120.9	121.4	121.9	122.4	122.8	123.3	123.8	124.2	119.4	120.9	122.4	123.8	121.6
2001	124.7	125.1	125.5	125.9	126.3	126.6	126.9	127.2	127.4	127.7	127.8	128.0	125.1	126.3	127.2	127.8	126.6
2002	128.1	128.3	128.4	128.4	128.5	128.5	128.5	128.5	128.5	128.5	128.5	128.5	128.3	128.5	128.5	128.5	128.4
2003	128.5	128.5	128.5	128.5	128.4	128.4	128.4	128.3	128.3	128.3	128.2	128.2	128.5	128.4	128.3	128.2	128.4
2004	128.1	128.1	128.0	128.0	127.9	127.9	127.9	128.0	128.0	128.1	128.2	128.3	128.1	127.9	128.0	128.2	128.0
2005	128.5	128.7	128.9	129.1	129.4	129.7	129.9	130.2	130.5	130.7	131.0	131.2	128.7	129.4	130.2	131.0	129.8
2006	131.4	131.7	131.9	132.1	132.3	132.5	132.8	133.0	133.3	133.6	133.9	134.2	131.7	132.3	133.0	133.9	132.7
2007	134.5	134.9	135.2	135.6	135.9	136.3	136.6	136.9	137.2	137.4	137.6	137.7	134.9	135.9	136.9	137.6	136.3
2008	137.8	137.8	137.8	137.7	137.6	137.5	137.4	137.2	137.0	136.9	136.7	136.5	137.8	137.6	137.2	136.7	137.3
2009	136.4	136.2	136.0	135.8	135.6	135.5	135.3	135.1	135.0	134.8	134.6	134.4	136.2	135.6	135.1	134.6	135.4
2010	134.3	134.1	133.9	133.7	133.4	133.2	133.0	132.8	132.6	132.3	132.2	132.0	134.1	133.4	132.8	132.2	133.1
2011	131.8	131.7	131.6	131.5	131.4	131.4	131.4	131.5	131.6	131.7	131.8	131.9	131.7	131.5	131.5	131.8	131.6
2012	132.0	132.2	132.3	132.5	132.6	132.8	132.9	133.1	133.2	133.3	133.4	133.5	132.2	132.6	133.1	133.4	132.8
2013	133.6	133.7	133.8	133.8	133.8	133.8	133.8	133.8	133.8	133.7	133.7	133.6	133.7	133.8	133.8	133.7	133.8
2014	133.6	133.5	133.4	133.3	133.2	133.1	133.0	132.8	132.7	132.6	132.4	132.3	133.5	133.2	132.8	132.4	133.0
2015	132.1	132.0	131.8	131.7	131.6	131.5	131.5	131.4	131.4	131.4	131.4	131.5	132.0	131.6	131.4	131.4	131.6
2016	131.5	131.6	131.7	131.8	131.8	131.9	132.0	132.0	132.1	132.1	132.0	132.0	131.6	131.8	132.0	132.0	131.9
2017	131.9	131.8	131.7	131.6	131.4	131.3	131.1	130.9	130.7	130.6	130.4	130.3	131.8	131.4	130.9	130.4	131.2
2018	130.2	130.1	130.0	129.9	129.8	129.8	129.7	129.7	129.6	129.6	129.6	129.5	130.1	129.8	129.7	129.6	129.8
2019	129.5	129.5	129.4	129.4	129.3	129.3	129.3	129.2	129.2	129.1	129.1	129.0	129.5	129.3	129.2	129.1	129.3
2020	129.0	129.0	128.9	128.8	128.8	128.7	128.6	128.5	128.4	128.2	128.1	128.0	129.0	128.8	128.5	128.1	128.6
2021	127.9	127.8	127.7	127.6	127.5	127.4	127.4	127.4	127.4	127.4	127.5	127.5	127.8	127.5	127.4	127.5	127.5
2022	127.6	127.7	127.8	127.9	128.1								127.7				
Utilization (*percent*)																	
1992	78.3	78.8	79.5	79.7	80.0	80.0	80.5	79.9	79.8	80.1	80.2	80.0	78.9	79.9	80.1	80.1	79.7
1993	80.6	80.7	80.4	80.6	80.4	80.2	80.2	79.9	80.3	80.9	81.1	81.4	80.6	80.4	80.2	81.1	80.6
1994	81.3	81.2	82.0	82.5	82.8	82.7	82.8	83.2	83.2	83.7	84.1	84.7	81.5	82.7	83.1	84.1	82.8
1995	84.5	84.0	83.9	83.2	83.2	83.2	82.3	82.9	83.2	82.7	82.4	82.2	84.1	83.2	82.8	82.5	83.1
1996	81.3	82.0	81.4	81.9	82.1	82.4	82.3	82.3	82.5	81.9	82.2	82.5	81.6	82.2	82.4	82.2	82.1
1997	82.1	82.8	83.1	82.5	82.6	82.6	82.7	83.2	83.4	83.5	83.7	83.6	82.7	82.6	83.1	83.6	83.0
1998	83.6	83.1	82.4	82.2	82.0	80.8	80.0	81.4	80.9	81.1	80.8	80.9	83.0	81.7	80.8	80.9	81.6
1999	80.7	81.0	80.6	80.5	80.8	80.2	80.2	80.4	79.7	80.6	80.8	81.0	80.7	80.5	80.1	80.8	80.5
2000	80.7	80.6	80.8	80.9	80.6	80.4	80.2	79.3	79.4	78.8	78.3	77.5	80.7	80.7	79.6	78.2	79.8
2001	76.9	76.1	75.6	75.1	74.5	73.8	73.3	72.8	72.4	71.9	71.6	71.6	76.2	74.5	72.8	71.7	73.8
2002	72.0	71.9	72.4	72.6	72.9	73.6	73.5	73.6	73.6	73.4	73.7	73.3	72.1	73.0	73.6	73.5	73.0
2003	73.9	73.8	73.9	73.3	73.4	73.7	74.0	73.7	74.3	74.4	75.1	75.1	73.9	73.5	74.0	74.9	74.1
2004	75.0	75.6	75.6	75.9	76.5	76.0	76.7	77.0	77.0	77.6	77.5	78.0	75.4	76.1	76.9	77.7	76.5
2005	78.4	79.0	78.5	78.7	78.8	78.7	78.3	78.6	77.6	78.5	79.0	79.0	78.6	78.7	78.1	78.8	78.6
2006	79.5	79.1	79.0	79.2	78.8	78.9	78.5	78.9	78.8	78.2	78.1	79.1	79.2	79.0	78.7	78.5	78.8
2007	78.6	78.7	79.1	79.4	79.2	79.2	79.0	78.6	78.7	78.5	78.8	78.8	78.8	79.3	78.8	78.7	78.9
2008	78.6	78.0	77.6	76.9	76.5	76.1	75.3	74.5	72.0	71.6	69.9	67.7	78.1	76.5	73.9	69.7	74.6
2009	65.6	65.6	64.5	64.1	63.5	63.4	64.5	65.3	66.0	66.1	66.9	66.9	65.2	63.7	65.3	66.6	65.2
2010	67.7	67.7	68.7	69.4	70.4	70.5	71.0	71.2	71.4	71.5	71.7	72.1	68.0	70.1	71.2	71.8	70.3
2011	72.3	72.5	73.0	72.6	72.6	72.7	73.1	73.5	73.6	74.0	73.8	74.2	72.6	72.6	73.4	74.0	73.1
2012	74.7	74.9	74.4	74.7	74.4	74.5	74.3	74.1	73.8	73.6	74.0	74.5	74.7	74.5	74.1	74.1	74.3
2013	74.3	74.5	74.4	74.2	74.4	74.5	73.9	74.6	74.7	74.8	74.8	74.7	74.4	74.4	74.4	74.8	74.5
2014	73.9	74.7	75.4	75.4	75.7	76.0	76.4	76.0	76.1	76.1	76.7	76.6	74.7	75.7	76.2	76.5	75.8
2015	76.3	75.8	76.1	76.2	76.3	76.0	76.6	76.4	76.2	76.1	75.9	75.6	76.1	76.2	76.4	75.9	76.1
2016	75.9	75.6	75.5	75.3	75.2	75.3	75.4	75.1	75.2	75.3	75.2	75.2	75.7	75.3	75.2	75.3	75.4
2017	75.4	75.5	75.3	76.2	76.2	76.3	76.2	76.1	76.2	77.2	77.2	77.1	75.4	76.2	76.2	77.2	76.2
2018	76.9	77.7	77.8	78.4	77.8	78.3	78.4	78.6	78.6	78.3	78.0	78.1	77.5	78.1	78.5	78.2	78.1
2019	77.5	77.2	77.2	76.7	76.8	77.1	76.6	77.2	76.6	76.1	76.6	76.5	77.3	76.9	76.8	76.4	76.9
2020	76.5	76.8	73.5	62.3	65.0	69.8	72.4	73.6	73.7	74.6	75.1	75.4	75.6	65.7	73.3	75.0	72.4
2021	76.6	74.0	76.4	76.3	77.0	77.0	77.8	77.7	77.1	78.3	78.7	78.6	75.7	76.8	77.5	78.6	77.1
2022	78.4	79.3	79.9	80.5	80.3								79.2				

NOTE: Estimates from January 2022 through May 2022 are subject to further revision in the upcoming monthly releases.
1. See footnote 2 to table 2.

Table 8
Annual Proportions in Industrial Production, Market and Industry Group Summary

Item		2014	2015	2016	2017	2018	2019	2020	2021
Total IP		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Market Groups									
Final products and nonindustrial supplies		52.7	55.9	56.9	56.1	55.4	56.1	56.0	53.2
Consumer goods		24.9	27.3	28.4	27.7	27.2	27.8	28.5	26.9
Durable		5.5	6.2	6.5	6.2	6.1	6.3	6.4	6.2
Automotive products		2.9	3.4	3.6	3.5	3.4	3.5	3.5	3.4
Home electronics		.2	.2	.2	.1	.1	.1	.2	.1
Appliances, furniture, carpeting		.8	.9	.9	.9	.9	.9	1.0	1.0
Miscellaneous goods		1.6	1.7	1.8	1.6	1.6	1.7	1.7	1.7
Nondurable		19.5	21.2	21.9	21.5	21.1	21.5	22.1	20.7
Non-energy		14.9	16.5	17.0	16.2	15.7	16.7	17.6	15.9
Foods and tobacco		8.6	9.4	9.8	9.5	9.2	9.7	10.4	9.5
Clothing		.2	.2	.2	.2	.2	.2	.2	.2
Chemical products		4.7	5.4	5.5	5.2	5.0	5.4	5.6	5.1
Paper products		.9	1.0	1.0	.9	.9	.9	.9	.8
Energy		4.6	4.6	4.9	5.3	5.3	4.8	4.6	4.8
Business equipment		9.9	10.2	10.0	10.1	10.1	9.7	8.8	8.4
Transit		2.5	2.8	2.8	3.0	2.9	2.3	1.7	1.8
Information processing		2.0	2.2	2.1	2.1	2.0	2.1	2.1	1.8
Industrial and other		5.3	5.3	5.1	5.1	5.1	5.2	5.0	4.8
Defense and space equipment		2.2	2.2	2.2	2.3	2.1	2.3	2.3	2.1
Construction supplies		4.0	4.4	4.6	4.6	4.6	4.8	5.1	5.2
Business supplies		10.5	10.9	11.1	10.8	10.7	10.8	10.7	10.1
Materials		47.3	44.1	43.1	43.9	44.6	43.9	44.0	46.8
Non-energy		26.9	28.0	28.3	27.7	27.3	27.7	28.0	27.7
Durable		16.6	17.2	17.2	16.9	16.7	17.1	16.8	16.7
Consumer parts		3.0	3.2	3.2	3.1	3.0	2.9	2.6	2.7
Equipment parts		5.3	5.3	5.1	5.0	4.9	5.1	4.9	4.5
Other		8.4	8.7	8.9	8.8	8.8	9.0	9.4	9.4
Nondurable		10.3	10.8	11.1	10.8	10.6	10.6	11.1	11.1
Textile		.4	.4	.4	.4	.4	.4	.4	.4
Paper		1.8	1.9	1.9	1.8	1.7	1.8	1.7	1.6
Chemical		5.0	5.2	5.4	5.4	5.3	5.1	5.4	5.6
Energy		20.4	16.0	14.8	16.2	17.3	16.2	16.1	19.0
Industry Groups									
Manufacturing		72.6	77.1	78.4	77.0	75.8	76.5	76.7	74.3
Manufacturing (NAICS)	31–33	70.3	74.7	76.0	74.7	73.7	74.5	74.7	72.6
Durable manufacturing		37.7	39.6	39.7	39.1	38.7	39.0	38.2	37.3
Wood products	321	1.2	1.3	1.4	1.4	1.4	1.5	1.9	2.0
Nonmetallic mineral products	327	1.9	2.1	2.2	2.1	2.1	2.2	2.3	2.1
Primary metals	331	2.6	2.5	2.6	2.6	2.6	2.4	2.6	3.3
Fabricated metal products	332	5.6	5.8	5.8	5.7	5.8	6.0	6.0	5.8
Machinery	333	5.8	5.7	5.4	5.4	5.5	5.6	5.3	5.2
Computer and electronic products	334	5.1	5.2	5.2	5.1	5.0	5.2	5.3	4.7
Electrical equip., appliances, and components	335	1.8	1.9	1.9	1.8	1.8	1.9	2.0	1.9
Motor vehicles and parts	3361–3	5.1	5.9	6.1	5.8	5.7	5.8	5.3	5.0
Aerospace and miscellaneous transportation equipment	3364–9	4.8	5.0	4.8	5.1	4.8	4.4	3.7	3.7
Furniture and related products	337	1.1	1.2	1.3	1.2	1.2	1.2	1.2	1.1
Miscellaneous	339	2.8	3.0	3.1	2.8	2.8	2.8	2.7	2.6
Nondurable manufacturing		32.6	35.1	36.3	35.6	35.0	35.4	36.4	35.3
Food, beverage, and tobacco products	311,2	10.6	11.7	12.1	11.7	11.4	12.1	13.1	12.0
Textile and product mills	313,4	.7	.7	.7	.7	.6	.7	.7	.6
Apparel and leather	315,6	.2	.2	.2	.2	.2	.2	.2	.2
Paper	322	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.4
Printing and support	323	1.4	1.5	1.5	1.5	1.4	1.4	1.3	1.1
Petroleum and coal products	324	2.9	2.8	2.9	3.7	3.8	3.0	2.4	3.1
Chemicals	325	11.1	12.1	12.4	11.9	11.6	11.9	12.6	12.2
Plastics and rubber products	326	3.2	3.5	3.7	3.5	3.6	3.6	3.7	3.6
Other manufacturing (non-NAICS)	**1133,5111**	2.3	2.4	2.4	2.2	2.1	2.1	2.0	1.7
Mining	**21**	17.3	12.1	10.4	12.2	13.4	12.4	12.1	15.5
Utilities	**2211,2**	10.1	10.8	11.2	10.8	10.8	11.0	11.2	10.2
Electric	2211	8.9	9.5	9.7	9.3	9.3	9.6	9.7	8.7
Natural gas	2212	1.2	1.3	1.5	1.5	1.4	1.4	1.5	1.5

Note: The IP proportion data are estimates of the industries' relative contributions to the overall change in IP between the reference year and the following year. For example, a 1 percent increase in durable goods manufacturing between 2021 and 2022 would account for a 0.373 percent increase in total IP.

Table 9

INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY

Seasonally adjusted

Industrial production	2017=100						Percent change						
	2021 Dec.[r]	2022 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[r]	May[r]	2021 Dec.[r]	2022 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[r]	May[r]	May '21 to May '22
Total index	101.8	102.2	103.0	103.7	105.1	105.2	-.2	.4	.8	.7	1.3	.1	5.4
Previous estimates	101.7	102.5	103.6	104.1	105.5	105.7	-.2	.8	1.0	.5	1.4	.2	5.8
Major market groups													
Final Products	101.8	102.8	103.6	104.0	105.4	105.5	-.1	.9	.7	.4	1.3	.1	5.2
Consumer goods	102.6	104.2	104.4	104.5	105.9	105.8	-.3	1.5	.2	.2	1.3	-.1	3.5
Business equipment	94.2	93.6	95.5	96.7	97.7	97.9	.9	-.7	2.0	1.2	1.1	.2	7.7
Nonindustrial supplies	101.0	101.3	102.8	102.8	103.8	104.0	-.5	.3	1.4	.1	.9	.2	6.1
Construction	105.0	103.7	105.8	105.1	105.6	105.6	.1	-1.2	2.0	-.6	.5	.0	6.2
Materials	101.9	101.9	102.6	103.7	105.2	105.3	-.2	.0	.7	1.1	1.4	.1	5.4
Major industry groups													
Manufacturing (see note below)	100.3	100.0	101.3	102.1	103.0	102.8	-.1	-.2	1.3	.8	.9	-.2	4.7
Previous estimates	100.4	100.3	101.6	102.4	103.2	103.1	.0	-.1	1.3	.8	.8	-.1	4.8
Mining	110.3	109.1	108.9	112.3	113.5	114.6	.1	-1.1	-.2	3.1	1.1	.9	7.6
Utilities	100.4	108.3	107.5	103.1	108.3	109.3	-1.4	7.9	-.8	-4.1	5.1	.9	7.6

Capacity utilization	Percent of capacity												Capacity growth
	Average 1972-2021	1988-89 high	1990-91 low	1994-95 high	2008-09 low	2021 May	2021 Dec.[r]	2022 Jan.[r]	Feb.[r]	Mar.[r]	Apr.[r]	May[r]	May '21 to May '22
Total industry	79.6	85.2	78.8	85.0	66.6	77.3	78.7	79.0	79.5	79.9	80.9	80.8	.8
Previous estimates	79.5	85.2	78.8	85.1	66.6	75.3	76.4	76.9	77.6	77.9	78.9	79.0	.8
Manufacturing (see note below)	78.2	85.6	77.3	84.7	63.4	77.0	78.6	78.4	79.3	79.9	80.5	80.3	.4
Previous estimates	78.1	85.6	77.3	84.7	63.5	75.7	77.1	77.0	78.0	78.6	79.2	79.1	.3
Mining	86.3	86.2	84.3	88.6	78.9	81.7	85.8	84.6	84.1	86.4	87.0	87.5	.6
Utilities	84.7	92.9	84.5	92.9	78.0	73.7	71.8	77.3	76.5	73.2	76.7	77.3	2.6
Stage-of-process groups													
Crude	85.5	87.9	84.8	90.0	76.9	82.3	84.7	83.8	83.8	85.8	86.2	86.4	.2
Primary and semifinished	80.1	86.5	78.0	87.8	63.5	76.1	77.5	78.4	79.4	78.9	80.3	80.2	.5
Finished	76.7	83.3	77.5	80.7	66.4	76.4	77.7	77.7	78.0	78.7	79.3	79.2	1.3

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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 of its industrial output data from the SIC system to NAICS.

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 74 percent of the source data (in value-added terms) are available; the fraction of available source data increases to 83 percent for estimates in the second month that the estimate is published, 92 percent in the third month, 94 percent in the fourth month, 96 percent in the fifth month, and 97 percent in the sixth month. Data availability by data type in 2021 is summarized in the table below:

Availability of Monthly IP Data in Publication Window
(Percent of value added in 2021; the numbers may not sum because of rounding.)

	Month of estimate					
Type of data	1st	2nd	3rd	4th	5th	6th
Physical product	31	40	49	51	53	54
Production-worker hours	43	43	43	43	43	43
IP data received	74	83	92	94	96	97
IP data estimated	26	17	8	6	4	3

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 (31 percent out of a total of 54 percent). Of the 31 percent, about three-quarters (26 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 January 2022; for other series, the factors were estimated with data through at least December 2021. 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 0.29 percent during the 1987–2021 period. The average revision to the *percent change* in total IP, without regard to sign, from the first to the fourth estimates was 0.23 percentage point during the 1987–2021

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 24 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 67 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 9 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 1972–2021 period, the average total industry utilization rate was 79.6 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 June 28, 2022, 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

In 2022, the G.17 will be published at 9:15 a.m. on:

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

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