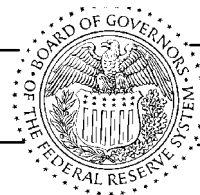


# FEDERAL RESERVE statistical release



G.17 (419) 2017 Historical and Annual Revision

For release at 12:00 noon (EDT)  
March 31, 2017

## Industrial Production and Capacity Utilization: The 2017 Annual Revision

The Federal Reserve has revised its index of industrial production (IP) and the related measures of capacity and capacity utilization.<sup>1</sup> On net, the revisions were small, and the contour of total IP is little changed. Total IP is still reported to have moved up about 22 percent from the end of the recession in mid-2009 through late 2014, to have declined in 2015, and to have moved sideways in 2016. The most notable difference between the current and the previous estimates is that total IP is now reported to have decreased about 2¾ percent in 2015, whereas it previously showed a decline of about 1¾ percent.<sup>2</sup> The incorporation of detailed data for manufacturing from the U.S. Census Bureau's 2015 Annual Survey of Manufactures (ASM) accounts for the majority of the differences between the current and the previously published estimates.

Capacity for total industry is now reported to have expanded about 1 percent in 2015, a lower rate of increase than was reported earlier. Capacity was little changed in 2016 and is expected to increase 1 percent in 2017. Compared with prior reports, the rates of change in 2016 and 2017 are now a little smaller.

In the fourth quarter of 2016, capacity utilization for total industry stood at 75.8 percent, a rate 0.4 percentage point higher than previously published but still 4.1 percentage points below its long-run (1972–2016) average. Relative to earlier estimates, the utilization rates in recent years are now a little higher.

This revision incorporated newly available annual data on output and prices. In addition to the 2015 ASM (which also includes revised data for 2014), the IP indexes for publishing reflect new data for 2015 and revised data for 2014 from the Census Bureau's Service Annual Survey. For logging, the IP indexes were updated with 2015 data from the U.S. Forest Service. In addition, the indexes for metallic and nonmetallic minerals were updated with revised annual data for 2015 from the Department of the Interior's U.S. Geological Survey (USGS). For mining, data on value added from the 2012 Census of Mineral Industries became available and were incorporated into the weights for the production and capacity indexes. 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 now reflect recalculations of seasonal factors.

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 quarter of 2016, along with new data on capacity from the USGS, the U.S. Department of Energy, and other organizations. The revised estimates also included new data on capital spending from the 2014 and 2015 ASMs (the 2014 data were not available at the time the 2016 annual revision was published).

<sup>1</sup>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 the production and capacity indexes for the years before 1972 were multiplied by a constant. However, utilization rates and the rates of change in IP for the years before 1972 were not revised.

<sup>2</sup>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.

## RESULTS OF THE REVISION

### *Industrial Production*

The revision resulted in rates of change for manufacturing in 2014 and 2015 that were each about  $\frac{1}{2}$  percentage point lower than their previously published values, but the estimates for other recent years were little revised.<sup>3</sup> Manufacturing output is now estimated to have advanced  $1\frac{1}{2}$  percent in 2014 but to have then fallen back about  $\frac{1}{2}$  percent in 2015 and only recovered slightly in 2016. The cumulative effects of these revisions leave manufacturing IP in February 2017 more than  $5\frac{1}{2}$  percent below its pre-recession peak and about 1 percent below its pre-revision value.

The index for mining is now estimated to have risen somewhat more slowly in 2012, 2013, and 2014 and to have declined more steeply in 2015 than was reported earlier. Prior to this revision, mining output was estimated to have declined about  $8\frac{1}{4}$  percent in 2015, but it is now reported to have fallen nearly 11 percent. The revisions to mining output resulted primarily from the incorporation of new data on value added that increased the weight accorded to oil and gas extraction and to oil and gas well drilling and servicing relative to the previous estimates. For utilities, the rates of change are generally similar to the previously published values.

### *Production by Industry Group*

The output of durable goods manufacturers is now reported to have fallen 2 percent in 2015; previously, it was estimated to have declined only  $\frac{3}{4}$  percent. Within durables, the revisions in 2015 were widespread across industries. The largest downward revision was for the output of machinery, which is now estimated to have fallen 9 percent. The output of nondurables moved up in 2014 and 2015 and was flat in 2016; prior to the revision, the index showed a small decline for 2016.

The output index for industries not in the scope of manufacturing under the North American Industry Classification System (NAICS)—that is, logging and publishing—fell in every year from 2012 to 2016. The declines in 2014 and 2015 are now estimated to be less steep than stated earlier.

### *Production by Market Group*

The index for consumer goods has increased in each of the past few years, and the gains in 2014 and 2015 are now estimated to be a little stronger than reported earlier. In contrast, the rates of change for business equipment are notably lower in the period since 2014. The current estimates for the production of construction supplies and business supplies are lower than previously reported for 2014 and 2015. In addition, the index for materials is now estimated to have fallen more rapidly in 2015, about  $4\frac{1}{4}$  percent, with the declines for both energy and non-energy materials steeper than published earlier.

### *Capacity*

Total industrial capacity expanded 1.7 percent in 2014 and 1.1 percent in 2015. The increase in 2014 was virtually the same as reported earlier, but the gain in 2015 is now estimated to have been smaller. Most of the increase for 2014 resulted from a rapid expansion in mining, although that expansion is now less rapid than reported earlier. Capacity at mines declined in 2016 but is expected to increase in 2017. Manufacturing capacity was essentially flat for 2014 and 2015; it increased modestly in 2016 and is expected to do the same in 2017. Capacity at utilities increased more than 2 percent in 2016, a notably stronger gain than reported earlier.

<sup>3</sup>Manufacturing consists of those industries in the North American Industry Classification System definition of manufacturing plus those industries—logging and newspaper, periodical, book, and directory publishing—that were in the manufacturing sector under the Standard Industrial Classification system.

## *Capacity Utilization*

Capacity utilization for total industry moved somewhat higher in 2014, fell back in 2015, and was little changed in 2016.<sup>4</sup> The pullback in 2015 resulted from a large reduction in the rate for mining and from smaller reductions in the rates for both manufacturing and utilities. Compared with earlier estimates, capacity utilization for total industry is now reported to have been modestly higher in the 2013–16 period.

Utilization at manufacturers rose in 2014, fell back slightly in 2015, and edged down again in 2016. It has remained at least 2½ percentage points below its long-run average over the period from 2013 through 2016. The current readings for factory utilization are very similar to the previous reports. Within manufacturing, sizable downward revisions to the utilization rate for durables in 2015 and 2016 were offset by sizable upward revisions to the rate for nondurables.

The utilization rate for durable manufacturing was above its long-run average in 2014, but it fell back in 2015 and slipped further in 2016. By the fourth quarter of 2016, the utilization rate for durables was about 2 percentage points below its long-run average; however slightly fewer than half of the major categories of durables recorded operating rates below their long-run averages.

The utilization rate for nondurable manufacturing has been below its long-run average for several years. As of the fourth quarter of 2016, the operating rates for all nondurable manufacturing industry groups except paper were below their industry-specific long-run averages.

Capacity utilization rates for mining declined sharply in 2015, largely because of decreased output in the oil and gas drilling and servicing sector. The utilization rate for mining was above its long-run average in 2014 but below it in 2015 and 2016. The operating rates for utilities have been well below their long-run average of 85.6 percent for the past several years; the current estimate for 2016 is 1 percentage point lower than previously reported.

## **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, however, are anchored to annual benchmarks that are less timely but typically based on more comprehensive data.

Annual revisions to the IP and capacity measures involve (1) incorporating new 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; and (4) updating the methods used to construct the indexes.

The current revision also introduces a new published aggregate for chemicals excluding pharmaceuticals and medicine. In addition, new measures of reliability for the major industry aggregates will be published in subsequent monthly G.17 releases.

### ***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 level. The Census Bureau provides annual figures for value added and the cost of materials for manufacturing

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<sup>4</sup>Unless otherwise noted, rates of capacity utilization are reported for the fourth quarter of the reference year.

industries, which can be summed to obtain nominal gross output. The benchmark indexes for this revision incorporated revised information for 2014 and new information for 2015 from the ASM.

New annual data were also incorporated into several other indexes. The benchmark indexes for metallic and nonmetallic mineral mining were updated with revised 2015 data from the USGS, and the benchmark indexes for logging and publishing were advanced through 2015 based on data from the U.S. Forest Service and the U.S. Census Bureau.

### *Prices*

To obtain individual benchmarks of real gross output, the measures of nominal gross output were deflated 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 2015 with the related producer prices indexes (PPIs) from the BLS.<sup>5</sup> For a few selected industries, updated price indexes constructed by the Federal Reserve were incorporated.<sup>6</sup>

### *Value-Added Proportions (Weights for Aggregation)*

The IP system is organized as a hierarchical structure where the finest-level production indexes are aggregated using a version of the Fisher-ideal index formula to construct higher-level measures of production. The weights that are used to combine individual IP measures into more aggregate measures are based on the value added from the industry, calculated as gross output less cost of materials. For IP indexes that are defined at the six-digit (or more aggregate) NAICS level, the value-added weights are derived from the Economic Census or ASM. For IP indexes that cover only part of a six-digit NAICS industry, the aggregation weights were constructed by allocating value added for a six-digit industry across the various components of IP that compose that industry. Data from the Economic Census and ASM on shipments of different types of products within a six-digit NAICS industry were used to determine the share of an industry's value added that was assigned to each component IP index.

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; data for 2012 were incorporated in this revision. Figures for value added for mining industries in the years between the quinquennial Economic Census are estimated based on both output and price changes for the industry.

The weights for aggregation expressed as value added per unit were estimated with data on producer prices for the period after 2015.

### *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. The revised IP indexes include information from the QSPC for 2016 and from other industry reports.

<sup>5</sup>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.

<sup>6</sup>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). Updated price indexes for data storage devices and for selected components of communications equipment and semiconductors are available on the Board's website at [www.federalreserve.gov/releases/g17](http://www.federalreserve.gov/releases/g17).

## ***Revised Seasonal Factors***

Seasonal factors for production-worker hours—which adjust for timing, holiday, and monthly seasonal patterns—were updated with data through January 2017. The updated factors for the physical product series, which include adjustments for holiday and workday patterns, used data through December 2016 where available.

Seasonal factors for unit motor vehicle assemblies have been updated, and projections through December 2016 are available on the Board’s website at [www.federalreserve.gov/releases/g17/mvsf.htm](http://www.federalreserve.gov/releases/g17/mvsf.htm). These factors are based on production data through January 2017 and were revised back to January 1996. The seasonal factors explicitly incorporate the holiday schedule for the vehicle assembly lines specified in the latest collective bargaining agreements with domestic manufacturers.

## ***Methodological Changes to Individual Production Indexes***

There were no methodological changes to individual production indexes in this revision.

## ***Introduction of New Aggregate***

This revision introduces a new industry aggregate: chemicals excluding pharmaceuticals and medicines. Within the NAICS structure, the aggregate is constructed as all of NAICS 325 except for NAICS 3254. This aggregate will be publicly available in the G.17 supplementary tables and on the Board’s website at [www.federalreserve.gov/datadownload/Choose.aspx?rel=G17](http://www.federalreserve.gov/datadownload/Choose.aspx?rel=G17) through the Data Download Project.

## ***Introduction of New Reliability Estimates for Major Industry Aggregates***

With the G.17 release to be issued on April 18, 2017, the Federal Reserve will publish new estimates of the reliability of the reported production indexes and rates of change for total industry, manufacturing, mining, and utilities. The reliability measures will be published for those months that are still subject to revision in a subsequent monthly release.

The reliability estimates for any index level or rate of change report the typical range for that figure after all five monthly revisions are complete. The bottom of the range is computed as the current estimate plus the 15th percentile revision to the real-time estimates dating back to 2008; the top of the range is the current estimate plus the 85th percentile revision. To compute the bottom of the range for the first (or second or any subsequent) estimate of the rate of change for IP, the history (from 2008 forward) of revisions between the rate of change for that estimate and the rate of change for the sixth estimate are sorted, and the value chosen is the one that is above only 15 percent of the observations. This 15th percentile value is then added to the current estimate to determine the bottom of the range. The top of the range is computed in the same way, based on a revision level that is higher than 85 percent of the observations. As monthly information accrues from the first estimate to the second, from the second to the third, and so on, there is less scope for revisions, and the computed range consequently narrows.

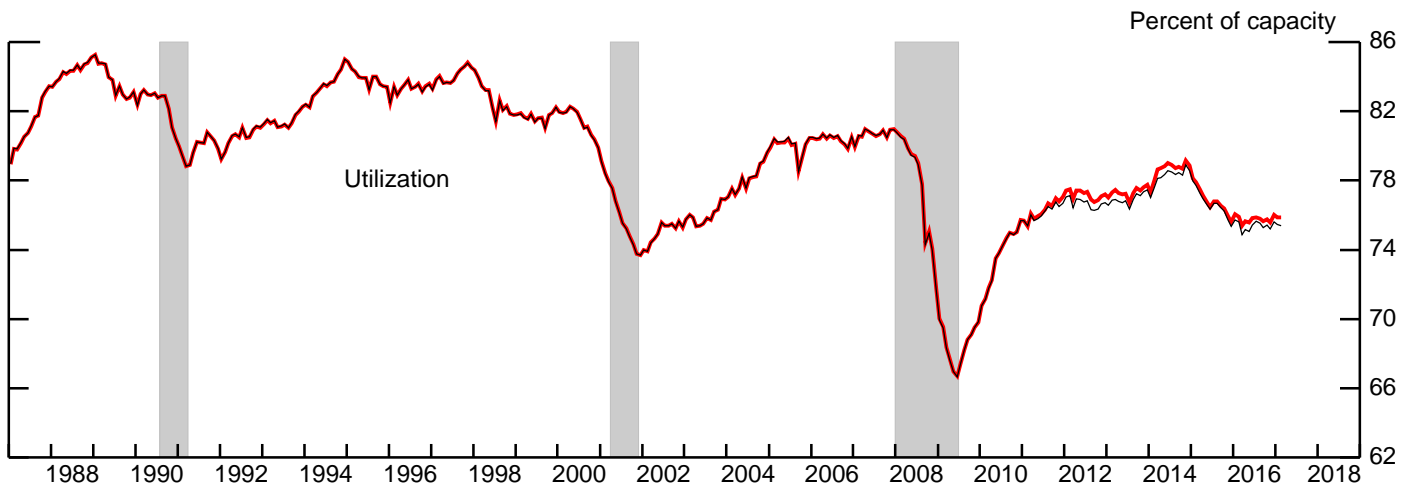
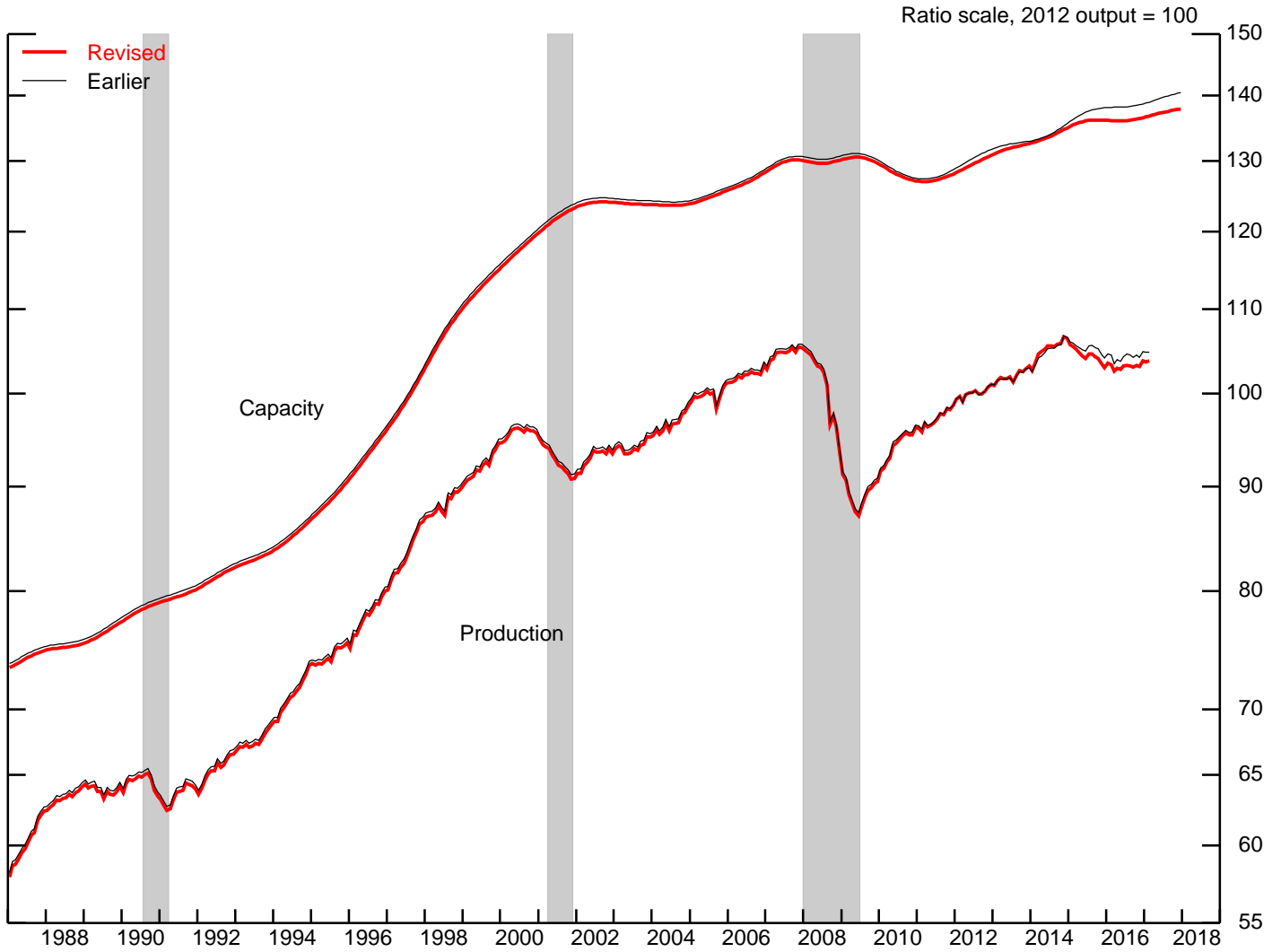
A more detailed explanation of the reliability estimates will be available with the publication of the monthly G.17 release on April 18, 2017, on the Board’s website at [www.federalreserve.gov/releases/g17/g17\\_technical\\_qa.htm](http://www.federalreserve.gov/releases/g17/g17_technical_qa.htm).

### **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 [www.federalreserve.gov/releases/g17](http://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 [www.federalreserve.gov/releases/g17/g17\\_revision\\_series.htm](http://www.federalreserve.gov/releases/g17/g17_revision_series.htm).

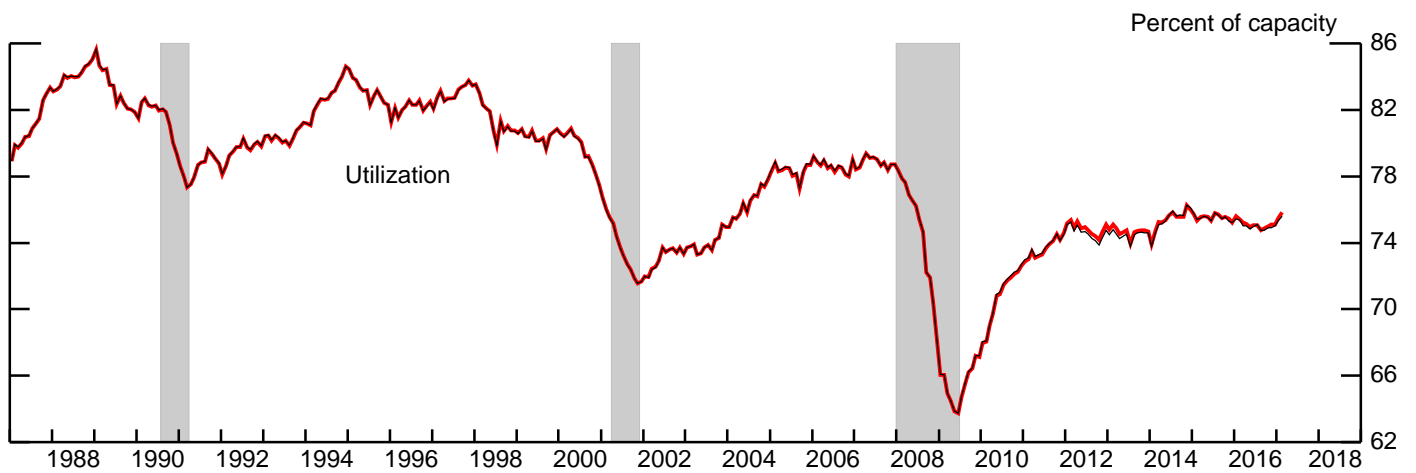
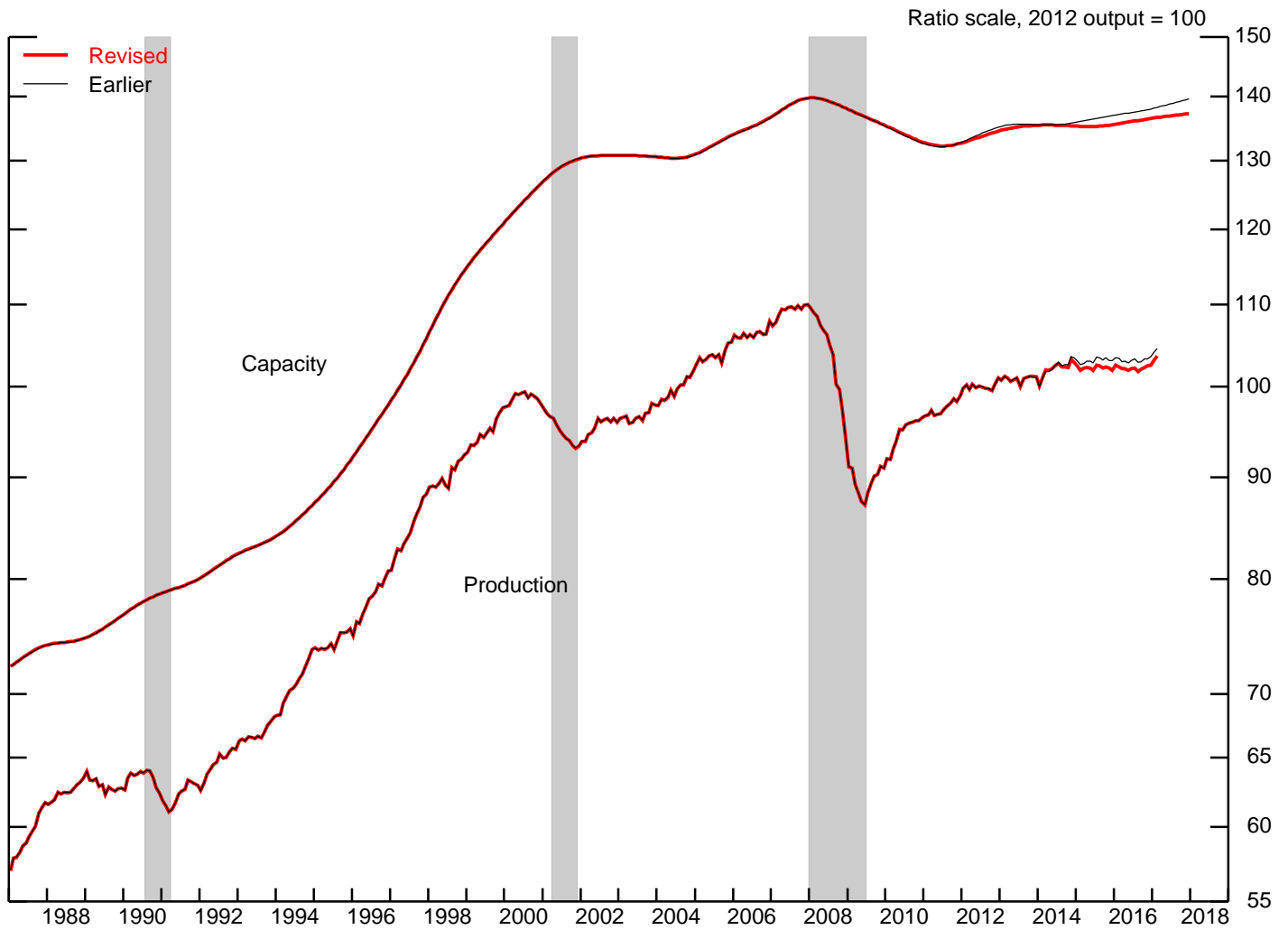
A document with printed tables of the revised estimates of series shown in the G.17 release is available upon request to the Industrial Output Section, Mail Stop 82, Division of Research and Statistics, Board of Governors of the Federal Reserve System, Washington, DC 20551.

# 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).

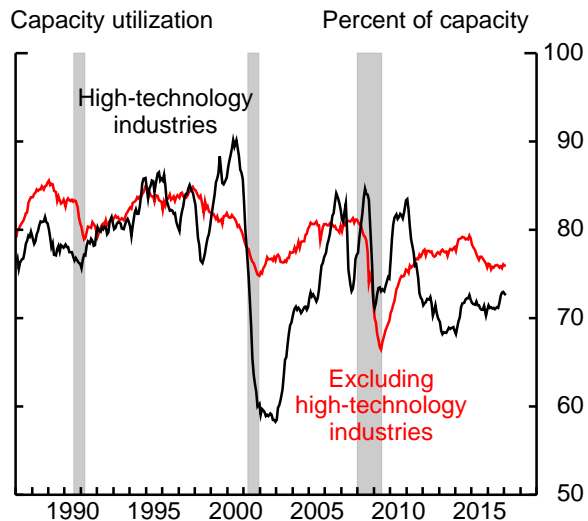
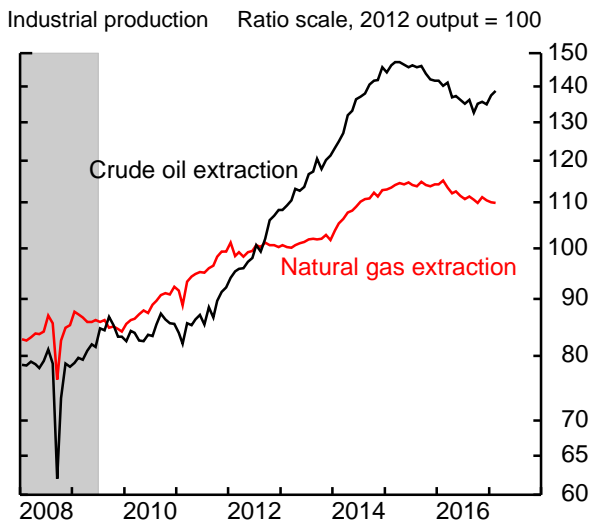
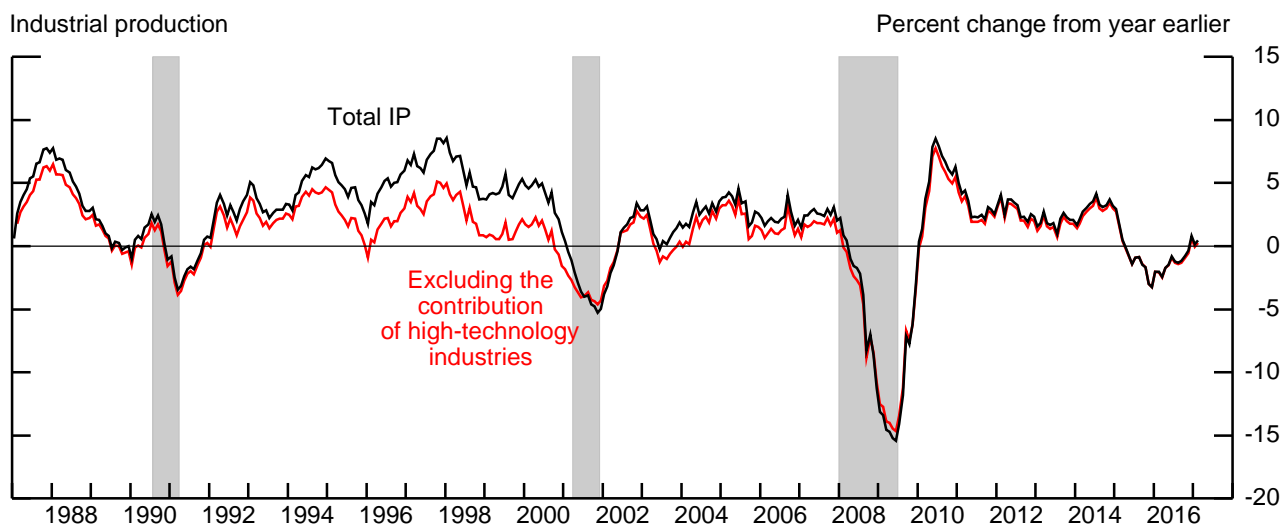
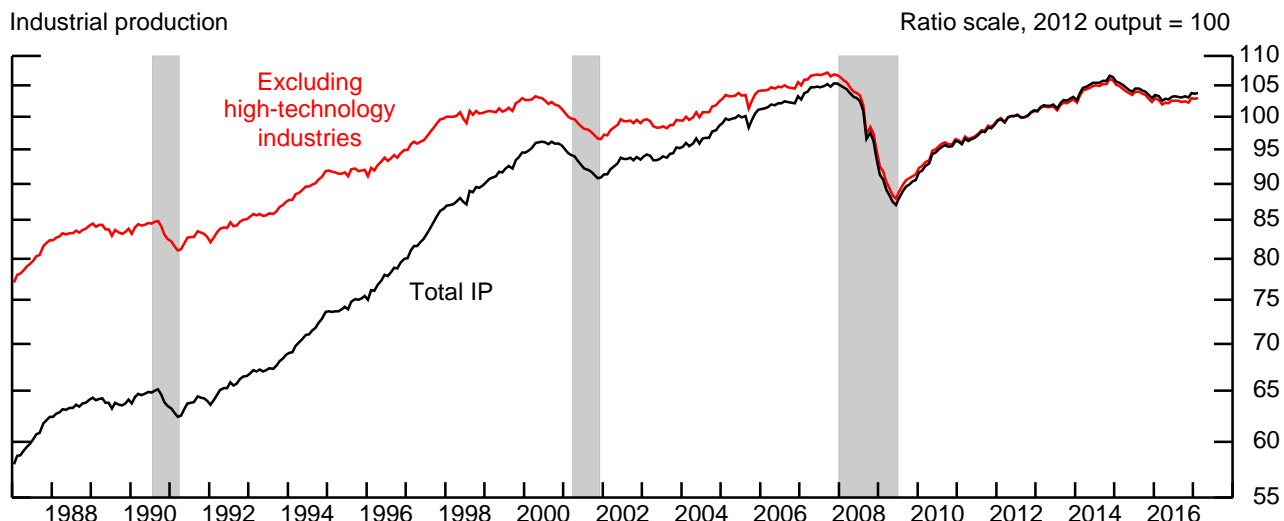
## 2. Manufacturing industrial production, capacity, and utilization



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.



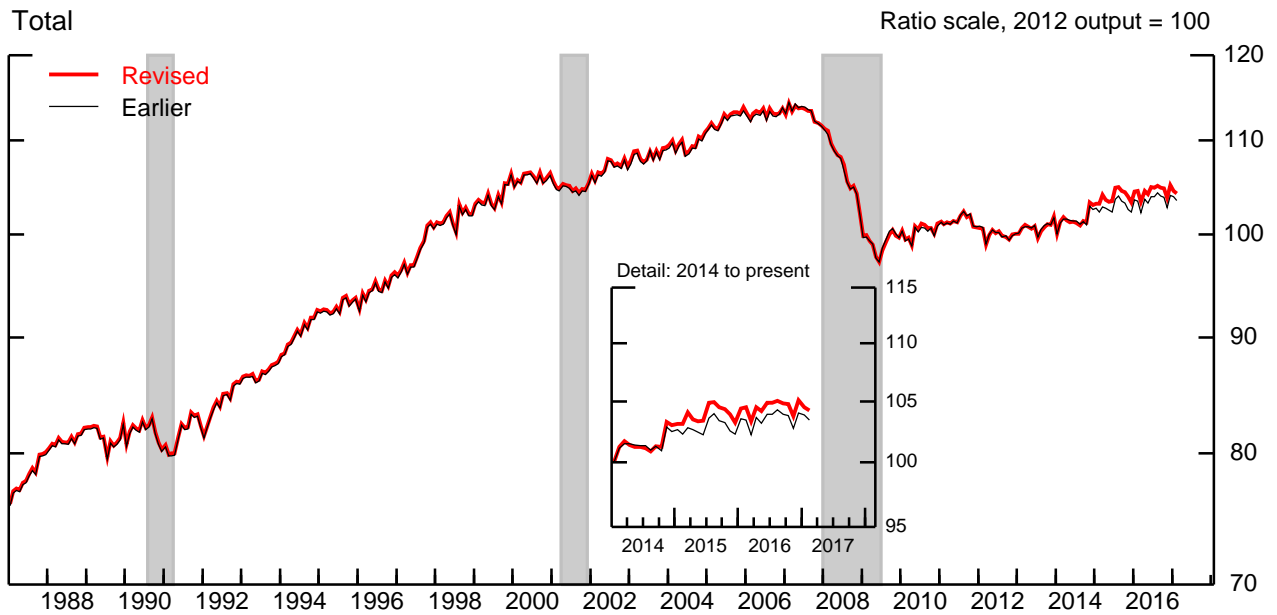
### 3. Industrial production and capacity utilization



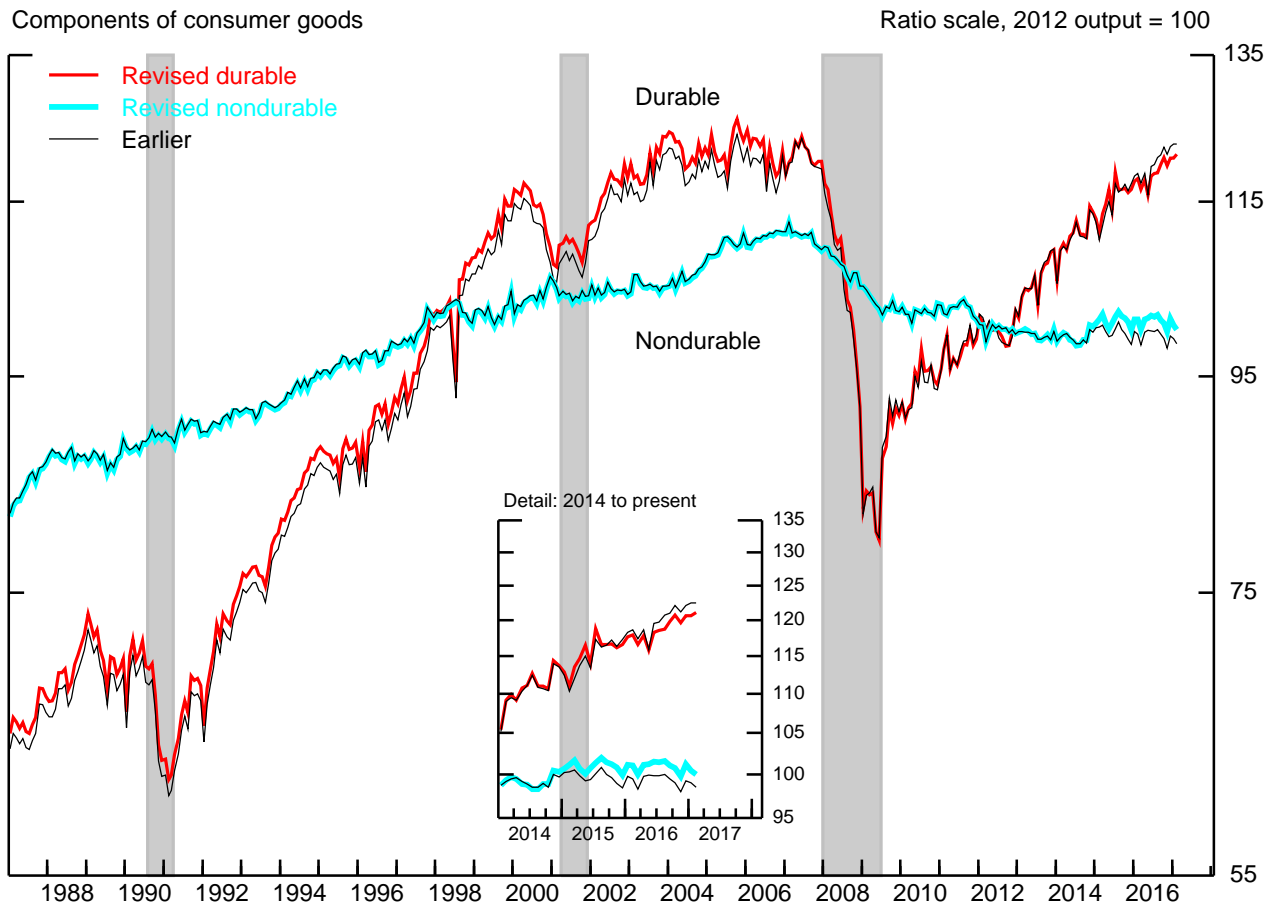
Notes: High-technology industries are defined as semiconductors and related electronic components (NAICS 3344), computers (NAICS 3341), and communications equipment (NAICS 3342). The shaded areas represent periods of business recession as defined by the NBER.

## 4. Consumer goods

Total

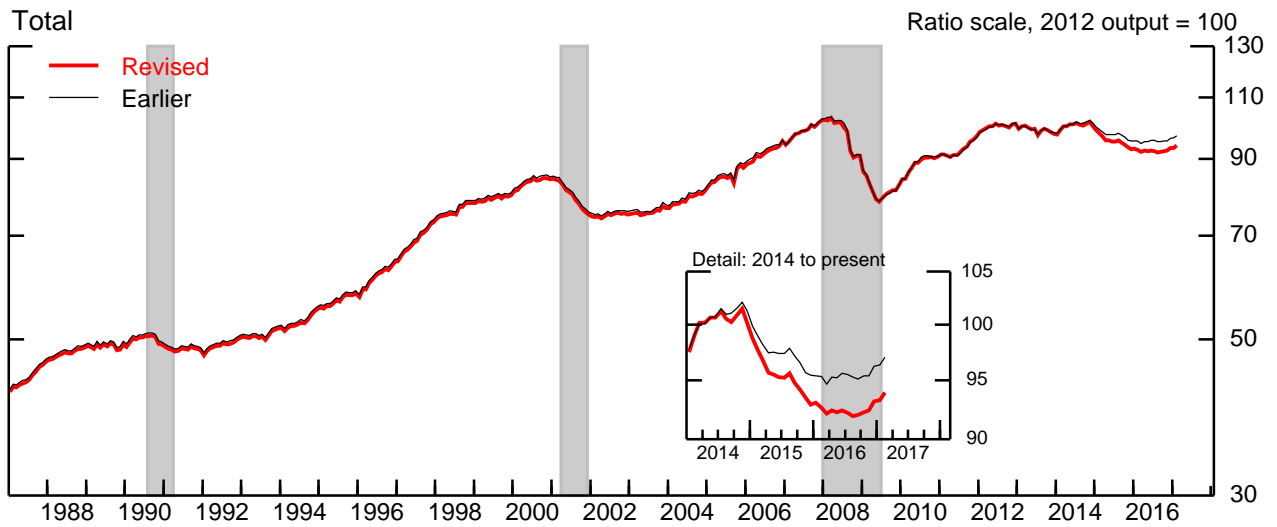


Components of consumer goods

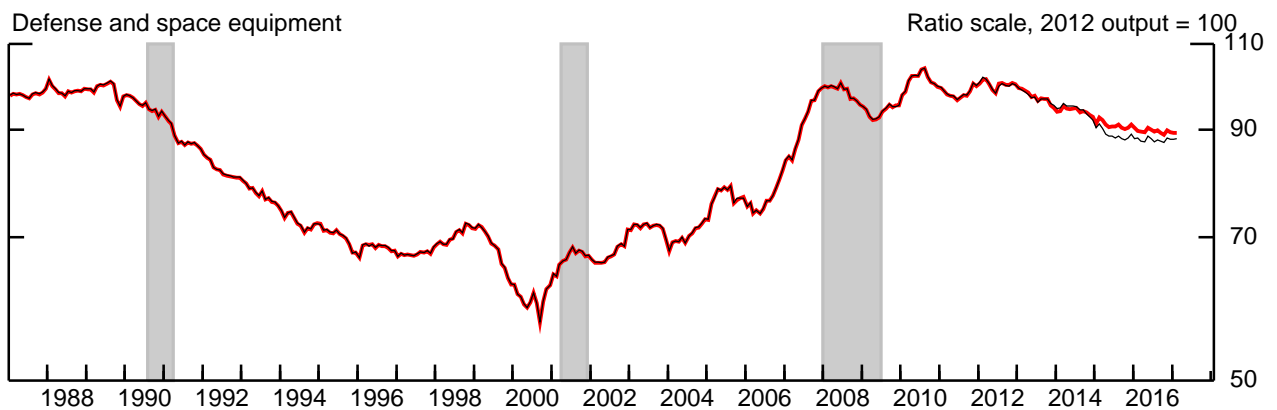
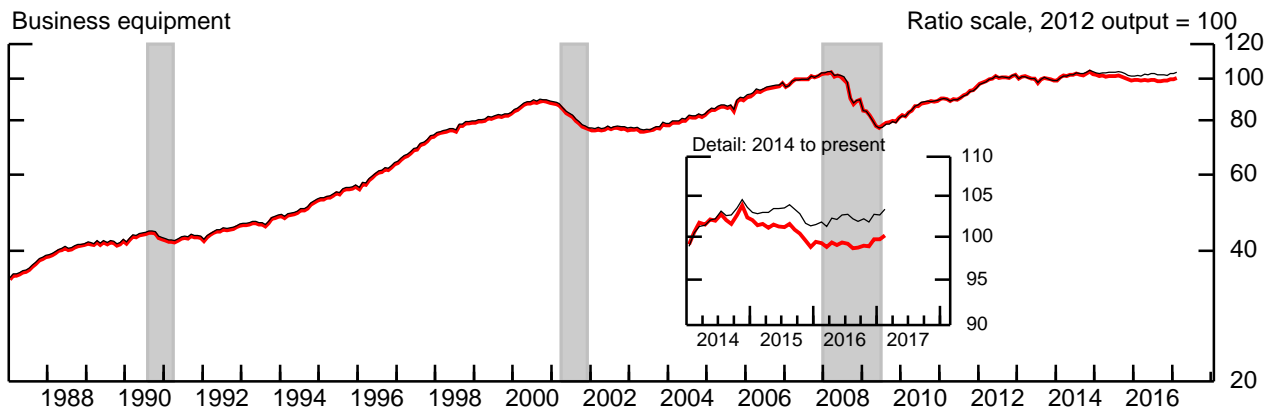


Note: The shaded areas represent periods of business recession as defined by the NBER.

## 5. Equipment

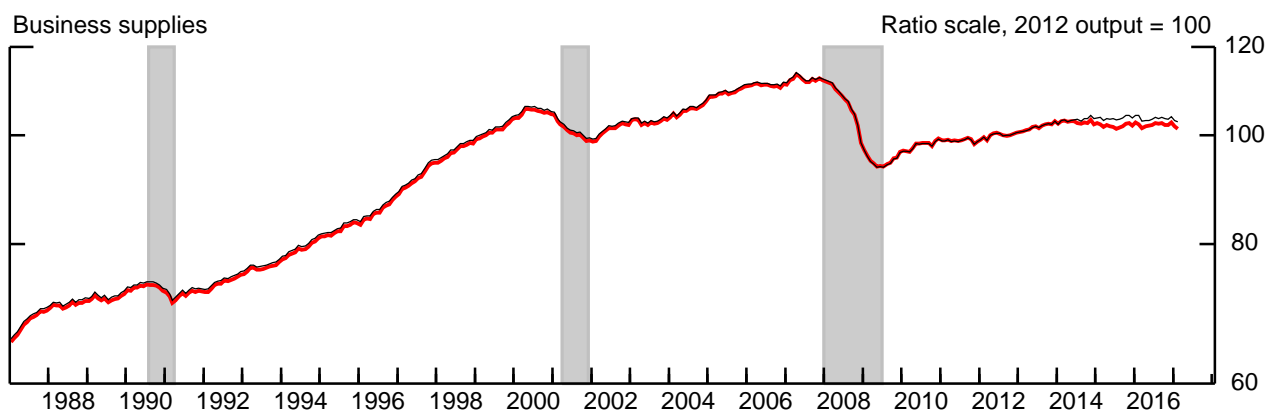
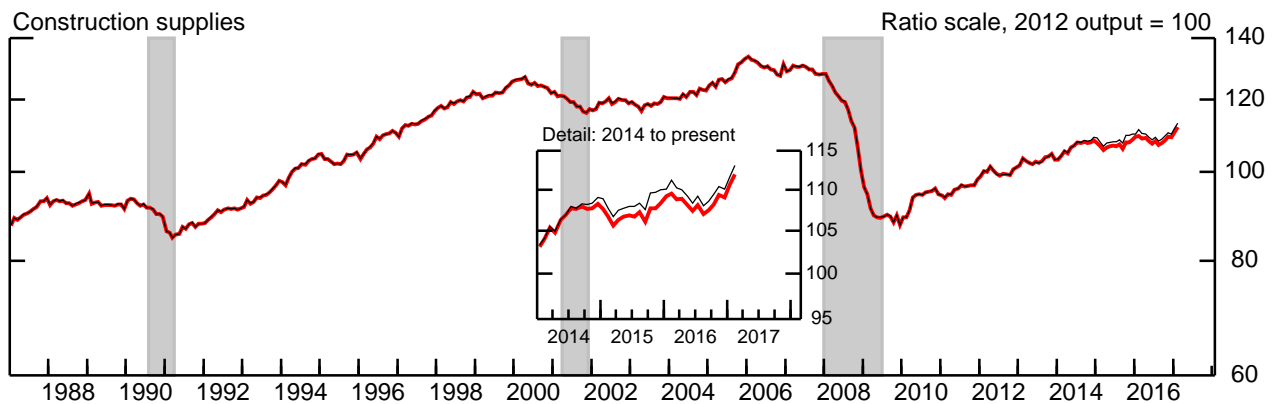
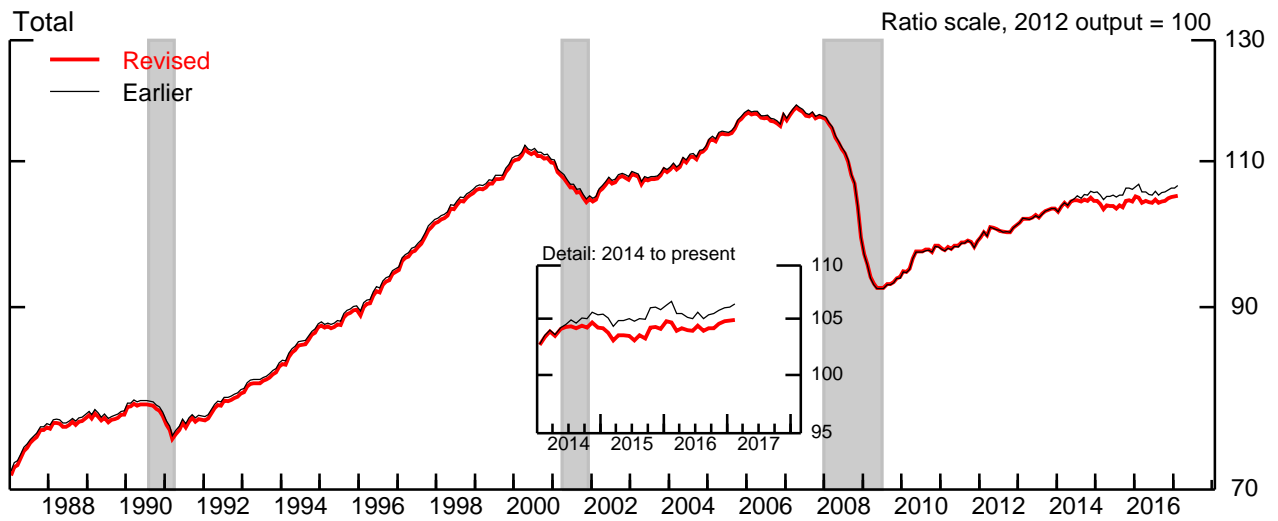


Note: Includes business equipment, defense and space equipment, oil and gas well drilling, and manufactured homes.



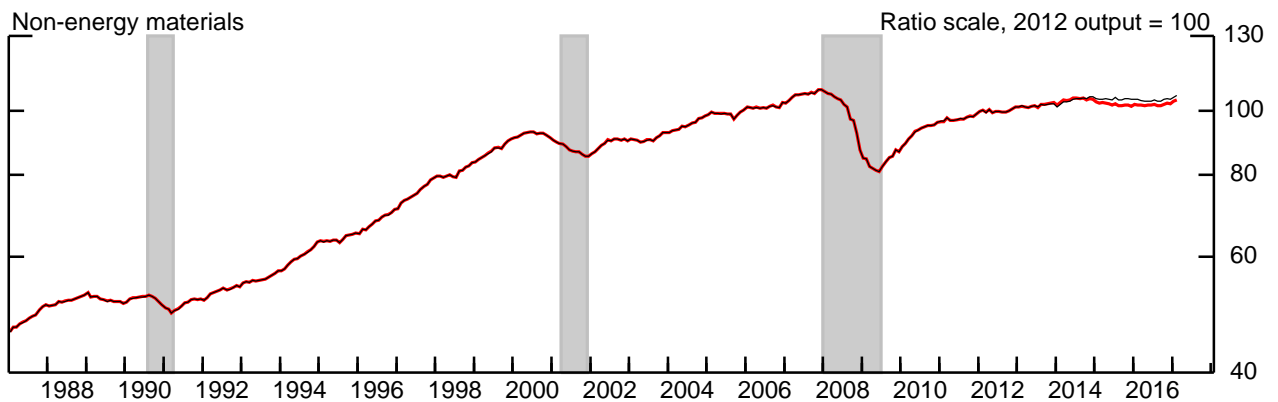
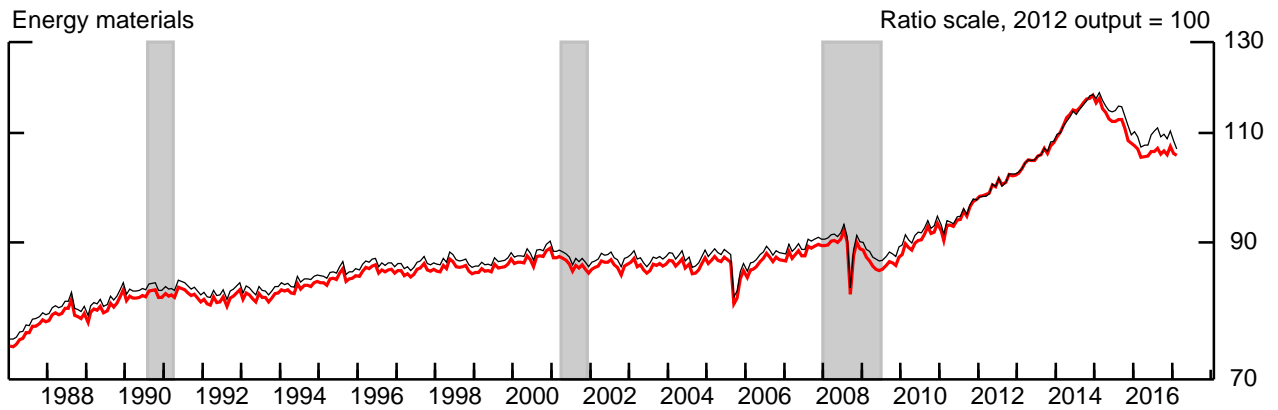
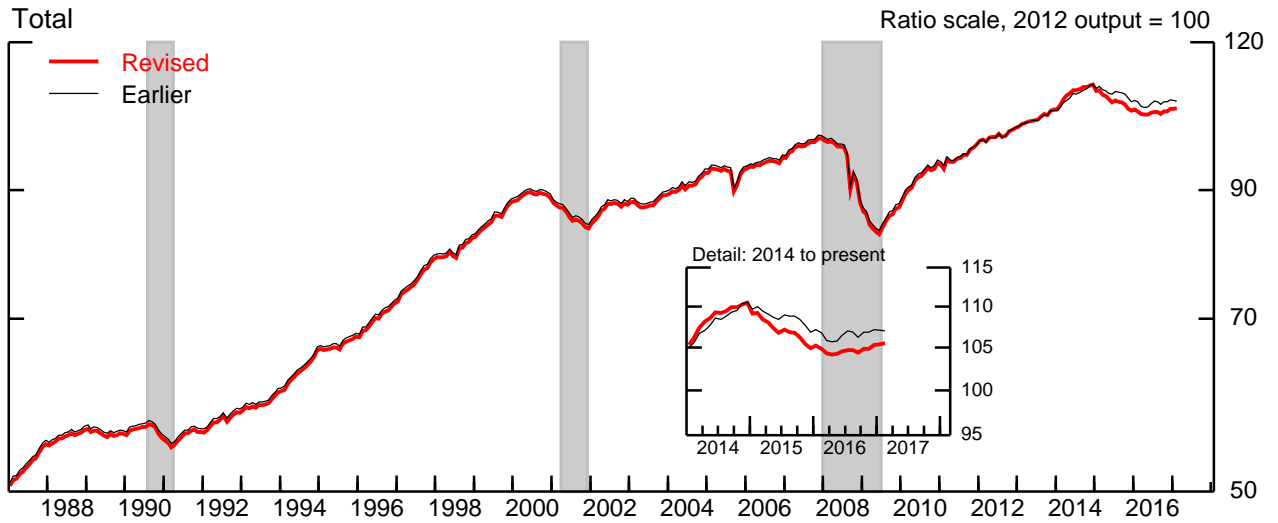
Note: The shaded areas represent periods of business recession as defined by the NBER.

## 6. Nonindustrial supplies



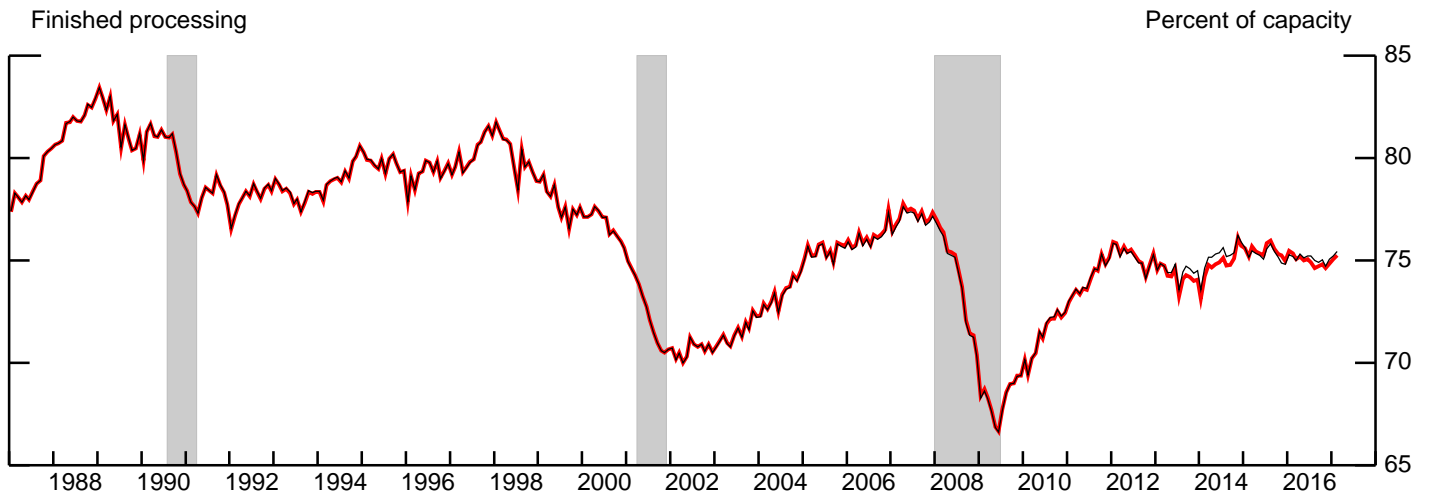
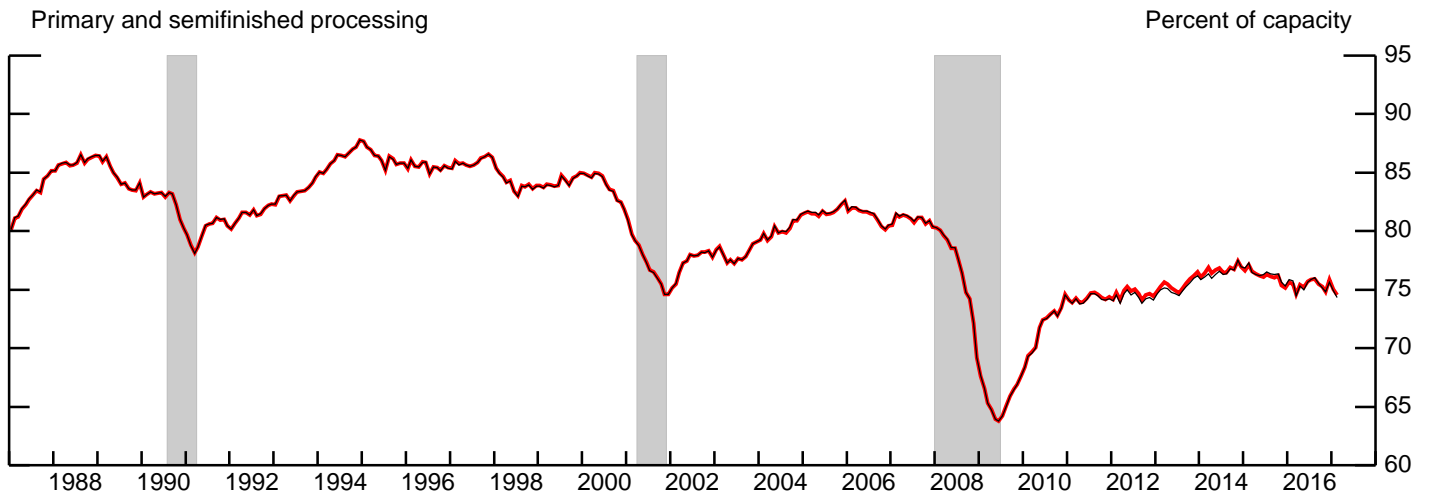
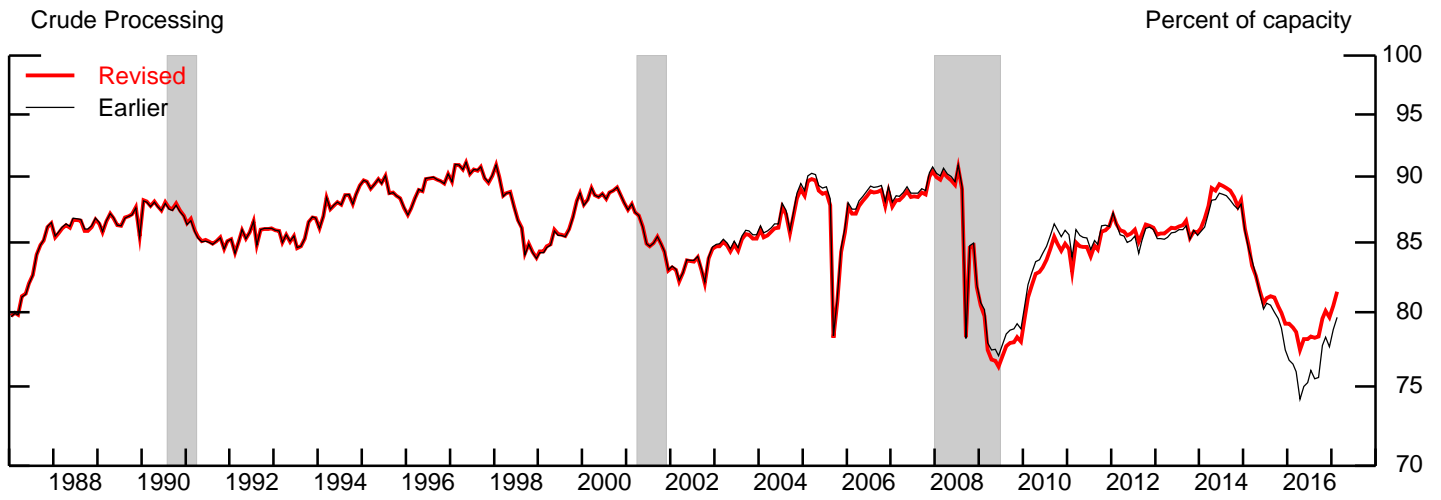
Note: The shaded areas represent periods of business recession as defined by the NBER.

## 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 <sup>1</sup>
<b>IP (percent change)</b>																	
1987	-.3	1.3	.2	.6	.6	.5	.7	.8	.3	1.4	.5	.5	5.3	7.3	7.7	10.1	5.2
1988	.0	.4	.2	.6	-.1	.3	.0	.4	-.3	.5	.2	.5	3.7	3.5	1.5	2.9	5.2
1989	.3	-.5	.2	.1	-.7	.0	-.9	.9	-.4	-.1	.3	.6	1.8	-1.5	-2.4	1.7	.9
1990	-.7	1.0	.5	-.1	.2	.3	-.1	.3	.1	-.8	-1.2	-.7	2.8	3.1	1.7	-6.1	1.0
1991	-.4	-.7	-.5	.2	1.0	.9	.1	.1	.9	-.2	-.1	-.4	-7.3	2.3	5.6	.9	-1.5
1992	-.6	.7	.9	.7	.3	.0	.9	-.5	.2	.7	.4	.1	-.5	7.3	3.1	4.3	2.9
1993	.4	.4	-.1	-.3	-.3	.2	.3	-.1	-.5	.8	.4	.5	3.6	-.9	1.6	6.2	3.3
1994	.4	.0	1.0	.5	.5	.6	.2	.6	.4	.9	.6	1.0	5.0	7.4	5.2	8.5	5.2
1995	.2	-.1	.1	.0	.3	.3	-.4	1.3	.4	-.1	.3	.4	4.2	1.3	3.7	3.5	4.7
1996	-.6	1.6	-.1	.9	.7	.8	-.2	.6	.7	-.1	.9	.6	2.8	8.8	5.1	5.7	4.5
1997	.1	1.2	.7	.0	.6	.5	.8	1.1	.9	.9	.9	.3	7.8	6.0	9.5	10.4	7.2
1998	.5	.1	.1	.4	.6	-.6	-.4	2.1	-.2	.8	-.1	.4	4.5	2.7	3.0	5.9	5.8
1999	.5	.5	.2	.3	.7	-.2	.6	.4	-.4	1.3	.5	.8	4.5	4.0	3.7	7.2	4.4
2000	.0	.3	.4	.7	.2	.1	-.1	-.3	.4	-.3	.0	-.3	4.1	5.1	-.4	-.8	3.9
2001	-.7	-.6	-.3	-.2	-.7	-.6	-.6	-.2	-.4	-.4	-.5	.0	-5.2	-4.9	-5.6	-4.2	-3.1
2002	.6	.0	.8	.4	.4	.9	-.2	.0	.1	-.3	.5	-.5	2.9	6.4	2.5	-.2	.3
2003	.6	.3	-.2	-.7	.0	.1	.4	-.2	.6	.1	.8	-.1	2.2	-2.8	2.5	4.1	1.2
2004	.2	.6	-.5	.4	.8	-.8	.8	.1	.1	.9	.2	.7	2.7	2.3	2.3	5.7	2.6
2005	.5	.7	-.2	.1	.2	.4	-.3	.2	-1.8	1.3	1.0	.6	5.8	2.0	-1.9	3.9	3.3
2006	.1	.0	.2	.4	-.1	.4	.0	.3	-.2	.0	-.1	1.1	3.8	2.4	1.4	1.0	2.2
2007	-.5	1.0	.2	.7	.0	.0	.0	.2	.3	-.5	.5	.0	3.7	5.0	.9	.7	2.5
2008	-.3	-.3	-.2	-.7	-.5	-.2	-.5	-1.5	-4.3	.9	-1.2	-2.9	-1.7	-5.5	-12.1	-15.9	-3.5
2009	-2.4	-.6	-1.6	-.9	-1.1	-.4	1.1	1.1	.8	.3	.4	.3	-20.6	-11.5	5.7	6.4	-11.5
2010	1.1	.4	.7	.4	1.5	.2	.5	.4	.3	-.2	.0	.9	8.0	8.6	6.0	1.6	5.5
2011	-.1	-.4	1.0	-.4	.2	.2	.4	.6	-.1	.7	-.1	.5	2.1	1.3	4.2	3.8	3.1
2012	.6	.3	-.6	.8	.2	.0	.2	-.4	.0	.3	.5	.3	3.9	2.6	.2	2.4	2.9
2013	-.1	.6	.3	-.1	.0	.2	-.6	.8	.5	-.1	.3	.3	3.0	1.5	.9	3.2	2.0
2014	-.5	1.0	.9	.2	.3	.4	.0	-.1	.3	.1	.8	-.2	3.2	6.0	1.7	2.7	3.1
2015	-.7	-.2	-.3	-.4	-.4	-.3	.5	.0	-.3	-.2	-.6	-.5	-3.3	-4.0	.4	-3.7	-.7
2016	.5	-.2	-.7	.3	-.1	.4	.1	-.1	-.2	.2	-.2	.7	-1.3	-.7	.8	.8	-1.2
2017	-.1	.1															
<b>IP (2012=100)</b>																	
1987	57.9	58.7	58.8	59.1	59.5	59.8	60.2	60.7	60.9	61.8	62.1	62.4	58.4	59.5	60.6	62.1	60.2
1988	62.4	62.7	62.8	63.2	63.1	63.3	63.3	63.6	63.4	63.7	63.8	64.1	62.7	63.2	63.4	63.9	63.3
1989	64.3	64.0	64.2	64.2	63.8	63.8	63.2	63.8	63.6	63.5	63.7	64.1	64.2	63.9	63.5	63.8	63.9
1990	63.7	64.4	64.7	64.6	64.7	64.9	64.8	65.0	65.1	64.6	63.9	63.5	64.2	64.7	65.0	64.0	64.5
1991	63.2	62.8	62.4	62.6	63.2	63.7	63.8	63.9	64.4	64.3	64.2	64.0	62.8	63.2	64.0	64.2	63.5
1992	63.6	64.0	64.6	65.1	65.3	65.3	65.9	65.6	65.7	66.2	66.5	66.5	64.1	65.2	65.7	66.4	65.4
1993	66.8	67.1	67.0	67.2	67.0	67.2	67.4	67.3	67.6	68.1	68.4	68.8	67.0	67.1	67.4	68.4	67.5
1994	69.0	69.0	69.8	70.1	70.5	70.9	71.1	71.5	71.7	72.3	72.8	73.6	69.3	70.5	71.4	72.9	71.0
1995	73.7	73.6	73.7	73.7	73.9	74.1	73.8	74.8	75.1	75.0	75.2	75.5	73.7	73.9	74.6	75.2	74.3
1996	75.0	76.2	76.1	76.8	77.3	78.0	77.8	78.3	78.8	78.8	79.5	80.0	75.7	77.4	78.3	79.4	77.7
1997	80.1	81.0	81.6	81.6	82.1	82.5	83.2	84.0	84.8	85.5	86.3	86.5	80.9	82.1	84.0	86.1	83.3
1998	87.0	87.1	87.1	87.4	88.0	87.5	87.1	88.9	88.8	89.5	89.4	89.8	87.1	87.6	88.3	89.6	88.1
1999	90.2	90.7	90.8	91.1	91.7	91.6	92.2	92.5	92.2	93.4	93.8	94.5	90.6	91.5	92.3	93.9	92.1
2000	94.5	94.8	95.2	95.9	96.1	96.2	96.0	95.7	96.1	95.8	95.8	95.6	94.9	96.0	96.0	95.7	95.6
2001	94.9	94.4	94.1	93.9	93.3	92.7	92.2	92.0	91.7	91.3	90.8	90.8	94.5	93.3	92.0	91.0	92.7
2002	91.3	91.4	92.1	92.5	92.9	93.8	93.5	93.6	93.7	93.4	93.9	93.4	91.6	93.0	93.6	93.6	93.0
2003	94.0	94.3	94.0	93.4	93.4	93.5	93.9	93.7	94.3	94.4	95.2	95.2	94.1	93.4	94.0	94.9	94.1
2004	95.3	95.9	95.5	95.9	96.6	95.9	96.6	96.7	96.7	97.7	97.8	98.5	95.6	96.1	96.7	98.0	96.6
2005	99.0	99.7	99.5	99.7	99.8	100.2	99.9	100.1	98.3	99.5	100.5	101.1	99.4	99.9	99.4	100.4	99.8
2006	101.2	101.3	101.5	101.9	101.8	102.1	102.1	102.5	102.3	102.2	102.1	103.2	101.3	101.9	102.3	102.5	102.0
2007	102.7	103.8	104.0	104.7	104.8	104.8	104.7	104.9	105.3	104.8	105.3	105.3	103.5	104.7	105.0	105.1	104.6
2008	105.0	104.7	104.4	103.6	103.1	102.9	102.4	100.9	96.5	97.5	96.3	93.4	104.7	103.2	99.9	95.7	100.9
2009	91.2	90.6	89.2	88.4	87.4	87.1	88.0	89.0	89.6	89.9	90.3	90.5	90.4	87.6	88.9	90.2	89.3
2010	91.6	91.9	92.5	92.9	94.3	94.5	94.9	95.3	95.6	95.4	95.4	96.2	92.0	93.9	95.3	95.7	94.2
2011	96.1	95.7	96.6	96.3	96.5	96.7	97.1	97.7	97.6	98.3	98.2	98.7	96.2	96.5	97.5	98.4	97.1
2012	99.3	99.6	99.1	99.9	100.0	100.1	100.3	99.9	99.9	100.2	100.7	101.0	99.3	100.0	100.0	100.6	100.0
2013	100.9	101.5	101.8	101.7	101.7	101.9	101.3	102.1	102.6	102.5	102.8	103.1	101.4	101.7	102.0	102.8	102.0
2014	102.6	103.6	104.6	104.8	105.1	105.5	105.5	105.4	105.7	105.8	106.6	106.4	103.6	105.1	105.5	106.3	105.1
2015	105.6	105.4	105.1	104.7	104.3	104.0	104.5	104.5	104.2	104.0	103.4	102.9	105.4	104.3	104.4	103.4	104.4
2016	103.5	103.3	102.5	102.9	102.8	103.1	103.2	103.1	103.0	103.2	103.0	103.8	103.1	102.9	103.1	103.3	103.1
2017	103.6	103.7															

NOTE: Estimates from October 2016 through February 2017 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
<b>Capacity (percent of 2012 output)</b>																	
1987	73.4	73.5	73.6	73.8	73.9	74.1	74.2	74.4	74.5	74.6	74.7	74.8	73.5	73.9	74.3	74.7	74.1
1988	74.8	74.9	74.9	75.0	75.0	75.0	75.1	75.1	75.2	75.2	75.3	75.4	74.9	75.0	75.1	75.3	75.1
1989	75.4	75.6	75.7	75.8	76.0	76.1	76.3	76.5	76.6	76.8	77.0	77.2	75.6	76.0	76.5	77.0	76.2
1990	77.4	77.5	77.7	77.9	78.0	78.2	78.3	78.4	78.6	78.7	78.8	78.9	77.5	78.0	78.4	78.8	78.2
1991	79.0	79.1	79.2	79.3	79.4	79.4	79.5	79.6	79.7	79.9	80.0	80.1	79.1	79.4	79.6	80.0	79.5
1992	80.3	80.4	80.6	80.8	80.9	81.1	81.3	81.5	81.6	81.8	81.9	82.1	80.4	80.9	81.5	81.9	81.2
1993	82.2	82.3	82.5	82.6	82.7	82.8	82.9	83.0	83.2	83.3	83.4	83.6	82.3	82.7	83.0	83.5	82.9
1994	83.8	84.0	84.2	84.4	84.6	84.9	85.2	85.4	85.7	86.0	86.3	86.5	84.0	84.6	85.4	86.3	85.1
1995	86.8	87.1	87.4	87.7	88.0	88.4	88.7	89.0	89.4	89.7	90.1	90.5	87.1	88.0	89.0	90.1	88.6
1996	90.9	91.3	91.7	92.1	92.6	93.0	93.4	93.9	94.3	94.8	95.2	95.7	91.3	92.6	93.9	95.2	93.2
1997	96.2	96.6	97.1	97.6	98.1	98.7	99.2	99.8	100.4	101.1	101.7	102.4	96.6	98.1	99.8	101.7	99.1
1998	103.1	103.7	104.4	105.1	105.8	106.4	107.0	107.6	108.2	108.7	109.2	109.8	103.7	105.8	107.6	109.2	106.6
1999	110.2	110.7	111.2	111.6	112.1	112.5	112.9	113.3	113.7	114.2	114.6	115.0	110.7	112.1	113.3	114.6	112.7
2000	115.4	115.8	116.1	116.5	116.9	117.3	117.7	118.1	118.5	118.9	119.2	119.6	115.8	116.9	118.1	119.2	117.5
2001	120.0	120.3	120.7	121.1	121.4	121.7	122.0	122.3	122.6	122.8	123.1	123.3	120.3	121.4	122.3	123.0	121.8
2002	123.5	123.6	123.8	123.9	124.0	124.1	124.1	124.1	124.1	124.1	124.1	124.1	123.6	124.0	124.1	124.1	124.0
2003	124.0	124.0	124.0	123.9	123.9	123.9	123.8	123.8	123.8	123.8	123.8	123.7	124.0	123.9	123.8	123.8	123.9
2004	123.7	123.7	123.7	123.7	123.6	123.6	123.6	123.6	123.6	123.7	123.7	123.8	123.7	123.6	123.6	123.7	123.7
2005	123.9	124.0	124.1	124.3	124.4	124.6	124.8	125.0	125.1	125.3	125.5	125.7	124.0	124.4	125.0	125.5	124.7
2006	125.8	126.0	126.2	126.3	126.5	126.7	126.9	127.2	127.4	127.7	128.0	128.2	126.0	126.5	127.2	128.0	126.9
2007	128.5	128.8	129.1	129.3	129.6	129.8	129.9	130.1	130.1	130.1	130.1	130.1	128.8	129.6	130.0	130.1	129.6
2008	130.0	129.9	129.8	129.7	129.7	129.6	129.6	129.7	129.8	129.9	130.0	130.1	129.9	129.7	129.7	130.0	129.8
2009	130.2	130.3	130.4	130.5	130.6	130.6	130.5	130.4	130.3	130.1	129.9	129.6	130.3	130.5	130.4	129.9	130.3
2010	129.4	129.1	128.9	128.6	128.3	128.1	127.9	127.7	127.5	127.3	127.2	127.1	129.1	128.3	127.7	127.2	128.1
2011	127.0	127.0	127.0	127.0	127.1	127.1	127.2	127.4	127.5	127.7	127.9	128.1	127.0	127.1	127.4	127.9	127.3
2012	128.3	128.5	128.8	129.0	129.2	129.5	129.7	129.9	130.2	130.4	130.6	130.8	128.5	129.2	129.9	130.6	129.6
2013	131.0	131.2	131.4	131.6	131.7	131.9	132.0	132.1	132.2	132.3	132.5	132.6	131.2	131.7	132.1	132.5	131.9
2014	132.7	132.8	133.0	133.1	133.3	133.5	133.7	133.9	134.2	134.4	134.7	134.9	132.8	133.3	133.9	134.7	133.7
2015	135.2	135.4	135.6	135.7	135.9	136.0	136.1	136.1	136.1	136.1	136.1	136.1	135.4	135.9	136.1	136.1	135.9
2016	136.1	136.0	136.0	136.0	136.0	136.0	136.0	136.1	136.2	136.3	136.4	136.5	136.0	136.0	136.1	136.4	136.1
2017	136.6	136.7															
<b>Utilization (percent)</b>																	
1987	79.0	79.8	79.8	80.2	80.5	80.7	81.1	81.7	81.7	82.8	83.1	83.4	79.5	80.5	81.5	83.1	81.2
1988	83.4	83.7	83.8	84.3	84.1	84.3	84.3	84.7	84.4	84.7	84.8	85.1	83.6	84.2	84.5	84.9	84.3
1989	85.2	84.7	84.8	84.7	84.0	83.8	82.9	83.5	83.0	82.7	82.8	83.1	84.9	84.2	83.1	82.9	83.8
1990	82.4	83.0	83.2	83.0	82.9	83.0	82.8	82.9	82.9	82.1	81.1	80.4	82.9	83.0	82.9	81.2	82.5
1991	80.0	79.3	78.8	78.9	79.6	80.2	80.2	80.2	80.8	80.5	80.3	79.8	79.4	79.6	80.4	80.2	79.9
1992	79.2	79.6	80.2	80.6	80.7	80.5	81.0	80.5	80.5	80.9	81.1	81.1	79.7	80.6	80.7	81.0	80.5
1993	81.3	81.5	81.3	81.4	81.1	81.1	81.2	81.0	81.3	81.8	82.0	82.3	81.4	81.2	81.2	82.0	81.4
1994	82.4	82.2	82.9	83.1	83.3	83.6	83.4	83.7	83.7	84.2	84.4	85.0	82.5	83.3	83.6	84.5	83.5
1995	84.9	84.5	84.3	84.0	83.9	83.9	83.3	84.0	84.0	83.6	83.4	83.4	84.5	83.9	83.8	83.5	83.9
1996	82.5	83.4	82.9	83.3	83.5	83.8	83.3	83.4	83.6	83.1	83.5	83.6	82.9	83.6	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	84.5	83.7	83.7	84.1	84.6	84.0
1998	84.4	83.9	83.5	83.2	83.2	82.2	81.4	82.7	82.1	82.3	81.9	81.8	83.9	82.9	82.1	82.0	82.7
1999	81.8	81.9	81.7	81.6	81.8	81.4	81.6	81.7	81.0	81.8	81.9	82.2	81.8	81.6	81.4	82.0	81.7
2000	82.0	81.9	82.0	82.3	82.2	82.0	81.6	81.1	81.1	80.6	80.4	79.9	81.9	82.1	81.3	80.3	81.4
2001	79.1	78.4	78.0	77.6	76.8	76.2	75.5	75.2	74.8	74.3	73.8	73.7	78.5	76.9	75.2	73.9	76.1
2002	74.0	73.9	74.4	74.6	74.9	75.6	75.4	75.4	75.5	75.3	75.6	75.3	74.1	75.0	75.4	75.4	75.0
2003	75.8	76.0	75.9	75.3	75.4	75.5	75.8	75.7	76.2	76.3	76.9	76.9	75.9	75.4	75.9	76.7	76.0
2004	77.1	77.5	77.2	77.5	78.2	77.5	78.1	78.2	78.2	79.0	79.1	79.6	77.3	77.7	78.2	79.2	78.1
2005	79.9	80.4	80.2	80.2	80.2	80.4	80.1	80.1	78.5	79.4	80.1	80.5	80.1	80.3	79.6	80.0	80.0
2006	80.5	80.4	80.4	80.7	80.4	80.6	80.4	80.6	80.3	80.1	79.8	80.5	80.4	80.6	80.4	80.1	80.4
2007	79.9	80.6	80.5	81.0	80.8	80.7	80.6	80.7	80.9	80.5	80.9	81.0	80.3	80.8	80.7	80.8	80.7
2008	80.8	80.6	80.4	79.9	79.5	79.4	79.0	77.8	74.4	75.0	74.1	71.8	80.6	79.6	77.1	73.6	77.7
2009	70.0	69.5	68.4	67.7	67.0	66.7	67.4	68.2	68.8	69.1	69.5	69.8	69.3	67.1	68.1	69.5	68.5
2010	70.8	71.2	71.8	72.3	73.5	73.8	74.3	74.7	75.0	74.9	75.0	75.7	71.2	73.2	74.6	75.2	73.6
2011	75.7	75.4	76.1	75.8	75.9	76.1	76.3	76.7	76.5	77.0	76.8	77.0	75.7	75.9	76.5	76.9	76.3
2012	77.4	77.5	76.9	77.4	77.4	77.3	77.3	76.9	76.8	76.9	77.1	77.2	77.3	77.4	77.0	77.1	77.2
2013	77.0	77.3	77.5	77.3	77.2	77.2	76.7	77.3	77.6	77.4	77.6	77.8	77.3	77.2	77.2	77.6	77.3
2014	77.3	78.0	78.6	78.7	78.8	79.0	78.9	78.7	78.8	78.7	79.2	78.8	78.0	78.9	78.8	78.9	78.6
2015	78.1	77.9	77.5	77.1	76.8	76.5	76.8	76.8	76.5	76.4	76.0	75.6	77.8	76.8	76.7	76.0	76.8
2016	76.1	75.9	75.4	75.6	75.6	75.8	75.9	75.8	75.6	75.8	75.6	76.0	75.8	75.7	75.8	75.8	75.8
2017	75.9	75.9															

NOTE: Estimates from October 2016 through February 2017 are subject to further revision in the upcoming monthly releases.



Table 2

RATES OF CHANGE IN INDUSTRIAL PRODUCTION, MARKET AND INDUSTRY GROUP SUMMARY: 2012–16<sup>1</sup>

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
<b>Total IP</b>	2.3	2.2	3.4	-2.7	-1	.0	.1	-1	-1.0	.0
MARKET GROUPS										
<b>Final products and nonindustrial supplies</b>	1.1	.8	1.6	-1.2	.2	.0	.0	-2	-2	-1
<b>Consumer goods</b>	-1.3	1.4	1.2	1.3	.7	.2	-1	.4	.7	-1
<b>Durable</b>	1.0	8.5	4.1	3.1	3.3	.6	-3	.5	-7	-8
Automotive products	-2	15.0	6.4	5.0	5.9	1.0	.0	1.1	-1.6	-8
Home electronics	6.4	2.4	-1.1	2.4	4.6	.8	-1.5	-1.3	3.0	.1
Appliances, furniture, carpeting	2.4	2.9	3.5	3.8	1.0	.0	.0	.9	.7	.0
Miscellaneous goods	1.5	2.7	1.4	.1	.1	.1	-5	-6	-4	-1.3
<b>Nondurable</b>	-1.8	-.3	.4	.8	-1	.1	.0	.4	1.2	.1
Non-energy	-2.8	-2.3	1.8	2.0	-1.0	.1	-.3	.9	2.1	-.3
Foods and tobacco	1.3	.8	.4	2.3	-1	.1	-1	.8	1.9	-.4
Clothing	-7.2	-5.0	-2.5	-5.7	-6.4	.2	-1.0	-1.2	-1.2	-1.6
Chemical products	-9.0	-8.1	6.5	3.1	-1.5	.1	-1	1.6	2.7	.5
Paper products	-7.8	-2.4	-2.6	-2.3	-5.8	.3	-1.1	.2	2.2	-1.4
Energy	1.1	5.9	-3.9	-3.9	3.6	-.2	.7	-1.1	-1.3	.6
<b>Business equipment</b>	7.2	-1.8	3.5	-3.3	-.4	-.5	.2	-1.1	-1.3	-.7
Transit	16.7	3.2	11.2	1.2	-3.5	-2.8	.9	.8	1.6	-.9
Information processing	6.4	-1.5	-.2	.2	4.1	.3	-1.0	-2.1	-.9	-1.7
Industrial and other	3.8	-4.0	1.5	-6.8	-.6	-.2	.5	-1.5	-2.9	-.2
<b>Defense and space equipment</b>	.7	-4.5	-2.4	-2.9	-1.2	.3	-.5	.8	1.8	-.7
<b>Construction supplies</b>	3.2	3.6	3.8	.1	.9	.0	.0	-.6	-1.1	.7
<b>Business supplies</b>	1.6	2.3	.1	-.3	.0	.0	.0	-1.0	-.6	.5
<b>Materials</b>	3.5	3.6	5.2	-4.3	-.5	.0	.2	-.1	-2.0	.1
<b>Non-energy</b>	2.3	2.1	1.4	-2.2	.6	-.1	.4	-.8	-1.7	.7
<b>Durable</b>	3.2	3.7	2.9	-3.4	.5	-.2	.5	-.7	-2.1	.9
Consumer parts	8.4	4.6	4.3	.1	5.1	-.3	.8	-.2	-3.3	.1
Equipment parts	2.8	4.5	4.3	-5.1	-.8	-.2	.8	-1.5	-3.7	1.1
Other	1.6	2.9	1.6	-3.5	-.5	-.2	.3	-.4	-.5	1.1
<b>Nondurable</b>	1.0	-.3	-1.0	-.3	.8	.0	.2	-1.0	-1.2	.3
Textile	-.8	7.7	-2.8	-2.7	1.7	.1	-.4	-1.6	-2.3	1.0
Paper	.8	-.9	-.4	-2.9	-1.5	-.1	-.1	.1	-.3	-.7
Chemical	1.4	-1.8	-2.4	.0	.8	-.1	.5	-2.3	-2.8	1.0
<b>Energy</b>	5.2	5.3	9.5	-7.1	-2.4	.0	-.2	.3	-1.9	-.7
INDUSTRY GROUPS										
<b>Manufacturing<sup>2</sup></b>	1.7	.9	1.5	-.6	.2	.0	.1	-.5	-.6	.1
<b>Manufacturing (NAICS)</b>	31–33	2.1	1.0	1.8	-.5	.5	-.1	.1	-.5	-.7
<b>Durable manufacturing</b>	319	3.9	2.6	2.7	-2.0	.8	-.1	.1	-.6	-1.4
Wood products	321	8.1	4.3	3.7	3.8	3.7	.2	-.6	.8	3.8
Nonmetallic mineral products	327	3.9	4.6	3.2	2.4	.1	-.1	.1	-1.7	-2.0
Primary metals	331	-4.0	5.3	-1.3	-8.1	-2.1	-.1	.4	.5	-1.1
Fabricated metal products	332	1.6	3.5	.2	-4.7	-.8	.0	.0	-1.0	-1.5
Machinery	333	2.2	-4.0	2.3	-9.0	.4	-.4	1.0	-1.6	-4.0
Computer and electronic products	334	7.8	2.7	4.4	-.5	3.8	.1	-.2	-1.2	-2.0
Electrical equip., appliances, and components	335	2.2	-.1	.8	1.8	.5	-.1	.4	.0	-.6
Motor vehicles and parts	3361–3	6.5	11.0	6.9	3.9	4.8	-.4	.9	.5	-1.2
Aerospace and miscellaneous transportation equipment	3364–9	7.5	.9	4.9	-2.0	-2.1	.0	.0	.2	-.5
Furniture and related products	337	6.2	-.9	4.4	3.8	-2.0	.0	-.1	.5	.6
Miscellaneous	339	1.1	1.9	-1.8	-.9	-.9	.7	-1.9	-2.1	.6
<b>Nondurable manufacturing</b>	312	.1	-.8	.7	1.2	.1	-.1	.1	-.4	.1
Food, beverage, and tobacco products	311,2	1.3	1.2	.7	2.4	.2	.0	.0	.9	1.7
Textile and product mills	313,4	-1.9	6.9	.9	-1.9	.9	-.1	.4	.8	-1.4
Apparel and leather	315,6	-7.6	-4.5	-2.4	-5.6	-6.0	.2	-.8	-1.0	-1.3
Paper	322	2.3	-1.6	1.1	-3.3	-.1	.1	-.2	.4	-.1
Printing and support	323	-1.0	2.0	-2.8	2.9	-1.9	-.4	-.4	-2.2	.2
Petroleum and coal products	324	-.7	2.8	-5.5	1.5	2.1	-.4	1.1	-3.1	-5.1
Chemicals	325	-1.8	-4.5	1.7	1.3	.0	.0	.1	-.6	-.1
Plastics and rubber products	326	5.0	.0	4.4	.7	-.5	.0	.1	-1.3	-.5
<b>Other manufacturing (non-NAICS)</b>	1133,5111	-9.9	-.5	-4.7	-2.3	-6.5	.3	-.7	.6	2.0
<b>Mining</b>	21	5.7	5.6	11.9	-10.9	-4.6	-.6	-.3	-.5	-2.7
<b>Utilities</b>	2211,2	.2	4.4	-.6	-3.8	2.4	.2	.0	.1	.3
Electric	2211	-.4	3.6	-.3	-2.7	2.1	.2	.0	.0	.6
Natural gas	2212	4.6	11.2	-2.9	-12.1	4.3	.2	.1	.5	-.6

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: 2012–16<sup>1</sup>**

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
<b>Total industry</b>	2.3	2.2	3.4	-2.7	-1	.0	.1	-1	-1.0	.0
<b>Energy</b>	3.7	4.9	6.8	-7.8	-1.1	-.1	-.1	.1	-1.8	-.3
Consumer products	1.1	5.9	-3.9	-3.9	3.6	-.2	.7	-1.1	-1.3	.6
Commercial products	1.3	3.9	.2	-.3	1.7	-.1	.1	-.5	-.2	-.6
Oil and gas well drilling	213111	-8.0	-2.0	6.4	-59.7	-22.9	-.2	-.5	-.7	-.2
Converted fuel	4.6	.7	.8	-1.4	1.6	-.2	-.2	.2	.5	.2
Primary energy	5.3	6.4	11.7	-8.6	-4.0	.0	-.5	-.2	-2.5	-.7
<b>Non-energy</b>	1.7	.9	1.9	-.7	.2	.0	.1	-.4	-.5	.1
<b>Selected high-technology industries</b>	11.8	11.6	9.1	-.4	7.9	.0	.2	.4	-.5	1.1
Computers and peripheral equipment	3341	18.8	-1.3	6.0	-2.1	15.0	.4	-1.6	3.9	8.6
Communications equipment	3342	2.1	15.9	-4.9	.9	13.9	.5	-2.1	-2.3	.5
Semiconductors and related electronic components	3344	13.2	13.7	15.9	-.5	3.6	-.3	1.5	.4	-3.0
<b>Excluding selected high-technology industries</b>	1.2	.5	1.6	-.7	-1	.0	.1	-.4	-.5	.1
<b>Motor vehicles and parts</b>	3361-3	6.5	11.0	6.9	3.9	4.8	-.4	-.9	-.5	-1.2
Motor vehicles	3361	1.8	14.7	5.3	4.8	2.0	-.4	-.9	1.9	1.5
Motor vehicle parts	3363	10.2	6.4	8.5	2.9	7.4	-.4	1.0	-.4	-3.7
<b>Excluding motor vehicles and parts</b>	.8	-.3	1.2	-1.1	-.5	.0	.0	-.5	-.4	.1
Consumer goods	-2.4	-1.5	1.9	1.9	-8	.1	-.3	.7	1.7	-.3
Business equipment	7.1	-3.0	3.6	-4.4	-9	-.1	.1	-1.4	-2.5	-1.0
Construction supplies	3.2	3.5	3.9	.1	.8	.0	.0	-.6	-1.1	.7
Business supplies	.5	.8	-1.2	-.3	-1.1	.0	-.2	-1.3	-.6	.4
Materials	.9	1.2	.4	-2.5	-1	-.1	.3	-.9	-1.4	.6
<b>Measures excluding selected high-technology industries</b>										
Total industry	2.0	1.9	3.2	-2.7	-3	.0	.1	-1	-1.0	.0
Manufacturing <sup>2</sup>	1.2	.5	1.3	-.6	.0	.0	.1	-.5	-.6	.0
Durable	3.2	1.9	2.2	-2.2	.3	-.1	.1	-.7	-1.4	-.3
<b>Measures excluding motor vehicles and parts</b>										
Total industry	2.1	1.7	3.2	-3.0	-4	.0	.1	-1	-1.0	.0
Manufacturing <sup>2</sup>	1.4	.2	1.2	-.9	-1	.0	.0	-.5	-.5	.1
Durable	3.6	1.4	2.0	-3.0	.1	.0	.0	-.8	-1.4	-2
<b>Measures excluding selected high-technology industries and motor vehicles and parts</b>										
Total industry	1.7	1.5	3.0	-3.1	-6	.0	.1	-1	-1.0	.0
Manufacturing <sup>2</sup>	.9	-.2	.8	-.9	-4	.0	.0	-.6	-.5	.0
<b>Stage-of-process components of non-energy materials, measures of the input to</b>										
Finished processors	3.7	3.6	3.1	-3.1	.9	-.2	.6	-.8	-2.9	.5
Primary and semifinished processors	1.4	1.2	.3	-1.6	.4	-.1	.3	-.8	-.9	.8
<b>STAGE-OF-PROCESS GROUPS</b>										
Crude	5.9	4.5	8.5	-6.2	-3.1	-.4	.0	-.4	-2.7	.1
Primary and semifinished	1.3	3.6	1.3	-2.2	.7	.0	.2	-.6	-1.2	.6
Finished	1.1	-1.3	2.4	-1.2	.2	.0	-.2	.2	.2	-.6

1. See footnote 1 to table 2.

2. See footnote 2 to table 2.

**Table 4**  
**ANNUAL RATES OF CHANGE FOR INDUSTRIAL PRODUCTION: 2012–16<sup>1</sup>**

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
<b>Total IP</b>	2.9	2.0	3.1	-7	-1.2	.2	.1	.2	-1.0	-.3
MARKET GROUPS										
<b>Consumer goods</b>	-1.4	.7	.8	2.3	.6	.0	.0	.1	.9	.0
Durable	2.3	5.5	4.9	4.1	2.8	.2	-.1	.4	.2	-1.5
Nondurable	-2.3	-.5	-.3	1.8	.0	.0	.0	.0	1.2	.5
<b>Business equipment</b>	9.6	-.1	1.9	-.9	-1.8	-.2	.1	-.4	-1.6	-1.1
Defense and space equipment	2.0	-2.8	-3.2	-3.2	-1.4	.1	.1	-.4	2.4	-.3
<b>Construction supplies</b>	4.3	3.0	3.4	.5	1.4	.0	.0	-.3	-1.0	.2
Business supplies	1.0	1.8	1.0	-.7	.2	-.1	.0	-.5	-1.1	.3
<b>Materials</b>	4.3	3.4	5.1	-1.4	-2.3	.3	.1	.4	-1.9	-.4
Non-energy	2.8	1.9	2.0	-1.5	-.2	.0	.1	.1	-2.0	.2
Energy	6.3	5.3	8.6	-1.3	-5.8	.6	-.2	.3	-1.9	-1.1
INDUSTRY GROUPS										
<b>Manufacturing<sup>2</sup></b>	2.6	.9	1.2	.1	.0	.0	.0	-.1	-.7	-.1
Manufacturing (NAICS)	2.9	1.1	1.3	.2	.2	.0	.0	-.1	-.8	-.1
Durable manufacturing	5.5	2.2	2.9	-.8	-.2	.0	.0	-.1	-1.3	-.7
Nondurable manufacturing	.1	.0	-.6	1.4	.6	.0	.0	-.1	-.3	.5
Other manufacturing (non-NAICS)	-5.8	-5.0	-1.1	-3.9	-6.6	.2	.0	-.5	2.5	-.1
<b>Mining</b>	7.5	6.0	10.7	-4.3	-9.0	.1	-.5	-.3	-2.6	.4
<b>Utilities</b>	-2.2	2.3	1.4	-.7	-.3	.1	.0	.0	.1	.2

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: 2013–17<sup>1</sup>**

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
<b>Total industry</b>	1.4	1.7	1.1	.2	1.0	.4	-.1	-1.0	-.2	-.3
<b>Manufacturing<sup>2</sup></b>	.8	.0	.1	.7	.6	.4	-.2	-.8	.0	-.6
Manufacturing (NAICS)	1.0	.1	.2	.9	.7	.3	-.3	-.8	.1	-.5
Durable manufacturing	2.2	.3	.9	1.1	1.1	.3	.0	.3	.3	-.5
Nondurable manufacturing	-.3	-.1	-.5	.6	.4	.4	-.6	-2.1	-.1	-.4
Other manufacturing (non-NAICS)	-4.4	-4.2	-4.4	-4.0	-4.0	.8	1.3	.5	-4.5	-2.1
<b>Mining</b>	6.6	7.2	.7	-4.1	2.2	-.1	-1.1	-5.0	-.7	1.3
<b>Utilities</b>	.1	.5	1.0	2.2	.7	.1	-.5	.3	1.5	-.1
<b>Selected high-technology industries</b>	14.6	3.8	1.7	5.0	5.6	-.7	3.7	2.0	.9	1.6
Manufacturing <sup>2</sup> ex. selected high-technology industries	.3	-.2	.1	.6	.4	.4	-.4	-.8	.0	-.6
STAGE-OF-PROCESS GROUPS										
<b>Crude</b>	5.0	5.8	.6	-3.2	1.9	.1	-.7	-4.2	-.7	.9
<b>Primary and semifinished</b>	1.0	-.1	-.2	1.1	.5	.2	-.2	-.8	.1	-.5
<b>Finished</b>	.4	.3	.9	.7	.8	.6	-.2	-.2	.1	-.5

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)				
	1972-2016 Ave.	2013 Q4	2014 Q4	2015 Q4	2016 Q4	2013 Q4	2014 Q4	2015 Q4	2016 Q4	
<b>Total industry</b>		79.9	77.6	78.9	76.0	75.8	.3	.3	.2	.4
<b>Manufacturing<sup>1</sup></b>		78.4	74.7	75.9	75.4	75.1	.1	-.1	.0	.1
<b>Manufacturing (NAICS)</b>	31-33	78.3	75.2	76.4	75.8	75.5	.2	.0	.1	.0
<b>Durable manufacturing</b>		76.9	75.3	77.1	74.9	74.7	.6	.1	-1.2	-1.5
Wood products	321	76.4	72.3	71.5	74.3	76.8	.5	.1	6.2	9.9
Nonmetallic mineral products	327	73.8	61.9	64.0	65.4	64.7	1.0	.0	-1.0	-.7
Primary metals	331	78.6	75.2	76.1	69.6	66.5	.2	.7	-.8	-3.0
Fabricated metal products	332	77.7	80.5	81.1	78.4	78.3	-.1	-.5	-1.0	-1.3
Machinery	333	77.5	75.4	76.4	69.0	69.1	1.2	.5	-3.0	-2.7
Computer and electronic products	334	77.6	72.3	72.8	70.4	70.1	2.0	-.4	-2.8	-2.9
Electrical equip., appliances, and components	335	82.4	81.1	81.2	80.3	80.5	-1.6	-1.6	-4.5	-2.1
Motor vehicles and parts	3361-3	75.2	74.2	78.4	80.5	82.9	.7	.5	-.5	-1.2
Aerospace and miscellaneous transportation equipment	3364-9	74.2	79.4	84.3	80.8	78.4	.4	1.2	-1.0	-2.9
Furniture and related products	337	76.7	72.7	77.3	80.3	79.1	.1	1.4	2.4	2.1
Miscellaneous	339	76.5	77.3	78.0	77.8	77.4	-1.6	-1.1	.7	-1.3
<b>Nondurable manufacturing</b>		80.2	74.9	75.5	76.8	76.4	-.3	-.1	1.5	1.9
Food, beverage, and tobacco products	311,2	80.7	79.0	77.2	77.4	76.8	-.1	-.3	1.3	1.9
Textile and product mills	313,4	79.1	70.8	72.2	71.2	71.6	-1.5	-.4	-.5	-.5
Apparel and leather	315,6	76.7	65.8	69.2	68.6	67.6	-.6	3.1	5.1	3.8
Paper	322	86.6	81.9	85.3	84.9	87.2	-.6	.9	2.7	3.4
Printing and support	323	79.4	64.7	63.6	67.1	67.2	1.7	.0	1.5	2.3
Petroleum and coal products	324	85.3	83.5	81.9	82.1	80.1	-.4	.1	1.7	1.5
Chemicals	325	76.9	68.5	71.2	73.9	74.0	-1.0	-.8	.7	.7
Plastics and rubber products	326	82.2	80.3	82.8	82.6	80.9	2.4	1.8	2.6	5.0
<b>Other manufacturing (non-NAICS)</b>	1133,5111	80.5	64.1	63.7	65.1	63.4	-1.1	-1.5	-.6	2.0
<b>Mining</b>	21	87.0	86.7	90.5	80.0	79.6	-.9	-.4	1.1	2.2
<b>Utilities</b>	2211,2	85.6	81.7	80.8	76.9	77.0	-.1	.4	.3	-.9
<b>Selected high-technology industries</b>		77.3	68.8	72.3	70.8	72.8	1.3	-1.0	-2.8	-2.8
Computers and peripheral equipment	3341	77.5	64.1	71.0	66.7	76.7	.1	1.1	-.3	-9.0
Communications equipment	3342	76.5	79.8	71.3	70.2	76.1	-.6	-1.5	2.5	-2.1
Semiconductors and related electronic components	3344	78.6	66.1	73.0	72.2	70.4	2.2	-1.3	-5.7	-2.3
<b>Measures excluding selected high-technology industries</b>										
Total industry		80.1	77.9	79.1	76.1	75.9	.2	.3	.3	.4
Manufacturing <sup>1</sup>		78.5	75.0	76.1	75.6	75.1	.1	.0	.1	.2
<b>STAGE-OF-PROCESS GROUPS</b>										
Crude		86.1	85.6	88.1	79.8	79.8	.1	.4	1.2	1.9
Primary and semifinished		80.5	76.2	77.1	75.6	75.3	.3	.0	-.2	.1
Finished		76.9	74.1	75.6	75.2	74.8	-.4	-.2	.2	-.2

1. See footnote 2 to table 2.

**Table 7A**  
**INDUSTRIAL PRODUCTION: Manufacturing<sup>1</sup>**  
 Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual <sup>2</sup>
<b>IP (percent change)</b>																	
1987	-.3	1.5	.1	.6	.7	.3	.8	.6	.5	1.6	.6	.6	5.8	7.1	7.7	11.5	5.7
1988	-.2	.2	.3	.9	-.2	.2	.0	.1	.4	.5	.3	.5	2.8	4.3	.8	4.5	5.4
1989	.8	-1.0	-1	.3	-.9	.2	-1.1	.9	-.3	-.2	.2	.1	2.1	-2.8	-3.2	.4	.8
1990	-.2	1.5	.5	-.2	.1	.3	-.2	.3	.0	-.8	-1.1	-.7	4.3	3.1	1.1	-6.7	.8
1991	-.7	-.7	-.7	.3	.7	1.0	.3	.2	1.1	-.2	-.2	-.2	-8.8	1.8	7.2	1.6	-1.9
1992	-.6	-.9	1.0	.5	.6	.3	.9	-.4	.1	.6	.4	-.1	.5	8.3	4.1	3.2	3.7
1993	1.0	.2	-.2	.5	-.1	-.2	.3	-.2	.6	.8	.4	.6	4.5	1.4	.8	6.9	3.5
1994	.2	.1	1.3	.8	.7	.3	.4	.8	.5	1.0	.8	1.1	4.8	9.4	6.1	10.3	5.8
1995	.2	-.3	.2	-.1	.1	.5	-.7	1.1	.9	-.1	.1	.4	4.4	.8	3.0	4.4	5.1
1996	-.8	1.6	-.2	1.1	.8	1.0	.2	.6	.8	-.2	.9	.9	2.0	10.0	7.5	6.0	4.9
1997	.1	1.4	1.1	-.2	.8	.7	.7	1.3	.9	.9	1.1	.4	9.3	7.2	10.5	11.4	8.4
1998	.8	.1	-1	.5	.5	-.8	-.4	2.4	-.2	1.0	.2	.6	6.0	2.1	3.3	8.1	6.6
1999	.3	.8	.0	.4	.9	-.3	.5	.6	-.4	1.5	.6	.7	5.2	4.6	3.3	8.6	5.1
2000	.1	.2	.6	.7	-.1	.2	.1	-.7	.4	-.3	-.3	-.6	4.4	4.9	-.4	-2.4	4.1
2001	-.6	-.6	-.3	-.2	-.7	-.7	-.5	-.5	-.2	-.6	-.3	.3	-6.0	-5.2	-6.0	-4.0	-3.7
2002	.5	.0	.8	.2	.5	1.1	-.4	.2	.1	-.4	.4	-.5	3.6	5.9	3.1	-.4	.4
2003	.5	.1	.1	-.8	.1	.5	.2	-.4	.8	.1	1.0	-.2	1.7	-1.9	2.2	4.6	1.3
2004	-.1	.7	-1	.4	.8	-.7	.9	.5	.0	1.0	-.1	.7	2.4	3.4	4.0	5.4	3.1
2005	.7	.8	-.5	.3	.4	.2	-.4	.4	-1.0	1.5	.8	.2	6.4	2.3	-.8	6.3	4.0
2006	.8	-.3	-.1	.5	-.5	.3	-.3	.6	.1	-.4	.1	1.5	3.8	.8	.8	1.7	2.5
2007	-.5	.4	.8	.7	-.1	.3	.1	-.3	.4	-.4	.5	.1	4.2	5.9	.7	.5	2.7
2008	-.4	-.6	-.3	-1.1	-.5	-.6	-1.2	-1.1	-3.4	-.6	-2.3	-3.5	-2.8	-7.8	-13.5	-21.4	-4.8
2009	-3.0	-.2	-1.9	-.8	-1.1	-.4	1.4	1.2	.8	.2	1.0	-.2	-24.3	-11.5	7.4	6.9	-13.8
2010	1.1	-.1	1.2	.9	1.4	-.1	.6	.2	.1	.1	.0	.4	6.7	10.8	4.9	1.6	5.8
2011	.2	.1	.6	-.6	.1	.1	.5	.4	.3	.6	-.4	.6	2.9	-.4	3.9	3.6	2.9
2012	.9	.4	-.5	.6	-.4	.2	-.1	-.2	.0	-.2	.8	.7	5.3	.8	-1.0	1.8	2.6
2013	-.3	.5	-.2	-.4	.2	.2	-1.1	1.0	.1	.1	.0	.0	2.8	-.6	-.6	2.0	.9
2014	-1.0	1.1	.8	.0	.2	.3	.2	-.4	.0	.0	.9	-.4	-.4	4.4	1.1	1.2	1.2
2015	-.4	-.5	.3	.1	-.1	-.3	.6	-.1	-.3	.2	-.1	-.3	-2.2	-.2	1.0	-.9	.1
2016	.6	-.2	-.2	.0	-.2	.2	.1	-.4	.2	.2	.2	.1	.7	-1.1	-.1	1.6	.0
2017	.6	.5															
<b>IP (2012=100)</b>																	
1987	57.0	57.9	57.9	58.2	58.7	58.9	59.3	59.7	60.0	61.0	61.3	61.7	57.6	58.6	59.7	61.3	59.3
1988	61.6	61.7	61.9	62.4	62.3	62.4	62.4	62.5	62.7	63.0	63.2	63.5	61.7	62.4	62.5	63.2	62.5
1989	64.0	63.4	63.3	63.4	62.9	63.0	62.3	62.8	62.6	62.5	62.7	62.7	63.5	63.1	62.6	62.7	63.0
1990	62.6	63.5	63.8	63.7	63.8	64.0	63.9	64.1	64.0	63.5	62.8	62.3	63.3	63.8	64.0	62.9	63.5
1991	61.9	61.5	61.0	61.2	61.7	62.3	62.5	62.6	63.3	63.2	63.1	63.0	61.5	61.7	62.8	63.1	62.3
1992	62.6	63.1	63.8	64.1	64.5	64.7	65.3	65.0	65.0	65.4	65.7	65.6	63.2	64.4	65.1	65.6	64.6
1993	66.3	66.4	66.3	66.6	66.6	66.5	66.6	66.5	66.9	67.5	67.8	68.2	66.3	66.6	66.7	67.8	66.8
1994	68.3	68.3	69.2	69.8	70.3	70.4	70.7	71.3	71.6	72.3	72.9	73.7	68.6	70.2	71.2	73.0	70.7
1995	73.8	73.6	73.8	73.7	73.8	74.2	73.7	74.5	75.2	75.1	75.2	75.5	73.8	73.9	74.5	75.3	74.3
1996	74.9	76.1	75.9	76.8	77.4	78.2	78.4	78.8	79.5	79.3	80.0	80.7	75.6	77.5	78.9	80.0	78.0
1997	80.8	81.9	82.8	82.7	83.3	83.9	84.4	85.5	86.2	87.0	87.9	88.3	81.8	83.3	85.4	87.7	84.6
1998	89.0	89.1	89.0	89.4	89.9	89.2	88.8	91.0	90.8	91.7	91.9	92.4	89.0	89.5	90.2	92.0	90.2
1999	92.7	93.4	93.4	93.7	94.6	94.3	94.7	95.3	94.9	96.3	96.9	97.6	93.1	94.2	95.0	96.9	94.8
2000	97.7	97.8	98.5	99.2	99.1	99.3	99.4	98.7	99.1	98.8	98.6	98.0	98.0	99.2	99.1	98.5	98.7
2001	97.5	96.9	96.6	96.4	95.6	95.0	94.6	94.1	93.9	93.3	93.1	93.3	97.0	95.7	94.2	93.3	95.0
2002	93.8	93.8	94.6	94.8	95.3	96.3	96.0	96.2	96.3	96.0	96.4	95.9	94.1	95.4	96.2	96.1	95.4
2003	96.4	96.5	96.6	95.8	95.9	96.4	96.6	96.1	96.9	97.0	98.0	97.8	96.5	96.0	96.5	97.6	96.7
2004	97.8	98.5	98.4	98.8	99.6	98.8	99.7	100.2	100.2	101.2	101.1	101.8	98.2	99.1	100.0	101.3	99.7
2005	102.6	103.4	102.9	103.2	103.6	103.8	103.4	103.8	102.8	104.3	105.1	105.3	102.9	103.5	103.3	104.9	103.7
2006	106.1	105.8	105.8	106.3	105.8	106.2	105.9	106.5	106.6	106.2	106.3	107.8	105.9	106.1	106.3	106.8	106.3
2007	107.3	107.7	108.6	109.4	109.3	109.6	109.7	109.4	109.8	109.4	109.9	110.0	107.9	109.4	109.6	109.8	109.2
2008	109.5	108.9	108.5	107.3	106.8	106.2	105.0	103.7	100.2	99.6	97.3	93.9	109.0	106.8	103.0	97.0	103.9
2009	91.1	90.9	89.2	88.5	87.5	87.2	88.4	89.4	90.1	90.3	91.2	91.0	90.4	87.7	89.3	90.8	89.6
2010	91.9	91.9	93.0	93.8	95.2	95.1	95.7	95.9	95.9	96.1	96.1	96.5	92.3	94.7	95.8	96.2	94.8
2011	96.7	96.7	97.3	96.7	96.8	96.9	97.4	97.7	98.0	98.6	98.3	98.9	96.9	96.8	97.7	98.6	97.5
2012	99.8	100.2	99.6	100.3	99.9	100.1	99.9	99.8	99.7	99.5	100.3	101.0	99.9	100.1	99.8	100.3	100.0
2013	100.7	101.2	101.0	100.6	100.8	101.0	100.0	101.0	101.1	101.2	101.2	101.1	101.0	100.8	100.7	101.2	100.9
2014	100.1	101.2	101.9	101.9	102.1	102.4	102.7	102.3	102.3	102.3	103.2	102.8	101.1	102.1	102.4	102.7	102.1
2015	102.4	101.9	102.2	102.2	102.2	101.9	102.5	102.4	102.1	102.3	102.2	101.9	102.1	102.1	102.3	102.1	102.2
2016	102.5	102.3	102.1	102.1	101.9	102.1	102.1	101.8	102.0	102.2	102.4	102.5	102.3	102.0	102.0	102.4	102.2
2017	103.1	103.6															

NOTE: Estimates from October 2016 through February 2017 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 8A**  
**INDUSTRIAL PRODUCTION: Total Industry Excluding Selected High-Technology Industries<sup>1</sup>**  
 Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual <sup>2</sup>
<b>IP (percent change)</b>																	
1987	-5	1.2	.2	.5	.5	.4	.6	.7	.2	1.4	.5	.4	4.3	6.4	6.4	9.1	4.3
1988	.0	.4	.2	.5	-2	.2	.0	.4	-3	.5	.2	.5	3.3	2.8	.9	2.6	4.5
1989	.3	-4	.3	.0	-7	.0	-1.0	.9	-4	-2	.3	.6	2.0	-1.6	-3.3	.9	.6
1990	-8	1.0	.5	-2	.1	.3	-1	.3	.1	-8	-1.3	-7	2.0	2.6	1.3	-6.7	.4
1991	-4	-8	-6	.2	1.0	.9	.1	.0	.9	-2	-2	-6	-8.0	1.9	5.4	.4	-2.0
1992	-8	.7	.8	.6	.2	-1	.8	-6	.1	.6	.3	.1	-1.9	6.2	2.0	2.9	1.9
1993	.4	.4	-2	.3	-4	.2	.3	-2	.4	.7	.3	.5	3.1	.2	1.3	5.3	2.5
1994	.3	.0	.9	.3	.4	.6	.0	.4	.1	.6	.4	.9	4.3	5.4	3.2	5.8	4.0
1995	.1	-2	-1	-2	.1	.2	-5	1.0	.1	-4	.1	.1	2.8	-1.2	1.3	.4	2.4
1996	-1.0	1.3	-3	.8	.5	.6	-5	.4	.5	-4	.8	.5	-6	6.6	2.0	3.1	1.7
1997	-1	.9	.4	-3	.3	.2	.5	.8	.6	.7	.6	.1	5.1	2.3	6.4	7.6	4.2
1998	.3	.0	.0	.1	.6	-9	-7	1.9	-5	.5	-3	.1	2.2	.7	-3	2.4	3.1
1999	.1	.2	-1	-1	.5	-5	.3	.4	-5	1.2	.2	.6	.6	.3	.9	5.6	1.1
2000	-3	.0	.1	.5	-1	-1	-5	-5	.3	-4	-2	-5	.6	1.7	-3.2	-2.6	1.0
2001	-7	-6	-3	-1	-6	-5	-4	-1	-4	-5	-5	-1	-5.8	-4.2	-4.5	-4.4	-3.9
2002	.7	-1	.8	.4	.5	.9	-3	-1	.1	-4	.5	-6	2.5	6.2	2.0	-.7	.2
2003	.5	.2	-3	-9	-1	.0	.2	-3	.5	.0	.8	-1	1.2	-4.5	.6	2.8	.2
2004	.1	.6	-6	.5	.8	-9	.8	.0	.0	.9	.2	.7	1.8	2.2	2.0	5.2	1.8
2005	.3	.6	-2	.0	.1	.4	-4	.1	-2.1	1.2	1.0	.6	4.8	1.3	-3.0	2.7	2.6
2006	.1	.0	.2	.4	-2	.3	-1	.3	-3	-1	-1	1.1	3.3	1.8	.5	.3	1.4
2007	-6	1.0	.0	.6	.1	.1	-1	.1	.2	-7	.3	-1	3.0	4.0	.9	-1.0	1.8
2008	-4	-5	-4	-8	-6	-2	-5	-1.5	-4.4	1.2	-1.0	-2.8	-2.8	-6.5	-12.3	-14.7	-4.3
2009	-2.4	-7	-1.7	-1.0	-1.1	-4	1.1	1.1	.7	.3	.4	.3	-20.4	-12.3	5.6	6.0	-11.5
2010	1.1	.2	.6	.4	1.5	.2	.4	.4	.3	-3	.0	.8	7.0	8.0	5.8	1.1	5.0
2011	-2	-5	1.0	-4	.2	.2	.4	.5	-1	.8	-2	.5	1.5	1.3	4.0	3.9	2.8
2012	.6	.3	-6	.8	.2	.0	.2	-4	-1	.2	.5	.3	3.6	2.2	.1	2.0	2.7
2013	-1	.6	.3	-1	.0	.2	-6	.8	.5	-1	.3	.3	3.0	1.1	.5	3.0	1.7
2014	-5	1.0	.9	.2	.2	.4	.0	-1	.3	.1	.8	-2	3.0	5.7	1.5	2.7	2.9
2015	-7	-2	-3	-4	-4	-3	.5	.0	-3	-2	-6	-5	-3.3	-4.1	.4	-3.8	-8
2016	.5	-2	-7	.3	-1	.4	.1	-1	-2	.2	-2	.7	-1.5	-8	.6	.5	-1.3
2017	-1	.1															
<b>IP (2012=100)</b>																	
1987	77.1	78.0	78.1	78.6	79.0	79.3	79.8	80.3	80.5	81.6	82.0	82.3	77.7	79.0	80.2	82.0	79.7
1988	82.3	82.7	82.8	83.2	83.1	83.2	83.2	83.6	83.3	83.7	83.8	84.2	82.6	83.2	83.4	83.9	83.3
1989	84.5	84.1	84.4	84.4	83.8	83.8	82.9	83.6	83.3	83.2	83.4	83.9	84.3	84.0	83.3	83.5	83.8
1990	83.2	84.1	84.4	84.3	84.4	84.6	84.5	84.8	84.9	84.2	83.1	82.5	83.9	84.4	84.7	83.3	84.1
1991	82.2	81.5	81.0	81.2	81.9	82.7	82.8	82.8	83.5	83.4	83.2	82.7	81.5	81.9	83.0	83.1	82.4
1992	82.1	82.7	83.3	83.9	84.1	84.0	84.7	84.2	84.3	84.8	85.1	85.1	82.7	84.0	84.4	85.0	84.0
1993	85.5	85.8	85.6	85.9	85.5	85.6	85.9	85.8	86.1	86.7	87.0	87.4	85.6	85.7	85.9	87.1	86.1
1994	87.7	87.7	88.5	88.7	89.1	89.6	89.6	89.9	90.0	90.6	91.0	91.8	88.0	89.1	89.8	91.1	89.5
1995	91.9	91.7	91.6	91.4	91.4	91.6	91.1	92.1	92.1	91.8	91.8	91.9	91.7	91.5	91.8	91.8	91.7
1996	91.0	92.2	91.9	92.7	93.2	93.7	93.3	93.6	94.1	93.7	94.5	94.9	91.7	93.2	93.7	94.4	93.2
1997	94.9	95.7	96.1	95.8	96.1	96.3	96.9	97.6	98.3	99.0	99.6	99.7	95.6	96.1	97.6	99.4	97.2
1998	100.0	100.0	99.9	100.1	100.6	99.7	99.0	100.9	100.3	100.9	100.5	100.6	100.0	100.1	100.1	100.7	100.2
1999	100.7	100.9	100.8	100.7	101.2	100.8	101.0	101.4	100.9	102.1	102.4	103.0	100.8	100.9	101.1	102.5	101.3
2000	102.6	102.6	102.7	103.2	103.1	103.0	102.5	102.0	102.3	101.9	101.7	101.2	102.6	103.1	102.3	101.6	102.4
2001	100.5	100.0	99.7	99.6	99.0	98.5	98.1	98.0	97.6	97.1	96.6	96.6	100.1	99.0	97.9	96.8	98.4
2002	97.2	97.1	97.8	98.2	98.7	99.6	99.3	99.3	99.4	99.0	99.5	98.9	97.4	98.8	99.3	99.2	98.7
2003	99.5	99.6	99.3	98.4	98.3	98.3	98.5	98.2	98.7	98.7	99.5	99.3	99.5	98.3	98.5	99.2	98.9
2004	99.4	100.0	99.4	99.9	100.7	99.8	100.6	100.7	100.7	101.6	101.8	102.5	99.6	100.2	100.7	101.9	100.6
2005	102.8	103.4	103.2	103.2	103.4	103.8	103.3	103.4	101.3	102.5	103.5	104.1	103.1	103.5	102.7	103.4	103.2
2006	104.2	104.1	104.3	104.7	104.5	104.8	104.7	105.0	104.7	104.6	104.5	105.6	104.2	104.7	104.8	104.9	104.6
2007	105.0	106.0	106.0	106.6	106.7	106.8	106.8	106.9	107.2	106.5	106.8	106.7	105.7	106.7	106.9	106.7	106.5
2008	106.4	105.9	105.5	104.6	104.0	103.8	103.3	101.8	97.3	98.4	97.4	94.7	105.9	104.1	100.8	96.8	101.9
2009	92.4	91.8	90.2	89.3	88.3	87.9	88.9	89.9	90.5	90.8	91.1	91.3	91.5	88.5	89.7	91.1	90.2
2010	92.3	92.5	93.1	93.4	94.8	95.0	95.4	95.8	96.1	95.8	95.8	96.5	92.6	94.4	95.8	96.0	94.7
2011	96.4	95.9	96.9	96.5	96.7	96.9	97.3	97.9	97.8	98.5	98.4	98.9	96.4	96.7	97.7	98.6	97.3
2012	99.5	99.8	99.1	99.9	100.1	100.0	100.3	99.9	99.9	100.1	100.6	100.9	99.5	100.0	100.0	100.5	100.0
2013	100.8	101.4	101.6	101.5	101.5	101.6	101.0	101.8	102.2	102.1	102.4	102.7	101.3	101.5	101.7	102.4	101.7
2014	102.2	103.2	104.1	104.3	104.6	105.0	105.0	104.9	105.2	105.3	106.1	105.9	103.2	104.6	105.0	105.7	104.6
2015	105.1	104.9	104.5	104.1	103.7	103.4	104.0	104.0	103.7	103.4	102.8	102.3	104.8	103.8	103.9	102.9	103.8
2016	102.9	102.7	101.9	102.2	102.1	102.5	102.6	102.5	102.3	102.5	102.2	103.0	102.5	102.3	102.4	102.6	102.4
2017	102.8	102.9															

NOTE: Estimates from October 2016 through February 2017 are subject to further revision in the upcoming monthly releases.  
 1. High-technology industries include computers, communications equipment, and semiconductors and related electronic components.  
 2. Annual averages of industrial production are calculated from not seasonally adjusted indexes.





**Table 9A**  
**INDUSTRIAL PRODUCTION: Manufacturing Excluding Selected High-Technology Industries<sup>1,2</sup>**  
 Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual <sup>3</sup>
<b>IP (percent change)</b>																	
1987	-5	1.4	.1	.4	.6	.2	.7	.5	.4	1.5	.5	.5	4.6	6.0	6.0	10.3	4.6
1988	-2	.2	.2	.8	-3	.1	-1	.0	.3	.5	.3	.5	2.2	3.4	-1	4.3	4.5
1989	.9	-1.0	-1	.2	-9	.2	-1.3	.8	-3	-3	.2	.0	2.4	-3.1	-4.3	-6	.4
1990	-3	1.5	.4	-3	.1	.2	-2	.3	-1	-9	-1.2	-8	3.5	2.5	.6	-7.5	.0
1991	-8	-8	-8	.4	.6	1.1	.3	.1	1.1	-2	-3	-4	-9.7	1.2	7.1	1.1	-2.6
1992	-8	.8	1.0	.4	.5	.1	.8	-5	-1	.5	.3	-2	-1.2	7.1	2.8	1.5	2.6
1993	1.0	.2	-3	.5	-1	-2	.3	-3	.6	.8	.3	.5	4.0	.6	.3	5.9	2.6
1994	.1	.1	1.1	.6	.5	.1	.2	.6	.2	.7	.6	1.0	3.9	7.1	3.7	7.1	4.4
1995	.1	-4	-1	-4	-1	.3	-8	.8	.5	-4	-1	.0	2.7	-2.3	.2	.7	2.5
1996	-1.2	1.3	-5	1.0	.6	.8	-1	.3	.6	-5	.7	.7	-2.0	7.4	4.0	2.9	1.5
1997	-2	1.1	.8	-6	.4	.4	1.0	.6	.7	.8	.1	.1	6.2	2.9	6.8	8.2	4.9
1998	.6	.0	-3	.2	.4	-1.2	-8	2.3	-6	.7	-1	.2	3.4	-2	-5	4.1	3.5
1999	-1	.5	-4	.0	.7	-7	.0	.6	-5	1.4	.4	.4	.7	.3	.0	6.7	1.3
2000	-3	-2	.3	.4	-6	.0	-2	-1.0	.3	-4	-5	-8	.3	.9	-3.8	-4.6	.7
2001	-6	-6	-3	-1	-7	-5	-2	-5	-2	-7	-2	.2	-6.8	-4.4	-4.6	-4.2	-4.7
2002	.6	-2	.8	.2	.6	1.1	-4	.1	.1	-4	.4	-6	3.2	5.6	2.5	-1.0	.4
2003	.4	-1	.0	-1.0	-1	.3	.0	-6	.7	-1	1.0	-3	.5	-3.9	-1	3.1	.0
2004	-2	.7	-2	.4	.8	-8	.9	.4	-1	1.0	-1	.6	1.3	3.3	3.8	4.8	2.0
2005	.6	.7	-6	.2	.3	.1	-5	.2	-1.2	1.4	.8	.1	5.2	1.4	-2.2	5.0	3.1
2006	.8	-4	-1	.5	-6	.2	-4	.5	-1	-4	.0	1.5	3.1	.0	-4	.8	1.5
2007	-6	.3	.6	.5	.0	.5	.0	-4	.3	-7	.3	.0	3.3	4.7	.7	-1.7	1.8
2008	-5	-8	-5	-1.2	-6	-6	-1.1	-1.2	-3.5	-4	-2.1	-3.3	-4.5	-9.3	-13.8	-20.3	-5.9
2009	-3.1	-2	-2.0	-9	-1.2	-4	1.4	1.2	.8	.1	.9	-3	-24.2	-12.5	7.4	6.4	-13.9
2010	1.0	-3	1.1	.8	1.5	-1	.6	.2	.0	.1	-1	.2	5.2	10.1	4.7	.9	5.1
2011	.1	.1	.6	-6	.1	.0	.6	.3	.3	.7	-4	.6	2.2	-6	3.7	3.7	2.5
2012	.9	.3	-6	.6	-5	.2	-2	-1	-1	-3	.8	.7	5.0	.1	-1.3	1.3	2.3
2013	-3	.5	-2	-5	.2	.2	-1.2	1.0	.1	.1	-1	-1	2.8	-1.1	-1.2	1.7	.5
2014	-1.1	1.1	.7	-1	.1	.3	.2	-4	.0	.0	.9	-4	-8	3.9	.8	1.2	.8
2015	-4	-5	.3	.1	-1	-3	.7	-1	-3	.1	-1	-3	-2.2	-3	1.1	-9	.0
2016	.5	-2	-2	.0	-2	.2	.0	-4	.2	.1	.2	.1	.5	-1.3	-3	1.1	-2
2017	.6	.5															
<b>IP (2012=100)</b>																	
1987	80.5	81.6	81.7	82.0	82.5	82.7	83.3	83.7	84.0	85.3	85.7	86.2	81.2	82.4	83.6	85.7	83.3
1988	86.0	86.2	86.4	87.1	86.8	86.9	86.8	86.8	87.1	87.5	87.8	88.2	86.2	86.9	86.9	87.8	87.0
1989	89.0	88.1	88.0	88.2	87.4	87.5	86.4	87.0	86.8	86.5	86.6	86.6	88.4	87.7	86.7	86.6	87.3
1990	86.3	87.6	88.0	87.8	87.8	88.0	87.9	88.1	88.0	87.2	86.2	85.5	87.3	87.9	88.0	86.3	87.4
1991	84.8	84.1	83.4	83.8	84.3	85.2	85.5	85.6	86.6	86.4	86.1	85.8	84.1	84.4	85.9	86.1	85.1
1992	85.1	85.8	86.7	87.0	87.4	87.5	88.3	87.8	87.7	88.1	88.4	88.2	85.8	87.3	87.9	88.3	87.3
1993	89.1	89.3	89.0	89.4	89.3	89.1	89.3	89.1	89.6	90.3	90.6	91.0	89.1	89.2	89.3	90.6	89.6
1994	91.1	91.2	92.2	92.7	93.2	93.3	93.5	94.0	94.2	94.9	95.4	96.3	91.5	93.1	93.9	95.5	93.5
1995	96.4	96.1	96.0	95.6	95.5	95.8	95.0	95.7	96.3	95.9	95.8	95.8	96.2	95.6	95.7	95.8	95.8
1996	94.7	95.9	95.5	96.5	97.0	97.8	97.6	97.9	98.5	98.0	98.7	99.4	95.3	97.1	98.0	98.7	97.3
1997	99.3	100.3	101.1	100.5	100.9	101.3	101.7	102.7	103.3	104.0	104.9	105.0	100.2	100.9	102.6	104.7	102.1
1998	105.6	105.6	105.3	105.6	106.0	104.8	104.0	106.3	105.7	106.4	106.3	106.5	105.5	105.5	105.3	106.4	105.7
1999	106.4	106.9	106.4	106.4	107.2	106.4	106.4	107.1	106.5	108.0	108.4	108.8	106.6	106.7	106.7	108.4	107.1
2000	108.5	108.3	108.7	109.1	108.5	108.5	108.3	107.2	107.6	107.1	106.5	105.7	108.5	108.7	107.7	106.4	107.8
2001	105.1	104.5	104.2	104.1	103.4	102.8	102.6	102.1	101.9	101.2	101.0	101.1	104.6	103.4	102.2	101.1	102.8
2002	101.8	101.6	102.3	102.5	103.1	104.3	103.8	103.9	104.0	103.6	104.0	103.4	101.9	103.3	103.9	103.7	103.2
2003	103.8	103.8	103.8	102.7	102.6	102.9	102.9	102.3	103.0	103.0	104.0	103.7	103.8	102.8	102.7	103.5	103.2
2004	103.4	104.2	104.0	104.4	105.3	104.4	105.4	105.9	105.7	106.8	106.7	107.3	103.9	104.7	105.7	106.9	105.3
2005	108.0	108.8	108.1	108.4	108.7	108.9	108.3	108.6	107.3	108.8	109.6	109.7	108.3	108.7	108.1	109.4	108.6
2006	110.6	110.1	110.0	110.6	109.9	110.2	109.8	110.3	110.2	109.8	109.8	111.4	110.2	110.2	110.1	110.3	110.2
2007	110.8	111.1	111.8	112.3	112.3	112.9	112.9	112.4	112.8	112.0	112.3	112.3	111.2	112.5	112.7	112.2	112.2
2008	111.7	110.8	110.3	109.0	108.3	107.6	106.4	105.1	101.5	101.1	98.9	95.7	110.9	108.3	104.3	98.6	105.5
2009	92.7	92.5	90.6	89.8	88.7	88.3	89.6	90.7	91.4	91.5	92.3	92.1	92.0	88.9	90.5	92.0	90.9
2010	92.9	92.7	93.8	94.5	95.9	95.8	96.4	96.5	96.6	96.7	96.6	96.8	93.1	95.4	96.5	96.7	95.4
2011	97.0	97.1	97.7	97.0	97.1	97.1	97.7	98.0	98.3	98.9	98.5	99.1	97.2	97.1	98.0	98.9	97.8
2012	100.1	100.4	99.8	100.4	99.9	100.0	99.9	99.8	99.6	99.3	100.1	100.8	100.1	100.1	99.8	100.1	100.0
2013	100.5	101.0	100.8	100.3	100.5	100.7	99.5	100.5	100.6	100.6	100.6	100.5	100.8	100.5	100.2	100.6	100.5
2014	99.4	100.5	101.2	101.2	101.3	101.6	101.9	101.4	101.4	101.4	102.3	101.9	100.4	101.4	101.6	101.9	101.3
2015	101.5	101.0	101.3	101.4	101.3	101.0	101.7	101.6	101.3	101.4	101.4	101.0	101.3	101.2	101.5	101.3	101.3
2016	101.6	101.4	101.2	101.1	100.9	101.1	101.2	100.8	101.0	101.1	101.3	101.4	101.4	101.1	101.0	101.3	101.2
2017	101.9	102.5															

NOTE: Estimates from October 2016 through February 2017 are subject to further revision in the upcoming monthly releases.

1. See footnote 2 to table 2.

2. High-technology industries include computers, communications equipment, and semiconductors and related electronic components.

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

**Table 9B**  
**CAPACITY AND UTILIZATION: Manufacturing Excluding Selected High-Technology Industries<sup>1,2</sup>**

Seasonally adjusted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
<b>Capacity (percent of 2012 output)</b>																	
1987	101.7	101.9	102.0	102.2	102.3	102.5	102.6	102.8	102.9	103.0	103.0	103.1	101.9	102.3	102.8	103.0	102.5
1988	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.2	103.2	103.3	103.1	103.1	103.1	103.2	103.1
1989	103.4	103.5	103.7	103.9	104.0	104.2	104.4	104.6	104.8	105.0	105.2	105.4	103.6	104.0	104.6	105.2	104.4
1990	105.6	105.8	106.0	106.2	106.4	106.5	106.7	106.9	107.0	107.2	107.3	107.5	105.8	106.4	106.9	107.3	106.6
1991	107.6	107.7	107.9	108.0	108.1	108.3	108.4	108.5	108.6	108.8	108.9	109.0	107.7	108.1	108.5	108.9	108.3
1992	109.1	109.3	109.4	109.5	109.7	109.8	110.0	110.1	110.2	110.4	110.5	110.7	109.3	109.7	110.1	110.5	109.9
1993	110.8	110.9	111.0	111.2	111.3	111.4	111.5	111.6	111.7	111.8	111.9	112.0	110.9	111.3	111.6	111.9	111.4
1994	112.1	112.3	112.4	112.5	112.7	112.9	113.0	113.2	113.4	113.6	113.8	114.0	112.3	112.7	113.2	113.8	113.0
1995	114.2	114.5	114.7	114.9	115.2	115.4	115.7	115.9	116.2	116.4	116.6	116.9	114.5	115.2	115.9	116.6	115.5
1996	117.1	117.4	117.6	117.8	118.1	118.3	118.6	118.9	119.2	119.5	119.8	120.2	117.4	118.1	118.9	119.9	118.6
1997	120.6	121.0	121.4	121.8	122.3	122.7	123.2	123.7	124.3	124.8	125.3	125.9	121.0	122.3	123.8	125.3	123.1
1998	126.4	127.0	127.5	128.0	128.5	129.1	129.5	130.0	130.5	130.9	131.4	131.8	127.0	128.5	130.0	131.4	129.2
1999	132.2	132.5	132.9	133.3	133.6	133.9	134.2	134.5	134.8	135.0	135.3	135.5	132.5	133.6	134.5	135.3	134.0
2000	135.8	136.0	136.2	136.4	136.6	136.8	137.0	137.2	137.3	137.5	137.7	137.8	136.0	136.6	137.2	137.6	136.8
2001	137.9	138.1	138.2	138.3	138.4	138.5	138.6	138.7	138.8	138.8	138.9	138.9	138.1	138.4	138.7	138.9	138.5
2002	138.9	138.9	138.9	138.9	138.9	138.9	138.9	138.8	138.8	138.7	138.6	138.6	138.9	138.9	138.8	138.6	138.8
2003	138.5	138.4	138.3	138.3	138.2	138.1	138.0	137.9	137.8	137.7	137.6	137.5	138.4	138.2	137.9	137.6	138.0
2004	137.4	137.3	137.2	137.2	137.1	137.0	137.0	137.0	137.0	137.0	137.0	137.1	137.3	137.1	137.0	137.0	137.1
2005	137.2	137.3	137.4	137.6	137.7	137.9	138.1	138.3	138.6	138.8	139.0	139.2	137.3	137.7	138.3	139.0	138.1
2006	139.5	139.7	139.9	140.1	140.3	140.5	140.7	140.8	141.0	141.1	141.3	141.4	139.7	140.3	140.8	141.3	140.5
2007	141.6	141.7	141.8	142.0	142.1	142.2	142.3	142.3	142.4	142.4	142.5	142.5	141.7	142.1	142.3	142.5	142.1
2008	142.5	142.4	142.4	142.3	142.2	142.1	142.0	141.8	141.7	141.5	141.3	141.1	142.4	142.2	141.8	141.3	141.9
2009	140.9	140.7	140.4	140.2	139.9	139.6	139.3	139.0	138.7	138.4	138.1	137.8	140.7	139.9	139.0	138.1	139.4
2010	137.5	137.2	136.9	136.6	136.3	136.0	135.7	135.4	135.1	134.8	134.5	134.2	137.2	136.3	135.4	134.5	135.8
2011	133.9	133.7	133.4	133.2	133.0	132.9	132.8	132.7	132.6	132.6	132.6	132.7	133.7	133.0	132.7	132.7	133.0
2012	132.7	132.8	132.9	133.0	133.1	133.3	133.4	133.5	133.6	133.7	133.8	133.9	132.8	133.1	133.5	133.8	133.3
2013	134.0	134.0	134.1	134.1	134.1	134.1	134.2	134.2	134.2	134.2	134.2	134.1	134.0	134.1	134.2	134.1	134.1
2014	134.1	134.1	134.1	134.1	134.1	134.1	134.0	134.0	134.0	134.0	133.9	133.9	134.1	134.1	134.0	133.9	134.0
2015	133.9	133.8	133.8	133.8	133.8	133.8	133.8	133.9	133.9	133.9	134.0	134.1	133.8	133.8	133.9	134.0	133.9
2016	134.1	134.2	134.3	134.3	134.4	134.5	134.5	134.6	134.7	134.7	134.8	134.8	134.2	134.4	134.6	134.8	134.5
2017	134.9	134.9															
<b>Utilization (percent)</b>																	
1987	79.1	80.1	80.0	80.3	80.6	80.7	81.1	81.4	81.7	82.8	83.2	83.6	79.7	80.5	81.4	83.2	81.2
1988	83.4	83.6	83.8	84.4	84.2	84.3	84.2	84.2	84.5	84.8	85.0	85.4	83.6	84.3	84.3	85.1	84.3
1989	86.0	85.1	84.9	84.9	84.0	84.0	82.7	83.2	82.8	82.3	82.3	82.2	85.3	84.3	82.9	82.3	83.7
1990	81.7	82.8	83.0	82.6	82.6	82.6	82.3	82.5	82.3	81.4	80.3	79.6	82.5	82.6	82.4	80.4	82.0
1991	78.8	78.1	77.4	77.5	77.9	78.7	78.8	78.9	79.7	79.4	79.1	78.7	78.1	78.1	79.1	79.1	78.6
1992	78.0	78.5	79.2	79.4	79.7	79.7	80.3	79.8	79.6	79.8	80.0	79.7	78.6	79.6	79.9	79.8	79.5
1993	80.4	80.5	80.1	80.4	80.2	80.0	80.1	79.8	80.2	80.7	80.9	81.3	80.4	80.2	80.0	81.0	80.4
1994	81.2	81.2	82.0	82.4	82.7	82.7	82.7	83.1	83.1	83.5	83.8	84.5	81.5	82.6	82.9	83.9	82.7
1995	84.4	83.9	83.7	83.2	82.9	83.0	82.1	82.6	82.9	82.4	82.1	82.0	84.0	83.0	82.5	82.2	82.9
1996	80.8	81.7	81.2	81.9	82.1	82.6	82.3	82.3	82.6	82.0	82.4	82.7	81.2	82.2	82.4	82.4	82.1
1997	82.3	82.9	83.3	82.5	82.6	82.6	82.6	83.0	83.2	83.4	83.7	83.4	82.8	82.5	82.9	83.5	82.9
1998	83.6	83.2	82.6	82.5	82.5	81.2	80.3	81.8	81.0	81.3	80.9	80.8	83.1	82.1	81.0	81.0	81.8
1999	80.5	80.6	80.1	79.9	80.2	79.5	79.3	79.6	79.0	80.0	80.1	80.3	80.4	79.8	79.3	80.1	79.9
2000	79.9	79.6	79.8	80.0	79.4	79.3	79.1	78.2	78.3	77.9	77.4	76.7	79.8	79.6	78.5	77.3	78.8
2001	76.2	75.7	75.4	75.2	74.7	74.2	74.0	73.6	73.4	72.9	72.7	72.8	75.7	74.7	73.7	72.8	74.2
2002	73.2	73.1	73.7	73.8	74.2	75.1	74.8	74.9	75.0	74.7	75.0	74.6	73.3	74.4	74.9	74.8	74.3
2003	75.0	75.0	75.0	74.3	74.3	74.5	74.6	74.2	74.8	74.8	75.5	75.4	75.0	74.4	74.5	75.2	74.8
2004	75.3	75.9	75.8	76.1	76.8	76.2	77.0	77.3	77.2	78.0	77.9	78.3	75.6	76.4	77.2	78.0	76.8
2005	78.7	79.2	78.7	78.8	78.9	78.9	78.4	78.5	77.4	78.4	78.9	78.8	78.9	78.9	78.1	78.7	78.6
2006	79.3	78.8	78.6	78.9	78.3	78.4	78.0	78.3	78.2	77.8	77.7	78.8	78.9	78.6	78.2	78.1	78.4
2007	78.2	78.4	78.8	79.1	79.1	79.4	79.4	79.0	79.2	78.7	78.8	78.8	78.5	79.2	79.2	78.8	78.9
2008	78.4	77.8	77.5	76.6	76.1	75.7	74.9	74.1	71.6	71.4	70.0	67.8	77.9	76.1	73.5	69.7	74.3
2009	65.8	65.8	64.6	64.1	63.4	63.3	64.3	65.2	65.9	66.1	66.9	66.8	65.4	63.6	65.1	66.6	65.2
2010	67.6	67.6	68.5	69.2	70.4	70.5	71.0	71.3	71.5	71.7	71.8	72.2	67.9	70.0	71.3	71.9	70.3
2011	72.4	72.6	73.2	72.8	73.0	73.1	73.6	73.8	74.1	74.6	74.3	74.7	72.7	73.0	73.8	74.5	73.5
2012	75.4	75.6	75.1	75.4	75.0	75.1	74.9	74.7	74.6	74.3	74.8	75.3	75.3	75.2	74.7	74.8	75.0
2013	75.0	75.4	75.2	74.8	74.9	75.0	74.2	74.9	75.0	75.0	75.0	74.9	75.2	74.9	74.7	75.0	74.9
2014	74.1	74.9	75.5	75.4	75.6	75.8	76.0	75.7	75.7	75.7	76.4	76.1	74.9	75.6	75.8	76.1	75.6
2015	75.8	75.5	75.7	75.8	75.7	75.5	76.0	75.9	75.6	75.7	75.6	75.4	75.7	75.6	75.8	75.6	75.7
2016	75.7	75.6	75.4	75.3	75.1	75.2	75.2	74.9	75.0	75.1	75.2	75.2	75.6	75.2	75.0	75.1	75.2
2017	75.6	75.9															

NOTE: Estimates from October 2016 through February 2017 are subject to further revision in the upcoming monthly releases.

1. See footnote 2 to table 2.

2. High-technology industries include computers, communications equipment, and semiconductors and related electronic components.

Table 10

## ANNUAL PROPORTIONS IN INDUSTRIAL PRODUCTION, MARKET AND INDUSTRY GROUP SUMMARY

Item		2009	2010	2011	2012	2013	2014	2015	2016
<b>Total IP</b>		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MARKET GROUPS									
<b>Final products and nonindustrial supplies</b>		55.7	53.2	52.3	51.7	50.7	52.1	55.2	55.3
<b>Consumer goods</b>		28.4	26.8	26.2	25.3	24.8	25.5	27.8	28.2
<b>Durable</b>		5.6	5.4	5.1	5.1	5.3	5.6	6.2	6.3
Automotive products		2.5	2.6	2.4	2.4	2.5	2.8	3.2	3.3
Home electronics		.3	.2	.2	.2	.2	.2	.2	.2
Appliances, furniture, carpeting		.9	.8	.7	.7	.8	.8	.9	.9
Miscellaneous goods		1.9	1.8	1.8	1.8	1.8	1.9	2.0	2.0
<b>Nondurable</b>		22.8	21.4	21.1	20.2	19.5	19.9	21.6	21.9
Non-energy		18.1	16.4	15.9	15.2	14.9	15.4	17.0	17.2
Foods and tobacco		9.9	9.1	8.7	8.5	8.5	8.7	9.5	9.5
Clothing		.3	.3	.3	.3	.2	.2	.2	.2
Chemical products		5.8	5.1	5.1	4.8	4.5	4.8	5.6	5.8
Paper products		1.6	1.4	1.3	1.2	1.2	1.2	1.2	1.1
Energy		4.8	5.0	5.2	4.9	4.7	4.5	4.6	4.7
<b>Business equipment</b>		9.5	9.3	9.2	9.8	9.6	10.0	10.4	10.2
Transit		2.0	2.1	1.9	2.2	2.3	2.6	2.8	2.7
Information processing		2.6	2.3	2.1	2.2	2.2	2.1	2.2	2.2
Industrial and other		4.9	4.9	5.2	5.3	5.1	5.3	5.4	5.3
<b>Defense and space equipment</b>		2.5	2.5	2.3	2.3	2.2	2.2	2.3	2.3
<b>Construction supplies</b>		4.4	4.2	4.1	4.2	4.3	4.5	4.9	5.0
<b>Business supplies</b>		10.3	9.7	9.5	9.1	8.8	8.9	9.3	9.3
<b>Materials</b>		44.3	46.8	47.7	48.3	49.3	47.9	44.8	44.7
<b>Non-energy</b>		26.0	26.8	27.0	26.6	26.1	26.7	27.6	27.4
<b>Durable</b>		14.8	15.6	16.0	16.0	15.7	16.4	16.7	16.6
Consumer parts		2.2	2.5	2.5	2.7	2.8	2.9	3.1	3.2
Equipment parts		5.3	5.3	5.5	5.4	5.1	5.3	5.3	5.1
Other		7.2	7.8	7.9	7.8	7.9	8.1	8.3	8.3
<b>Nondurable</b>		11.2	11.2	11.0	10.7	10.4	10.4	10.8	10.9
Textile		.4	.5	.4	.4	.4	.4	.4	.4
Paper		2.2	2.1	2.0	2.0	1.9	1.9	2.0	1.9
Chemical		5.0	5.4	5.5	5.3	5.1	5.0	5.2	5.3
<b>Energy</b>		18.3	20.0	20.7	21.7	23.1	21.1	17.2	17.2
INDUSTRY GROUPS									
<b>Manufacturing</b>		75.3	73.6	72.8	72.1	70.6	72.3	76.4	76.4
<b>Manufacturing (NAICS)</b>	31–33	71.9	70.7	70.1	69.6	68.4	70.0	74.0	74.2
<b>Durable manufacturing</b>		36.3	36.3	36.1	36.4	36.2	37.6	39.2	39.1
Wood products	321	1.0	.9	.9	1.0	1.1	1.2	1.2	1.3
Nonmetallic mineral products	327	1.7	1.6	1.6	1.6	1.7	1.9	2.1	2.2
Primary metals	331	2.1	2.7	2.8	2.5	2.6	2.6	2.4	2.3
Fabricated metal products	332	5.3	5.1	5.3	5.4	5.4	5.5	5.7	5.6
Machinery	333	4.9	5.1	5.5	5.8	5.5	5.8	5.8	5.7
Computer and electronic products	334	6.4	6.0	5.8	5.7	5.2	5.1	5.3	5.2
Electrical equip., appliances, and components	335	1.9	1.8	1.8	1.8	1.7	1.8	1.9	1.9
Motor vehicles and parts	3361–3	4.0	4.4	4.2	4.4	4.6	5.1	5.7	5.8
Aerospace and miscellaneous transportation equipment	3364–9	4.6	4.4	4.2	4.4	4.4	4.7	5.0	5.0
Furniture and related products	337	1.1	1.0	1.0	1.0	1.0	1.1	1.2	1.2
Miscellaneous	339	3.4	3.2	3.0	2.8	2.8	2.8	3.0	3.0
<b>Nondurable manufacturing</b>		35.6	34.4	34.1	33.2	32.2	32.4	34.8	35.1
Food, beverage, and tobacco products	311,2	12.1	11.1	10.6	10.2	10.3	10.5	11.4	11.5
Textile and product mills	313,4	.7	.7	.7	.6	.7	.7	.7	.7
Apparel and leather	315,6	.3	.3	.3	.3	.2	.2	.3	.2
Paper	322	2.8	2.6	2.5	2.5	2.5	2.5	2.6	2.5
Printing and support	323	1.8	1.6	1.5	1.4	1.4	1.4	1.5	1.5
Petroleum and coal products	324	3.1	3.5	3.9	3.7	3.2	2.8	2.9	3.0
Chemicals	325	11.9	11.7	11.7	11.4	10.9	11.1	12.1	12.4
Plastics and rubber products	326	2.9	2.9	2.9	3.0	3.0	3.1	3.4	3.4
<b>Other manufacturing (non-NAICS)</b>	<b>1133,5111</b>	3.4	2.9	2.6	2.4	2.3	2.3	2.4	2.2
<b>Mining</b>	<b>21</b>	13.9	16.0	17.4	18.6	19.9	17.8	13.1	12.9
<b>Utilities</b>	<b>2211,2</b>	10.8	10.4	9.9	9.3	9.5	9.9	10.5	10.6
Electric	2211	9.5	9.2	8.7	8.3	8.4	8.8	9.3	9.4
Natural gas	2212	1.3	1.2	1.2	1.0	1.1	1.2	1.2	1.2

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 2015 and 2016 would account for a 0.412 percent increase in total IP.

**Table 11**

**INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY**

Seasonally adjusted

Industrial production	2012=100						Percent change						
	2016 Sept. <sup>r</sup>	Oct. <sup>r</sup>	Nov. <sup>r</sup>	Dec. <sup>r</sup>	2017 Jan. <sup>r</sup>	Feb. <sup>r</sup>	2016 Sept. <sup>r</sup>	Oct. <sup>r</sup>	Nov. <sup>r</sup>	Dec. <sup>r</sup>	2017 Jan. <sup>r</sup>	Feb. <sup>r</sup>	Feb. '16 to Feb. '17
<b>Total index</b>	103.0	103.2	103.0	103.8	103.6	103.7	-.2	.2	-.2	.7	-.1	.1	.4
<i>Previous estimates</i>	104.1	104.4	104.1	104.8	104.7	104.7	-.3	.3	-.3	.6	-.1	.0	.3
<u>Major market groups</u>													
Final Products	100.5	100.5	99.9	101.0	100.7	100.7	-.1	.0	-.6	1.2	-.4	.0	.3
Consumer goods	104.9	104.8	103.8	105.1	104.5	104.2	-.2	-.1	-.9	1.3	-.6	-.3	-.2
Business equipment	98.7	99.0	98.9	99.7	99.7	100.1	.1	.2	-.1	.9	.0	.5	.9
Nonindustrial supplies	104.1	104.2	104.5	104.8	104.8	104.9	.2	.0	.4	.2	.0	.1	.2
Construction	107.5	108.2	109.4	109.1	110.7	112.0	.4	.7	1.1	-.3	1.4	1.2	2.2
Materials	104.3	104.8	104.9	105.3	105.4	105.6	-.3	.5	.0	.4	.0	.2	.7
<u>Major industry groups</u>													
Manufacturing (see note below)	102.0	102.2	102.4	102.5	103.1	103.6	.2	.2	.2	.1	.6	.5	1.3
<i>Previous estimates</i>	102.9	103.2	103.3	103.5	104.0	104.5	.1	.3	.1	.2	.5	.5	1.2
Mining	100.3	102.7	102.8	102.3	103.5	106.1	-.3	2.4	.0	-.5	1.2	2.5	1.0
Utilities	104.6	102.7	99.3	106.1	99.2	93.3	-2.8	-1.9	-3.2	6.8	-6.5	-6.0	-6.9
	Percent of capacity												Capacity growth
<b>Capacity utilization</b>	Average 1972- 2016	1988- 89 high	1990- 91 low	1994- 95 high	2008- 09 low	2016 Feb.	2016 Sept. <sup>r</sup>	Oct. <sup>r</sup>	Nov. <sup>r</sup>	Dec. <sup>r</sup>	2017 Jan. <sup>r</sup>	Feb. <sup>r</sup>	Feb. '16 to Feb. '17
<b>Total industry</b>	79.9	85.2	78.8	85.0	66.7	75.9	75.6	75.8	75.6	76.0	75.9	75.9	.5
<i>Previous estimates</i>	79.9	85.3	78.8	85.0	66.7	75.6	75.3	75.4	75.2	75.6	75.5	75.4	.6
Manufacturing (see note below)	78.4	85.6	77.3	84.6	63.7	75.4	74.9	75.0	75.1	75.1	75.5	75.8	.7
<i>Previous estimates</i>	78.4	85.6	77.3	84.6	63.8	75.4	74.8	74.9	74.9	75.0	75.3	75.6	.8
Mining	87.0	86.1	83.8	88.6	78.4	79.4	77.8	79.7	79.7	79.3	80.2	82.0	-2.3
Utilities	85.6	93.2	84.7	93.2	78.1	76.4	78.7	77.1	74.5	79.5	74.2	69.7	2.0
<u>Stage-of-process groups</u>													
Crude	86.1	87.7	84.5	90.1	76.3	78.9	78.3	79.5	80.1	79.7	80.4	81.4	-1.6
Primary and semifinished	80.5	86.5	78.1	87.8	63.8	75.5	75.5	75.3	74.8	75.9	75.1	74.6	1.1
Finished	76.9	83.4	77.3	80.6	66.7	75.3	74.7	74.8	74.6	74.8	75.1	75.3	.7

<sup>r</sup> Revised.

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.

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](http://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 2012. 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 1997, the total IP index has been constructed from 299 individual series based on the 2012 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](http://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:

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

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 6 percent. If output in this industry increased 10 percent in a month, then this gain would boost growth in total IP by 6/10 percentage point ( $0.06 \times 10\% = 0.6\%$ ). 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](http://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 72 percent of the source data (in value-added terms) are available; the fraction of available source data increases to 85 percent for estimates in the second month that the estimate is published, 95 percent in the third month, 96 percent in the fourth month, 97 percent in the fifth month, and 97 percent in the sixth month. Data availability by data type in early 2016 is summarized in the table below:

**Availability of Monthly IP Data in Publication Window**  
(Percent of value added in 2016; the numbers may not sum because of rounding.)

Type of data	Month of estimate					
	1st	2nd	3rd	4th	5th	6th
Physical product	27	39	49	50	51	52
Production-worker hours	46	46	46	46	46	46
IP data received	72	85	95	96	97	97
IP data estimated	28	15	5	4	3	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 about one-half of the series (in terms of value added) that ultimately are based on physical product data (27 percent out of a total of 52 percent). Of the 27 percent, about four-fifths (22 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-12 ARIMA. For series based on production-worker hours, the current seasonal factors were estimated with data through January 2017; for other series, the factors were estimated with data through at least December 2016. 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-12 specifications can be found on the Board's website at [www.federalreserve.gov/releases/G17/About.htm](http://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 0.28 percent during the 1987–2016 period. The average revision to the *percent change* in total IP, without regard to sign, from the first to the fourth estimates was 0.22 percentage point during the 1987–2016

period. In most cases (about 85 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 25 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 65 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](http://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 1972–2016 period, the average total industry utilization rate was 79.9 percent; for manufacturing, the average factory operating rate was 78.4 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 industry and 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 31, 2017, is available on the Board's website ([www.federalreserve.gov/releases/g17/revisions/Current/DefaultRev.htm](http://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](http://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](http://www.federalreserve.gov/releases/g17/articles/rev2010/industrial10.pdf), [www.federalreserve.gov/releases/g17/articles/rev2012/industrial12.pdf](http://www.federalreserve.gov/releases/g17/articles/rev2012/industrial12.pdf), [www.federalreserve.gov/releases/g17/articles/rev2013/industrial13.pdf](http://www.federalreserve.gov/releases/g17/articles/rev2013/industrial13.pdf)).

## Release Schedule

On the day the G.17 is released, it is published at 9:15 a.m., the publication schedule for 2017 is January 18, February 15, March 17, April 18, May 16, June 15, July 14, August 17, September 15, October 17, November 16, and December 15.

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