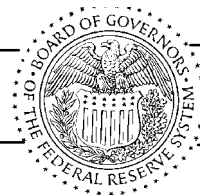


# FEDERAL RESERVE statistical release



G.17 (419) 2010 Historical and Annual Revision

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## Industrial Production and Capacity Utilization: The 2010 Annual Revision

The Federal Reserve has revised the index of industrial production (IP) and the related measures of capacity and capacity utilization. Although rates of change from January 1972 through May 2010 are affected, the revision had its largest effect on data from 2006 through 2009. The annual data from the 2007 Census of Manufactures and 2008 Annual Survey of Manufactures (ASM) were the largest sources of revision and implied noticeably stronger output in 2007 (mostly in durable goods industries) and a larger drop in output in 2008 (mostly in nondurables). Nevertheless, the overall contour of total IP in recent years was little changed by the revision: The index increased at a moderate rate in 2006 and 2007; it fell sharply in 2008 and declined further in the first half of 2009. Relative to earlier estimates, measured from fourth quarter to fourth quarter, total IP is now reported to have increased 0.7 percentage point and 0.5 percentage point more rapidly in 2006 and 2007, respectively. The decrease in total IP in 2008 is now shown to have been 0.9 percentage point greater than estimated earlier, but the decrease in 2009 is 0.9 percentage point less.<sup>1</sup>

The revision shows that the rate of capacity utilization for total industry was 0.7 percentage point higher in the fourth quarter of 2007. At 71.1 percent, overall utilization in the fourth quarter of 2009 was 0.2 percentage point below its previous estimate.

In this revision, the base year for the IP index was advanced from 2002 to 2007, which lowered the level of the IP index for most periods. In addition to the new base, the revised IP indexes incorporated detailed data from the 2007 Economic Census and the 2008 ASM, both conducted by the U.S. Census Bureau. Data from selected editions of the Census Bureau's 2008 and 2009 Current Industrial Reports have also been incorporated along with annual data from the U.S. Geological Survey regarding metallic and nonmetallic minerals (except fuels) for 2008. The revised indexes reflect updated price deflators from the Bureau of Economic Analysis (BEA). For this release, monthly indicators (either product data or input data) were revised, and the estimation methods for some series were changed. The new monthly production estimates reflect the incorporation of updated seasonal factors and monthly and quarterly source data that became available (or were revised) after the closing of the reporting window.

Capacity and capacity utilization were revised to incorporate data from the Census Bureau's Quarterly Survey of Plant Capacity for the fourth quarters of 2008 and 2009, which covered manufacturing, along with new data on capacity from the U.S. Geological Survey, the Department of Energy, and other organizations.

## RESULTS OF THE REVISION

The tables show the summary statistics for the annual revision. Tables 1A and 1B show the monthly, quarterly, and annual average index levels for IP and for capacity and utilization for January 1980 through May

<sup>1</sup>Revisions to annual growth measured from fourth quarter to fourth quarter outside of 2007 and 2008 primarily resulted from the interpolation of the annual benchmark data into quarterly figures. For example, an upward revision to the average level of IP for 2007 pulled output up in late 2006 and reduced it in early 2006; the average for 2006, however, would be unchanged.

2010, along with percent changes in IP. Tables 2 through 4 show the revised rates of change in IP from 2005 through 2009 for market groups, industry groups, special aggregates, and selected detail. Table 5 shows the revised rates of change in capacity by industry groups for the 2006–10 period. Tables 2 through 5 also show the difference between the revised and earlier rates of change. Table 6 shows the revised capacity utilization rates for the final quarters of 2006 through 2009 and the difference between the revised and previous rates. Tables 7A, 7B, 8A, 8B, 9A, and 9B report the revised production, capacity, and utilization series for manufacturing, total industry excluding selected high-technology industries, and manufacturing excluding selected high-technology industries. Table 10 reports the annual proportions in IP by market and industry groups for 2002 through 2009. Table 11 reports revised IP indexes and capacity utilization rates for the major market and industry groups for the most recent six months.

### ***Industrial Production***

The changes in total IP were revised up for 2006 and 2007 (table 2), but the overall contour for recent years was little changed—moderate gains for 2005 through 2007 are still followed by drops in the index in 2008 and 2009.<sup>2</sup> After the revision, the recent trough in IP remained June 2009. The peak for IP prior to the recent recession moved earlier, to September 2007; previously, it had occurred in December 2007. (The overall index level in December 2007 had been about 0.3 percent above September 2007; it is now 0.2 percent below September 2007.)

#### *Production by Industry Group*

Manufacturing production expanded during the 2005–07 period, on balance, before contracting sharply in 2008 and again in 2009.<sup>3</sup> The breadth of the decline in 2008 was noteworthy—the output index for every major manufacturing industry fell during the year. For durable goods industries as a whole, output rose in each year from 2005 through 2007, and the increase over this period was revised up, on net. The output of durable goods output fell sharply in 2008, and that drop was little changed compared with the previous estimate. In 2009, production of durable goods fell again but by less than previously estimated; smaller declines are now reported in most industries with the exceptions of machinery and miscellaneous manufacturing. The industries with the most notable upward revisions over the entire 2005–09 period were wood products, primary metals, machinery, computer and electronic products, and aerospace and miscellaneous transportation equipment.

Production in nondurable manufacturing industries advanced in 2005 and in 2006. It was unchanged in 2007 but fell sharply in 2008 and moved down a bit in 2009. Over the 2005 through 2008 period, rates of change in most nondurable goods industries were revised down. In 2008, all of the major components of nondurable goods except for printing and support now show larger drops in their production indexes. In 2009, revisions were mixed. Changes were revised down in the indexes for food, beverage, and tobacco products; apparel and leather; printing and support; and plastics and rubber products. Rates of change were revised up for textile and product mills; paper; petroleum and coal products; and chemicals.

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 each year from 2005 through 2009, and revisions over this period were generally small and negative. The exception was 2009, which now shows a smaller decline. The index for mining fell substantially in 2009 after being little changed during 2007 and 2008. In 2008, the small decline was previously reported as a gain of about 1 percent, but in 2009, the index is now shown to have fallen by less. The index for utilities is also nearly unchanged from previous estimates, with the exception of 2008, for which the index now shows a small decline rather than a small advance.

<sup>2</sup>In this section, all the rates of change are calculated from the fourth quarter of the previous year to the fourth quarter of the reference year.

<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 traditionally have been considered to be manufacturing.

The estimates for selected high-technology industries—computers and peripheral equipment, communications equipment, and semiconductors and related electronic components—had sizable upward revisions over the 2005–09 period (table 3). Output in the high-tech sector is still reported to have posted robust gains from 2005 through 2007 followed by a decline in 2008. The output of high-technology industries turned back up in 2009. The index for computers and peripheral equipment rose in each year from 2005 through 2007 and then fell in the next two years; the rates of change were revised up in most years. The index for communications equipment posted strong gains over 2005 and 2006. It fell substantially in 2007 but moved higher in the next two years. Rates of change for 2006 and 2009 were revised sizably upward, and those in 2007 and 2008 were revised significantly downward. The revisions for this industry reflect two factors. First, the benchmark annual output index was close to the previous estimate of output for 2007 but substantially below the earlier estimate for 2008. The change in the estimate for 2008 was primarily due to a very large downward revision to data networking equipment that began in the middle of 2007 as domestic production facilities began to close permanently.<sup>4</sup> Second, from 2007 forward, the high frequency indicator series for the various components of communications equipment are based on different data sources (discussed in more detail later), which indicated a different quarterly pattern. The production of semiconductors and related components rose solidly from 2005 through 2007, contracted significantly in 2008, but moved higher in 2009. The rates of change were revised up over this period.

### *Production by Market Group*

The production index for final products and nonindustrial supplies (table 2) posted moderate gains from 2005 through 2007 and then fell markedly in 2008 and 2009. The rates of change in the index are lower than previously reported for 2005 and 2008 but slightly higher in 2006, 2007, and 2009.

The production of consumer goods rose in 2005 but was little changed in 2006 and 2007. It then moved down significantly in 2008 and declined a bit further in 2009. Compared with previous estimates, output was revised down noticeably in 2008; the revisions to other recent years were much smaller. The output of durable consumer goods rose, on net, from 2005 through 2007, then dropped steeply in 2008 and posted a moderate decline in 2009. The rates of change were revised up in each year from 2005 to 2007 and in 2009. Among durable consumer goods, the revised index for automotive products increased more rapidly from 2005 through 2007. In 2008, the index now posts a steeper decline, but in 2009, its rebound is larger. The output of home electronics was also revised noticeably; negative revisions in 2006 and 2008 offset positive revisions in 2005 and 2007, but in 2009 the rate of change in output revised up substantially to now show a small gain over the course of the year.

The index for consumer nondurables shows gains in output for 2005 and 2006 and contractions for 2007 through 2009. Rates of change in the index for consumer nondurable non-energy goods display a similar pattern; the index was little changed in 2005 and 2009 but revised down for 2006 through 2008. The largest revision occurred in clothing, which is now shown to have declined substantially more steeply, on net, for 2005 through 2009. The index for consumer energy products posted gains from 2005 through 2008 but recorded a small decline in 2009.

The production of business equipment increased solidly in 2005 and 2006, rose modestly in 2007, then fell sharply in 2008 and again in 2009. Relative to previous estimates, the rate of change in the index was a bit lower in 2005 but higher in the years following. Among its components, the output index for transit equipment rose substantially in 2005 and 2006. It posted a modest gain in 2007 before plummeting in 2008, partly because of weakness in the motor vehicle industry and partly because of a strike at a major aircraft producer in the second half of the year. Production advanced in 2009 but by a bit less than the earlier estimate. Revisions to its rates of

<sup>4</sup>This change had a substantial effect on the fourth-quarter to fourth-quarter changes in the index because it left the level at the end of 2008 much lower than the previous estimate.

change from 2006 through 2008 were positive. The production of information processing equipment expanded in each year from 2004 through 2008 but posted a modest decline in 2009; on net, the rates of change for this market group were revised up. The production of defense and space equipment is now estimated to have risen more rapidly, on balance, from 2005 through 2007. The decline in 2008 is now modestly larger than stated previously, but the increase in 2009 is little changed.

After a gain in 2005, the output of construction supplies fell from 2006 through 2009. Relative to previous estimates, the overall decrease since 2005 is little changed, with larger declines in 2007 and 2008 but smaller drops in 2006 and 2009. The production of business supplies rose modestly from 2005 through 2007 and then tumbled in 2008 and again in 2009. Revisions were relatively small in most years.

The index for materials was down slightly in 2005 but moved up in 2006 and 2007 before falling over the next two years. The revisions to the change in output since 2005 for this group were generally upward with only 2005 and 2008 showing small downward revisions. The indexes for durable and nondurable materials both fell more than 12 percent in 2008 after having increased moderately, on net, from 2005 through 2007. In 2009, durable materials posted another large decline, but nondurable materials rose modestly. Relative to earlier estimates, the net decrease over the 2005–09 window for durable materials is somewhat less, whereas the net decline for nondurable materials is little different. The index for energy materials is now shown to have posted small declines in 2008 and 2009. Previous estimates showed the indexes up slightly in 2008 and down moderately in 2009. In prior years, energy materials moved higher on balance; revisions were relatively modest.

### *Capacity*

Overall, total industrial capacity increased moderately from 2006 through 2009 but is expected to decline in 2010 (table 5). The rates of change in both 2009 and 2010 have been revised up somewhat from earlier estimates, but revisions to earlier years were smaller. With the notable exception of 2009, the contour of manufacturing capacity and the revisions to that contour are roughly similar to those for total industry. In 2009, factory capacity fell sharply, but increases in capacity for both mining and utilities helped overall capacity post a modest increase.

Aggregate capacity for the selected high-technology industries rose in each year from 2006 through 2009 and is expected to post a sizable increase in 2010. Relative to previous reports, capacity in these industries rose more quickly in 2006 and 2007 and less quickly in 2008 and 2009. Excluding high-technology industries, manufacturing capacity expanded from 2006 through 2008. It declined in 2009 and is expected to fall again in 2010. The current estimates are similar to previous reports.

Capacity at mines expanded from 2006 through 2009 and is expected to be little changed this year. The gains in 2008 and 2009 are now reported to have been stronger than previously published, but the rates of change in 2007 and 2010 have been revised down. Capacity at electric and gas utilities has risen each year since 2006; the gains in 2008 and 2009 were somewhat larger than in 2006 and 2007, and the increase this year is projected to be slightly below the average over the preceding four years.

By stage of processing, after a large upward revision in 2009, capacity in the crude stage is now reported to have risen every year from 2006 to 2009, although it is expected to fall in 2010. The rates of change for capacity in the primary and semifinished stages were mostly revised up over the 2006–09 revision period. After gains from 2006 to 2008, capacity at this stage fell in 2009, but by a bit less than earlier estimates, and it is expected to fall again in 2010. Relative to previous estimates, changes to the index for finished goods were revised down from 2006 through 2009. Despite the downward revisions, capacity for this stage of process still rose from 2006 through 2008 and only fell modestly in 2009; it is expected to rise more in 2010 than estimated previously.



## *Capacity Utilization*

In 2006 and 2007, the capacity utilization rate for total industry stood a little above its long-run (1972 to 2009) average of 80.6 percent.<sup>5</sup> It fell in 2008 and again in 2009 to a level in the fourth quarter of 2009 that was about 9½ percentage points below its long-run average (table 6). The utilization rate for total industry was revised up noticeably in 2007 and down a bit in 2009. Revisions to 2006 and 2008 were slight. Manufacturing capacity utilization stood at about its long-run average of 79.2 percent in 2006 and 2007. It fell sharply in 2008 and dropped further in the fourth quarter of 2009, to 68.8 percent, a rate more than 10 percentage points below its long-run average. Relative to earlier reports, the factory operating rate was unrevised in 2006, was revised down in 2008, and was revised up in 2007 and 2009.

Within durable goods, utilization rates for most industries were above their long-run averages in 2007 but then dropped to well below their long-run averages over the next two years. Durable goods industries that saw the largest declines in operating rates were wood products, nonmetallic mineral products, primary metals, and motor vehicles and parts. In these industries, utilization rates tumbled 15 percentage points or more below their long-run averages in 2008. Apart from motor vehicles and parts, utilization rates in all the other major durable goods industries fell further in 2009. Capacity utilization rates were revised noticeably in a number of industries. In particular, substantial downward revisions occurred in nonmetallic mineral products and motor vehicles and parts. Sizable upward revisions over the 2006–09 window occurred in wood products; machinery; computer and electronic products; electrical equipment, appliances, and components; and furniture and related products. Utilization rates for most nondurable goods industries were a bit below their long-run averages in 2006 and 2007. Most fell substantially in 2008 and declined further in 2009. In the fourth quarter of 2009, four nondurable goods industries (textile and product mills; paper; printing and support activities; and plastics and rubber products) had utilization rates more than 10 percentage points below their long-run averages. Among nondurable goods industries, the rates for apparel and leather, printing and support, and plastics and rubber products had the largest downward revisions over the 2006–09 period; revisions in other nondurable goods industries were relatively small.

Capacity utilization in the other (non-NAICS) manufacturing category was revised downward in 2006 and 2007 but upward substantially in 2008 and 2009.

The operating rates for the selected high-technology industries were above their long-run averages in the fourth quarters of 2006 and 2007 before dropping below the average in 2008 and 2009. Relative to earlier estimates, capacity utilization is now reported to have been substantially higher in 2008 and 2009 but little changed, on net, in previous years. The operating rates for computers and peripheral equipment and those for communications equipment are now shown to have been lower than previously reported in 2006 and 2007 but higher in more recent years. Although capacity utilization was revised up over the entire 2006–09 period for semiconductors and related electronic components, operating rates have been at or below the long-run average since 2007.

Capacity utilization in mining was above its long-run average from 2006 through 2008. In the fourth quarter of 2009, it fell to 81.7 percent, a rate 5¾ percentage points below its long-run average. Relative to earlier estimates, the utilization rate for mining was lower over the entire 2006–09 period. At electric and gas utilities, capacity utilization rates had small revisions from 2006 through 2008. The rate was revised down in 2009 to 78.8 percent, a rate that was nearly 6 percentage points below its long-run average.

## **TECHNICAL ASPECTS OF THE REVISION**

This revision incorporated comprehensive data for both 2007 and 2008 for manufacturing production.

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<sup>5</sup>Capacity utilization rates are reported for the fourth quarter of the year referenced.

The results of the Economic Census for 2007 and the ASM for 2008 became available since the last annual revision was published in March 2009. Revised price indexes from the BEA and updated price indexes constructed by the Federal Reserve for a few selected industries were also incorporated.<sup>6</sup> In addition, the benchmark indexes for logging and publishing (included in the IP index for manufacturing but no longer included in manufacturing under NAICS) were advanced through 2008 based on data from the U.S. Forest Service and the Census Bureau.

The revised IP indexes incorporated information from selected Current Industrial Reports (CIRs) for 2009, the Quarterly Survey of Plant Capacity for 2009, and other annual industry reports. The indexes also incorporated revised monthly and quarterly source data on production, shipments, inventories, and production-worker hours.

### ***Annual Benchmark Output Indexes***

The annual benchmark indexes—defined for each six-digit NAICS industry as nominal gross output divided by a price index—were updated to include new as well as revised information from the 2007 Economic Census and the 2008 ASM. Data from these reports were classified based on the 2007 NAICS, whereas data from these reports for 2002 through 2006 were classified based on the 2002 NAICS. The 2007 NAICS included about a dozen six-digit manufacturing industries that had different coverage than they did in the 2002 NAICS. One industry included in the 2002 NAICS, Laboratory Apparatus and Furniture Manufacturing (NAICS 339111), was eliminated; its various components were distributed among seven different six-digit industries in the 2007 NAICS.

Industrial production and capacity utilization are structured to follow a single industry classification system, currently 2002 NAICS, from 1972 forward. For the purposes of maintaining a consistent benchmark time series, the data from the 2007 Economic Census and the 2008 ASM were transformed to the 2002 NAICS system using data from tables on product shipments by industry from the 2002 Economic Census. The Census Bureau plans to issue bridge tables providing a more precise allocation of the data from the 2007 Economic Census into the 2002 NAICS next year.

Since 2003, the ASM has not included separate data for every six-digit manufacturing industry; data for some industries were only included as part of a larger group of industries. Previously, the benchmark indexes for industrial production were calculated by allocating the data for these combined industries to their six-digit components based on shares from the 2002 Economic Census. With this revision, the allocations for 2003 through 2006 reflect shares from both the 2002 and 2007 Economic Censuses. Data from the 2008 ASM were allocated to the component six-digit industries based on shares from the 2007 Economic Census.

The deflators for the IP benchmarks primarily reflect industry shipments deflators issued by the Bureau of Economic Analysis in May 2010. The BEA deflators differed occasionally from their previously published values because of the incorporation of information from the 2002 Input-Output tables on the composition of each industry's primary and secondary products.

### ***Changes to Individual Production and Capacity Series***

With this revision, the monthly production indicators for some series have changed.

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<sup>6</sup>Price indexes for pharmaceuticals (NAICS 325412), for semiconductors (NAICS 334413), and for most components of communications equipment (NAICS 3342) are constructed by the Federal Reserve from alternative sources. A table that lists annual and quarterly price indexes for the networking equipment component of communications equipment follows the text.

## *Communications equipment*

The IP aggregate index for communications equipment (NAICS 3342) comprises six product-based indexes. With this revision, each of those six indexes incorporates quarterly data on nominal shipments at the detailed product level from the Census Bureau's relevant CIR from 2007 forward. The quarterly CIR for communications equipment began in 2006 and now has enough history available to incorporate these data on a seasonally adjusted basis. The nominal shipments data for each of the six indexes are combined with price indexes constructed or taken from other sources.

Previously, four of the six communications equipment output indexes used data on nominal domestic absorption combined with price deflators constructed from detailed product information, and the other two indexes were based on production-worker-hour data. The nominal CIR shipments data more closely reflect domestic output and are expected to provide a more accurate measure of U.S. production than the data on domestic absorption.

The IP indexes for enterprise and home voice equipment; data networking equipment; transmission, local loop, and legacy central office equipment; and wireless system equipment were previously based on nominal domestic absorption data deflated with matched-model price deflators. The new CIR-based indicators for these products continue to incorporate matched-model deflators, though for the first two indexes, the price data are now provided by the Dell'Oro Group and cover more detailed product types than the price information used previously.

The other two communications equipment indexes, satellites and earth station equipment and other radio and TV broadcasting equipment, had been previously based on production-worker hours. The revised index for satellites and earth station equipment deflates the CIR shipments data with an annual price index initially constructed for the 2006 annual revision. The index uses annual data from Futron Corporation and the Satellite Encyclopedia that is interpolated and extended based on a producer price index. The CIR shipments data for other radio and TV broadcasting equipment is deflated by a Bureau of Labor Statistics (BLS) producer price index.

## *Computers*

The production indexes for computer storage device and computer terminal manufacturing (NAICS 334112 and NAICS 334113) and for other computer peripheral equipment manufacturing (NAICS 334119) are now based on nominal shipments data from the Census Bureau's quarterly CIR deflated by the relevant BLS producer price indexes for 2007 to the present. As with the CIR for communications equipment, the CIR for computers was introduced in 2006, and there is now enough history for the data to be seasonally adjusted. Previously, the IP indexes for these series were based on data from Gartner on output of these products during the 1990s that were extended by statistical models that predicted changes in output based on changes in the production of personal computers and of servers.

## *Semiconductors*

Within semiconductors, the output index for other MOS memories (NAICS 334413, part) is constructed from nominal domestic absorption data deflated by a matched-model price deflator constructed from detailed product information from the Semiconductor Industry Association. Previously, the price deflator for this index was constructed from product data from iSuppli that were discontinued.

## *Glass containers*

The index for glass containers (NAICS 327213) is based on monthly data on unit production from the Glass Packaging Institute (GPI). Formerly, this index was based on monthly data from the Census Bureau's CIR, which was discontinued after December 2008. The GPI data begin in January 2008, and the year of overlap was used to adjust the GPI data to the CIR level going forward.

### *Series switched from using product data to production-worker hours*

Product data used as indicators for a few IP indexes were discontinued in the past few years and have been replaced by production-worker hours for 2007 to the present. The industries affected are industrial gas manufacturing (NAICS 32512), electric housewares and household fan manufacturing (NAICS 335211), and household vacuum cleaner manufacturing (NAICS 335212).

In addition, production worker hours have replaced physical product data as the indicator for the IP index for audio and video equipment manufacturing (NAICS 3343) because of the changes to the concentration of domestic production of products within the industry. The previous physical product data source for this index predominantly covered sales of products such as digital televisions. Newly available information from the Census of Manufactures indicated that these products now represent a smaller fraction of domestic production (about 20 percent in 2007 and 2008 compared with about 40 percent between 2002 and 2006). Consequently, the production-worker hours are able to provide a more accurate indicator of output.

## *New Capacity Series*

### *Plywood and miscellaneous wood products*

The capacity index for plywood and miscellaneous wood products (NAICS 3212 and 3219) was split into two series—veneer, plywood, and engineered wood product (NAICS 3212) and other wood products (NAICS 3219)—from 1987 onward. The capacity indicator for veneer, plywood, and engineered wood products is data on particleboard capacity and fiberboard capacity, both from the Composite Panel Association. The capacity indicator for other wood products is based on utilization rates from the Census Bureau's Survey of Plant Capacity.

### *Basic inorganic chemicals*

The capacity index for basic inorganic chemicals (NAICS 32512–8) was split into two series—alkalies and chlorine (NAICS 325181) and basic inorganic chemicals excluding alkalies and chlorine (NAICS 32512–7, 325182, and 325188). The capacity indicator for alkalies and chlorine is data on chlorine capacity from the Chlorine Institute. The capacity indicator for basic inorganic chemicals excluding alkalies and chlorine is based on utilization rates from the Census Bureau's Survey of Plant Capacity.

## *Weights for Aggregation*

The IP index is a Fisher index. The weights for manufacturing industries are derived from value-added measures from the Census of Manufactures and the ASM. 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. The weights for aggregation, expressed as value added per unit, were estimated with the latest data on producer prices for the period after 2008. Table 10 shows the annual value-added proportions in the IP index from 2002 through 2009.



### *Revised Quarterly and Monthly Data*

This revision incorporates product data 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 a lag to be included with monthly IP estimates but were available for inclusion in the annual revision.

### *Revised Seasonal Factors*

Seasonal factors for all series were reestimated using data that extend into 2010. Factors for production-worker hours—which adjust for timing, holiday, and monthly seasonal patterns—were updated with data through January 2010. The updated factors for the physical product series, which include adjustments for holiday and workday patterns, used data through March 2010 where available. Seasonal factors for unit motor vehicle assemblies have been updated, and projections through December 2010 are on the Board’s website at [www.federalreserve.gov/releases/g17/mvsf.htm](http://www.federalreserve.gov/releases/g17/mvsf.htm).

For many of the series based on production-worker-hour data, and some based on product data (particularly steel products), the recent recession seemed to have a systematic effect on the seasonal factors estimated using standard procedures (X-12 with a time-series-based pre-adjustment). The seasonal factors for these series had revised down around the apparent trough of the recession in June 2009 and increased toward the beginning and end of the year. This pattern would generally raise the change in IP in the first halves of 2008 through 2010 and lower the change in the second halves of those years. Because the pattern was probably artificially induced by the recession and a more normal pattern will likely return in 2010, those series were pre-adjusted for much of 2009 to eliminate the recession pattern before applying X-12 to them. These pre-adjustments will be reconsidered when the seasonal factors are reestimated after 2010 data are fully available.

### *Data Availability and Publication Changes*

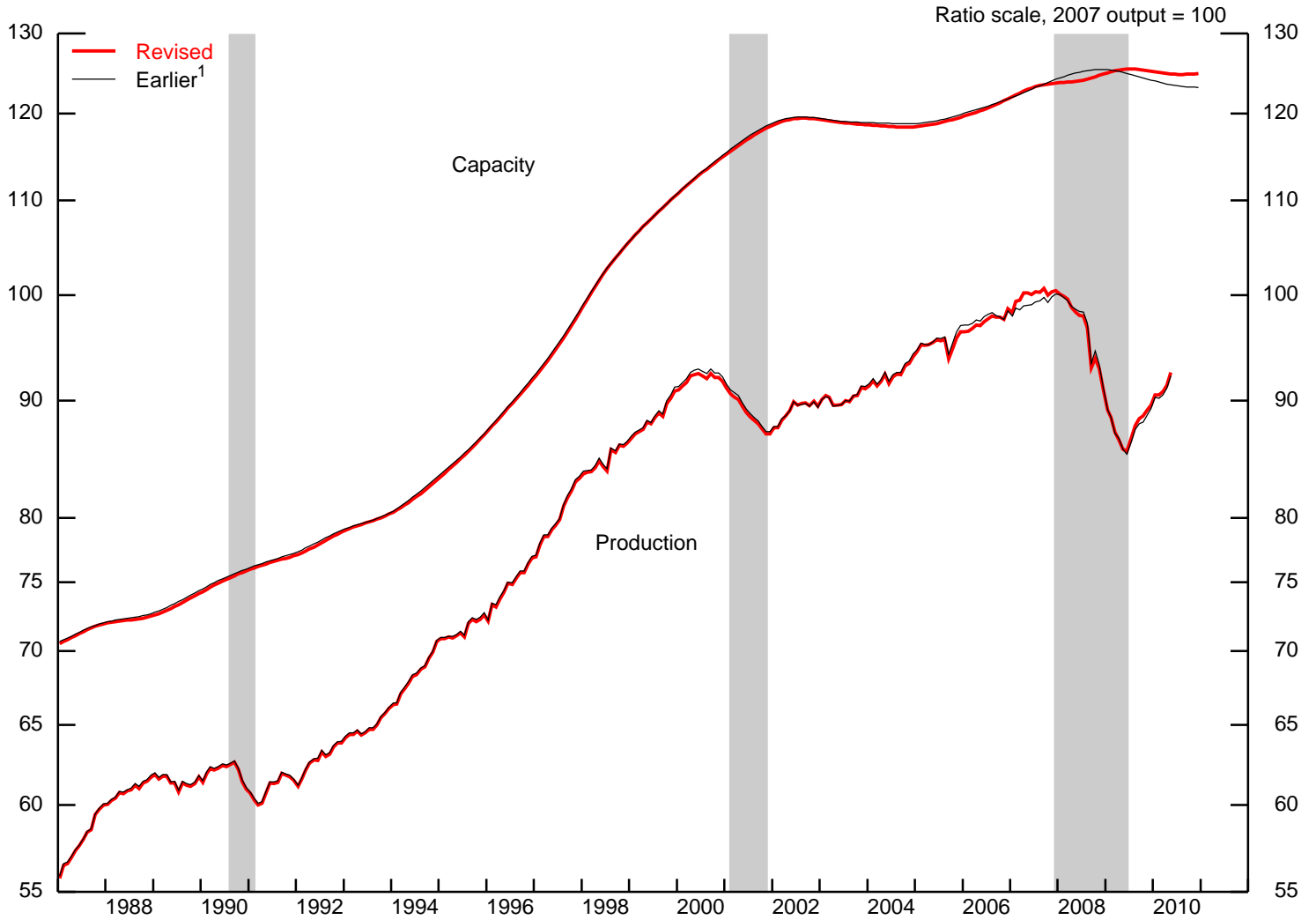
Files containing the revised data and the text and tables from this release are available on the Board’s website at [www.federalreserve.gov/releases/g17](http://www.federalreserve.gov/releases/g17), as are updated data for the annual revision and for all of the regularly issued series on industrial production, capacity, and capacity utilization. The revised data will also be available through the STAT-USA website of the Department of Commerce ([www.stat-usa.gov](http://www.stat-usa.gov)). Further information on these revisions is available from the Board’s Industrial Output Section (telephone 202-452-3197).

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.

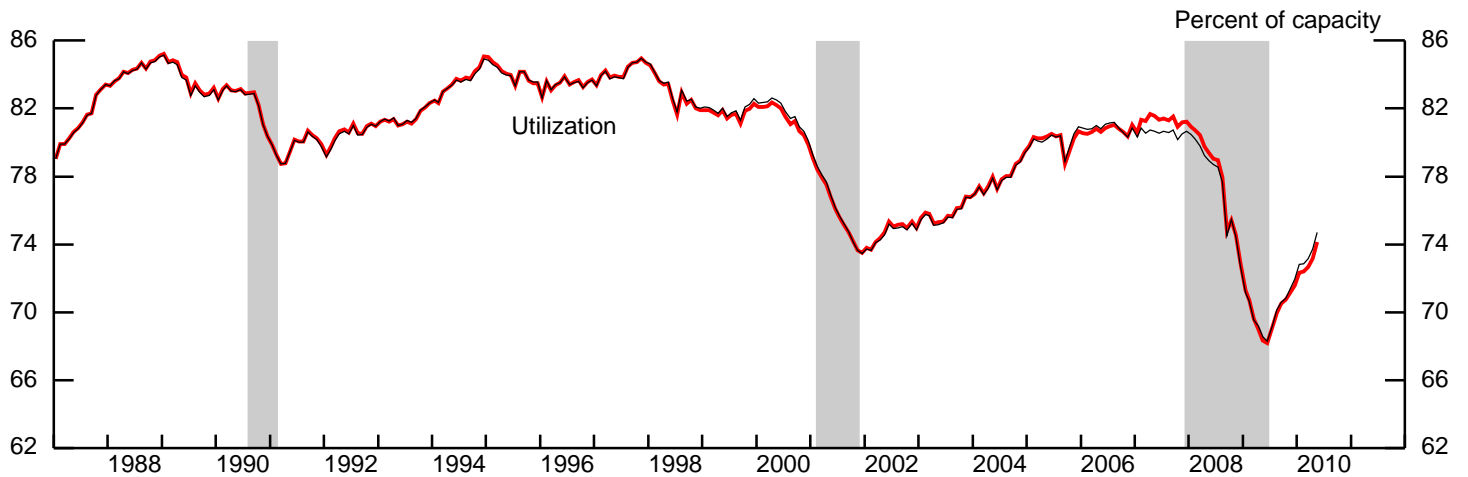
An expanded version of this release will be published in a forthcoming report that will be available on the Board’s website.

U.S. Networking Equipment, 1998 to 2008			
	Production Index	Price Index	Value of Production (millions of dollars)
Annual Estimates (indexes are 2002=100)			
1998	40.4	233.4	12,756.7
1999	84.4	193.7	22,111.2
2000	102.7	173.6	24,174.1
2001	132.1	133.1	23,839.6
2002	100.0	100.0	13,595.4
2003	115.5	76.6	11,941.9
2004	133.1	59.9	10,809.1
2005	154.9	54.3	11,398.8
2006	249.5	51.4	17,251.4
2007	171.6	48.3	11,337.9
2008	10.1	47.1	642.4
Quarterly Estimates (indexes are 2002=100)			
1998Q1	38.6	261.2	13,604.5
Q2	37.8	243.3	12,416.6
Q3	39.0	216.2	11,391.7
Q4	47.1	214.6	13,640.1
1999Q1	68.7	204.2	18,953.9
Q2	85.9	195.2	22,649.1
Q3	91.1	192.0	23,611.6
Q4	93.6	184.2	23,292.2
2000Q1	99.5	184.0	24,725.8
Q2	101.4	172.6	23,623.2
Q3	102.1	171.3	23,622.7
Q4	109.1	167.1	24,617.2
2001Q1	132.0	146.1	26,048.1
Q2	130.8	140.1	24,736.4
Q3	134.4	128.4	23,305.8
Q4	131.6	119.1	21,173.9
2002Q1	108.0	112.4	16,405.3
Q2	98.7	103.2	13,762.0
Q3	97.0	95.8	12,549.5
Q4	96.2	89.7	11,653.6
2003Q1	100.0	84.2	11,367.1
Q2	116.7	81.8	12,899.6
Q3	127.0	75.3	12,918.2
Q4	118.2	65.8	10,505.5
2004Q1	141.2	66.7	12,723.4
Q2	132.5	60.8	10,878.6
Q3	129.1	57.5	10,025.3
Q4	130.4	54.9	9,672.1
2005Q1	141.0	54.1	10,294.1
Q2	149.8	53.7	10,870.6
Q3	156.8	54.6	11,556.4
Q4	170.4	55.0	12,648.6
2006Q1	200.8	54.1	14,664.1
Q2	223.6	51.6	15,586.1
Q3	265.2	50.3	18,007.3
Q4	300.4	49.7	20,176.0
2007Q1	287.2	48.8	18,929.0
Q2	231.9	48.9	15,299.1
Q3	137.2	47.9	8,879.4
Q4	52.5	47.8	3,389.3
2008Q1	17.0	48.3	1,110.5
Q2	6.1	47.5	389.8
Q3	6.5	47.1	415.8
Q4	11.2	45.7	691.3

# 1. Total industrial production, capacity, and utilization

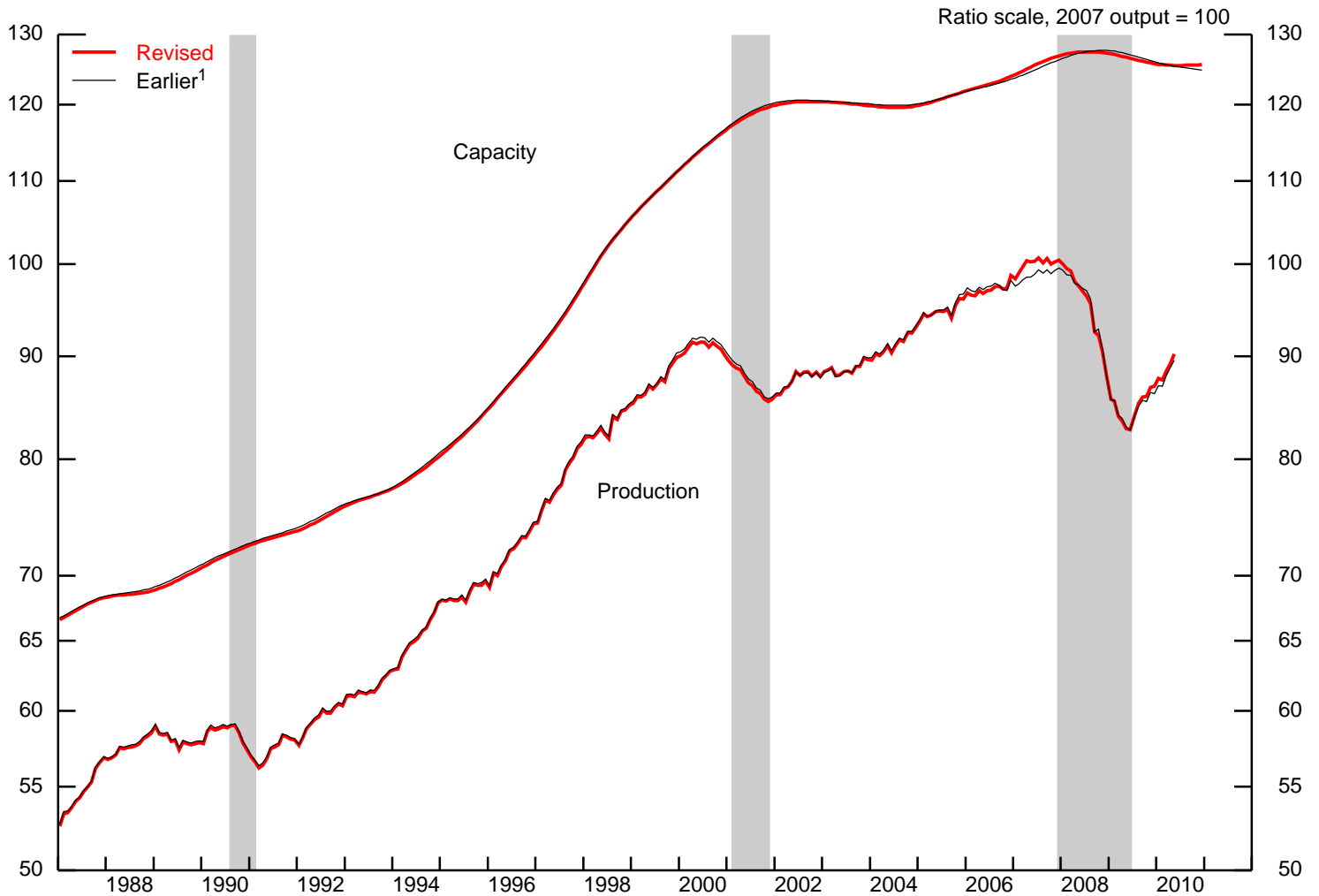


1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

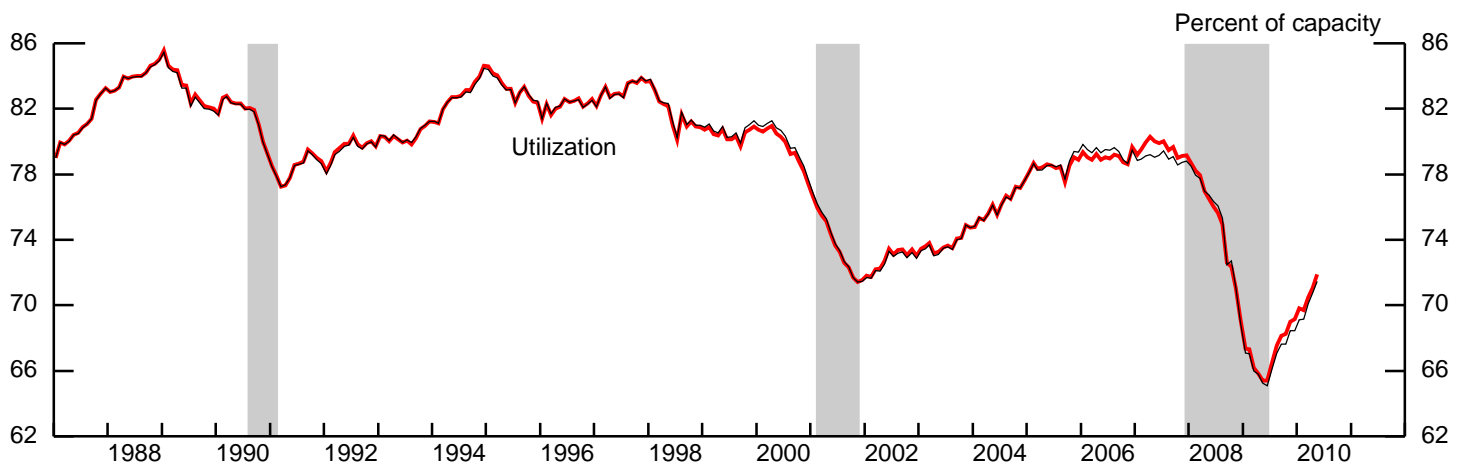


Note: The shaded areas are periods of business recession as defined by the National Bureau of Economic Research (NBER). The last shaded area begins with the peak as defined by the NBER and ends at the trough of a 3 month moving average of manufacturing IP.

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

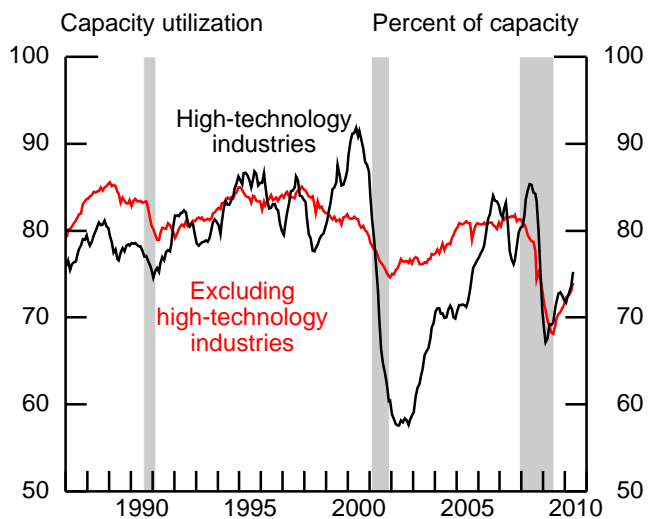
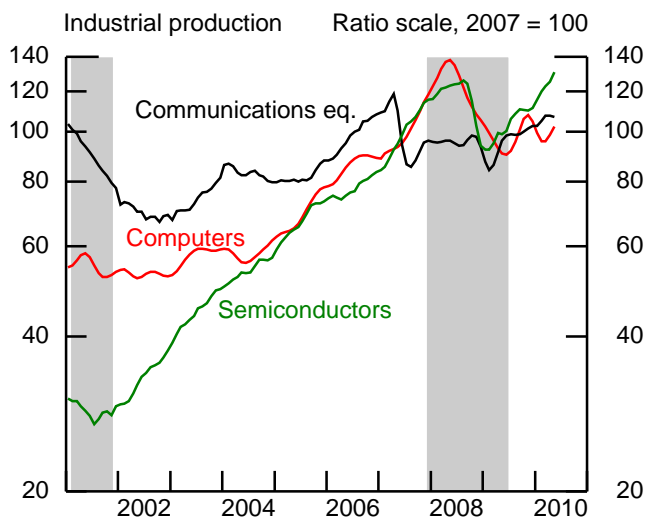
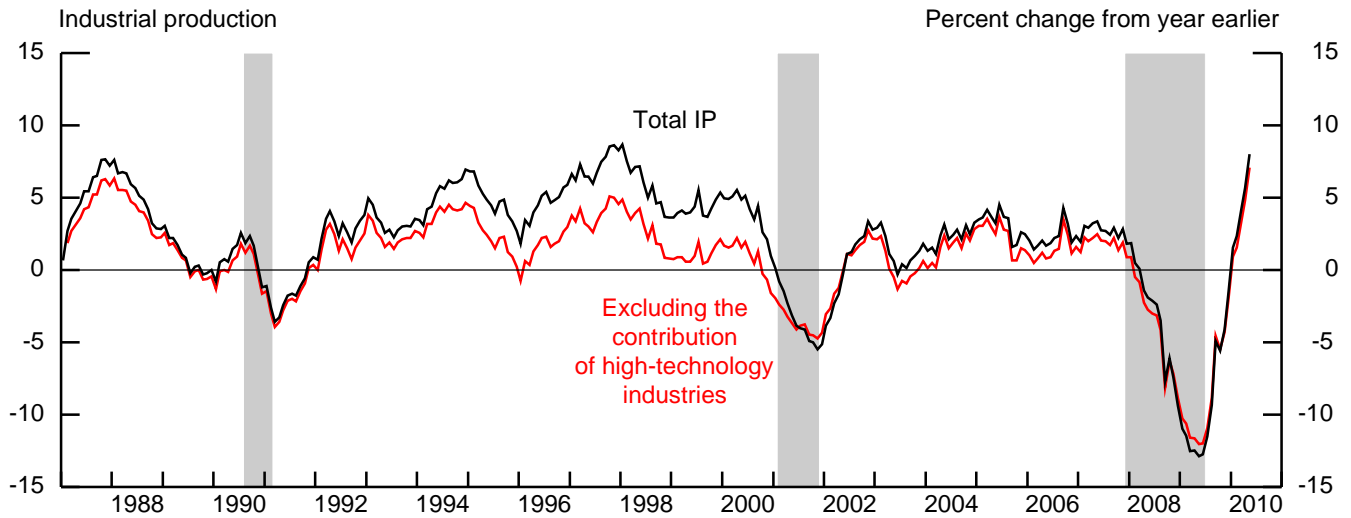
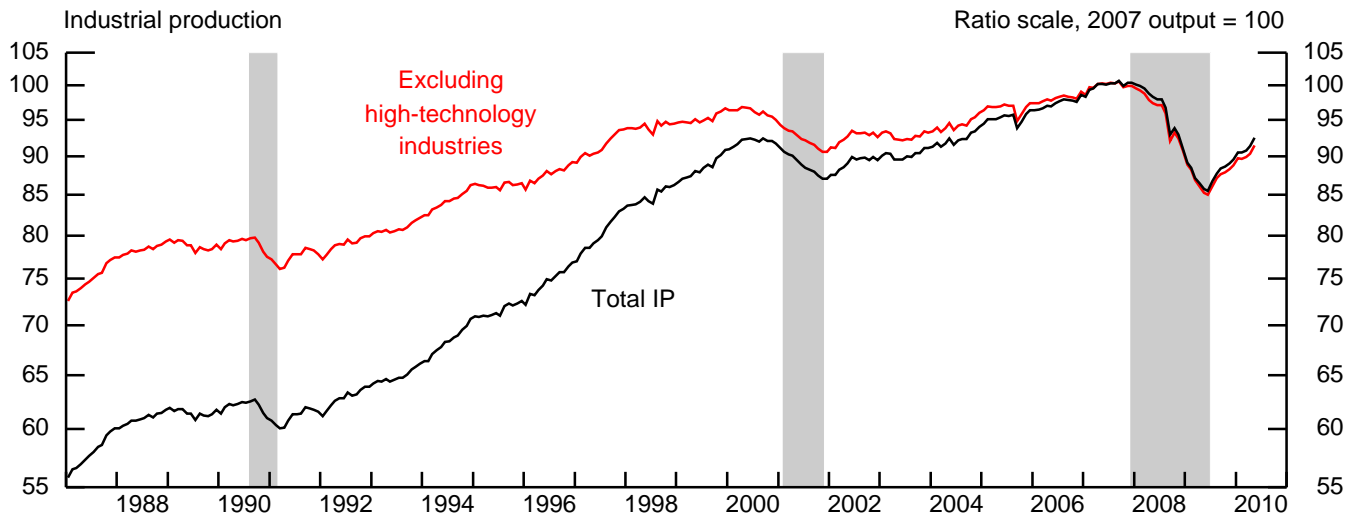


1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.



Notes: The shaded areas are periods of business recession as defined by the NBER. The last shaded area begins with the peak as defined by the NBER and ends at the trough of a 3 month moving average of manufacturing IP. 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.

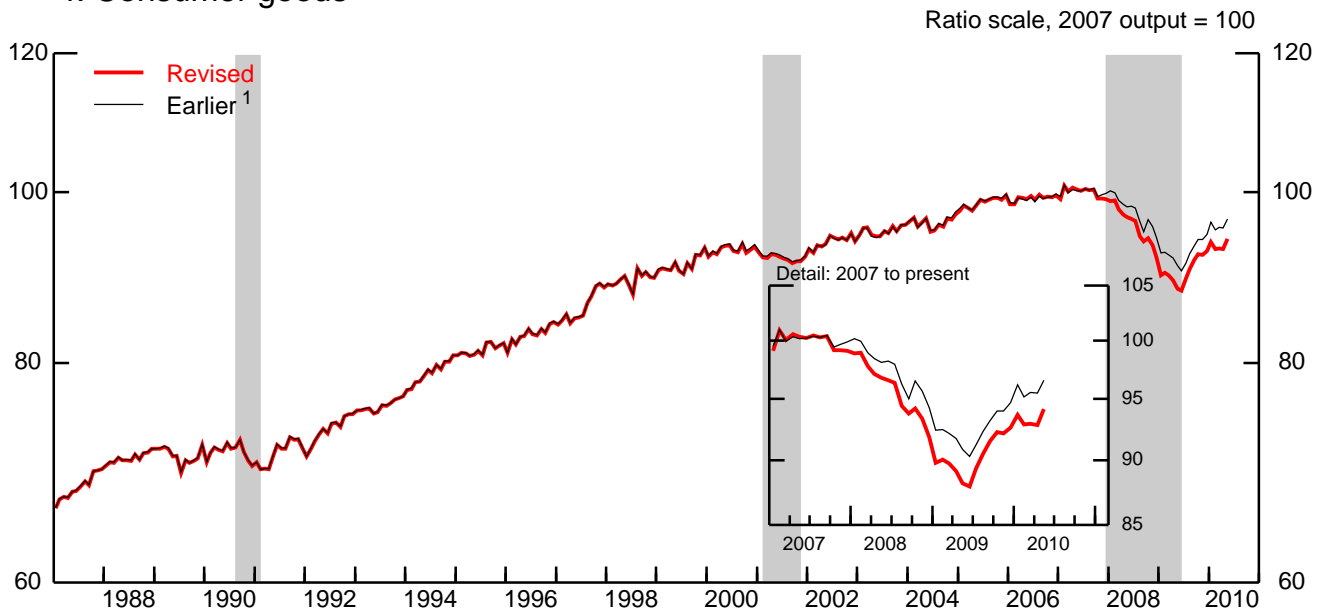
### 3. Industrial production and capacity utilization



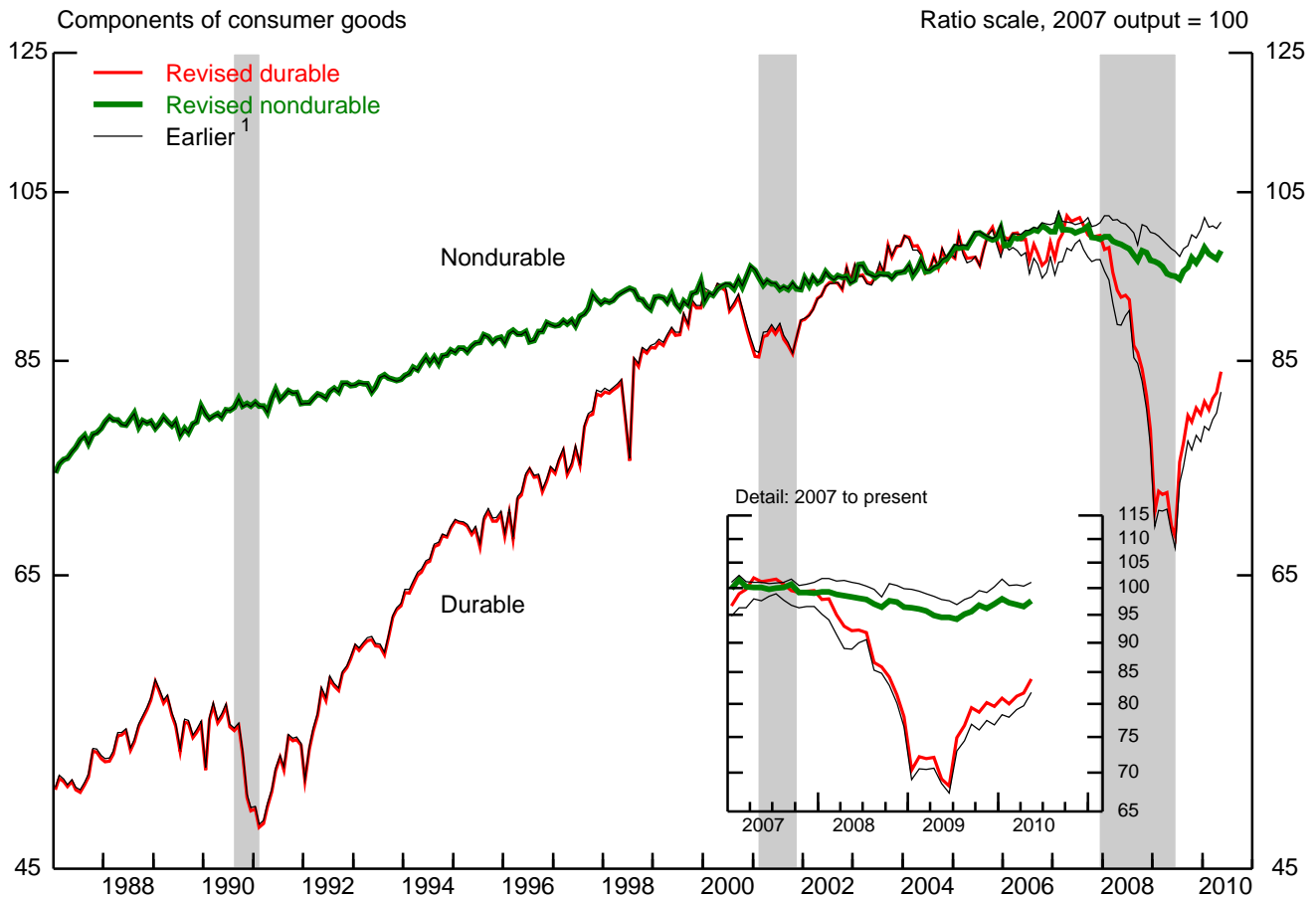
Notes: High-technology industries are defined as semiconductors and related electronic components (NAICS 334412-9), computers (NAICS 3341), and communications equipment (NAICS 3342). The shaded areas are periods of business recession as defined by the NBER. The last shaded area begins with the peak as defined by the NBER and ends at the trough of a 3 month moving average of manufacturing IP.



#### 4. Consumer goods



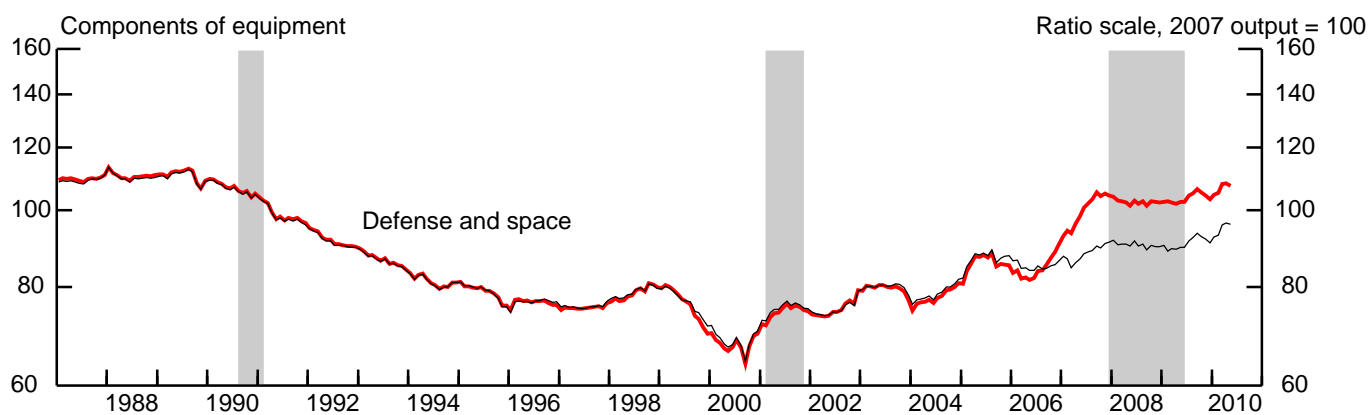
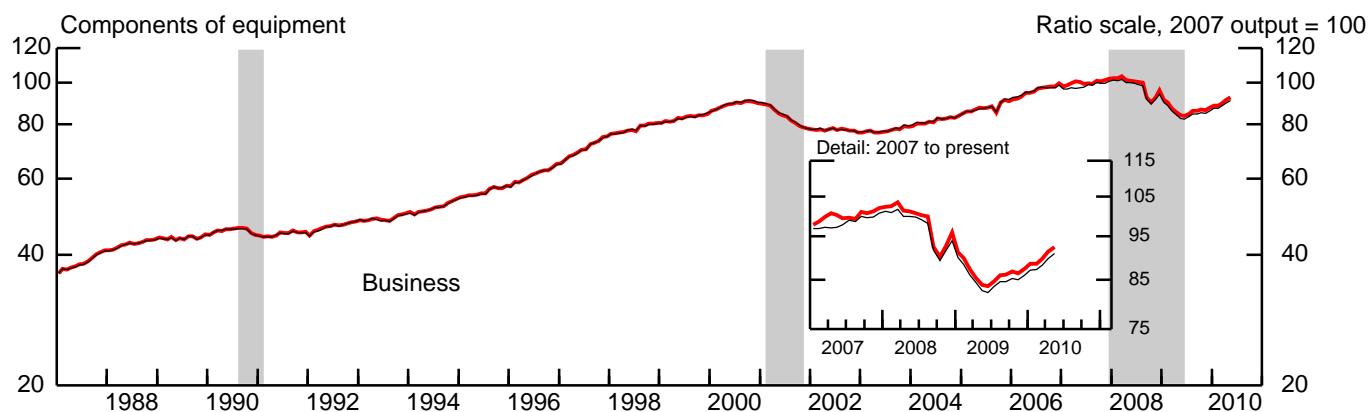
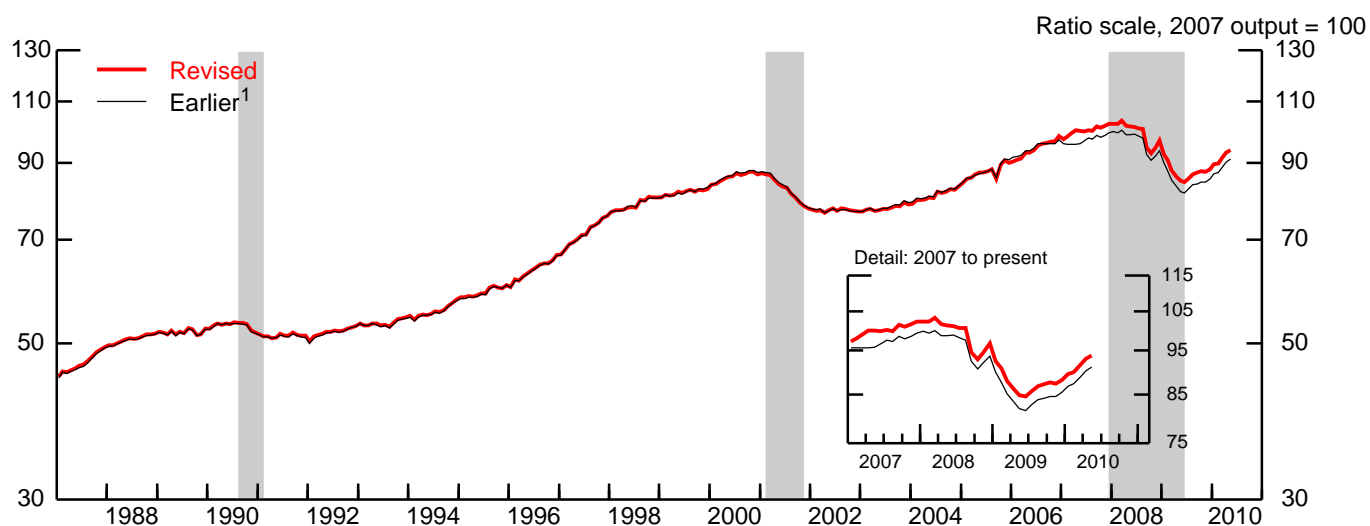
1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.



1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

Note: The shaded areas represent periods of business recession as defined by the NBER. The last shaded area begins with the peak as defined by the NBER and ends at the trough of a 3 month moving average of manufacturing IP.

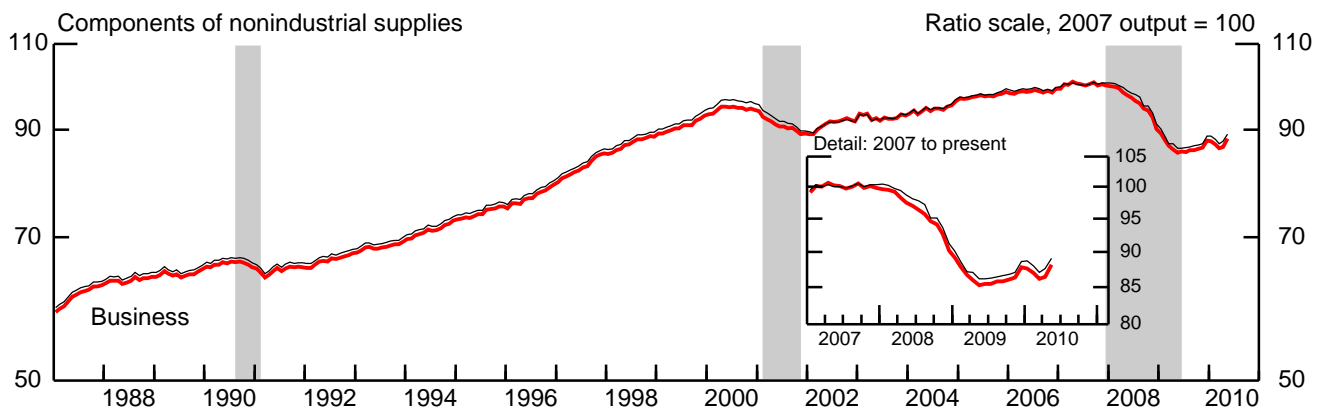
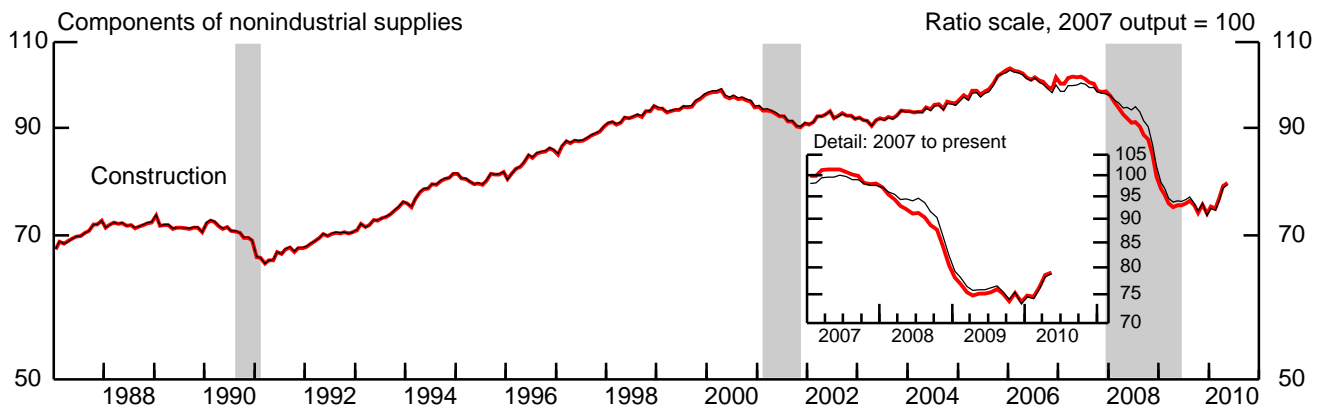
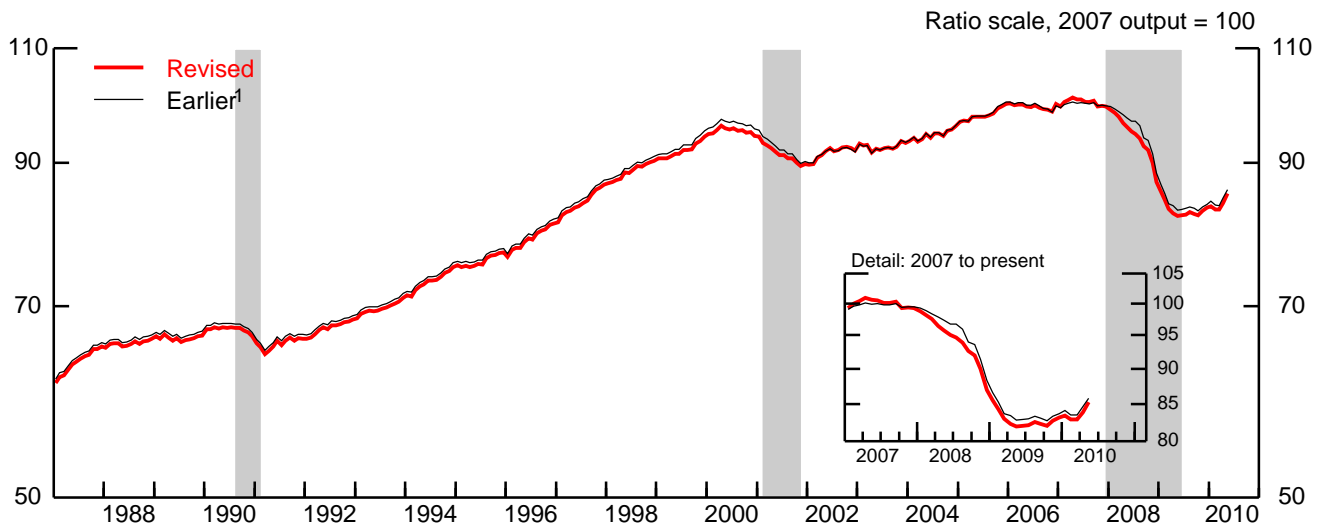
## 5. Equipment, total



1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

Note: The shaded areas represent periods of business recession as defined by the NBER. The last shaded area begins with the peak as defined by the NBER and ends at the trough of a 3 month moving average of manufacturing IP.

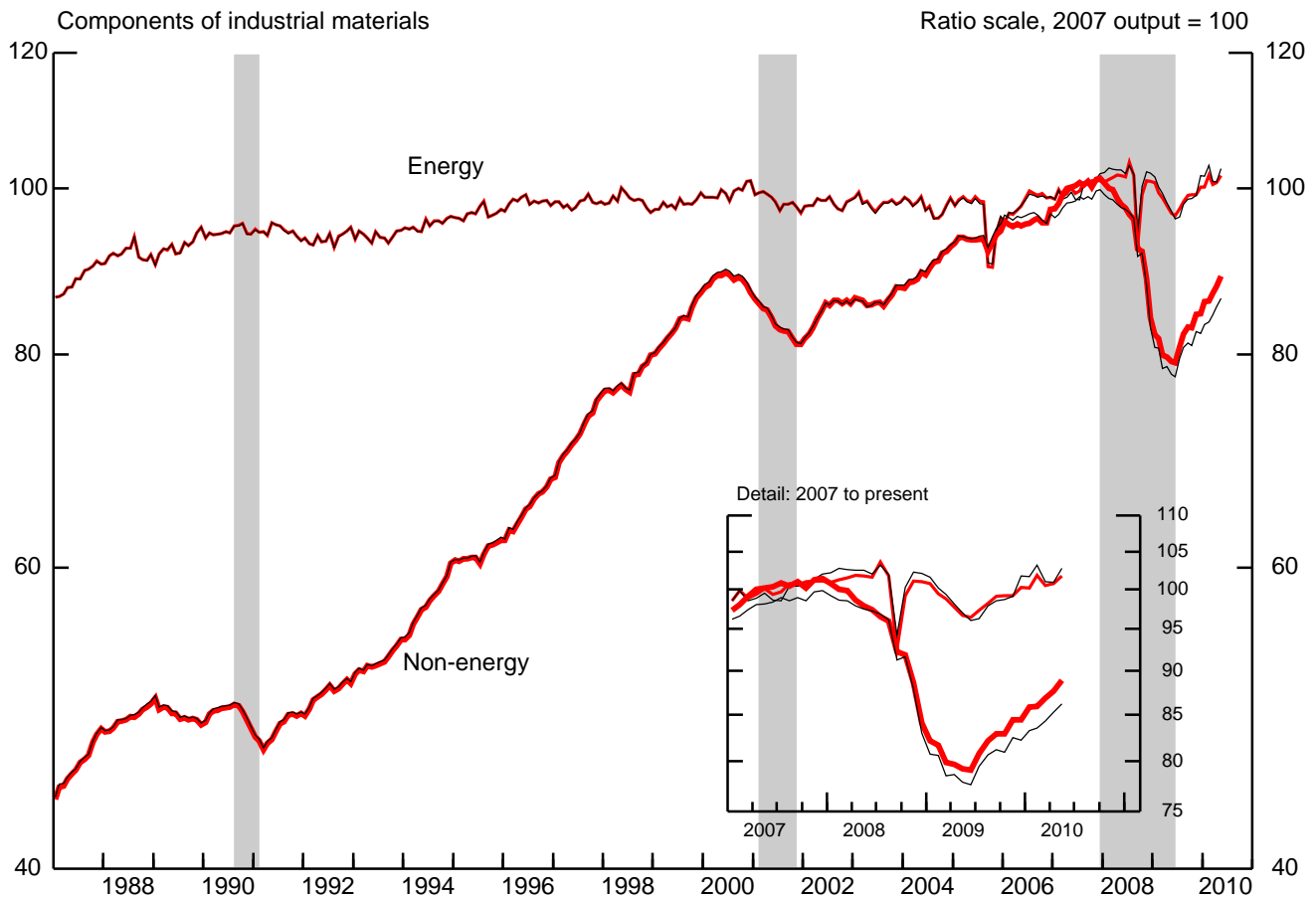
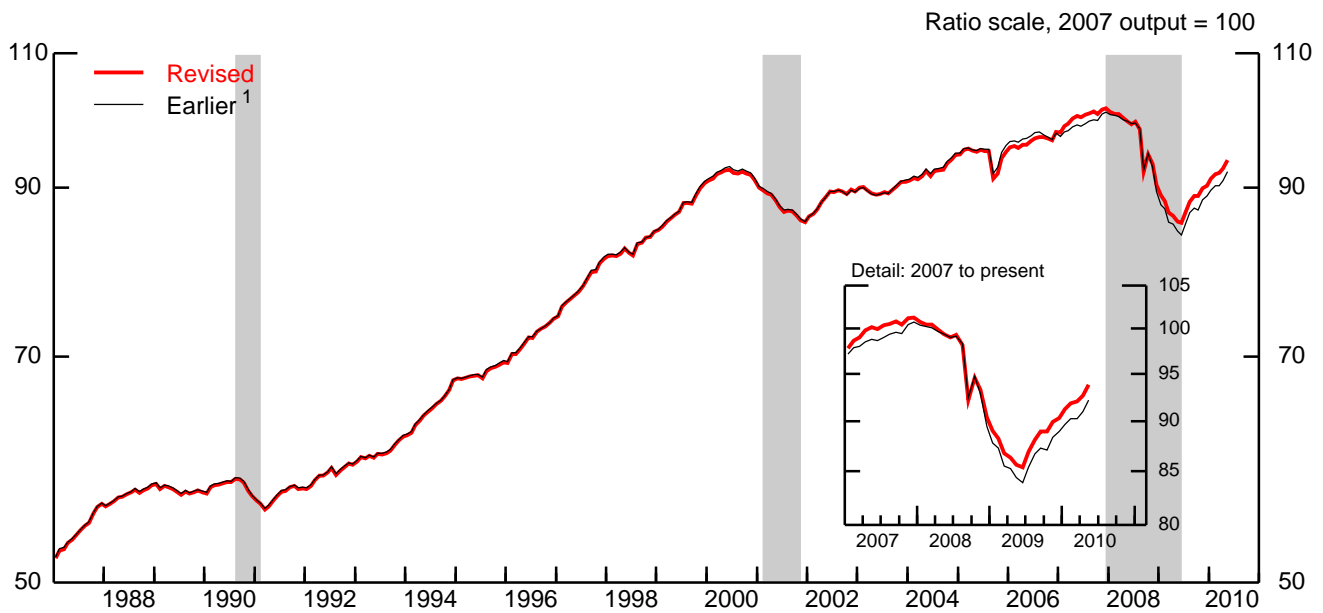
## 6. Nonindustrial supplies



1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

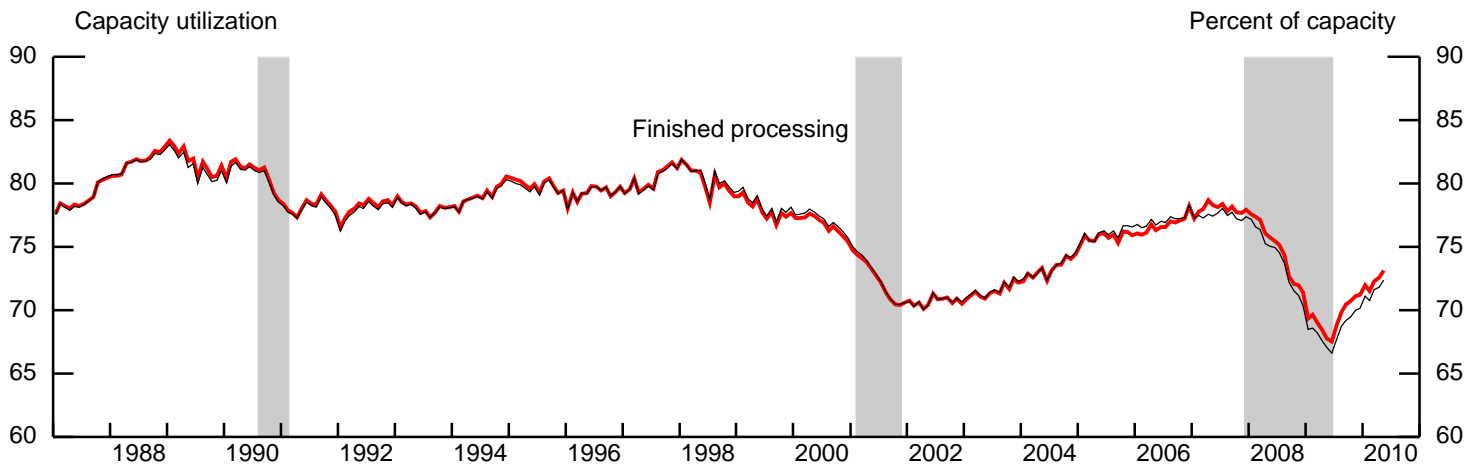
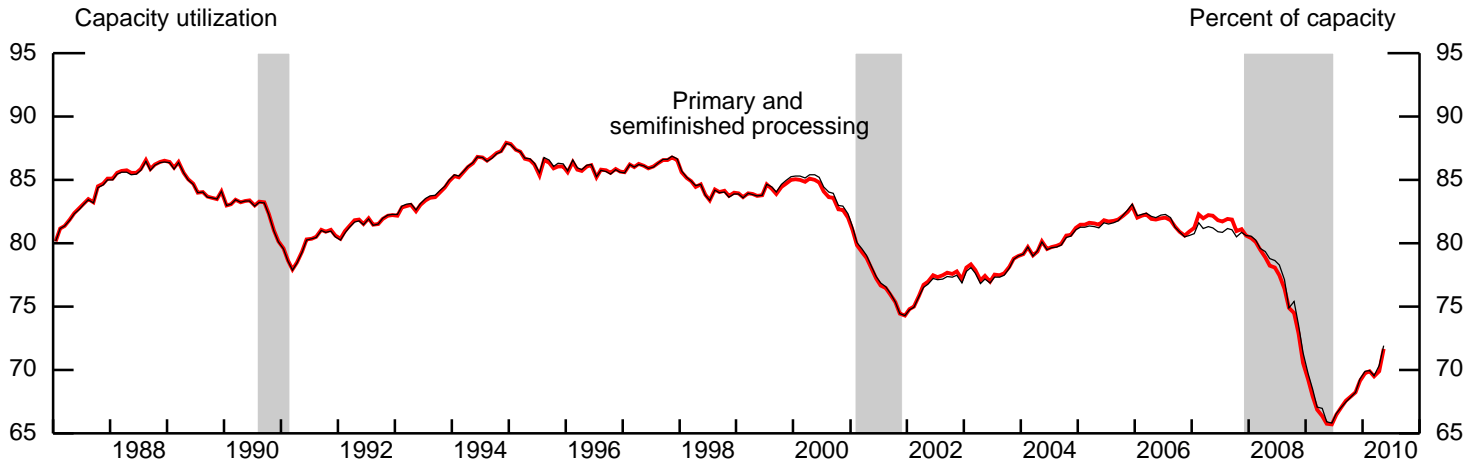
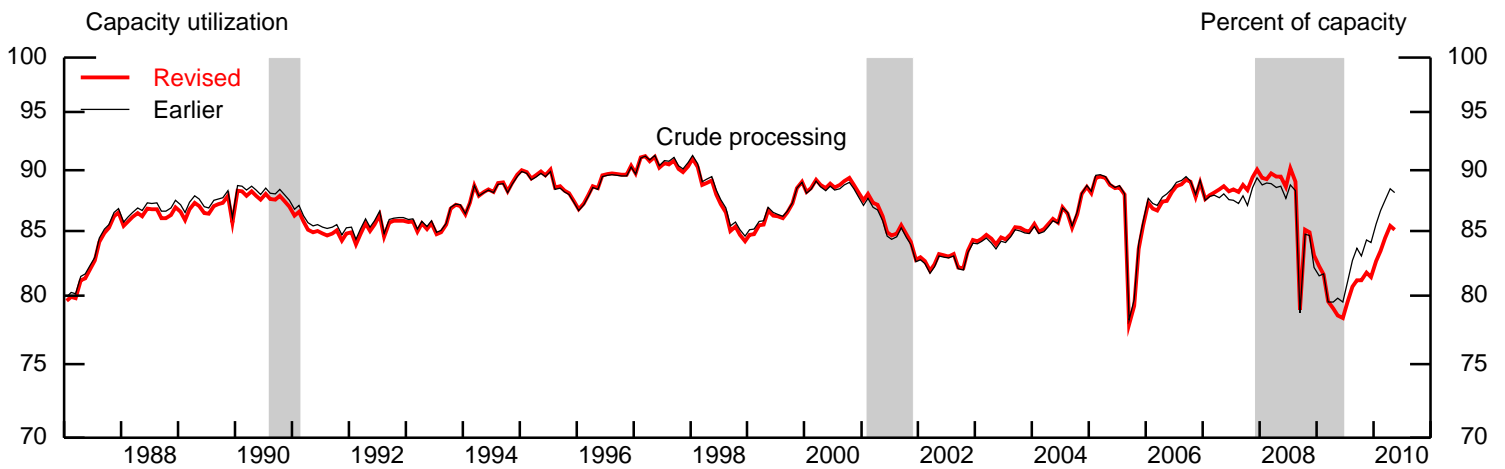
Note: The shaded areas represent periods of business recession as defined by the NBER. The last shaded area begins with the peak as defined by the NBER and ends at the trough of a 3 month moving average of manufacturing IP.

## 7. Industrial materials



1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

## 8. Capacity utilization by stage of process



Note: The shaded areas are periods of business recession as defined by the NBER. The last shaded area begins with the peak as defined by the NBER and ends at the trough of a 3 month moving average of manufacturing IP.



**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>																	
1980	.4	.1	-3	-2.0	-2.5	-1.2	-7	.3	1.6	1.3	1.7	.6	1.6	-15.8	-6.2	16.4	-2.5
1981	-.6	-.5	.5	-.4	.6	.5	.6	.0	-.6	-.7	-1.1	-1.1	.9	1.4	3.8	-8.5	1.3
1982	-2.0	2.0	-.7	-.9	-.6	-.4	-.3	-.8	-.4	-.8	-.4	-.8	-7.8	-5.0	-5.7	-7.2	-5.2
1983	1.9	-.6	.9	1.2	.7	.5	1.6	1.1	1.5	.8	.3	.5	4.7	9.3	14.5	10.8	2.8
1984	2.0	.5	.4	.6	.5	.4	.3	.1	-.2	-.1	.4	.1	12.4	6.3	2.8	.3	8.9
1985	-.3	.5	.1	-.2	.1	.1	-.7	.4	.4	-.4	.3	1.0	1.1	.4	-.7	2.5	1.2
1986	.5	-.7	-.6	.1	.2	-.3	-.6	-.2	.2	.5	.5	.9	2.2	-2.3	1.6	4.6	1.0
1987	-.4	1.3	.2	.6	.7	.5	.6	.7	.3	1.5	.5	.5	5.3	7.4	7.3	10.1	5.2
1988	.0	.4	.3	.5	-.1	.2	.1	.5	-.4	.5	.2	.4	3.5	3.5	1.9	2.9	5.2
1989	.3	-.4	.3	.0	-.7	.0	-.9	.9	-.2	-.1	.3	.6	1.6	-1.6	-2.5	1.8	.9
1990	-.5	.9	.5	-.1	.2	.3	-.1	.2	.2	-.8	-1.2	-.7	3.0	2.7	1.5	-6.1	1.0
1991	-.4	-.6	-.5	.2	1.0	1.0	.0	.1	.9	-.2	-.1	-.3	-7.4	2.5	5.6	.9	-1.5
1992	-.6	.8	.8	.7	.3	.0	.9	-.5	.2	.7	.4	.0	-.4	7.1	2.8	4.0	2.8
1993	.5	.3	.0	.3	-.4	.2	.3	.0	.4	.8	.4	.5	3.5	1.1	2.0	6.2	3.3
1994	.4	.0	1.1	.5	.6	.7	.2	.6	.2	.8	.6	1.1	5.0	7.4	5.1	8.2	5.3
1995	.3	.0	.2	-.1	.2	.3	-.4	1.4	.4	-.2	.2	.4	5.2	1.0	3.7	3.2	4.8
1996	-.6	1.6	-.2	.8	.7	.9	-.1	.7	.6	.0	.8	.6	3.1	8.1	5.4	5.6	4.4
1997	.1	1.2	.8	.0	.7	.5	.6	1.3	.9	.7	.9	.3	7.8	6.4	9.6	10.1	7.2
1998	.5	.1	.1	.4	.7	-.6	-.4	2.1	-.3	.7	-.1	.3	4.5	3.0	3.0	5.4	5.9
1999	.5	.4	.2	.2	.8	-.2	.6	.4	-.3	1.3	.5	.8	4.1	3.9	3.9	7.4	4.3
2000	.1	.4	.4	.6	.2	.1	-.2	-.2	.5	-.4	.0	-.4	4.7	4.7	-.5	-1.1	4.0
2001	-.7	-.6	-.3	-.2	-.7	-.6	-.4	-.3	-.3	-.5	-.5	.0	-5.6	-5.0	-5.6	-4.6	-3.3
2002	.6	.0	.8	.4	.5	.9	-.3	.2	.1	-.3	.5	-.5	2.8	6.5	2.3	-.3	.2
2003	.7	.4	-.1	-.8	.0	.0	.4	-.1	.6	.0	.8	-.1	2.9	-3.0	2.2	3.6	1.3
2004	.2	.6	-.5	.5	.7	-.9	.7	.2	-.1	.9	.2	.7	2.6	1.8	1.8	5.6	2.3
2005	.5	.7	.0	.0	.2	.3	-.1	.2	-.2	1.0	1.1	.6	5.9	2.0	-1.5	2.7	3.2
2006	.0	.1	.2	.4	-.1	.4	.3	.3	-.1	.0	-.2	1.0	3.7	2.6	2.7	.9	2.2
2007	-.4	1.1	.1	.7	.0	-.1	.2	.0	.4	-.7	.4	.1	4.3	4.5	1.0	-.7	2.7
2008	-.3	-.2	-.3	-.8	-.5	-.4	.0	-1.2	-4.0	1.0	-1.0	-2.0	-1.6	-5.9	-9.7	-13.0	-3.3
2009	-2.1	-.8	-1.5	-.8	-.9	-.2	1.4	1.2	.7	.3	.5	.5	-17.6	-10.3	8.3	7.0	-9.3
2010	1.0	.0	.3	.6	1.3								6.9				
<b>IP (2007=100)</b>																	
1980	51.6	51.7	51.5	50.5	49.2	48.6	48.3	48.5	49.2	49.9	50.7	51.0	51.6	49.5	48.7	50.5	50.1
1981	50.7	50.5	50.7	50.5	50.8	51.1	51.4	51.4	51.1	50.7	50.2	49.6	50.7	50.8	51.3	50.2	50.7
1982	48.6	49.6	49.2	48.8	48.5	48.3	48.2	47.8	47.6	47.2	47.0	46.6	49.2	48.5	47.8	46.9	48.1
1983	47.5	47.2	47.7	48.2	48.6	48.8	49.6	50.2	50.9	51.3	51.5	51.7	47.5	48.5	50.2	51.5	49.4
1984	52.8	53.1	53.3	53.6	53.9	54.1	54.2	54.3	54.2	54.1	54.3	54.4	53.1	53.9	54.2	54.3	53.9
1985	54.2	54.5	54.5	54.4	54.5	54.5	54.2	54.4	54.6	54.4	54.6	55.2	54.4	54.5	54.4	54.7	54.5
1986	55.4	55.0	54.7	54.7	54.8	54.6	55.0	54.9	55.0	55.2	55.5	56.0	55.0	54.7	54.9	55.5	55.0
1987	55.8	56.5	56.6	56.9	57.3	57.6	58.0	58.4	58.5	59.4	59.7	60.0	56.3	57.3	58.3	59.7	57.9
1988	60.0	60.3	60.4	60.7	60.7	60.8	60.9	61.2	61.0	61.3	61.4	61.7	60.2	60.8	61.1	61.5	60.9
1989	61.9	61.6	61.8	61.8	61.3	61.4	60.8	61.4	61.2	61.1	61.3	61.7	61.7	61.5	61.1	61.4	61.4
1990	61.4	61.9	62.2	62.1	62.2	62.4	62.3	62.5	62.6	62.2	61.4	61.0	61.8	62.3	62.5	61.5	62.0
1991	60.7	60.3	60.0	60.1	60.7	61.3	61.3	61.4	61.9	61.8	61.7	61.5	60.3	60.7	61.5	61.7	61.1
1992	61.1	61.6	62.1	62.6	62.8	62.8	63.3	63.0	63.1	63.6	63.8	63.9	61.6	62.7	63.1	63.8	62.8
1993	64.2	64.4	64.4	64.6	64.4	64.5	64.7	64.7	65.0	65.5	65.8	66.1	64.3	64.5	64.8	65.8	64.9
1994	66.4	66.4	67.1	67.4	67.8	68.2	68.4	68.7	68.9	69.5	69.9	70.7	66.6	67.8	68.7	70.0	68.3
1995	70.9	70.9	71.0	70.9	71.1	71.3	71.0	72.0	72.3	72.1	72.3	72.6	70.9	71.1	71.8	72.3	71.5
1996	72.2	73.3	73.2	73.8	74.3	74.9	74.8	75.3	75.8	75.7	76.4	76.9	72.9	74.3	75.3	76.3	74.7
1997	77.0	77.9	78.5	78.5	79.0	79.4	79.9	80.9	81.7	82.2	82.9	83.2	77.8	79.0	80.8	82.8	80.1
1998	83.6	83.7	83.8	84.1	84.7	84.2	83.9	85.7	85.4	86.1	86.0	86.2	83.7	84.3	85.0	86.1	84.8
1999	86.7	87.0	87.2	87.4	88.1	87.9	88.5	88.9	88.6	89.7	90.2	90.9	87.0	87.8	88.6	90.2	88.4
2000	91.0	91.3	91.7	92.2	92.4	92.4	92.2	92.0	92.5	92.1	92.1	91.7	91.3	92.3	92.2	92.0	92.0
2001	91.1	90.6	90.3	90.1	89.5	88.9	88.5	88.2	87.9	87.5	87.0	87.1	90.7	89.5	88.2	87.2	88.9
2002	87.6	87.6	88.2	88.6	89.1	89.9	89.6	89.7	89.8	89.5	89.9	89.5	87.8	89.2	89.7	89.6	89.1
2003	90.1	90.4	90.3	89.6	89.6	89.6	90.0	89.9	90.4	90.4	91.2	91.1	90.3	89.6	90.1	90.9	90.2
2004	91.3	91.8	91.3	91.7	92.4	91.5	92.2	92.4	92.3	93.2	93.4	94.1	91.5	91.9	92.3	93.6	92.3
2005	94.5	95.2	95.1	95.2	95.4	95.7	95.6	95.7	93.8	94.8	95.8	96.4	94.9	95.4	95.0	95.7	95.3
2006	96.4	96.5	96.7	97.1	97.0	97.4	97.7	97.9	97.8	97.8	97.6	98.7	96.5	97.2	97.8	98.0	97.4
2007	98.3	99.4	99.5	100.2	100.2	100.1	100.3	100.3	100.7	100.0	100.4	100.5	99.1	100.2	100.4	100.3	100.0
2008	100.1	99.9	99.6	98.8	98.3	98.0	98.0	96.8	93.0	93.9	92.9	91.0	99.9	98.4	95.9	92.6	96.7
2009	89.1	88.5	87.2	86.5	85.7	85.5	86.7	87.8	88.4	88.6	89.1	89.6	88.2	85.9	87.6	89.1	87.7
2010	90.5	90.5	90.8	91.4	92.6								90.6				

NOTE Estimates from January 2010 through May 2010 are subject to further revision in the upcoming monthly releases.

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



**Table 2**  
**RATES OF CHANGE IN INDUSTRIAL PRODUCTION, MARKET AND INDUSTRY GROUP SUMMARY: 2005–09 <sup>1</sup>**

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
<b>Total IP</b>	2.3	2.5	2.3	-7.6	-3.8	-4	.7	.5	-9	.9
MARKET GROUPS										
<b>Final products and nonindustrial supplies</b>	4.2	1.6	.9	-7.2	-4.2	-1	.5	.2	-1.4	.4
<b>Consumer goods</b>	2.6	.1	-.3	-6.1	-.9	.2	.0	-.4	-1.9	.4
<b>Durable</b>	2.1	-2.1	2.5	-18.3	-2.1	.9	1.1	1.4	-1.1	1.7
Automotive products	-2	-2.0	7.2	-24.1	6.0	1.2	3.1	4.0	-1.7	2.6
Home electronics	10.6	6.3	18.8	-3.4	2.4	2.8	-2.5	3.4	-5.0	12.9
Appliances, furniture, carpeting	1.3	-5.4	-4.4	-18.8	-10.5	-2	.2	.7	1.6	-6
Miscellaneous goods	4.9	-1.8	-3.8	-11.1	-9.9	.5	-1.1	-2.8	-.2	-.8
<b>Nondurable</b>	2.8	.9	-1.2	-2.0	-.5	-1	-.3	-1.1	-1.6	.3
Non-energy	3.3	.6	-2.4	-3.0	-.4	-1	-1.0	-1.6	-1.2	.3
Foods and tobacco	4.2	-1.0	-2.3	-3.6	.5	.2	-.9	-3.4	-2.4	.3
Clothing	-2.8	-13.8	-24.3	-6.1	-13.6	3.0	-9.0	-23.8	.6	-4.4
Chemical products	3.3	5.1	-1.1	-1.7	.1	-1.0	-.7	3.1	.4	.5
Paper products	-.6	.8	-2.1	-5.2	-5.2	-2	.7	-.3	-1.1	.3
Energy	1.6	1.5	2.6	1.6	-.9	-2	1.6	.7	-2.0	.4
<b>Business equipment</b>	8.6	8.8	2.8	-8.3	-6.4	-.5	1.4	.6	.1	.3
Transit	14.3	10.7	1.4	-27.1	11.1	-.7	1.5	2.8	1.9	-.4
Information processing	11.4	15.3	4.6	.7	-.9	-.7	4.4	-2.0	-1.3	1.9
Industrial and other	5.2	4.6	2.5	-6.4	-14.3	-.4	-.2	1.3	1.0	-.7
<b>Defense and space equipment</b>	6.6	4.0	17.8	-1.9	1.8	-1.4	5.9	12.1	-1.4	-.2
<b>Construction supplies</b>	7.1	-2.5	-1.7	-14.2	-11.8	-.2	.8	-.7	-2.6	2.2
<b>Business supplies</b>	2.6	.6	1.3	-7.6	-6.0	-.3	.3	.0	-.7	.2
<b>Materials</b>	-.3	3.7	4.0	-8.2	-3.2	-.7	.9	.8	-.3	1.3
<b>Non-energy</b>	1.9	2.5	5.0	-12.6	-4.8	-.6	1.0	1.5	-.7	1.6
<b>Durable</b>	5.6	1.2	6.2	-12.1	-9.1	-.4	.8	1.5	-.2	3.4
Consumer parts	-.1	-4.6	-2.9	-23.6	-7.7	-.7	1.1	-.6	-3.2	9.4
Equipment parts	12.4	9.1	15.9	-5.7	-8.1	-.3	2.2	5.5	.8	2.8
Other	2.7	-2.1	2.5	-13.1	-10.4	-.3	-.3	-.6	-.2	2.0
<b>Nondurable</b>	-3.6	4.5	3.2	-13.5	2.1	-1.0	1.5	1.3	-1.5	.1
Textile	-.1	-11.9	-9.2	-16.4	-2.2	-.6	-.3	-2.2	-2.7	1.2
Paper	-2.3	1.2	-.7	-11.3	-5.6	-1.4	-.7	.7	-.5	-.9
Chemical	-8.3	10.5	6.7	-18.0	9.5	-1.0	3.6	2.4	-2.3	1.5
<b>Energy</b>	-4.4	6.0	2.1	-.6	-.9	-.3	.4	-.4	-.9	.8
INDUSTRY GROUPS										
<b>Manufacturing</b>	3.5	2.0	2.6	-10.0	-4.1	-.3	.8	.7	-1.2	1.0
<b>Manufacturing (NAICS)</b>	31–33	3.7	2.1	2.8	-10.0	-3.7	.8	.8	-1.3	1.0
<b>Durable manufacturing</b>		6.8	2.6	5.2	-11.3	-6.3	-2	1.4	2.0	-2
Wood products	321	12.9	-10.8	-4.5	-20.9	-10.7	1.1	2.2	3.0	-.2
Nonmetallic mineral products	327	5.1	-2.2	-2.4	-15.9	-11.8	-.4	1.4	-1.2	-5.6
Primary metal	331	-1.9	-4.6	10.9	-23.2	-3.1	-1.3	-.4	6.6	3.6
Fabricated metal products	332	5.5	4.6	3.3	-7.1	-11.7	-.6	1.2	.0	-1
Machinery	333	7.9	3.4	3.0	-8.2	-19.1	-.4	.6	4.0	2.4
Computer and electronic products	334	15.3	12.7	15.4	-2.6	1.7	.0	3.4	4.4	.1
Electrical equip., appliances, and components	335	1.5	.2	3.2	-5.6	-10.4	-.3	.6	-.1	-2.7
Motor vehicles and parts	3361–3	.9	-3.9	-2.7	-27.5	1.4	.8	2.3	-.8	-4.2
Aerospace and miscellaneous transportation equipment	3364–9	9.4	9.4	17.5	-13.2	2.6	-1.5	3.8	6.5	-.6
Furniture and related products	337	1.0	-2.7	-1.4	-16.3	-15.2	-.6	-1.0	1.2	1.5
Miscellaneous	339	7.3	.7	-1.6	-.2	-2.9	.9	-2.8	-4.5	2.0
<b>Nondurable manufacturing</b>		.3	1.6	.0	-8.5	-.6	-.4	.2	-.7	-2.2
Food, beverage, and tobacco products	311,2	4.4	-.9	-1.2	-3.3	.0	.2	-1.0	-3.1	-1.7
Textile and product mills	313,4	-.8	-12.6	-11.3	-15.1	-5.5	-.5	-1.3	-4.0	-1.3
Apparel and leather	315,6	.0	-7.1	-23.1	-14.9	-13.9	1.4	-6.7	-22.3	-6.7
Paper	322	-1.6	.4	-.3	-13.2	-.3	-1.1	-.1	1.9	-2.3
Printing and support	323	-1.8	1.8	.4	-9.2	-14.0	-2.3	-.6	1.9	.3
Petroleum and coal products	324	-3.8	6.2	.7	-4.4	-1.5	-.1	3.9	.4	-4.9
Chemical	325	-1.9	6.5	3.2	-10.4	3.9	-.8	1.3	2.5	-.6
Plastics and rubber products	326	3.0	-4.4	-.6	-15.0	-8.8	.5	-1.4	-5.1	-3.2
<b>Other manufacturing (non-NAICS)</b>	1133,5111	-.5	-1.2	-2.4	-9.1	-11.3	-.2	.0	-.6	-.3
<b>Mining</b>	21	-5.4	8.7	.1	-.3	-4.5	-.5	-.1	-.3	-1.2
<b>Utilities</b>	2211,2	1.9	-.7	3.1	-.3	-1.4	-.1	-.1	.0	-.6
Electric	2211	3.4	-1.1	3.4	-1.4	-1.7	-.1	-.1	.0	-.6
Natural gas	2212	-4.9	1.2	1.6	4.9	.6	-.2	-.2	.0	-1.0

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.

**Table 3**  
**RATES OF CHANGE IN INDUSTRIAL PRODUCTION, SPECIAL AGGREGATES AND SELECTED DETAIL: 2005–09 <sup>1</sup>**

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
<b>Total industry</b>	2.3	2.5	2.3	-7.6	-3.8	-.4	.7	.5	-.9	.9
<b>Energy</b>	-2.2	4.7	2.2	.0	-2.0	-.4	.8	.0	-1.3	1.0
Consumer products	1.6	1.5	2.6	1.6	-.9	-.2	1.6	.7	-2.0	.4
Commercial products	.4	2.1	2.3	-.5	-.1	-.1	.9	.5	-1.0	1.4
Oil and gas well drilling 213111	11.6	14.6	-1.0	6.9	-42.3	-.3	-.3	-.3	-.1	-.1
Converted fuel	-1.8	2.5	5.9	-5.1	-.5	.8	.0	.2	-.8	-.2
Primary energy	-5.3	7.2	.9	.8	-1.1	-.6	.4	-.4	-1.2	1.7
<b>Non-energy</b>	3.7	1.8	2.3	-10.2	-4.4	-.3	.6	.6	-.8	1.0
<b>Selected high-technology industries</b>	23.3	16.5	21.4	-5.2	4.0	.7	3.4	3.2	1.7	6.1
Computers and peripheral equipment 3341	27.8	16.3	27.5	-4.9	-2.0	2.6	-5.9	3.3	7.0	2.4
Communications equipment 3342	7.0	23.7	-11.5	2.2	5.1	-1.9	11.3	-18.2	-8.2	9.1
Semiconductors and related electronic components 334412-9	28.8	12.9	37.7	-8.2	6.5	.4	3.1	15.5	6.8	5.5
<b>Excluding selected high-technology industries</b>	2.4	.9	1.2	-10.5	-4.9	-.3	.5	.5	-1.0	.7
<b>Motor vehicles and parts 3361-3</b>	.9	-3.9	-2.7	-27.5	1.4	.8	2.3	-.8	-4.2	8.6
Motor vehicles 3361	1.0	-3.9	-1.6	-31.5	5.2	2.4	3.6	.2	-1.1	6.4
Motor vehicle parts 3363	-1.2	-3.4	-3.6	-20.7	-2.9	-.6	.9	-3.9	-5.9	9.4
<b>Excluding motor vehicles and parts</b>	2.5	1.3	1.5	-9.3	-5.3	-.4	.3	.6	-.8	.2
Consumer goods	3.2	.0	-2.1	-5.3	-2.3	-.1	-.8	-1.0	-1.2	-.1
Business equipment	5.9	7.0	5.3	-8.3	-6.1	-.7	.8	3.0	.5	-.1
Construction supplies	7.2	-2.6	-1.8	-14.3	-12.0	-.1	.7	-.8	-2.5	2.1
Business supplies	2.2	-.7	.4	-10.2	-8.8	-.5	-.1	.0	-.4	-.3
Materials	-.2	2.2	3.2	-11.9	-5.7	-.7	.8	.8	-.7	.3
<b>Measures excluding selected high-technology industries</b>										
Total industry	1.2	1.8	1.4	-7.8	-4.1	-.4	.6	.4	-1.0	.6
Manufacturing <sup>2</sup>	2.2	1.1	1.5	-10.3	-4.5	-.3	.7	.6	-1.4	.6
Durable	4.5	.8	3.3	-12.1	-7.5	-.2	1.2	1.9	-.4	1.8
<b>Measures excluding motor vehicles and parts</b>										
Total industry	2.3	2.9	2.6	-6.6	-4.0	-.5	.6	.6	-.8	.6
Manufacturing <sup>2</sup>	3.7	2.4	2.9	-8.8	-4.4	-.4	.7	.8	-1.0	.6
Durable	7.8	3.7	6.4	-9.0	-7.1	-.4	1.2	2.4	.3	1.6
<b>Measures excluding selected high-technology industries and motor vehicles and parts</b>										
Total industry	1.2	2.2	1.7	-6.7	-4.4	-.5	.5	.5	-.9	.3
Manufacturing <sup>2</sup>	2.3	1.5	1.8	-9.0	-4.9	-.4	.5	.7	-1.2	.2
<b>Measure of non-energy material inputs to</b>										
Finished processors	5.6	2.9	6.8	-11.4	-7.3	-.6	1.2	2.8	-.3	3.3
Primary and semifinished processors	-.8	2.2	3.8	-13.5	-3.0	-.6	.9	.6	-1.0	.6
<b>STAGE-OF-PROCESS GROUPS</b>										
Crude	-7.1	8.4	1.7	-4.7	.6	-.5	.9	.5	-.2	-.3
Primary and semifinished	3.2	-.2	3.1	-9.3	-6.6	-.3	.7	.7	-1.3	1.0
Finished	5.1	3.7	1.3	-6.9	-2.3	-.1	.4	.2	-1.0	.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. 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 4**  
**ANNUAL RATES OF CHANGE FOR INDUSTRIAL PRODUCTION: 2005–09<sup>1</sup>**

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
<b>Total IP</b>	3.2	2.2	2.7	-3.3	-9.3	-.1	.0	1.2	-1.1	.5
MARKET GROUPS										
<b>Consumer goods</b>	2.7	.6	.8	-4.2	-5.8	.0	.2	-.2	-1.5	-.8
Durable	.7	.4	1.8	-10.3	-17.0	.2	1.4	1.4	-.4	.1
Nondurable	3.4	.6	.4	-2.1	-2.4	-.1	-.2	-.7	-1.6	-.5
Business equipment	7.2	9.2	4.5	-1.5	-12.2	.2	-.1	1.9	-.3	.4
Defense and space equipment	10.4	-1.5	18.3	2.5	1.1	-.2	.6	14.6	.0	.9
Construction supplies	4.7	2.4	-1.2	-9.5	-16.7	.2	.1	.7	-3.2	1.3
Business supplies	3.1	1.1	1.7	-3.8	-10.1	-.2	-.1	.4	-.9	.1
<b>Materials</b>	2.3	2.2	3.7	-2.7	-9.7	-.1	-.2	1.7	-.8	1.4
Non-energy	4.0	2.4	4.6	-4.7	-14.3	-.1	-.3	2.5	-1.0	1.2
Energy	-1.3	1.7	1.9	.7	-2.1	.0	.0	.2	-1.1	.5
INDUSTRY GROUPS										
<b>Manufacturing<sup>2</sup></b>	4.0	2.5	2.9	-4.5	-11.1	.0	.0	1.5	-1.3	.4
Manufacturing (NAICS)	4.2	2.7	3.2	-4.4	-10.9	.0	.0	1.6	-1.3	.3
Durable manufacturing	5.7	4.6	5.0	-3.6	-14.9	.3	.2	2.9	-.3	1.8
Nondurable manufacturing	2.5	.6	1.1	-5.3	-6.0	-.3	-.3	.2	-2.4	-.4
Other manufacturing (non-NAICS)	-.4	-1.2	-1.3	-6.5	-14.5	.0	-.2	.0	-.9	1.3
Mining	-1.5	3.0	.5	.8	-5.0	-.3	-.3	.0	-1.3	1.3
Utilities	2.1	-.6	3.4	-.1	-2.6	.0	.0	.0	-.4	-.6

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 3.

**Table 5**  
**RATES OF CHANGE IN CAPACITY, BY INDUSTRY GROUPS: 2006–10<sup>1</sup>**

Item	Revised change (percent)					Difference between revised and earlier changes (percentage points)				
	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
<b>Total industry</b>	1.8	1.7	.8	.5	-.3	.3	-.2	-.3	1.4	.5
<b>Manufacturing<sup>2</sup></b>	1.7	2.4	.5	-1.2	-.2	.3	.2	-.8	.0	.8
Manufacturing (NAICS)	1.8	2.6	.8	-1.0	-.2	.3	.3	-.5	.1	.8
Durable manufacturing	2.5	3.9	.6	-1.3	.5	.5	.2	-1.3	-.7	1.6
Nondurable manufacturing	.9	1.1	.9	-.8	-1.0	.1	.1	.1	1.0	-.1
Other manufacturing (non-NAICS)	.9	-1.3	-4.6	-3.6	.0	-.2	-1.8	-5.6	-2.7	.1
Mining	2.3	.9	1.5	3.0	.0	.0	-.5	.4	3.8	-.3
Utilities	1.2	.6	2.2	3.1	1.5	-.1	-.7	-.1	1.3	-.6
<b>Selected high-technology industries</b>	6.6	27.2	.3	7.7	11.4	.9	4.2	-6.0	-.7	10.2
Manufacturing <sup>2</sup> ex. selected high-technology industries	1.4	1.0	.5	-1.7	-.8	.3	.0	-.5	.0	.3
STAGE-OF-PROCESS GROUPS										
Crude	1.8	.6	1.5	2.6	-.8	.3	-.8	.2	3.8	-.1
Primary and semifinished	1.9	3.0	.6	-.7	-.6	.6	.9	-.2	.3	.5
Finished	1.5	1.3	.8	-.7	.9	-.3	-1.0	-1.4	-.2	.8

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 3.



**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)				
	1972-2009 Ave.	2006 Q4	2007 Q4	2008 Q4	2009 Q4	2006 Q4	2007 Q4	2008 Q4	2009 Q4	
<b>Total industry</b>		80.6	80.7	81.1	74.3	71.1	.1	.7	.1	-.2
<b>Manufacturing<sup>1</sup></b>		79.2	79.0	79.1	70.9	68.8	.0	.4	-.1	.6
<b>Manufacturing (NAICS)</b>	31-33	79.0	78.9	79.1	70.6	68.7	.1	.4	-.3	.3
<b>Durable manufacturing</b>		77.5	77.3	78.3	69.0	65.6	.0	1.3	1.9	3.8
Wood products	321	78.5	75.3	71.7	59.0	57.3	.1	3.1	4.2	7.3
Nonmetallic mineral products	327	77.0	74.7	70.9	59.1	53.5	2.1	.3	-3.9	-1.2
Primary metal	331	79.7	76.5	83.9	63.5	62.6	-3.9	-.2	2.1	3.8
Fabricated metal products	332	77.4	81.9	82.0	74.9	67.7	2.4	1.5	.9	3.6
Machinery	333	78.3	82.0	83.6	76.9	63.4	.2	3.9	6.6	4.6
Computer and electronic products	334	78.2	77.9	76.2	73.1	70.8	-.5	.8	3.7	6.7
Electrical equip., appliances, and components	335	83.0	83.9	86.1	79.5	72.1	1.6	3.3	1.1	1.5
Motor vehicles and parts	3361-3	75.8	69.8	69.0	49.5	54.9	-.5	-1.2	-4.0	3.1
Aerospace and miscellaneous transportation equipment	3364-9	72.9	75.7	87.7	73.8	72.9	-1.6	3.4	1.8	-.8
Furniture and related products	337	78.0	80.8	80.5	71.9	65.6	1.7	2.9	6.8	8.1
Miscellaneous	339	76.1	76.1	73.2	72.7	70.2	-.2	-1.2	3.3	1.2
<b>Nondurable manufacturing</b>		81.3	80.8	80.0	72.5	72.6	.2	-.5	-2.3	-2.9
Food, beverage, and tobacco products	311,2	81.4	80.6	80.0	76.3	75.9	1.2	.2	-.8	-2.0
Textile and product mills	313,4	81.0	74.4	72.7	63.3	63.3	1.3	1.4	-1.4	-1.1
Apparel and leather	315,6	78.6	75.4	71.2	74.2	69.4	-1.4	-6.5	2.0	1.9
Paper	322	87.2	84.4	84.5	74.1	75.2	.3	1.9	-.2	1.1
Printing and support	323	82.8	79.8	77.4	70.9	64.0	.2	-1.0	-1.8	-4.2
Petroleum and coal products	324	86.1	89.8	87.5	83.4	80.7	1.0	.4	-2.3	-2.1
Chemical	325	78.1	78.9	78.8	69.8	73.2	.0	.2	-.3	-.2
Plastics and rubber products	326	82.6	79.1	77.8	64.9	61.1	-2.8	-6.2	-7.8	-8.3
<b>Other manufacturing (non-NAICS)</b>	<b>1133,5111</b>	83.8	80.9	79.9	76.2	70.1	-1.3	-.3	3.7	6.3
<b>Mining</b>	21	87.4	90.5	89.7	88.1	81.7	-.3	-.1	-1.5	-2.9
<b>Utilities</b>	2211,2	86.7	83.5	85.6	83.4	79.8	-.2	.3	-.1	-1.2
<b>Selected high-technology industries</b>		78.3	83.2	79.4	75.1	72.5	.4	-.2	5.3	9.6
Computers and peripheral equipment	3341	78.0	78.2	80.0	77.1	80.1	-1.3	-1.5	3.0	12.3
Communications equipment	3342	76.4	81.1	75.4	84.7	80.2	-1.1	-1.8	10.4	14.0
Semiconductors and related electronic components	334412-9	80.5	86.5	80.4	70.3	66.5	1.7	.4	5.8	7.3
<b>Measures excluding selected high-technology industries</b>										
Total industry		80.8	80.5	81.2	74.3	71.1	.1	.7	-.1	-.7
Manufacturing <sup>1</sup>		79.3	78.7	79.1	70.6	68.6	.0	.4	-.4	.1
<b>STAGE-OF-PROCESS GROUPS</b>										
Crude		86.5	88.6	89.3	84.4	81.4	-.2	.9	.5	-2.4
Primary and semifinished		81.6	80.8	80.9	72.6	68.4	.1	.2	-.8	-.1
Finished		77.5	77.5	77.8	71.8	71.0	-.1	.6	.8	1.1

1. See footnote 2 to table 3.

**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>																	
1980	.4	.0	-8	-2.1	-3.0	-1.5	-1.0	.7	1.6	1.8	1.9	.3	1.0	-18.5	-7.7	19.4	-3.5
1981	-4	-6	.4	.5	.5	-5	.2	.1	-5	-9	-1.2	-1.7	.6	3.1	-3	-9.8	1.1
1982	-2.4	2.7	-8	-7	-2	-2	-1	-8	-3	-1.1	-6	-4	-9.2	-2.1	-3.7	-8.1	-5.4
1983	2.4	-1	1.0	1.1	1.3	.8	1.5	.8	1.9	1.1	.4	.3	9.2	12.1	15.1	12.5	4.8
1984	1.8	1.1	.4	.5	.3	.5	.5	.2	-2	.4	.3	.4	12.8	6.1	3.6	2.5	9.8
1985	-4	-3	.8	-3	.1	.2	-6	.6	.1	-3	.6	.4	.2	.9	.0	2.3	1.6
1986	1.1	-6	-2	.4	.2	-4	.6	.2	.2	.4	.5	.9	4.4	.0	2.5	5.1	2.2
1987	-3	1.4	.1	.6	.7	.4	.7	.5	.6	1.6	.6	.6	5.9	7.2	7.1	11.6	5.7
1988	-2	.2	.3	.8	-1	.1	.1	.1	.3	.6	.3	.4	2.6	4.5	1.2	4.5	5.3
1989	.8	-9	-1	.1	-9	.1	-1.1	.9	-2	-2	.2	.1	1.9	-3.0	-3.0	.6	.8
1990	-1	1.4	.4	-3	.1	.3	-2	.3	.0	-8	-1.2	-8	4.5	2.6	.9	-6.8	.8
1991	-8	-6	-7	.3	.7	1.1	.2	.2	1.1	-2	-2	-1	-8.8	2.0	7.3	1.7	-2.0
1992	-6	.9	1.0	.5	.6	.3	.9	-4	.0	.6	.4	-2	.6	8.1	3.9	2.8	3.6
1993	1.0	.2	-2	.6	-1	-1	.3	-1	.6	.9	.4	.5	4.4	1.6	1.2	7.0	3.5
1994	.2	.1	1.3	.8	.7	.3	.4	.8	.3	1.0	.8	1.2	4.8	9.5	6.0	9.9	5.9
1995	.3	-1	.2	-2	.0	.4	-6	1.2	.9	-1	.0	.4	5.6	.4	3.0	4.1	5.2
1996	-7	1.6	-3	1.0	.7	1.1	.3	.6	.7	-1	.8	.9	2.4	9.1	7.9	5.8	4.8
1997	.0	1.4	1.2	-2	.9	.7	.4	1.6	.9	.6	1.1	.4	9.3	7.7	10.7	10.9	8.4
1998	.8	-1	-1	.5	.6	-7	-5	2.6	-3	1.0	.2	.5	6.1	2.5	3.3	7.6	6.7
1999	.3	.7	.0	.4	.9	-4	.5	.7	-3	1.5	.6	.7	4.6	4.4	3.6	9.0	5.0
2000	.2	.3	.7	.6	-2	.2	.0	-6	.5	-4	-3	-7	5.2	4.4	-7	-2.7	4.2
2001	-6	-6	-3	-2	-8	-7	-3	-7	-2	-7	-3	-3	-6.5	-5.2	-6.1	-4.3	-4.0
2002	.5	.0	.7	.1	.7	1.1	-5	.4	.1	-5	.5	-5	3.4	5.9	3.1	-8	.3
2003	.6	.2	.3	-9	.1	.4	.1	-3	.8	.0	1.0	-2	2.4	-2.0	1.9	4.1	1.3
2004	.0	.7	-2	.5	.7	-9	.8	.7	-2	1.0	-1	.7	2.3	3.0	3.5	5.3	2.8
2005	.7	.8	-3	.2	.4	.1	-1	.3	-1.0	1.5	.8	.0	6.6	2.2	-3	5.6	4.0
2006	.7	-2	-1	.6	-3	.3	.1	.4	.1	-3	.0	1.5	3.1	1.3	1.9	1.6	2.5
2007	-4	.6	.8	.7	-1	.1	.4	-5	.5	-7	.3	.2	5.2	5.4	.7	-1.0	2.9
2008	-5	-5	-2	-1.2	-5	-6	-5	-9	-3.2	-4	-1.9	-2.6	-2.7	-8.1	-10.4	-18.0	-4.5
2009	-2.7	-2	-1.7	-6	-8	-1	1.7	1.3	.7	.1	1.0	.1	-21.0	-9.3	10.4	7.1	-11.1
2010	.9	-2	1.1	.8	1.1								6.4				
<b>IP (2007=100)</b>																	
1980	47.1	47.1	46.8	45.8	44.4	43.8	43.3	43.6	44.3	45.1	46.0	46.1	47.0	44.7	43.8	45.8	45.3
1981	45.9	45.7	45.8	46.1	46.3	46.1	46.2	46.2	46.0	45.6	45.0	44.3	45.8	46.2	46.1	45.0	45.8
1982	43.2	44.4	44.0	43.7	43.7	43.6	43.5	43.2	43.0	42.6	42.3	42.1	43.9	43.7	43.2	42.3	43.3
1983	43.2	43.1	43.5	44.0	44.6	44.9	45.6	46.0	46.8	47.4	47.5	47.6	43.3	44.5	46.1	47.5	45.4
1984	48.5	49.1	49.3	49.5	49.7	49.9	50.1	50.2	50.1	50.3	50.4	50.6	49.0	49.7	50.1	50.4	49.8
1985	50.4	50.3	50.7	50.5	50.6	50.6	50.3	50.6	50.7	50.6	50.9	51.1	50.5	50.6	50.6	50.9	50.6
1986	51.7	51.3	51.2	51.4	51.5	51.3	51.6	51.7	51.8	52.0	52.3	52.8	51.4	51.4	51.7	52.4	51.7
1987	52.6	53.3	53.4	53.7	54.1	54.3	54.7	55.0	55.3	56.2	56.5	56.8	53.1	54.0	55.0	56.5	54.7
1988	56.7	56.8	57.0	57.5	57.5	57.5	57.6	57.6	57.8	58.1	58.3	58.5	56.9	57.5	57.7	58.3	57.6
1989	59.0	58.4	58.3	58.4	57.9	58.0	57.4	57.9	57.8	57.7	57.8	57.9	58.6	58.1	57.7	57.8	58.0
1990	57.8	58.6	58.9	58.7	58.8	58.9	58.8	59.0	59.0	58.5	57.8	57.4	58.4	58.8	58.9	57.9	58.5
1991	56.9	56.6	56.2	56.4	56.8	57.4	57.6	57.7	58.3	58.2	58.1	58.0	56.6	56.9	57.9	58.1	57.4
1992	57.7	58.2	58.8	59.1	59.4	59.6	60.1	59.8	59.8	60.2	60.5	60.3	58.2	59.3	59.9	60.3	59.5
1993	61.0	61.1	61.0	61.3	61.2	61.2	61.3	61.3	61.6	62.2	62.4	62.8	61.0	61.2	61.4	62.5	61.5
1994	62.9	62.9	63.8	64.3	64.7	64.9	65.2	65.7	65.9	66.6	67.1	67.9	63.2	64.6	65.6	67.2	65.2
1995	68.1	68.0	68.2	68.1	68.1	68.3	67.9	68.7	69.3	69.2	69.3	69.6	68.1	68.2	68.7	69.4	68.6
1996	69.1	70.2	70.0	70.7	71.2	72.0	72.2	72.7	73.2	73.1	73.7	74.3	69.8	71.3	72.7	73.7	71.9
1997	74.4	75.4	76.3	76.2	76.8	77.3	77.7	78.9	79.6	80.1	81.0	81.3	75.4	76.8	78.7	80.8	77.9
1998	82.0	82.1	82.0	82.4	82.9	82.3	81.9	84.0	83.7	84.5	84.6	85.1	82.0	82.5	83.2	84.7	83.1
1999	85.3	85.9	85.9	86.2	87.0	86.7	87.1	87.7	87.4	88.7	89.3	89.9	85.7	86.6	87.4	89.3	87.3
2000	90.1	90.3	90.9	91.5	91.3	91.5	91.4	90.9	91.4	91.0	90.7	90.1	90.4	91.4	91.3	90.6	90.9
2001	89.6	89.1	88.8	88.6	87.9	87.3	87.0	86.4	86.2	85.7	85.5	85.7	89.1	87.9	86.6	85.6	87.3
2002	86.1	86.1	86.8	86.9	87.5	88.4	88.0	88.4	88.4	88.0	88.4	87.9	86.3	87.6	88.3	88.1	87.6
2003	88.4	88.6	88.8	88.0	88.1	88.4	88.5	88.3	88.9	88.9	89.8	89.6	88.6	88.2	88.6	89.5	88.7
2004	89.6	90.2	90.1	90.5	91.1	90.3	91.1	91.7	91.5	92.5	92.4	93.0	90.0	90.6	91.4	92.6	91.2
2005	93.7	94.5	94.2	94.4	94.7	94.8	94.7	95.0	94.0	95.4	96.1	96.1	94.1	94.6	94.6	95.8	94.8
2006	96.8	96.5	96.5	97.0	96.7	97.0	97.1	97.5	97.5	97.2	97.3	98.7	96.6	96.9	97.4	97.7	97.1
2007	98.3	98.9	99.7	100.4	100.2	100.3	100.7	100.2	100.6	100.0	100.3	100.4	99.0	100.3	100.5	100.2	100.0
2008	100.0	99.5	99.2	98.0	97.5	96.9	96.4	95.6	92.5	92.2	90.4	88.1	99.5	97.5	94.8	90.2	95.5
2009	85.7	85.5	84.1	83.5	82.9	82.7	84.1	85.3	85.9	86.0	86.8	86.9	85.1	83.0	85.1	86.6	85.0
2010	87.8	87.6	88.5	89.2	90.2								87.9				

NOTE Estimates from January 2010 through May 2010 are subject to further revision in the upcoming monthly releases.

1. See footnote 2 to table 3.

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

**Table 7B**  
**CAPACITY AND UTILIZATION: Manufacturing<sup>1</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 2007 output)</b>																	
1980	56.8	56.9	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.3	58.4	56.9	57.3	57.8	58.3	57.6
1981	58.6	58.8	58.9	59.1	59.3	59.4	59.6	59.7	59.9	60.0	60.1	60.3	58.8	59.3	59.7	60.1	59.5
1982	60.4	60.5	60.7	60.8	60.9	61.0	61.1	61.2	61.3	61.4	61.4	61.5	60.5	60.9	61.2	61.4	61.0
1983	61.6	61.6	61.6	61.7	61.7	61.7	61.8	61.8	61.8	61.9	61.9	62.0	61.6	61.7	61.8	61.9	61.8
1984	62.1	62.2	62.3	62.4	62.5	62.6	62.8	62.9	63.1	63.3	63.5	63.7	62.2	62.5	62.9	63.5	62.8
1985	63.9	64.0	64.2	64.4	64.6	64.8	65.0	65.1	65.2	65.3	65.4	65.5	64.0	64.6	65.1	65.4	64.8
1986	65.6	65.7	65.7	65.8	65.8	65.9	65.9	66.0	66.1	66.2	66.3	66.4	65.7	65.8	66.0	66.3	65.9
1987	66.6	66.7	66.9	67.1	67.3	67.4	67.6	67.8	67.9	68.1	68.2	68.3	66.7	67.3	67.8	68.2	67.5
1988	68.3	68.4	68.4	68.5	68.5	68.5	68.6	68.6	68.6	68.7	68.7	68.8	68.4	68.5	68.6	68.7	68.6
1989	68.9	69.0	69.1	69.3	69.4	69.6	69.7	69.9	70.0	70.2	70.4	70.6	69.0	69.4	69.9	70.4	69.7
1990	70.7	70.9	71.1	71.2	71.4	71.6	71.7	71.9	72.0	72.1	72.3	72.4	70.9	71.4	71.9	72.3	71.6
1991	72.5	72.7	72.8	72.9	73.0	73.1	73.2	73.3	73.4	73.4	73.5	73.6	72.7	73.0	73.3	73.5	73.1
1992	73.8	73.9	74.0	74.2	74.4	74.6	74.8	75.0	75.2	75.3	75.5	75.7	73.9	74.4	75.0	75.5	74.7
1993	75.9	76.0	76.2	76.3	76.4	76.5	76.6	76.7	76.9	77.0	77.1	77.3	76.0	76.4	76.7	77.1	76.6
1994	77.4	77.6	77.8	78.0	78.2	78.5	78.7	79.0	79.3	79.6	79.9	80.2	77.6	78.3	79.0	79.9	78.7
1995	80.5	80.8	81.1	81.4	81.8	82.1	82.5	82.8	83.2	83.6	84.0	84.4	80.8	81.8	82.8	84.0	82.4
1996	84.9	85.3	85.8	86.2	86.7	87.1	87.6	88.1	88.5	89.0	89.5	90.0	85.3	86.7	88.1	89.5	87.4
1997	90.5	91.0	91.5	92.1	92.6	93.2	93.8	94.5	95.1	95.8	96.5	97.2	91.0	92.7	94.5	96.5	93.7
1998	98.0	98.7	99.4	100.2	100.9	101.6	102.2	102.8	103.5	104.0	104.6	105.2	98.7	100.9	102.8	104.6	101.8
1999	105.7	106.2	106.7	107.2	107.7	108.2	108.7	109.2	109.6	110.1	110.6	111.1	106.2	107.7	109.2	110.6	108.4
2000	111.6	112.0	112.5	113.0	113.4	113.9	114.3	114.8	115.2	115.6	116.0	116.4	112.0	113.4	114.8	116.0	114.1
2001	116.8	117.2	117.6	117.9	118.2	118.5	118.8	119.0	119.3	119.5	119.7	119.8	117.2	118.2	119.0	119.6	118.5
2002	120.0	120.1	120.2	120.3	120.3	120.4	120.4	120.4	120.4	120.4	120.4	120.4	120.1	120.3	120.4	120.4	120.3
2003	120.4	120.4	120.3	120.3	120.2	120.2	120.2	120.1	120.1	120.0	119.9	119.9	120.4	120.2	120.1	119.9	120.2
2004	119.8	119.8	119.7	119.7	119.6	119.6	119.6	119.6	119.6	119.7	119.7	119.8	119.8	119.6	119.6	119.7	119.7
2005	119.9	120.0	120.2	120.3	120.5	120.7	120.9	121.1	121.2	121.4	121.6	121.8	120.0	120.5	121.1	121.6	120.8
2006	121.9	122.1	122.2	122.4	122.6	122.7	122.9	123.1	123.3	123.5	123.7	123.9	122.1	122.6	123.1	123.7	122.9
2007	124.2	124.4	124.7	125.0	125.3	125.5	125.8	126.0	126.3	126.5	126.7	126.9	124.4	125.3	126.0	126.7	125.6
2008	127.0	127.2	127.3	127.4	127.4	127.4	127.5	127.5	127.5	127.4	127.4	127.3	127.2	127.4	127.5	127.4	127.3
2009	127.2	127.1	127.0	126.8	126.7	126.5	126.4	126.2	126.1	126.0	125.9	125.8	127.1	126.7	126.2	125.9	126.5
2010	125.7	125.6	125.6	125.5	125.5								125.6				
<b>Utilization (percent)</b>																	
1980	83.0	82.8	82.0	80.1	77.5	76.1	75.2	75.5	76.5	77.7	78.9	78.9	82.6	77.9	75.7	78.5	78.7
1981	78.4	77.7	77.8	78.0	78.2	77.6	77.5	77.4	76.9	76.0	74.9	73.5	78.0	77.9	77.3	74.8	77.0
1982	71.6	73.3	72.6	72.0	71.7	71.4	71.2	70.5	70.2	69.4	68.9	68.5	72.5	71.7	70.7	68.9	70.9
1983	70.1	70.0	70.6	71.4	72.3	72.8	73.8	74.4	75.7	76.5	76.7	76.8	70.3	72.2	74.6	76.7	73.4
1984	78.2	78.9	79.1	79.4	79.5	79.6	79.8	79.7	79.4	79.4	79.4	79.5	78.7	79.5	79.6	79.5	79.3
1985	79.0	78.5	78.9	78.4	78.2	78.2	77.5	77.8	77.7	77.4	77.8	78.0	78.8	78.3	77.7	77.7	78.1
1986	78.7	78.2	77.9	78.2	78.2	77.9	78.3	78.4	78.4	78.6	78.9	79.4	78.3	78.1	78.4	79.0	78.4
1987	79.0	79.9	79.8	80.1	80.4	80.5	80.9	81.1	81.4	82.5	82.9	83.3	79.6	80.3	81.1	82.9	81.0
1988	83.0	83.1	83.3	84.0	83.9	84.0	84.0	84.0	84.2	84.6	84.8	85.0	83.2	83.9	84.1	84.8	84.0
1989	85.6	84.6	84.4	84.4	83.5	83.4	82.3	82.9	82.5	82.2	82.1	82.0	84.9	83.8	82.6	82.1	83.3
1990	81.7	82.7	82.8	82.4	82.3	82.3	82.0	82.1	81.9	81.1	80.0	79.2	82.4	82.4	82.0	80.1	81.7
1991	78.5	77.9	77.2	77.3	77.8	78.6	78.7	78.8	79.5	79.3	79.0	78.8	77.9	77.9	79.0	79.0	78.5
1992	78.2	78.8	79.4	79.6	79.9	79.9	80.4	79.8	79.6	79.9	80.0	79.7	78.8	79.8	79.9	79.9	79.6
1993	80.3	80.3	80.0	80.3	80.2	79.9	80.0	79.8	80.2	80.8	81.0	81.2	80.2	80.1	80.0	81.0	80.3
1994	81.2	81.1	82.0	82.4	82.7	82.7	82.8	83.2	83.1	83.7	84.0	84.6	81.4	82.6	83.0	84.1	82.8
1995	84.6	84.2	84.0	83.6	83.2	83.2	82.4	83.0	83.3	82.8	82.4	82.4	84.3	83.3	82.9	82.5	83.3
1996	81.4	82.3	81.6	82.0	82.1	82.6	82.4	82.5	82.6	82.1	82.3	82.6	81.8	82.3	82.5	82.3	82.2
1997	82.2	82.8	83.4	82.7	82.9	82.9	82.8	83.6	83.7	83.6	83.9	83.6	82.8	82.9	83.3	83.7	83.2
1998	83.7	83.2	82.5	82.3	82.2	81.0	80.1	81.7	80.9	81.2	80.9	80.9	83.1	81.8	80.9	81.0	81.7
1999	80.7	80.9	80.5	80.4	80.8	80.1	80.2	80.3	79.7	80.6	80.7	80.9	80.7	80.4	80.1	80.7	80.5
2000	80.7	80.6	80.8	81.0	80.5	80.3	80.0	79.2	79.3	78.7	78.2	77.4	80.7	80.6	79.5	78.1	79.7
2001	76.6	76.0	75.5	75.1	74.4	73.7	73.2	72.6	72.3	71.7	71.4	71.5	76.0	74.4	72.7	71.6	73.7
2002	71.8	71.7	72.2	72.2	72.7	73.5	73.1	73.4	73.4	73.1	73.4	73.0	71.9	72.8	73.3	73.2	72.8
2003	73.5	73.6	73.8	73.2	73.2	73.5	73.7	73.5	74.1	74.1	74.9	74.8	73.6	73.3	73.7	74.6	73.8
2004	74.8	75.3	75.2	75.6	76.2	75.5	76.2	76.7	76.5	77.3	77.2	77.6	75.1	75.8	76.5	77.4	76.2
2005	78.1	78.7	78.4	78.4	78.6	78.5	78.4	78.4	77.5	78.6	79.0	78.9	78.4	78.5	78.1	78.8	78.5
2006	79.4	79.1	78.9	79.3	78.9	79.0	79.0	79.2	79.1	78.7	78.6	79.7	79.1	79.1	79.1	79.0	79.1
2007	79.2	79.5	79.9	80.3	80.0	79.9	80.0	79.5	79.7	79.0	79.1	79.2	79.5	80.1	79.7	79.1	79.6
2008	78.7	78.2	78.0	77.0	76.5	76.0	75.6	75.0	72.6	72.4	71.0	69.2	78.3	76.5	74.4	70.9	75.0
2009	67.4	67.3	66.2	65.9	65.4	65.4	66.6	67.6	68.1	68.2	69.0	69.1	67.0	65.6	67.4	68.8	67.2
2010	69.8	69.7	70.5	71.1	71.9								70.0				

NOTE Estimates from January 2010 through May 2010 are subject to further revision in the upcoming monthly releases.

1. See footnote 2 to table 3.

**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>																	
1980	.4	.0	-4	-2.2	-2.6	-1.3	-.7	.2	1.7	1.2	1.7	.5	.5	-16.9	-6.9	16.1	-3.6
1981	-7	-6	.5	-6	.6	.5	.6	-1	-7	-8	-1.1	-1.2	.0	.5	3.2	-9.5	.6
1982	-2.0	1.8	-8	-1.0	-7	-4	-5	-8	-5	-9	-5	-9	-8.6	-5.9	-6.4	-8.0	-6.0
1983	1.9	-7	.8	1.1	.7	.5	1.4	1.2	1.2	.8	.2	.5	3.7	8.3	13.5	9.6	1.8
1984	2.0	.4	.4	.5	.4	.3	.2	.0	-2	-2	.3	.1	11.5	5.1	1.7	-.4	7.9
1985	-3	.5	.1	-1	.1	.0	-.6	.4	.5	-.4	.3	1.1	1.0	1.0	-.3	2.6	1.0
1986	.5	-8	-.7	.1	.1	-.2	.4	-.3	.1	.4	.4	.8	2.3	-2.5	.6	4.0	-.9
1987	-5	1.2	.2	.5	.6	.4	.5	.6	.2	1.4	.5	.4	4.3	6.5	6.0	9.1	4.3
1988	.0	.4	.2	.4	-1	.2	.1	.5	-.4	.5	.2	.4	3.0	2.7	1.4	2.7	4.4
1989	.3	-.4	.3	.0	-.7	.0	-1.1	.9	-.3	-.2	.2	.6	1.9	-1.8	-3.4	1.0	.6
1990	-.7	.9	.4	-.2	.1	.3	-.2	.2	.2	-.8	-1.3	-.8	2.3	2.2	1.1	-6.7	.3
1991	-.4	-.8	-.6	.2	1.0	1.0	.0	.1	.9	-.2	-.2	-.5	-8.0	2.1	5.4	.5	-2.0
1992	-.8	.7	.8	.6	.2	-.2	.8	-.6	.1	.6	.3	.0	-1.9	6.1	1.7	2.9	1.9
1993	.5	.3	-.1	.3	-.4	.2	.3	-.1	.3	.7	.3	.5	3.1	.4	1.4	5.2	2.5
1994	.4	.0	.9	.3	.4	.6	.0	.4	.0	.6	.4	.9	4.3	5.3	3.2	5.6	4.0
1995	.2	-.2	-.1	-.3	.0	.1	-.5	1.2	.1	-.5	.1	.2	3.0	-1.4	1.5	.5	2.4
1996	-.9	1.3	-.4	.7	.5	.7	-.5	.4	.4	-.3	.8	.5	-.2	5.9	2.1	3.2	1.7
1997	-.1	.9	.5	-.3	.3	.2	.3	1.0	.7	.6	.7	.1	5.1	2.3	6.0	7.8	4.2
1998	.2	.0	.0	.2	.6	-.9	-.8	2.0	-.6	.5	-.3	.0	1.9	.9	-.2	2.3	3.1
1999	.2	.1	-.1	-.1	.6	-.5	.3	.4	-.5	1.2	.2	.5	.7	.4	1.0	5.4	1.1
2000	-.3	.0	.1	.4	-.1	-.1	-.5	-.4	.4	-.5	-.2	-.5	.5	1.5	-3.0	-2.6	1.0
2001	-.7	-.5	-.3	-.1	-.6	-.5	-.3	-.3	-.3	-.5	-.4	-.1	-6.1	-4.2	-4.4	-4.7	-3.9
2002	.7	.0	.8	.4	.5	.8	-.4	.1	.0	-.3	.4	-.7	3.0	6.2	1.5	-1.0	.3
2003	.7	.2	-.3	-.9	-.1	-.1	.3	-.1	.6	-.1	.7	-.1	1.5	-4.5	1.1	2.8	.2
2004	.1	.5	-.6	.5	.7	-1.0	.7	.1	-.1	1.0	.2	.7	1.8	1.9	1.3	5.3	1.7
2005	.4	.6	-.1	.0	.2	.3	-.2	.0	-2.2	1.0	1.1	.6	5.1	1.2	-2.8	1.6	2.5
2006	.0	.0	.2	.4	-.2	.4	.2	.2	-.2	-.1	-.2	1.0	3.3	2.0	1.8	.2	1.4
2007	-.4	1.1	.0	.6	.1	-.1	.2	-.1	.3	-.9	.2	.0	3.7	3.7	.8	-2.3	1.9
2008	-.4	-.3	-.4	-.9	-.5	-.3	.0	-1.2	-4.1	1.2	-.8	-1.9	-2.7	-6.8	-9.6	-11.7	-4.0
2009	-2.0	-.7	-1.6	-.9	-1.0	-.3	1.3	1.2	.7	.2	.5	.5	-16.8	-11.2	7.4	6.5	-9.2
2010	1.0	-.1	.3	.6	1.2								6.6				
<b>IP (2007=100)</b>																	
1980	70.4	70.4	70.1	68.6	66.8	65.9	65.5	65.6	66.7	67.5	68.7	69.0	70.3	67.1	65.9	68.4	67.9
1981	68.6	68.2	68.5	68.1	68.5	68.8	69.3	69.2	68.7	68.1	67.4	66.6	68.4	68.5	69.0	67.3	68.3
1982	65.2	66.4	65.9	65.3	64.8	64.5	64.2	63.7	63.4	62.9	62.6	62.0	65.8	64.9	63.8	62.5	64.2
1983	63.2	62.8	63.2	63.9	64.4	64.7	65.6	66.4	67.2	67.7	67.9	68.2	63.1	64.3	66.4	67.9	65.4
1984	69.6	69.8	70.1	70.4	70.7	70.9	71.0	71.0	70.9	70.7	71.0	71.0	69.8	70.7	71.0	70.9	70.6
1985	70.8	71.2	71.3	71.2	71.3	71.3	70.9	71.2	71.6	71.3	71.5	72.2	71.1	71.3	71.2	71.7	71.3
1986	72.6	72.0	71.6	71.6	71.7	71.6	71.8	71.6	71.7	72.0	72.3	72.9	72.1	71.6	71.7	72.4	72.0
1987	72.5	73.4	73.6	73.9	74.4	74.7	75.1	75.5	75.7	76.8	77.1	77.4	73.2	74.3	75.4	77.1	75.0
1988	77.4	77.7	77.9	78.2	78.1	78.3	78.3	78.7	78.4	78.8	78.9	79.3	77.7	78.2	78.5	79.0	78.3
1989	79.5	79.2	79.4	79.4	78.8	78.8	77.9	78.6	78.4	78.2	78.4	78.9	79.4	79.0	78.3	78.5	78.8
1990	78.4	79.1	79.4	79.3	79.4	79.6	79.4	79.6	79.8	79.1	78.1	77.5	79.0	79.4	79.6	78.2	79.1
1991	77.2	76.6	76.1	76.3	77.0	77.8	77.8	77.8	78.5	78.4	78.2	77.8	76.6	77.0	78.0	78.1	77.5
1992	77.2	77.7	78.4	78.8	79.0	78.9	79.5	79.1	79.2	79.7	79.9	79.9	77.8	78.9	79.2	79.8	78.9
1993	80.3	80.5	80.5	80.7	80.3	80.5	80.7	80.7	81.0	81.5	81.8	82.2	80.4	80.5	80.8	81.8	80.9
1994	82.5	82.5	83.2	83.4	83.7	84.2	84.2	84.5	84.6	85.1	85.5	86.2	82.7	83.8	84.4	85.6	84.1
1995	86.4	86.2	86.1	85.9	85.9	86.0	85.5	86.5	86.6	86.2	86.3	86.5	86.2	85.9	86.2	86.3	86.2
1996	85.7	86.8	86.4	87.1	87.5	88.1	87.7	88.0	88.3	88.1	88.8	89.2	86.3	87.5	88.0	88.7	87.6
1997	89.1	89.9	90.4	90.1	90.4	90.6	90.8	91.8	92.4	93.0	93.6	93.7	89.8	90.3	91.7	93.4	91.3
1998	93.9	93.9	93.8	94.0	94.5	93.7	93.0	94.8	94.3	94.7	94.4	94.5	93.8	94.0	94.0	94.5	94.1
1999	94.6	94.8	94.7	94.6	95.1	94.7	94.9	95.3	94.8	96.0	96.2	96.7	94.7	94.8	95.0	96.3	95.2
2000	96.4	96.4	96.4	96.9	96.7	96.7	96.1	95.8	96.2	95.7	95.5	95.0	96.4	96.7	96.0	95.4	96.1
2001	94.3	93.8	93.5	93.4	92.8	92.4	92.1	91.9	91.5	91.0	90.7	90.6	93.9	92.9	91.8	90.8	92.3
2002	91.2	91.2	91.9	92.2	92.7	93.5	93.1	93.2	93.2	92.9	93.3	92.6	91.4	92.8	93.2	92.9	92.6
2003	93.3	93.4	93.2	92.3	92.2	92.1	92.4	92.3	92.8	92.7	93.4	93.3	93.3	92.2	92.5	93.1	92.8
2004	93.4	93.9	93.3	93.8	94.5	93.6	94.3	94.4	94.3	95.2	95.4	96.0	93.5	94.0	94.3	95.5	94.3
2005	96.4	97.0	96.9	96.8	97.0	97.2	97.0	97.1	94.9	95.8	96.9	97.4	96.7	97.0	96.3	96.7	96.7
2006	97.4	97.4	97.7	98.0	97.8	98.2	98.4	98.5	98.3	98.3	98.0	99.1	97.5	98.0	98.4	98.5	98.1
2007	98.7	99.7	99.7	100.3	100.3	100.2	100.4	100.3	100.6	99.7	100.0	100.0	99.4	100.3	100.5	99.9	100.0
2008	99.6	99.2	98.8	97.9	97.4	97.1	97.1	96.0	92.1	93.2	92.5	90.7	99.2	97.5	95.0	92.1	96.0
2009	88.9	88.2	86.9	86.0	85.2	85.0	86.1	87.1	87.7	87.9	88.3	88.8	88.0	85.4	86.9	88.3	87.2
2010	89.7	89.6	89.9	90.4	91.5								89.7				

NOTE Estimates from January 2010 through May 2010 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 8B**  
**CAPACITY AND UTILIZATION: 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
<b>Capacity (percent of 2007 output)</b>																	
1980	83.7	83.8	84.0	84.1	84.2	84.4	84.5	84.6	84.8	84.9	85.1	85.2	83.8	84.2	84.6	85.1	84.4
1981	85.3	85.5	85.6	85.7	85.9	86.0	86.2	86.3	86.4	86.6	86.7	86.8	85.5	85.9	86.3	86.7	86.1
1982	87.0	87.1	87.2	87.3	87.4	87.5	87.6	87.6	87.7	87.7	87.8	87.8	87.1	87.4	87.6	87.7	87.5
1983	87.8	87.7	87.7	87.7	87.7	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.7	87.7	87.6	87.6	87.7
1984	87.7	87.7	87.8	87.8	87.9	88.0	88.1	88.3	88.4	88.5	88.7	88.8	87.7	87.9	88.3	88.7	88.1
1985	89.0	89.2	89.3	89.5	89.7	89.8	90.0	90.1	90.3	90.4	90.5	90.6	89.2	89.7	90.1	90.5	89.9
1986	90.7	90.8	90.9	90.9	91.0	91.1	91.1	91.2	91.2	91.3	91.4	91.5	90.8	91.0	91.2	91.4	91.1
1987	91.6	91.7	91.8	91.9	92.0	92.1	92.2	92.3	92.4	92.4	92.5	92.5	91.7	92.0	92.3	92.5	92.1
1988	92.6	92.6	92.6	92.6	92.6	92.6	92.6	92.6	92.7	92.7	92.8	92.8	92.6	92.6	92.6	92.8	92.6
1989	92.9	93.0	93.1	93.2	93.4	93.5	93.7	93.8	94.0	94.1	94.3	94.5	93.0	93.4	93.8	94.3	93.6
1990	94.6	94.8	94.9	95.1	95.2	95.4	95.5	95.6	95.7	95.9	96.0	96.1	94.8	95.2	95.6	96.0	95.4
1991	96.2	96.3	96.5	96.6	96.7	96.8	96.9	97.0	97.1	97.2	97.3	97.4	96.3	96.7	97.0	97.3	96.8
1992	97.5	97.6	97.7	97.8	97.9	98.0	98.1	98.2	98.3	98.4	98.5	98.6	97.6	97.9	98.2	98.5	98.1
1993	98.7	98.8	98.9	98.9	99.0	99.1	99.2	99.3	99.4	99.5	99.6	99.7	98.8	99.0	99.3	99.6	99.2
1994	99.8	100.0	100.1	100.2	100.3	100.5	100.6	100.8	101.0	101.1	101.3	101.5	100.0	100.4	100.8	101.3	100.6
1995	101.7	101.8	102.0	102.2	102.4	102.6	102.8	103.0	103.2	103.4	103.6	103.7	101.9	102.4	103.0	103.6	102.7
1996	103.9	104.1	104.3	104.5	104.6	104.8	105.0	105.2	105.5	105.7	105.9	106.2	104.1	104.6	105.2	105.9	105.0
1997	106.5	106.7	107.1	107.4	107.7	108.1	108.5	108.9	109.2	109.7	110.1	110.5	106.8	107.7	108.9	110.1	108.4
1998	110.9	111.3	111.7	112.2	112.6	113.0	113.4	113.7	114.1	114.5	114.8	115.1	111.3	112.6	113.7	114.8	113.1
1999	115.4	115.7	116.0	116.3	116.6	116.8	117.0	117.3	117.5	117.7	117.9	118.0	115.7	116.6	117.3	117.9	116.9
2000	118.2	118.4	118.5	118.7	118.8	119.0	119.1	119.2	119.4	119.5	119.6	119.8	118.4	118.8	119.2	119.6	119.0
2001	119.9	120.0	120.2	120.3	120.5	120.6	120.8	120.9	121.1	121.2	121.3	121.5	120.0	120.5	120.9	121.3	120.7
2002	121.6	121.7	121.8	121.8	121.9	121.9	121.9	121.9	121.8	121.8	121.7	121.6	121.7	121.9	121.9	121.7	121.8
2003	121.5	121.4	121.3	121.2	121.2	121.1	121.0	121.0	120.9	120.9	120.8	120.8	121.4	121.2	121.0	120.8	121.1
2004	120.7	120.7	120.7	120.6	120.6	120.5	120.4	120.4	120.3	120.2	120.2	120.1	120.7	120.6	120.4	120.2	120.4
2005	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.1	120.2	120.3	120.4	120.5	120.0	120.0	120.1	120.4	120.1
2006	120.6	120.8	120.9	121.1	121.2	121.4	121.6	121.8	121.9	122.1	122.3	122.4	120.8	121.2	121.8	122.3	121.5
2007	122.5	122.7	122.8	122.9	122.9	123.0	123.0	123.0	123.0	123.0	123.0	123.0	122.7	122.9	123.0	123.0	122.9
2008	123.0	123.0	123.0	123.1	123.2	123.2	123.4	123.5	123.7	123.9	124.1	124.2	123.0	123.2	123.5	124.1	123.4
2009	124.4	124.5	124.6	124.7	124.7	124.7	124.7	124.6	124.5	124.4	124.3	124.2	124.5	124.7	124.6	124.3	124.5
2010	124.0	123.9	123.8	123.7	123.6								123.9				
<b>Utilization (percent)</b>																	
1980	84.1	84.0	83.5	81.6	79.3	78.2	77.5	77.5	78.7	79.5	80.8	81.0	83.8	79.7	77.9	80.4	80.5
1981	80.3	79.8	80.0	79.5	79.8	80.0	80.4	80.2	79.5	78.7	77.7	76.6	80.1	79.8	80.0	77.7	79.4
1982	75.0	76.2	75.6	74.7	74.1	73.7	73.3	72.7	72.3	71.6	71.3	70.7	75.6	74.2	72.8	71.2	73.4
1983	72.0	71.5	72.1	72.9	73.4	73.8	74.8	75.8	76.7	77.3	77.5	77.8	71.9	73.4	75.8	77.5	74.6
1984	79.4	79.6	79.8	80.2	80.4	80.6	80.6	80.5	80.2	79.9	80.0	80.0	79.6	80.4	80.4	80.0	80.1
1985	79.5	79.8	79.8	79.6	79.5	79.4	78.8	79.0	79.3	78.8	79.0	79.7	79.7	79.5	79.0	79.2	79.3
1986	80.0	79.3	78.7	78.7	78.8	78.6	78.8	78.5	78.6	78.9	79.1	79.7	79.4	78.7	78.6	79.2	79.0
1987	79.2	80.1	80.2	80.5	80.9	81.1	81.4	81.9	81.9	83.0	83.4	83.7	79.8	80.8	81.7	83.4	81.4
1988	83.6	84.0	84.1	84.5	84.4	84.5	84.6	85.0	84.6	85.0	85.1	85.4	83.9	84.4	84.7	85.2	84.6
1989	85.6	85.1	85.3	85.1	84.4	84.3	83.2	83.8	83.4	83.1	83.2	83.5	85.3	84.6	83.5	83.3	84.2
1990	82.8	83.5	83.7	83.4	83.3	83.4	83.2	83.3	83.3	82.5	81.4	80.6	83.3	83.4	83.3	81.5	82.9
1991	80.2	79.5	78.9	79.0	79.7	80.4	80.3	80.2	80.9	80.6	80.4	79.9	79.5	79.7	80.4	80.3	80.0
1992	79.1	79.6	80.2	80.6	80.7	80.5	81.0	80.5	80.5	81.0	81.1	81.1	79.6	80.6	80.7	81.1	80.5
1993	81.4	81.5	81.4	81.5	81.1	81.2	81.4	81.2	81.4	81.9	82.1	82.4	81.4	81.3	81.3	82.1	81.6
1994	82.6	82.5	83.1	83.2	83.4	83.8	83.7	83.9	83.8	84.2	84.4	85.0	82.7	83.5	83.8	84.5	83.6
1995	85.0	84.7	84.4	84.0	83.9	83.8	83.2	84.0	84.0	83.4	83.3	83.3	84.7	83.9	83.7	83.4	83.9
1996	82.4	83.4	82.9	83.4	83.6	84.0	83.5	83.6	83.8	83.4	83.8	84.0	82.9	83.7	83.6	83.7	83.5
1997	83.7	84.2	84.4	83.9	83.9	83.8	83.7	84.3	84.6	84.8	85.0	84.8	84.1	83.9	84.2	84.9	84.3
1998	84.6	84.3	84.0	83.8	84.0	82.9	82.0	83.4	82.6	82.8	82.3	82.0	84.3	83.6	82.7	82.4	83.2
1999	82.0	81.9	81.6	81.3	81.6	81.0	81.1	81.3	80.7	81.5	81.6	81.9	81.8	81.3	81.0	81.7	81.5
2000	81.5	81.4	81.4	81.6	81.4	81.3	80.7	80.3	80.6	80.1	79.8	79.3	81.4	81.4	80.5	79.7	80.8
2001	78.7	78.2	77.8	77.7	77.1	76.6	76.3	76.0	75.6	75.1	74.7	74.6	78.2	77.1	76.0	74.8	76.5
2002	75.0	74.9	75.5	75.7	76.1	76.7	76.4	76.4	76.5	76.3	76.6	76.2	75.1	76.2	76.4	76.4	76.0
2003	76.7	76.9	76.8	76.1	76.1	76.1	76.3	76.3	76.7	76.7	77.3	77.2	76.8	76.1	76.5	77.1	76.6
2004	77.3	77.8	77.4	77.8	78.4	77.7	78.3	78.4	78.4	79.2	79.4	80.0	77.5	78.0	78.3	79.5	78.3
2005	80.3	80.8	80.7	80.7	80.8	81.0	80.8	80.8	79.0	79.7	80.5	80.9	80.6	80.8	80.2	80.3	80.5
2006	80.8	80.7	80.8	80.9	80.7	80.8	80.9	80.9	80.7	80.5	80.2	80.9	80.7	80.8	80.8	80.5	80.7
2007	80.5	81.3	81.2	81.6	81.6	81.5	81.6	81.5	81.8	81.0	81.3	81.3	81.0	81.6	81.7	81.2	81.4
2008	80.9	80.7	80.3	79.6	79.1	78.8	78.7	77.7	74.4	75.2	74.5	73.0	80.6	79.1	76.9	74.3	77.7
2009	71.4	70.9	69.7	69.0	68.3	68.1	69.0	69.9	70.4	70.6	71.1	71.5	70.7	68.5	69.8	71.1	70.0
2010	72.3	72.4	72.6	73.1	74.0								72.4				

NOTE Estimates from January 2010 through May 2010 are subject to further revision in the upcoming monthly releases.

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

**Table 9A**  
**INDUSTRIAL PRODUCTION: Manufacturing<sup>1</sup> Excluding Selected High-Technology Industries<sup>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>																	
1980	.3	-.1	-.9	-2.3	-3.2	-1.6	-1.1	.6	1.7	1.8	1.9	.2	-.4	-20.1	-8.7	19.2	-4.9
1981	-.5	-.7	.3	.4	.5	-.6	.1	.0	-.6	-1.1	-1.2	-1.8	-.5	2.0	-1.4	-11.2	.1
1982	-2.5	2.5	-.8	-.8	-.2	-.3	-.3	-.7	-.5	-1.2	-.7	-.6	-10.3	-3.1	-4.6	-9.2	-6.6
1983	2.5	-.2	.9	1.0	1.2	.6	1.3	.9	1.5	1.1	.3	.2	8.1	10.8	13.8	11.0	3.7
1984	1.8	1.0	.3	.4	.2	.3	.4	.0	-.3	.4	.3	.4	11.7	4.5	2.2	1.8	8.5
1985	-.5	-.2	.8	-.2	.1	.1	-.4	.6	.2	-.3	.6	.4	.0	1.6	.5	2.4	1.4
1986	1.2	-.7	-.3	.4	.1	-.2	.2	.1	.2	.4	.4	.8	4.6	-.1	1.2	4.3	2.2
1987	-.5	1.4	.1	.4	.6	.3	.6	.3	.5	1.5	.5	.5	4.6	6.1	5.5	10.5	4.6
1988	-.2	.2	.2	.8	-.2	.1	.0	.1	.3	.5	.3	.4	1.9	3.5	.4	4.3	4.4
1989	.8	-1.0	-.1	.1	-.9	.1	-1.3	.9	-.2	-.3	.1	.1	2.2	-3.3	-4.1	-.5	.4
1990	-.2	1.5	.3	-.4	.1	.2	-.2	.3	.0	-.9	-1.3	-.8	3.8	1.9	.4	-7.5	.0
1991	-.8	-.7	-.8	.3	.7	1.1	.3	.2	1.1	-.2	-.3	-.3	-9.6	1.4	7.2	1.1	-2.6
1992	-.9	.9	.9	.4	.5	.1	.8	-.5	-.1	.5	.3	-.2	-1.2	6.9	2.6	1.4	2.6
1993	1.1	.1	-.3	.5	-.1	-.2	.3	-.2	.5	.8	.3	.5	3.9	.7	.4	5.9	2.5
1994	.1	.1	1.2	.5	.5	.2	.2	.6	.1	.7	.5	.9	4.0	7.0	3.7	6.9	4.4
1995	.2	-.3	-.1	-.4	-.2	.2	-.8	.9	.6	-.4	-.1	.1	3.0	-2.5	.3	.8	2.5
1996	-1.1	1.3	-.5	1.0	.5	.8	-.1	.3	.5	-.4	.7	.7	-1.6	6.7	4.1	3.0	1.5
1997	-.2	1.0	.9	-.7	.5	.4	.1	1.3	.6	.5	.8	.1	6.2	2.8	6.6	8.2	4.9
1998	.5	-.1	-.3	.3	.4	-1.1	-.9	2.5	-.7	.7	-.1	.2	3.2	-.1	-.5	4.2	3.5
1999	-.1	.4	-.4	.0	.8	-.7	.0	.6	-.5	1.4	.4	.3	.7	.3	.2	6.7	1.4
2000	-.3	-.2	.3	.4	-.6	.0	-.4	-.8	.4	-.5	-.6	-.9	.2	.6	-3.7	-4.7	.7
2001	-.6	-.5	-.3	-.1	-.7	-.5	-.1	-.7	-.2	-.7	-.2	.2	-7.2	-4.2	-4.8	-4.4	-4.8
2002	.6	-.1	.8	.1	.7	1.0	-.5	.3	.0	-.5	.4	-.7	3.7	5.5	2.2	-1.6	.4
2003	.5	-.1	.1	-1.1	.0	.3	-.1	-.3	.8	-.1	.9	-.3	.7	-3.7	.5	3.1	.0
2004	-.2	.7	-.2	.5	.7	-.9	.9	.6	-.3	1.1	.0	.6	1.3	3.2	3.0	4.9	2.0
2005	.6	.7	-.4	.1	.4	.0	-.2	.1	-1.3	1.5	.7	-.1	5.6	1.2	-1.9	4.3	3.1
2006	.7	-.3	-.1	.5	-.5	.2	.0	.3	-.1	-.4	.0	1.6	2.6	.4	.6	.7	1.5
2007	-.5	.5	.6	.5	-.1	.2	.3	-.6	.3	-.9	.1	.1	4.5	4.4	.4	-3.2	2.0
2008	-.6	-.7	-.4	-1.4	-.6	-.6	-.5	-.9	-3.3	-.1	-1.6	-2.4	-4.2	-9.4	-10.5	-16.6	-5.5
2009	-2.7	-.1	-1.9	-.8	-.9	-.2	1.6	1.3	.6	.0	1.0	.1	-20.1	-10.6	9.3	6.4	-11.0
2010	.9	-.3	1.0	.8	1.0								6.1				
<b>IP (2007=100)</b>																	
1980	68.3	68.3	67.6	66.1	64.0	63.0	62.3	62.7	63.7	64.9	66.1	66.2	68.1	64.4	62.9	65.7	65.3
1981	65.9	65.4	65.7	65.9	66.2	65.8	65.9	65.9	65.5	64.8	64.0	62.8	65.7	66.0	65.8	63.8	65.3
1982	61.3	62.8	62.3	61.8	61.6	61.5	61.3	60.9	60.6	59.9	59.4	59.1	62.1	61.6	60.9	59.5	61.0
1983	60.5	60.4	60.9	61.6	62.3	62.7	63.5	64.1	65.1	65.8	66.0	66.1	60.6	62.2	64.3	66.0	63.3
1984	67.3	68.0	68.2	68.4	68.5	68.7	69.0	69.0	68.8	69.0	69.2	69.5	67.8	68.6	68.9	69.2	68.6
1985	69.1	69.0	69.6	69.4	69.5	69.6	69.3	69.7	69.8	69.6	70.1	70.4	69.2	69.5	69.6	70.0	69.6
1986	71.2	70.7	70.5	70.8	70.9	70.7	70.9	71.0	71.1	71.4	71.7	72.2	70.8	70.8	71.0	71.8	71.1
1987	71.9	72.9	72.9	73.3	73.7	73.9	74.3	74.6	75.0	76.1	76.5	76.9	72.6	73.6	74.6	76.5	74.3
1988	76.7	76.9	77.1	77.6	77.5	77.5	77.5	77.6	77.8	78.2	78.4	78.8	76.9	77.6	77.6	78.5	77.6
1989	79.4	78.6	78.6	78.7	78.0	78.1	77.0	77.7	77.5	77.3	77.3	77.4	78.9	78.2	77.4	77.3	78.0
1990	77.2	78.3	78.6	78.3	78.4	78.5	78.4	78.6	78.5	77.8	76.8	76.2	78.0	78.4	78.5	77.0	78.0
1991	75.6	75.1	74.4	74.7	75.2	76.0	76.2	76.4	77.2	77.1	76.8	76.6	75.0	75.3	76.6	76.8	75.9
1992	75.9	76.6	77.3	77.6	78.0	78.1	78.7	78.3	78.2	78.6	78.8	78.6	76.6	77.9	78.4	78.7	77.9
1993	79.5	79.5	79.3	79.7	79.6	79.4	79.6	79.5	79.9	80.5	80.8	81.1	79.4	79.6	79.7	80.8	79.9
1994	81.2	81.3	82.3	82.7	83.1	83.2	83.4	83.9	84.0	84.6	85.1	85.9	81.6	83.0	83.8	85.2	83.4
1995	86.0	85.7	85.7	85.3	85.1	85.3	84.6	85.4	85.9	85.5	85.4	85.5	85.8	85.3	85.3	85.5	85.5
1996	84.6	85.7	85.2	86.0	86.4	87.1	87.1	87.4	87.8	87.4	88.1	88.7	85.1	86.5	87.4	88.1	86.8
1997	88.5	89.4	90.2	89.6	90.0	90.4	90.5	91.7	92.2	92.7	93.5	93.6	89.4	90.0	91.5	93.3	91.0
1998	94.1	94.1	93.8	94.1	94.5	93.4	92.6	94.9	94.2	94.8	94.7	94.9	94.0	94.0	93.9	94.8	94.2
1999	94.9	95.3	94.8	94.8	95.5	94.9	94.9	95.4	95.0	96.3	96.7	97.0	95.0	95.1	95.1	96.7	95.4
2000	96.7	96.5	96.9	97.2	96.7	96.7	96.3	95.6	96.0	95.5	94.9	94.1	96.7	96.9	96.0	94.8	96.1
2001	93.5	93.0	92.7	92.7	92.0	91.5	91.4	90.8	90.6	90.0	89.8	90.0	93.1	92.1	91.0	89.9	91.5
2002	90.6	90.5	91.2	91.3	91.9	92.8	92.3	92.5	92.6	92.1	92.4	91.8	90.8	92.0	92.5	92.1	91.8
2003	92.2	92.2	92.3	91.3	91.3	91.5	91.5	91.2	91.8	91.7	92.6	92.3	92.3	91.4	91.5	92.2	91.8
2004	92.1	92.8	92.6	93.1	93.8	92.9	93.7	94.2	93.9	94.9	94.9	95.5	92.5	93.2	93.9	95.1	93.7
2005	96.1	96.8	96.3	96.4	96.8	96.8	96.6	96.7	95.4	96.8	97.5	97.4	96.4	96.7	96.2	97.2	96.6
2006	98.1	97.8	97.7	98.2	97.7	97.9	97.9	98.2	98.2	97.8	97.7	99.3	97.8	97.9	98.1	98.3	98.0
2007	98.8	99.3	99.9	100.4	100.3	100.5	100.8	100.2	100.5	99.6	99.7	99.8	99.4	100.4	100.5	99.7	100.0
2008	99.2	98.6	98.2	96.8	96.2	95.7	95.2	94.4	91.3	91.2	89.7	87.5	98.7	96.2	93.6	89.5	94.5
2009	85.2	85.1	83.5	82.8	82.1	81.9	83.2	84.3	84.8	84.8	85.7	85.8	84.6	82.2	84.1	85.4	84.1
2010	86.6	86.3	87.2	87.8	88.7								86.7				

NOTE Estimates from January 2010 through May 2010 are subject to further revision in the upcoming monthly releases.

1. See footnote 2 to table 3. 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<sup>1</sup> Excluding Selected High-Technology Industries<sup>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 2007 output)</b>																	
1980	82.6	82.7	82.9	83.1	83.2	83.4	83.6	83.7	83.9	84.1	84.2	84.4	82.8	83.2	83.7	84.2	83.5
1981	84.6	84.7	84.9	85.1	85.2	85.3	85.5	85.6	85.7	85.9	86.0	86.1	84.7	85.2	85.6	86.0	85.4
1982	86.2	86.3	86.4	86.5	86.6	86.6	86.7	86.7	86.8	86.8	86.8	86.8	86.3	86.5	86.7	86.8	86.6
1983	86.8	86.8	86.8	86.8	86.7	86.7	86.7	86.6	86.6	86.6	86.6	86.6	86.8	86.7	86.6	86.6	86.7
1984	86.6	86.7	86.7	86.8	86.9	87.0	87.1	87.2	87.4	87.5	87.7	87.9	86.7	86.9	87.2	87.7	87.1
1985	88.1	88.3	88.4	88.6	88.8	89.0	89.2	89.3	89.4	89.6	89.7	89.8	88.3	88.8	89.3	89.7	89.0
1986	89.8	89.9	89.9	90.0	90.0	90.1	90.2	90.2	90.3	90.4	90.5	90.6	89.9	90.0	90.2	90.5	90.2
1987	90.7	90.9	91.0	91.2	91.3	91.5	91.6	91.7	91.8	91.9	92.0	92.0	90.9	91.3	91.7	92.0	91.5
1988	92.1	92.1	92.1	92.1	92.1	92.1	92.1	92.1	92.1	92.1	92.1	92.2	92.1	92.1	92.1	92.2	92.1
1989	92.3	92.4	92.6	92.7	92.8	93.0	93.2	93.3	93.5	93.7	93.9	94.0	92.4	92.8	93.3	93.9	93.1
1990	94.2	94.4	94.5	94.7	94.8	95.0	95.1	95.3	95.4	95.6	95.7	95.8	94.4	94.8	95.3	95.7	95.0
1991	96.0	96.1	96.2	96.4	96.5	96.6	96.7	96.9	97.0	97.1	97.2	97.3	96.1	96.5	96.9	97.2	96.7
1992	97.4	97.5	97.6	97.7	97.8	97.9	98.1	98.2	98.3	98.4	98.5	98.6	97.5	97.8	98.2	98.5	98.0
1993	98.7	98.8	99.0	99.1	99.2	99.3	99.4	99.5	99.6	99.7	99.8	99.9	98.8	99.2	99.5	99.8	99.3
1994	100.0	100.1	100.2	100.4	100.5	100.6	100.8	100.9	101.1	101.2	101.4	101.6	100.1	100.5	100.9	101.4	100.7
1995	101.8	102.0	102.2	102.4	102.6	102.8	103.1	103.3	103.5	103.7	103.9	104.2	102.0	102.6	103.3	103.9	103.0
1996	104.4	104.6	104.8	105.0	105.2	105.5	105.7	105.9	106.2	106.4	106.7	107.0	104.6	105.2	105.9	106.7	105.6
1997	107.3	107.7	108.0	108.4	108.8	109.2	109.6	110.1	110.5	111.0	111.5	112.0	107.7	108.8	110.1	111.5	109.5
1998	112.4	112.9	113.4	113.9	114.3	114.8	115.2	115.7	116.1	116.5	116.9	117.2	112.9	114.3	115.7	116.9	114.9
1999	117.6	118.0	118.3	118.6	118.9	119.2	119.5	119.8	120.0	120.3	120.5	120.8	118.0	118.9	119.8	120.5	119.3
2000	121.0	121.2	121.4	121.6	121.8	122.0	122.2	122.3	122.5	122.6	122.8	122.9	121.2	121.8	122.3	122.8	122.0
2001	123.1	123.2	123.3	123.4	123.5	123.6	123.7	123.8	123.8	123.9	123.9	123.9	123.2	123.5	123.8	123.9	123.6
2002	124.0	124.0	124.0	124.0	123.9	123.9	123.9	123.8	123.8	123.7	123.7	123.6	124.0	123.9	123.8	123.7	123.8
2003	123.5	123.5	123.4	123.3	123.3	123.2	123.1	123.1	123.0	122.9	122.9	122.8	123.5	123.3	123.1	122.9	123.2
2004	122.7	122.7	122.6	122.5	122.5	122.4	122.3	122.3	122.2	122.2	122.2	122.2	122.7	122.5	122.3	122.2	122.4
2005	122.2	122.2	122.3	122.3	122.4	122.5	122.6	122.7	122.8	122.9	123.1	123.2	122.2	122.4	122.7	123.1	122.6
2006	123.4	123.5	123.7	123.8	124.0	124.1	124.3	124.4	124.5	124.7	124.8	124.9	123.5	124.0	124.4	124.8	124.2
2007	125.0	125.1	125.3	125.4	125.5	125.6	125.7	125.8	125.9	126.0	126.1	126.2	125.1	125.5	125.8	126.1	125.6
2008	126.3	126.3	126.4	126.5	126.6	126.7	126.7	126.8	126.8	126.7	126.7	126.6	126.3	126.6	126.7	126.7	126.6
2009	126.5	126.4	126.2	126.0	125.8	125.6	125.4	125.2	125.0	124.8	124.6	124.4	126.4	125.8	125.2	124.6	125.5
2010	124.3	124.1	124.0	123.9	123.9								124.1				
<b>Utilization (percent)</b>																	
1980	82.7	82.5	81.6	79.6	76.9	75.5	74.6	74.9	76.0	77.2	78.5	78.5	82.3	77.3	75.2	78.0	78.2
1981	77.9	77.2	77.3	77.5	77.7	77.1	77.1	77.0	76.4	75.4	74.4	73.0	77.5	77.5	76.8	74.3	76.5
1982	71.1	72.8	72.1	71.5	71.2	71.0	70.7	70.2	69.8	69.0	68.4	68.1	72.0	71.2	70.2	68.5	70.5
1983	69.7	69.6	70.2	71.0	71.9	72.4	73.3	74.0	75.2	76.0	76.2	76.3	69.9	71.7	74.2	76.2	73.0
1984	77.7	78.4	78.6	78.8	78.9	79.0	79.2	79.1	78.7	78.9	78.9	79.0	78.2	78.9	79.0	78.9	78.8
1985	78.5	78.2	78.6	78.3	78.3	78.2	77.7	78.0	78.1	77.7	78.1	78.4	78.4	78.3	77.9	78.1	78.2
1986	79.3	78.7	78.4	78.7	78.7	78.5	78.6	78.7	78.8	79.0	79.2	79.7	78.8	78.6	78.7	79.3	78.8
1987	79.2	80.2	80.1	80.4	80.7	80.8	81.2	81.3	81.6	82.8	83.2	83.6	79.8	80.6	81.4	83.2	81.3
1988	83.4	83.5	83.7	84.3	84.2	84.2	84.2	84.3	84.5	84.9	85.1	85.4	83.5	84.2	84.3	85.1	84.3
1989	86.0	85.1	84.9	84.9	84.0	83.9	82.7	83.2	82.9	82.5	82.4	82.3	85.3	84.3	82.9	82.4	83.7
1990	82.0	83.0	83.1	82.7	82.6	82.7	82.4	82.4	82.3	81.4	80.3	79.5	82.7	82.7	82.4	80.4	82.0
1991	78.8	78.1	77.4	77.5	77.9	78.7	78.8	78.8	79.6	79.4	79.0	78.7	78.1	78.0	79.1	79.1	78.6
1992	77.9	78.5	79.2	79.4	79.7	79.7	80.2	79.7	79.6	79.9	80.0	79.7	78.6	79.6	79.9	79.9	79.5
1993	80.5	80.5	80.1	80.5	80.3	80.0	80.1	79.9	80.2	80.8	80.9	81.2	80.4	80.2	80.1	81.0	80.4
1994	81.2	81.2	82.1	82.4	82.7	82.7	82.8	83.1	83.1	83.6	83.9	84.5	81.5	82.6	83.0	84.0	82.8
1995	84.5	84.1	83.8	83.3	83.0	83.0	82.1	82.7	83.0	82.5	82.2	82.1	84.1	83.1	82.6	82.3	83.0
1996	81.0	81.9	81.3	81.9	82.1	82.6	82.4	82.5	82.7	82.1	82.5	82.9	81.4	82.2	82.5	82.5	82.2
1997	82.5	83.1	83.5	82.7	82.8	82.8	82.5	83.3	83.5	83.5	83.9	83.6	83.0	82.7	83.1	83.7	83.1
1998	83.7	83.3	82.7	82.6	82.6	81.4	80.4	82.0	81.1	81.4	81.1	81.0	83.2	82.2	81.2	81.1	81.9
1999	80.7	80.8	80.2	79.9	80.3	79.6	79.4	79.7	79.1	80.1	80.2	80.3	80.5	79.9	79.4	80.2	80.0
2000	79.9	79.7	79.8	79.9	79.4	79.3	78.9	78.1	78.4	77.8	77.3	76.5	79.8	79.5	78.4	77.2	78.7
2001	75.9	75.5	75.2	75.1	74.5	74.0	73.9	73.4	73.2	72.6	72.5	72.6	75.5	74.5	73.5	72.6	74.0
2002	73.1	73.0	73.6	73.6	74.1	74.9	74.5	74.7	74.8	74.4	74.7	74.3	73.2	74.2	74.7	74.5	74.1
2003	74.7	74.7	74.8	74.1	74.1	74.3	74.3	74.1	74.7	74.6	75.4	75.2	74.7	74.1	74.3	75.0	74.6
2004	75.1	75.7	75.5	76.0	76.6	75.9	76.6	77.1	76.8	77.7	77.6	78.1	75.4	76.1	76.8	77.8	76.5
2005	78.6	79.2	78.8	78.8	79.1	79.0	78.8	78.8	77.7	78.7	79.2	79.0	78.9	79.0	78.4	79.0	78.8
2006	79.5	79.2	79.0	79.3	78.8	78.9	78.8	78.9	78.8	78.4	78.3	79.5	79.2	79.0	78.9	78.7	79.0
2007	79.0	79.4	79.8	80.1	80.0	80.0	80.2	79.7	79.9	79.1	79.1	79.1	79.4	80.0	79.9	79.1	79.6
2008	78.6	78.0	77.6	76.5	76.0	75.5	75.1	74.4	72.0	71.9	70.8	69.1	78.1	76.0	73.9	70.6	74.6
2009	67.3	67.3	66.1	65.7	65.2	65.2	66.3	67.3	67.9	68.0	68.8	69.0	66.9	65.4	67.2	68.6	67.0
2010	69.7	69.5	70.3	70.9	71.6								69.8				

NOTE Estimates from January 2010 through May 2010 are subject to further revision in the upcoming monthly releases.

1. See footnote 2 to table 3.

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		2002	2003	2004	2005	2006	2007	2008	2009
<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>		58.7	57.8	56.4	56.0	55.9	54.7	55.0	56.3
<b>Consumer goods</b>		31.0	30.8	29.9	29.3	28.6	27.5	27.3	29.0
<b>Durable</b>		8.9	8.7	7.9	7.3	7.1	6.9	6.4	6.0
Automotive products		4.7	4.6	4.0	3.5	3.4	3.5	3.0	2.7
Home electronics		.4	.4	.4	.4	.4	.4	.4	.3
Appliances, furniture, carpeting		1.4	1.3	1.3	1.3	1.2	1.1	1.0	1.0
Miscellaneous goods		2.4	2.3	2.2	2.2	2.2	2.0	2.0	1.9
<b>Nondurable</b>		22.1	22.2	22.0	22.0	21.5	20.6	20.9	23.0
Non-energy		18.2	17.9	17.1	16.5	16.2	15.6	16.3	18.1
Foods and tobacco		9.6	9.5	9.2	8.8	8.5	8.2	8.5	9.5
Clothing		.8	.7	.6	.5	.4	.3	.3	.3
Chemical products		5.2	5.2	5.0	4.9	5.0	4.9	5.2	5.9
Paper products		2.1	1.9	1.8	1.7	1.7	1.7	1.8	1.8
Energy		3.9	4.2	4.9	5.5	5.4	5.0	4.6	4.9
<b>Business equipment</b>		10.0	9.4	9.2	9.1	9.6	9.6	9.9	9.8
Transit		1.8	1.5	1.5	1.6	1.9	1.9	1.7	1.8
Information processing		3.0	2.9	2.8	2.7	2.8	2.7	2.9	2.9
Industrial and other		5.2	5.0	4.8	4.8	4.9	5.0	5.3	5.0
<b>Defense and space equipment</b>		1.6	1.6	1.5	1.5	1.5	1.8	1.9	2.2
<b>Construction supplies</b>		4.9	4.8	4.8	4.9	5.1	4.9	4.8	4.5
<b>Business supplies</b>		10.8	10.7	10.5	10.5	10.3	10.2	10.3	10.4
<b>Materials</b>		41.3	42.2	43.6	44.0	44.1	45.3	45.0	43.7
<b>Non-energy</b>		30.1	29.5	29.4	28.9	28.5	28.3	28.0	26.7
<b>Durable</b>		18.7	18.3	18.1	17.7	17.6	17.3	17.3	15.7
Consumer parts		4.0	3.8	3.5	3.3	3.1	2.9	2.5	2.1
Equipment parts		6.5	6.4	6.2	6.1	6.0	6.1	6.5	6.1
Other		8.2	8.1	8.3	8.3	8.5	8.4	8.3	7.5
<b>Nondurable</b>		11.4	11.2	11.3	11.2	10.9	11.0	10.7	11.1
Textile		.8	.7	.7	.7	.6	.5	.4	.4
Paper		2.8	2.5	2.4	2.3	2.3	2.2	2.2	2.2
Chemical		4.4	4.5	5.0	5.1	4.9	5.2	4.7	5.1
<b>Energy</b>		11.2	12.7	14.2	15.2	15.6	17.0	17.0	16.9
INDUSTRY GROUPS									
<b>Manufacturing</b>		83.0	81.2	79.6	78.3	77.6	76.2	75.6	75.4
<b>Manufacturing (NAICS)</b>	31–33	78.3	76.8	75.3	74.2	73.7	72.4	71.8	71.7
<b>Durable manufacturing</b>		43.0	41.7	40.1	39.1	39.3	39.2	39.4	37.5
Wood products	321	1.5	1.6	1.5	1.5	1.4	1.2	1.1	1.0
Nonmetallic mineral products	327	2.2	2.2	2.2	2.3	2.3	2.1	2.0	1.9
Primary metal	331	2.3	2.4	2.7	2.6	2.7	2.8	2.7	2.0
Fabricated metal products	332	5.7	5.5	5.3	5.3	5.5	5.7	6.0	5.8
Machinery	333	5.3	5.0	4.8	4.8	5.0	5.1	5.4	4.8
Computer and electronic products	334	7.8	7.7	7.6	7.2	7.0	6.9	7.3	7.2
Electrical equip., appliances, and components	335	2.2	2.0	1.9	1.9	1.9	1.9	2.0	2.0
Motor vehicles and parts	3361–3	7.4	7.2	6.3	5.8	5.5	5.1	4.2	3.5
Aerospace and miscellaneous transportation equipment	3364–9	3.5	3.3	3.1	3.2	3.4	4.0	4.1	4.6
Furniture and related products	337	1.8	1.6	1.6	1.6	1.5	1.4	1.4	1.3
Miscellaneous	339	3.3	3.3	3.1	3.1	3.1	3.0	3.2	3.5
<b>Nondurable manufacturing</b>		35.3	35.1	35.2	35.2	34.3	33.2	32.4	34.2
Food, beverage, and tobacco products	311,2	11.3	11.4	10.9	10.5	10.1	9.9	10.3	11.4
Textile and product mills	313,4	1.4	1.2	1.2	1.2	1.0	.9	.8	.7
Apparel and leather	315,6	1.0	.9	.7	.6	.6	.4	.4	.3
Paper	322	3.1	2.9	2.7	2.6	2.6	2.5	2.5	2.5
Printing and support	323	2.4	2.2	2.1	2.0	1.9	1.9	1.9	1.8
Petroleum and coal products	324	1.8	2.2	3.2	4.0	4.0	3.4	2.4	2.4
Chemical	325	10.7	10.8	11.1	11.0	10.9	11.2	11.2	12.3
Plastics and rubber products	326	3.8	3.6	3.4	3.2	3.2	3.0	2.9	2.7
<b>Other manufacturing (non-NAICS)</b>	<b>1133,5111</b>	4.7	4.4	4.3	4.0	3.9	3.8	3.8	3.7
<b>Mining</b>	<b>21</b>	7.4	9.0	10.8	12.0	12.8	14.1	13.8	13.0
<b>Utilities</b>	<b>2211,2</b>	9.6	9.8	9.6	9.7	9.6	9.8	10.6	11.6
Electric	2211	8.2	8.2	7.9	7.9	8.0	8.1	8.9	10.0
Natural gas	2212	1.4	1.6	1.7	1.8	1.6	1.6	1.7	1.6

NOTE: The IP proportion data are estimates of the industries' relative contributions to overall IP change between the reference year and the following year. For example, a 1 percent increase in durable goods manufacturing between 2009 and 2010 would account for a 0.375 percent increase in total IP.

Table 11

**INDUSTRIAL PRODUCTION AND CAPACITY UTILIZATION: SUMMARY**

Seasonally adjusted

Industrial production	2007=100						Percent change						May '09 to May '10
	2009 Dec. <sup>r</sup>	2010 Jan. <sup>r</sup>	Feb. <sup>r</sup>	Mar. <sup>r</sup>	Apr. <sup>r</sup>	May <sup>r</sup>	2009 Dec. <sup>r</sup>	2010 Jan. <sup>r</sup>	Feb. <sup>r</sup>	Mar. <sup>r</sup>	Apr. <sup>r</sup>	May <sup>r</sup>	
<b>Total index</b>	89.6	90.5	90.5	90.8	91.4	92.6	.5	1.0	.0	.3	.6	1.3	8.0
<i>Previous estimates (2002 = 100)</i>	100.2	101.3	101.3	101.6	102.3	103.5	.7	1.1	-.1	.3	.7	1.2	7.6
<u>Major market groups</u>													
Final Products	91.2	92.4	91.9	92.5	92.9	94.0	.7	1.3	-.5	.6	.4	1.3	7.9
Consumer goods	92.6	93.7	92.9	92.9	92.8	94.1	.5	1.2	-.9	.1	-.1	1.4	6.8
Business equipment	87.4	88.5	88.5	89.7	91.3	92.4	1.2	1.3	.0	1.3	1.8	1.3	10.1
Nonindustrial supplies	83.1	83.4	82.9	82.9	83.8	85.2	.5	.3	-.6	.0	1.1	1.7	4.0
Construction	73.6	74.8	74.6	76.3	78.5	79.1	-2.2	1.6	-.4	2.4	2.9	.7	5.3
Materials	90.3	91.2	91.9	92.0	92.6	93.8	.4	1.0	.7	.2	.7	1.3	9.5
<u>Major industry groups</u>													
Manufacturing (see note below)	86.9	87.8	87.6	88.5	89.2	90.2	.1	.9	-.2	1.1	.8	1.1	8.9
<i>Previous estimates (2002 = 100)</i>	98.5	99.4	99.3	100.5	101.4	102.3	-.1	.9	.0	1.2	.9	.9	7.9
Mining	94.9	96.5	97.8	99.3	100.8	100.4	-1.8	1.7	1.3	1.6	1.5	-.4	7.2
Utilities	101.2	102.1	102.1	96.2	94.4	99.0	5.7	.8	.1	-5.8	-1.9	4.9	3.0
<u>Percent of capacity</u>													Capacity growth
<b>Capacity utilization</b>	Average 1972- 2009	1988- 89 high	1990- 91 low	1994- 95 high	2008- 09 low	2009 May	2009 Dec. <sup>r</sup>	2010 Jan. <sup>r</sup>	Feb. <sup>r</sup>	Mar. <sup>r</sup>	Apr. <sup>r</sup>	May <sup>r</sup>	May '09 to May '10
<b>Total industry</b>	80.6	85.2	78.7	85.1	68.2	68.3	71.6	72.3	72.4	72.7	73.1	74.1	-.4
<i>Previous estimates</i>	80.6	85.1	78.7	84.9	68.3	68.5	72.0	72.8	72.8	73.1	73.7	74.7	-1.3
Manufacturing (see note below)	79.2	85.6	77.2	84.6	65.4	65.4	69.1	69.8	69.7	70.5	71.1	71.9	-.9
<i>Previous estimates</i>	79.2	85.4	77.2	84.5	65.1	65.3	68.4	69.1	69.2	70.1	70.8	71.5	-1.4
Mining	87.4	86.4	83.6	88.9	79.6	80.3	80.9	82.3	83.4	84.7	86.0	85.7	.5
Utilities	86.7	92.9	84.3	93.3	77.6	79.1	81.8	82.3	82.3	77.4	75.8	79.5	2.5
<u>Stage-of-process groups</u>													
Crude	86.5	87.8	84.2	90.0	78.3	78.5	81.4	82.6	83.4	84.4	85.4	85.1	.0
Primary and semifinished	81.6	86.6	77.9	87.9	65.7	65.8	69.1	69.7	69.9	69.5	69.9	71.7	-.8
Finished	77.5	83.4	77.3	80.5	67.5	67.8	71.2	72.0	71.5	72.2	72.6	73.1	-.1

r Revised. p Preliminary.

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

The **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 at [www.federalreserve.gov/releases/G17](http://www.federalreserve.gov/releases/G17) at the Board's World Wide Web site. 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 at the Board's Web site. Instructions for searching for and downloading specific series are provided as well. For paid access to the data files through the Department of Commerce's Economic Bulletin Board or World Wide Web site, please call STAT-USA at 1-800-STAT-USA or 202-452-1986.

## 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 2007. 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 312 individual series based on the 2002 North American Industrial Classification System (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 web site ([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 or sales and unit values) by a corresponding Fisher price index; the most notable of these fall within the high-technology grouping and include computers, communications equipment, and 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 United States 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 4 percent. If output in this industry increased 10 percent in a month, then this gain would boost growth in total IP by 4/10 percentage point (0.04 x 10% = 0.4%). To assist users with calculations, the Federal Reserve's web site 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/ipweights.sa.txt](http://www.federalreserve.gov/releases/G17/ipdisk/ipweights.sa.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 70 percent of the source data (in value-added terms) are available; the fraction of available source data increases to 84 percent for estimates in the second month that the estimate is published, 93 percent in the third month, 97 percent in the fourth month, 98 percent in the fifth month, and 98 percent in the sixth month. Data availability by data type, based on the six-month reporting window used in 2009, is summarized in the table below:

**Availability of Monthly IP Data in Publication Window**  
(Percent of value added in 2009)

Type of data	Month of estimate					
	1st	2nd	3rd	4th	5th	6th
Physical product	25	39	48	52	53	53
Production-worker hours	45	45	45	45	45	45
IP data received	70	84	93	97	98	98
IP data estimated	30	16	7	3	2	2

The physical product group includes series based on either monthly or quarterly data. As can be seen in the first line of the table, in the first month, a physical product indicator is available for about half of the series (in terms of value added) that ultimately are based on physical product data (25 percent out of total of 53 percent). Of the 25 percent, about three-fourths (19 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 third estimate of industrial production. Specifically, quarterly data are available for the second estimate of the last month of a quarter, the third estimate of the second month of a quarter, and the fourth 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 2010; for other series, the factors were estimated with data through at least January 2010. 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.

**Reliability.** The average revision to the *level* of the total IP index, without regard to sign, between the first and the fourth estimates was 0.26 percent during the 1987–2009 period. The average revision to the *percent change* in total IP, without regard to sign, from the first to

the fourth estimates was 0.21 percentage point during the 1987–2009 period. In most cases (about 85 percent), the direction of change in output indicated by the first estimate for a given month is the same as that shown by the fourth estimate.

**Rounding.** 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 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 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. 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 (*e.g.*, 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 a bit less than 70 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 5 percent of total industry capacity). A detailed description of the methodology used to construct the capacity indexes is available on the Board's web site ([www.federalreserve.gov/releases/G17/CapNotes.htm](http://www.federalreserve.gov/releases/G17/CapNotes.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 was a survey of large companies

that 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 1972–2009 period, the average total industry utilization rate was 80.6 percent; for manufacturing, the average factory operating rate was 79.2 percent. Industrial plants usually operate at capacity utilization rates that are well below 100 percent: none of the broad aggregates has ever reached 100 percent. For total industry and total manufacturing, utilization rates have exceeded 90 percent only in wartime. The highs and lows in capacity utilization shown in table 11 are specific to each series and do not all occur in the same month.

## REFERENCES AND RELEASE DATES

**References.** The annual revision published in March 2009 is described in an article published in the *Federal Reserve Bulletin* and is available on the Board's website at: [www.federalreserve.gov/releases/G17/About.htm](http://www.federalreserve.gov/releases/G17/About.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).

## Release Schedule

At 9:15 a.m. on

**2010:** January 15, February 17, March 15, April 15, May 14, June 16, July 15, August 17, September 15, October 18, November 16, and December 15.