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Industrial Production and Capacity Utilization: The 2010 Annual Revision

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The Federal Reserve published revisions to its index of industrial production (IP) and related measures of capacity and capacity utilization on June 25, 2010. Although rates of change from January 1972 through May 2010 were affected, 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. The trough in IP in the recent recession occurred in June 2009: IP advanced in every month of the second half of that year and continued improving throughout 2010, though the pace of recovery slackened in the second half of 2010.

The revision had its largest effect on data from 2006 through 2009, and the largest sources of revision were annual data from the 2007 Census of Manufactures (COM) and the 2008 Annual Survey of Manufactures (ASM). These data implied noticeably stronger output in 2007 (mostly in durable goods industries) and a larger drop in output in 2008 (mostly in nondurables). Relative to earlier estimates (table 1), 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.[1] 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.[2]

Capacity utilization for total industry was not altered appreciably, overall, by the revision. Utilization was 0.7 percentage point higher in the fourth quarter of 2007 but was within 0.2 percentage point of the previous estimates for the fourth quarters of 2006, 2008, and 2009 (table 2). At 71.1 percent, overall utilization in the fourth quarter of 2009 was more than 10 percentage points below its 1972–2009 average.

In the 2010 revision, the base year for the IP index was advanced from 2002 to 2007. Because the average in 2007 for the total index before the revision was approximately 111, the rebasing lowered the index level for total IP for most periods by about 10 percent. 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

NOTE: Charles Gilbert directed the 2010 revision and, with Kimberly Bayard, David Byrne, Norman Morin, and Daniel Vine, prepared the revised estimates of industrial production. Norman Morin and Daniel Vine prepared the revised estimates of capacity and capacity utilization.

[1] Tables 1 through 11 follow the text of this article. Data that are referred to as "revised" in the tables and text were released on March 17, 2011. Estimates referred to as "earlier" were released on June 16, 2010.

[2] 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, was unchanged (appendix table 4).

the Census Bureau's 2008 and 2009 Current Industrial Reports (CIR) were also incorporated along with annual data for 2008 on metallic and nonmetallic minerals (except fuels) from the U.S. Geological Survey. The revised indexes reflect updated price deflators from the Bureau of Economic Analysis (BEA). In addition, monthly indicators (either product data or input data) were revised, and the estimation methods for some series were changed. The monthly production estimates reflect the incorporation of updated seasonal factors and monthly and quarterly source data that became available (or were revised) after the close of the reporting window.

Capacity and capacity utilization were revised to incorporate data from the Census Bureau's Quarterly Survey of Plant Capacity (QSPC) 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

As revised, total IP for the fourth quarter of 2009 was 89.1 percent of output in 2007, and capacity stood at 125.2 percent of output in 2007 (tables 3 and 4). The capacity utilization rate for total industry in the fourth quarter of 2009 was 71.1 percent, 0.2 percentage point below the earlier estimate (table 4).

Industrial Production

As shown in table 1, the changes in total IP were revised up for 2006 and 2007, but the overall contour for recent years was little changed—moderate gains for 2005 through 2007 are still followed by sharp drops in the index in 2008 and 2009 and an increase in 2010.[3] Although output dropped from the fourth quarter of 2008 to the fourth quarter of 2009, the recovery from the recession began in the second half of 2009 (table 5). 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.)

The primary source of revisions to IP was the newly incorporated annual benchmark data for 2007 and 2008. Table 6 shows that the revisions to annual average production for 2005 and 2006 were negligible, but, after revision, the increase in production in 2007 was 1.2 percentage points higher and the decrease in overall production in 2008 was 1.1 percentage points steeper.

Production by Industry Group

Manufacturing production expanded during the 2005–07 period, on balance, before contracting sharply in 2008. Output contracted again in the first half of 2009 but rose briskly in

[3] In this section, unless otherwise specified, all the rates of change are calculated from the fourth quarter of the previous year to the fourth quarter of the reference year.

the second half of the year and in the first half of 2010 (table 5).[4] 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 fell sharply in 2008, and that drop was little changed compared with the earlier estimate. In 2009, production of durable goods fell in the first half of the year but recovered some in the second half; even so, its change over the course of the year was negative but of a smaller magnitude than originally reported. For 2009 as a whole, 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 further in the first half of 2009. As with durables, production of nondurables moved up in the second half of 2009; the gain reversed most of the drop in the first half, but output at the end of the year remained well below its pre-recession level. Over the 2005–08 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 the first half of 2009 after being little changed during 2007 and 2008. The small decline in 2008 was at first reported as a gain of about 1 percent, but the index is now shown to have fallen less than previously reported in 2009. The index for utilities is also nearly unchanged, with the exception of 2008, for which the index now shows a small decline rather than a small advance.

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 7). Output in the high-technology 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 from 2005 through the first half of 2008, fell sharply through the first quarter of 2009, then rebounded to about its 2008 peak by the third quarter of 2010; nevertheless, the rates of change were revised up in most years. The production

[4] 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.

of semiconductors and related components rose solidly from 2005 through 2007, contracted significantly in 2008 and the first half of 2009, but moved higher in the second half of 2009 and in 2010. The rates of change were revised up over this period.

The index for communications equipment posted strong gains over 2005 and 2006. It fell substantially in 2007 but moved higher in the next three 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 reflected two factors. First, the benchmark annual output index was close to the earlier 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.[5] Second, from 2007 forward, the high frequency indicator series for the various components of communications equipment were based on different data sources (discussed in more detail later), which indicated a different quarterly pattern.

Production by Market Group

The production index for final products and nonindustrial supplies posted moderate gains from 2005 through 2007 and then fell markedly in 2008 and the first half of 2009 (tables 1 and 5). The rates of change in the index are lower than originally 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 the first half of 2009, but recovered some of those decreases in the second half of 2009 and in 2010; even so output for this category remains more than 5 percent below its pre-recession peak. Compared with earlier 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 the first half of 2009. It then bounced back sharply in the second half of 2009 and posted a moderate gain in 2010. 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 and now shows a small gain over the course of the year.

The index for consumer nondurables rose in 2005 and 2006 and contracted from 2007 through the first half of 2009; it retraced some of those losses in the second half of 2009 and in 2010. Rates of change in the index for consumer nondurable non-energy goods display a similar pattern; the index was little changed from previous estimates in 2005 and 2009 but revised down for 2006 through 2008. The largest revision occurred in clothing, which is now shown to have

[5] 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. The revision to the index for data networking equipment is described in more detail in the "Revised Interpolation Method for Data Network Equipment" section.

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 but fell sharply in 2008 and again in the first half of 2009 (table 5). Output then gained moderately in the second half of 2009 and advanced more briskly in the first half of 2010. 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. In 2009, production advanced but by a bit less than the earlier estimate. Revisions to its rates of change from 2006 through 2008 were positive. The production of information processing equipment expanded in each year from 2004 through 2008, and in the first half of 2008, but posted a substantial decrease in the second half of 2008 and in the first half of 2009; it has recovered most of these losses by the middle of 2010. 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 earlier 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 the first half of 2009; it has retraced only a modest portion of those losses since then. 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 year and a half. Materials output began to pick up in the second half of 2009, but it has still not returned to its pre-recession levels. 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, with a large drop in the first half of the year followed by a smaller gain in the second half, but nondurable materials rose modestly, as its increase in the second half more than offset its decrease in the first half. Output for both of these categories has improved during 2010, but durables have shown a more rapid increase. Relative to earlier estimates, the net decrease over the 2005–09 window for durable materials was somewhat less, whereas the net decline for nondurable materials was about the same. The index for energy materials 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 fell in 2010 (table 8). The rates of change in both 2009 and 2010 were revised up somewhat from earlier estimates, but revisions to preceding 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 selected high-technology industries rose in each year from 2006 through 2009 and posted a sizable increase in 2010. Prior to the revision, 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 again in 2010. The revised estimates are similar to previous reports.

Capacity at mines expanded from 2006 through 2009 but was 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 were revised down. Capacity at electric and gas utilities rose each year since 2006; however, the increase this year was likely 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 fell 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 at a rate that was a bit less than earlier estimates, and it likely fell 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 processing still rose from 2006 through 2008 and only fell modestly in 2009; it increased more in 2010 than previously estimated.

Capacity Utilization

As shown in table 2, 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.[6] 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 2). The trough for overall utilization during the recession is currently estimated to have been 68.2 percent, recorded in June 2010. 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. The factory operating rates for May and June 2009 of 65.4 percent were the lowest in the history of this series, which begins in 1948. Utilization has rebounded since then, but at between 72 percent and

[6] Capacity utilization rates are reported for the fourth quarter of the year referenced.

73 percent in late 2010, remains nearly 7 percentage points below its average for the 1972–2009 period. 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, which showed decreases in its operating rate early in 2009 but large gains later in the year, 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 the first half of 2009 but rebounded in the second half of the year. Even so, 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 their averages in 2008 and 2009. Relative to earlier estimates, capacity utilization is substantially higher in 2008 and 2009 but little changed, on net, in preceding years. The operating rates for computers and peripheral equipment and those for communications equipment in 2006 and 2007 are now lower than originally reported. 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. The results of the Economic Census for 2007 and the Annual Survey of Manufactures for 2008 became available since the March 2009 annual revision. Revised price indexes from the BEA and updated price indexes constructed by the Federal Reserve for a few selected industries were also incorporated.[7] In addition, the benchmark indexes for logging and publishing were advanced through 2008 based on data from the U.S. Forest Service and the Census Bureau.[8]

The revised IP indexes contain information from selected Current Industrial Reports 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, and inventories. In addition, revised data on production worker hours were included.

The revision folded in 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.

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, but data from these reports for 2002 through 2006 were classified based on the 2002 NAICS.[9]

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 a 2002 NAICS basis using data on product shipments by industry from the 2002 Economic Census. In 2011, the Census Bureau plans to issue bridge tables that provide a more precise allocation of the data from the 2007 Economic Census into a 2002 NAICS basis. Until those tables are available, however, the list of products that were transferred to different NAICS industries is available, and data from the 2002 Economic Census on either the shipments

[7] 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. Table 10 lists annual and quarterly price indexes for the networking equipment component of communications equipment.

[8] Logging and publishing were a part of manufacturing under the Standard Industrial Classification system but are not a part of manufacturing under NAICS. They are included in the IP index for manufacturing for reasons of historical continuity.

[9] 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.

of those products that originated in an industry being modified or the overall shipments of those products were used to make estimates of 2002 shipments categorized on a 2007- NAICS basis. The shares of the 2007-basis shipments estimates that would have been classified elsewhere under the 2002 version of NAICS were applied to the 2007-basis estimates from the 2007 Economic Census and the 2008 ASM.

Since 2003, the ASM has not separately published data for every six-digit manufacturing industry; data for some industries were included only as part of a larger group of industries. Previously, the benchmark indexes for IP were calculated by allocating the data on value added and cost of materials for these combined industries to their sixdigit components based on each six-digit industry's share of the combined industry total for these measures from the 2002 Economic Census. With the revision, the allocations for 2003 through 2006 reflect shares from both the 2002 and the 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 BEA in May 2010. These deflators differed occasionally from their previously published values because the BEA incorporated information from the 2002 Input-Output tables on the composition of each industry's primary and secondary products.

Revised Interpolation Method for Data Network Equipment

Quarterly data from the 2007 Current Industrial Reports for communications equipment indicated that the output of data networking equipment dropped more than 85 percent between the second and third quarters of 2007 (not at an annual rate), as manufacturers moved their operations abroad. The standard procedure for interpolating a monthly IP series from a quarterly IP series did not handle this dramatic drop well and produced a monthly series for data networking equipment whose index value was negative for one month.

For the typical series that is based on quarterly physical product data, a seasonally adjusted quarterly output index is computed from a quarterly indicator and then interpolated to a monthly frequency using a cubic spline. For series that also have a monthly indicator, the ratio of the quarterly output index to the quarterly average of the seasonally adjusted monthly indicator is converted to a monthly frequency using a cubic spline. The resulting monthly series is then multiplied by the monthly indicator to construct the final monthly index. For series that have no monthly indicators, such as data networking equipment, the interpolation assumes the monthly indicator is a constant.

Because the results of this procedure were unacceptable in the presence of the large drop in IP for data networking equipment, the interpolation procedure for this product was changed to a two-step process.[10] First, an initial interpolation of the logarithm of the quarterly index was

[10] The change affected only data networking equipment. The quarterly-to-monthly interpolation procedure for all other series was not changed, as it did not yield smoother results for series with monthly indicators or for those with relatively small swings in their quarterly indexes.

computed in the same fashion as in the previous paragraph. Second, the exponent of the interpolated series was used as a monthly indicator for interpolating the original quarterly series. The resulting series showed smaller percentage swings around the large downturn and does not venture into negative territory. The initial quarterly series and the original and modified interpolated series are shown in chart 10.

New Source Data Used to Estimate Capacity

Annual capacity estimates for most manufacturing series are created by combining two indicators of capacity. The first estimate is an implied index of capacity based on benchmark utilization rates for the fourth quarter of the year from the Census Bureau's QSPC and the Federal Reserve's IP indexes. The second is an estimate of capital input that measures the available flow of services from the industry's net stock of physical assets.

The implied capacity index is computed by dividing the IP index by the corresponding QSPC utilization rate.[11] Although a capacity index published by the Federal Reserve derives its level and its trend from the implied capacity index, the year-to-year movements in the implied capacity index may be quite volatile and may not represent actual changes in productive capacity of an industry. Rather, part of the year-to-year fluctuations may reflect inconsistencies between the movements in the production indexes and the survey data on utilization rates, such as independent measurement error. Only the parts of the implied capacity indexes that are related to other measures of capacity are incorporated into the final estimates. To distinguish the informative part of each implied capacity index from its noise component, a regression-based procedure that principally relies on capital input is applied.

The Federal Reserve's measure of capital input for an industry is an aggregate of the industry's capital stocks for 36 distinct asset categories—30 types of equipment, 5 types of structures, and 1 overall category for software. The capital stock of a particular asset (such as metalworking machinery) is the weighted sum of current and past industry investment in the asset. The weights determine, relative to a brand new asset, how much of the productive capability of an existing asset is still available. Because various capital goods types have different useful service lives (for example, personal computers are discarded far more quickly than are warehouses), these calculations require time series of investment by an industry in each asset category. In addition, the asset-specific weights are used to adjust downward the weight of older investment vintages to reflect the loss of productive capability as an asset ages.

Industry-level totals for investment in equipment and in structures are available going back more than a century, as are estimates of economy-wide investment totals for various categories of capital goods. In contrast, estimates of investment by individual industries in detailed asset categories are sparse. The BEA's benchmark capital flow tables (CFT), which contained comprehensive estimates of the detailed industry distribution of investment by both asset category and industry, were available roughly every five years from the early 1960s to

[11] For example, if the IP index has a level of 100 and the QSPC utilization rate is 80 percent, the implied capacity index is 125.

1997.[12] For years other than those for which there is a CFT, the asset composition of industry investment is estimated using a biproportional matrix-balancing technique.[13] This procedure, commonly called RASing, uses industry investment totals and asset investment totals for a given year along with an initial estimate of the composition of investment by asset and by industry (based on the CFT for a nearby year) to estimate for the year a final distribution of investment by asset and by industry. More precisely, for years between two CFTs, the shares upon which the initial estimate is based are a linear combination of shares from the adjacent CFTs. For years after the most recent CFT, the initial estimates of the shares from the final distribution of assets across industries are just the final estimate of the shares for the previous years. For years before the first CFT, the initial estimates for the shares from the final distribution of assets across industries are the final estimates for the following years. Thus, the RASing is performed sequentially backward from the first CFT and forward from the final CFT.

Recently, the BEA announced that it would cease publication of the quinquennial CFT. So, alternative sources of investment distributions of assets by industry were needed. Two sources offered some of the data for this purpose. First, beginning in 2002, the Census of Manufactures and the ASM began tabulating an industry's investment in equipment into computers, motor vehicles, and other equipment categories. Second, the Census Bureau has begun a new Information and Communication Technology (ICT) survey, which has annual data beginning in 2003 on software, computer, and communications equipment spending by broad industry categories. These new sources have the advantage of being annual, rather than every five years, as well as being timely—both the ASM and the ICT survey for 2008 were published in early 2010, while the 1997 CFT was published in 2003. However, the asset-level detail in the COM/ASM and the industry-level detail of the software information in the ICT survey are much more limited relative to that in the CFT.

In the 2010 annual revision, we began to use the COM/ASM industry-level detail on investment in computers, motor vehicles, and other equipment. Figure [X] shows a representation of the current coverage of the by-asset, by-industry investment data for equipment (the bold boxes) and the previous detail taken from the CFT (the small dashed boxes). As can be seen in the figure, additional steps are required to further split the COM/ASM-based detail into the finer CFT-based level of detail. To do so, the former CFT-based estimation procedure (RASing) is employed to split the computer category into its 5 components, the vehicles into 2 components, and the"other equipment" category into the 23 equipment components not including vehicles and computers.

Beginning with 2003, the ICT survey is used to determine the overall level of investment by manufacturers in software. This manufacturing total is divided among manufacturing industries using their relative shares of investment in computers, under the assumption that changes in software investment should be broadly correlated with changes in computer investment. Between 1997 and 2003, information from the CFT for the 1997 and 2003 ICT

[12] Benchmark capital flow tables are available for 1963, 1967, 1972, 1977, 1982, 1992, and 1997. However, only the 1997 CFT includes software as an asset category.

[13] Michael Bacharach (1965),"Estimating Nonnegative Matrices from Marginal Data," International Economic Review, vol. 6 (3), pp. 294–310.

surveys are combined to estimate industry-level software investment. The CFT for 1997 is used to estimate an industry's share of total software investment in 1997. Between 1959 and 1992, the industry's share of overall computer investment is used as an estimate of its share of overall software investment. Between 1992 and 1997, the computer share is blended with the 1997 CFT estimate for software.

The revision incorporated nominal investment totals for manufacturing industries for 2007 and 2008, which showed larger increases than previously estimated, while updated estimates of nominal investment for earlier years were trivial. In addition to these changes, the incorporation of the asset information on computers, motor vehicles, and other equipment in the COM/ASM and the ICT survey caused real investment in equipment and capital input for equipment to increase slightly less from 2003 to 2006 than previously estimated.[14] From 2003 to 2006, the average revision to the rate of change for real investment was down about 0.2 percentage point per year, while capital input revised down about 0.1 percentage point per year. These downward revisions principally occurred because a lower share of equipment investment was in computers than estimated earlier—6.6 percent versus the previous average of 7.4 percent. As a result of the rapidly declining prices of computers, a lower computer share of investment, all else being equal, suggests smaller rates of increase in real investment and capital input. As a result of using information from the ICT survey, software investment by manufacturers is a bit stronger from 2003 to 2006, with real investment in software increasing 6.9 percent per year, on average, compared with 6.8 percent previously; by contrast, software investment was significantly weaker in 2007 and 2008 than estimated previously. Combining the data on investment in equipment, software, and structures (which was little different from that previously estimated), the change in total capital input in manufacturing was revised up slightly, on balance, from 2003 to 2006, down 0.3 percentage point in 2007, and up slightly in 2008.

Changes to Individual Production Series

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

Communications Equipment

The IP aggregate index for communications equipment (NAICS 3342) comprises six product-based indexes. With this revision, each of the six indexes incorporates quarterly data on nominal shipments at the detailed product level from the Census Bureau's relevant Current Industrial Reports 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 that are constructed or are taken from other sources.

Previously, four of the six communications equipment output indexes used data on nominal domestic absorption (shipments less net exports) combined with price deflators

[14] However, current-dollar investment totals for equipment from 2003 to 2006 were essentially unrevised.

constructed from detailed product information, and the other two indexes were based on production-worker-hour data. Nominal CIR shipments more closely reflect domestic output, and by using these data, we get a more accurate measure of U.S. production than with 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, (1) satellites and earth station equipment and (2) other radio and TV broadcasting equipment, had been previously based on production worker hours. The revised index for satellites and earth station equipment was based on CIR shipments data deflated 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 are interpolated and extended based on a producer price index. The CIR shipments data for radio and TV broadcasting and other equipment are deflated by a producer price index from the Bureau of Labor Statistics (BLS).

The results of the revision for overall communications equipment present a new profile for the product mix within the industry. As noted previously, the incorporation of data from the ASM and the CIR for the industry revealed a large drop in the output of data networking equipment in 2007. Prior to the revision, the output of data networking equipment accounted for 30 percent of communications equipment in recent years, but after the revision, it represented only 19 percent. In contrast, the share in recent years of the production of satellites and earth station equipment in overall communications equipment was 30 percent prior to the revision and 35 percent afterward.

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 for computers 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 the data now have enough history to be seasonally adjusted. Previously, the IP indexes for these series were based on 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.

Previously, the price deflator for this index was constructed from product data from iSuppli that were discontinued, but the deflator is now constructed from detailed product information from the Semiconductor Industry Association (SIA).

As in previous years, the index for the production of semiconductors is based on worldwide sales data from the SIA, adjusted for net trade using a domestic production share estimated from various government and industry sources. Prior to 2007, CIR issued by the Census Bureau were used to estimate shares, with the exception of microprocessor units, or MPUs, for which the Census Bureau used private data on capacity and location for specific plants. Because of the difficulty of aligning the product detail provided in the CIR for 2007 and 2008 with total industry output reported by the ASM for those years, the Census Bureau employed the technique based on plant capacity and location for all semiconductor product classes to derive domestic production shares.

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 for glass containers, which was discontinued after December 2008. The GPI data begin in January 2008, and the year of overlap was used to raise the GPI data to the CIR level going forward. In 2008, the level of production shown by the CIR was about 14 percent higher than the level reported by the responders to the GPI survey, but otherwise the two series showed very similar monthly movements.

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 changes in the concentration of domestic production. The previous physical product data source for this index predominantly covered sales of products such as digital televisions. Newly available information from the COM 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 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 QSPC.

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 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 QSPC.

Weights for Aggregation

The IP index is a Fisher index. The aggregation weights for manufacturing industries are derived from value-added measures from the COM 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. Appendix table 9 shows the annual value-added proportions in the IP index from 2002 through 2009.

The most notable revision to the value-added weights used for IP occurred for crude oil. Value-added data are only available for mining industries in the quinquennial Economic Censuses, with no readings for the intervening years. Prior to this revision, the latest reading on value added for mining was for 2002, and the value added per unit was extended based on producer price indexes for the minerals extracted. For crude oil and natural gas (NAICS 211111), value added in 2007 was about 30 percent higher than had been forecast based on oil and natural gas prices. In addition, the product shipments detail in the Economic Census implied that crude oil composed about 50 percent of the dollar value of shipments for the crude oil and natural gas industry, whereas the previous extension from the 2002 estimate had suggested that it should be around 40 percent. The increased portion of that industry boosted value added for crude oil an additional 20 percent yielding an increase relative to the previous estimate of around 55 percent. For natural gas, the lower share of output roughly offset the higher industry level value added. One final factor boosted value added in 2009 beyond the previous estimate: Prices for both oil

and natural gas jumped in 2009 after the previous annual revision to industrial production was published. Relative to a scenario where prices had held steady during 2009, the overall effect of those price increases was to boost value added per unit measures for both crude oil and natural gas another 25 percent. The cumulative effect of these factors was to roughly double the estimate of value added for crude oil extraction for 2009 from what was previously published.

Annual Revision Properties

As mentioned earlier, the largest sources of revision to IP at the aggregate level are incorporation of new data from the Census Bureau's ASM and COM. As shown in table 10, since 1997, the revision to the rate of change in total industrial production for those years for which Census benchmark information is incorporated averaged 0.1 percentage point (which is not statistically significant). The average revision without regard to sign was 0.8 percentage point. Revised measures of capacity utilization reflect both the revised production indexes and new survey data on utilization rates from the QSPC. As shown in the table, the revision to the rate of total industrial capacity utilization for those years for which Census benchmark information on production or utilization rates was incorporated averaged zero. The average revision to utilization rates without regard to sign was 0.4 percentage point, one-half the size of the revisions to the rate of change in industrial production. The smaller revision reflects, in part, that production and capacity tend to revise in the same direction, so that their ratio revises by less.

As shown in table 6, the revision, on net, to the annual change in IP for 2007 and 2008 is essentially zero. By contrast, the average revision without regard to sign is 1.2 percentage points, which is somewhat larger than usual. Capacity utilization for total industry revised up 0.7 percentage point in 2007, up 0.1 percentage point in 2008, and down 0.2 percentage point in 2009—an average revision of 0.2 percentage point. The average revision without regard to sign for 2007 through 2009 is 0.3 percentage point, slightly less than the average revision without regard to sign from 1997 through 2009.

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 if the data were available at the time of the revision. Seasonal factors for unit motor vehicle assemblies have been updated through April 2010 and projected through September 2011; these seasonal factors are available on the Board's website at www.federalreserve.gov/releases/g17/mvsf.htm.

For many of the series based on production-worker-hour data, and some series based on product data (particularly steel products), the recent recession seemed to have a systematic effect on the seasonal factors estimated using standard procedures (Census X-12 with a

time-series-based pre-adjustment). The seasonal factors for these series using the default setting would revise down near the trough of the recession in June 2009 and would be increased toward the beginning and end of that 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 using the standard X-12 procedure. The pre-adjustments essentially treated specified months during the regression as outliers and replaced their values with those that followed the normal seasonal pattern but did not drop like the actual data.

A good example of the difficulties that the business cycle posed for seasonal adjustment is the production index for raw steel. Chart 9 shows the IP index if the default X-12 results had been adopted (the red line), the index after the revision (the blue line), and the ratio of the default series to the current series (the black line).[15] The series adjusted using the default X-12 procedure are higher from December to June since 2008 and lower in the third quarter than the published. The lowest points for this index during the recession were for December 2008 to June 2009, but the apparent drop is tempered using the default seasonal factors; in addition, the period both before and after the recession are affected. These pre-adjustments will be reconsidered when the seasonal factors are reestimated after 2010 data are fully available.

Incorporating the Quarterly Survey of Plant Capacity

Individual IP indexes are either estimated from product data (such as barrels of gasoline) or estimated from monthly data on inputs to the production process. Currently, the principal inputs to the production process used in estimating IP indexes are data on production worker hours. Previously, for many years, data on electric power use (collected by the Federal Reserve Banks through a survey of utilities and related entities) were used as an indicator of industry capital input for some indexes. However, the deregulation of electricity markets led to a rapid deterioration in the survey's coverage and in the quality of the collected data. As a result, in November 2005, the Federal Reserve discontinued its use of the industrial electric power data.[16]

In order to maintain the quality of the IP indexes, the Board funded an expansion of the Census Bureau's annual Survey of Plant Capacity to a quarterly frequency to provide data, such as capacity utilization and the workweek of capital, to be employed as indicators of capital input use. The final annual capacity survey was for the fourth quarter of 2006, and the newly funded Quarterly Survey of Plant Capacity began as a pilot survey in the first quarter of 2007 and was expanded in 2008. Since 2008, the QSPC has had a sample size of around 7,000 manufacturing plants categorized into 95 industry groups. The pilot survey for 2007 was based on a smaller sample with considerably less industry detail.

[15] All series are indexed so their values in 2008 average to 100.

[16] A notice seeking comments on the Federal Reserve's discontinuance of its survey of industrial electric power use was originally published in the Federal Register on September 29, 2005; no comments were received during the public comment period, which ended on November 28, 2005.

The QSPC data ultimately will be used in several ways. First, the most important reason for expanding the annual survey to the quarterly frequency is to use the quarterly data on utilization rates and the capital workweek as indicators of capital use in the estimation of monthly IP. These data will be incorporated into the estimation process to the degree that they are helpful at the time of the 2011 annual revision. By that time, enough data subsequent to the pilot survey will be available to make a first attempt at seasonal adjustment, although those adjustments will be substantially complicated by the recent recession. In the meantime, production worker hours alone continue to be the primary indicator for most series for which we do not have physical product data. In 2008, the window for IP was expanded to six months (initial estimates for the most recent month and revised estimates for the five previous months), in part, to prepare to more easily incorporate the data from the QSPC as production indicators.[17]

Second, the QSPC utilization rate data for the fourth quarter of recent years are being used in the annual revision process to improve the projections of labor productivity that are used to align IP with comprehensive benchmark information in the COM and the ASM. We call these projections"correction factors." Prior to the discontinuance of the electric power survey, the annual correction factor projections for the IP indexes that used production worker hours as the input indicator incorporated data on electricity use; capacity utilization rates were first used in the correction factor projections in the 2006 annual revision. Once a sufficient history is available to seasonally adjust the data, the correction factor projections will be updated more frequently than just at the time of an annual revision, which should reduce the size of changes in an annual revision. Data on the factory workweek will also be included in the correction factor projections to the extent that it adds information.

Third, the fourth-quarter rates from the QSPC are used as benchmark utilization rates in the same fashion as the fourth-quarter rates from the annual Survey of Plant Capacity were used. One benefit of the quarterly survey has been that the fourth quarter rates become available during the first quarter of the following year, rather than in late summer as had been the case previously. Although the utilization rates for the first through third quarters are not being used formally, they are being used informally to help filter some of the noise in the fourth-quarter values when estimating the Federal Reserve's detailed capacity indexes. Also, the quarterly rates, though not yet seasonally adjusted, are regularly examined to make sure there are no obvious emerging problems with the Federal Reserve's capacity utilization estimates.

[17] The six-month window has also allowed an additional several percentage points of the IP index to reflect primary source data that otherwise would have been incorporated only at the time of an annual revision.

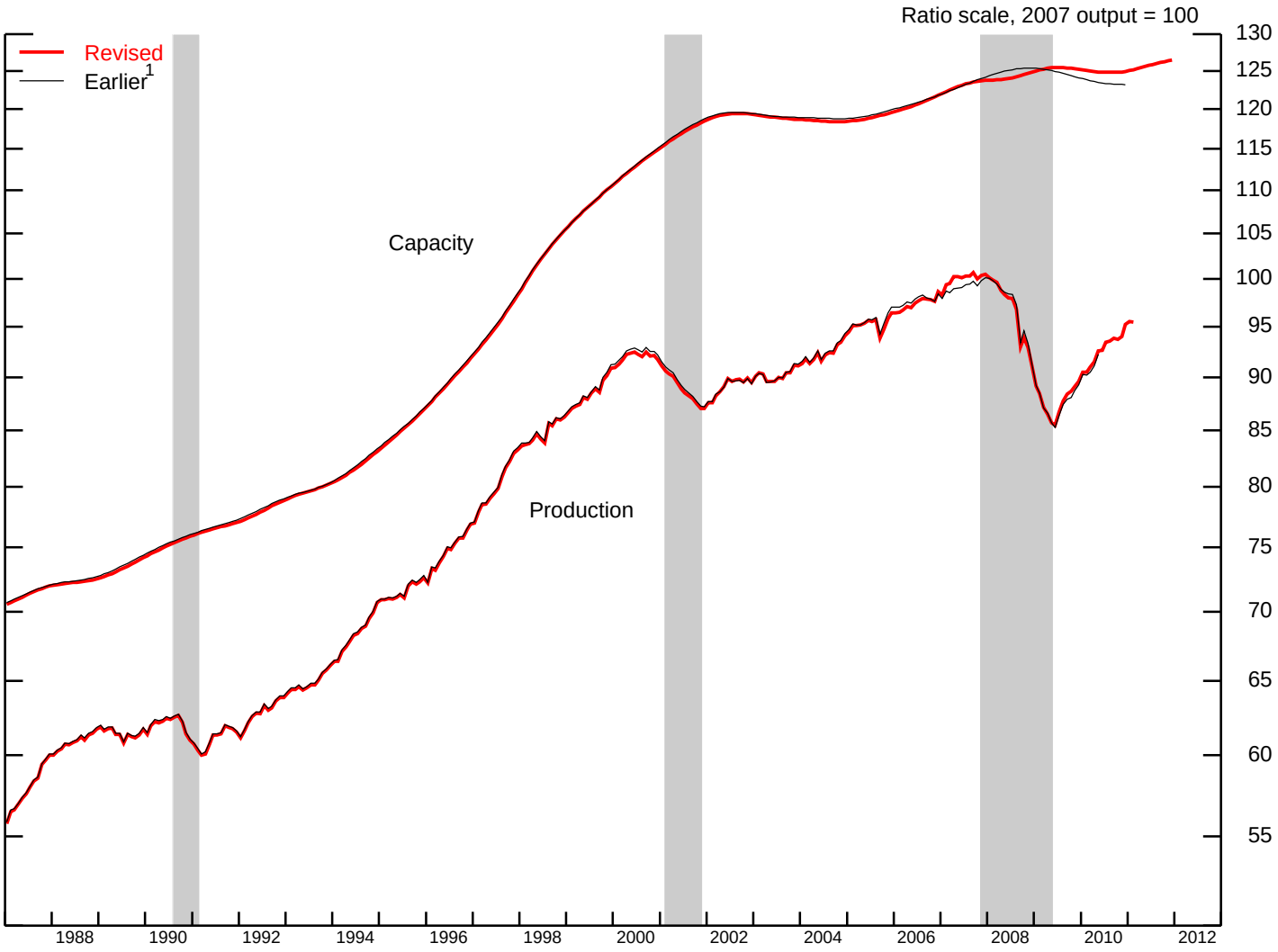
Data Availability and Publication Changes

Updated data from the annual revision and for all of the regularly issued series on industrial production, capacity, and capacity utilization are available on the Board's website at www.federalreserve.gov/releases/g17. Further information on the annual revision is available from the Board's Industrial Output Section (telephone 202-452-3197).

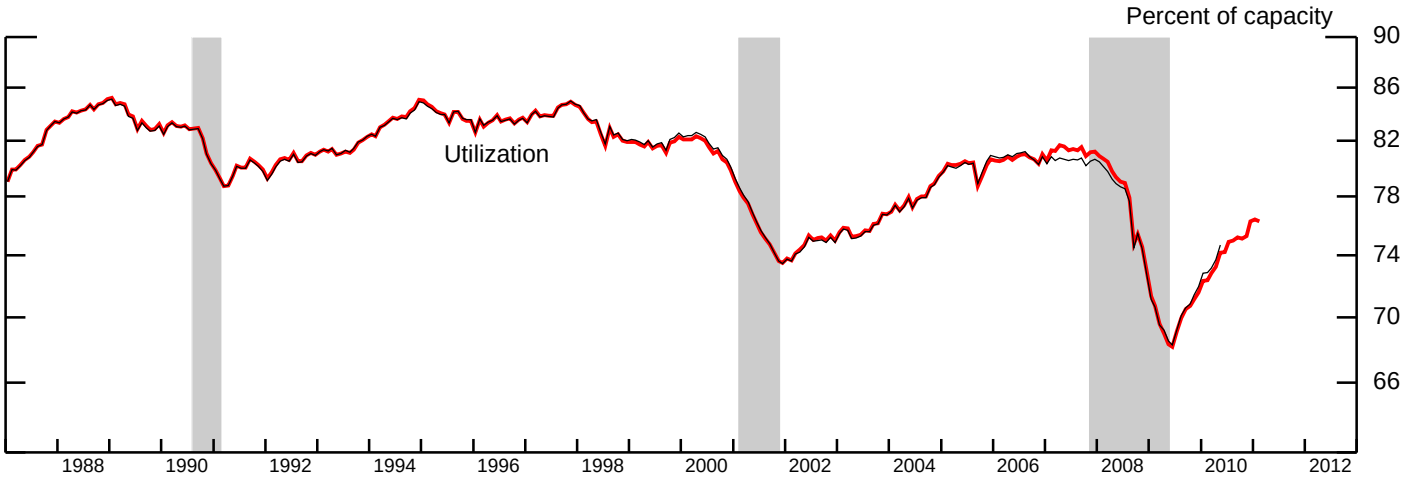
A document with printed tables of the revised estimates of series shown in the G.17 release is available upon request to the Industrial Output Section, Mail Stop 82, Division of Research and Statistics, Board of Governors of the Federal Reserve System, Washington, DC 20551.

Board of Governors of the Federal Reserve System
Industrial Production and Capacity Utilization: The 2010 Annual Revision

1. Total industrial production, capacity, and utilization

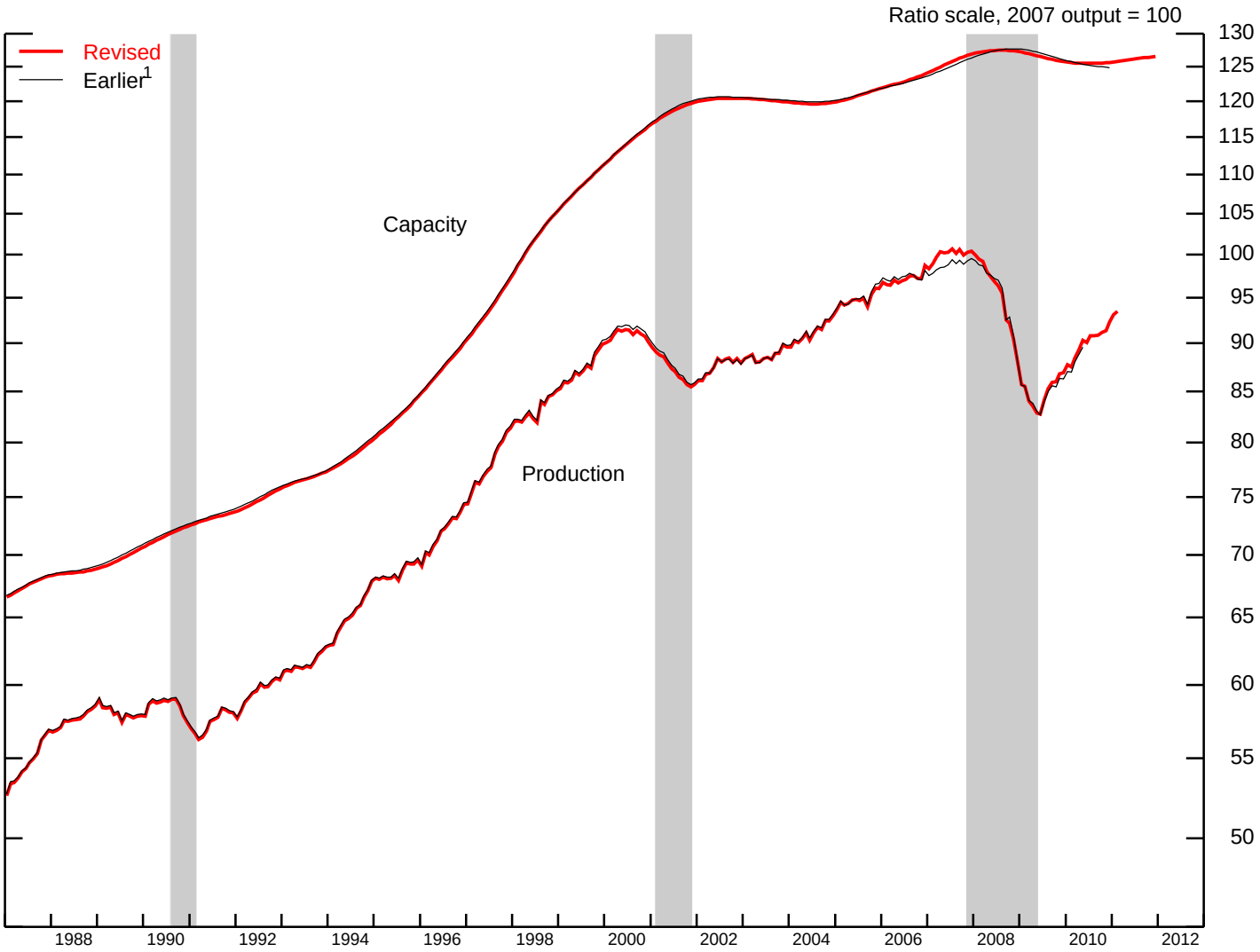


1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

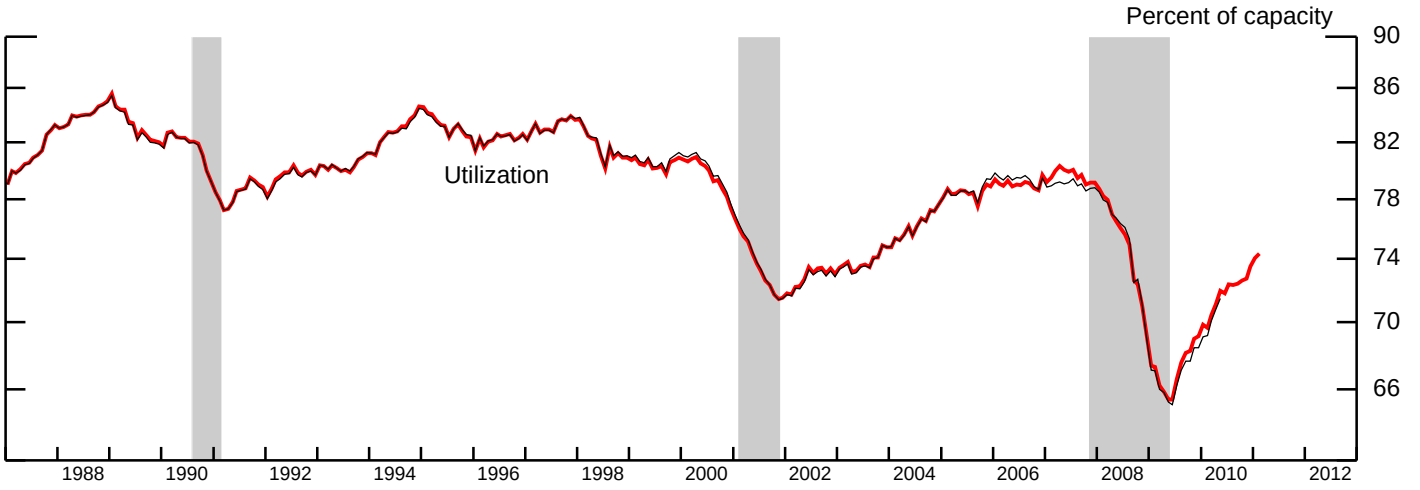


Note: The shaded areas are periods of business recession as defined by the National Bureau of Economic Research.

2. Manufacturing industrial production, capacity, and utilization

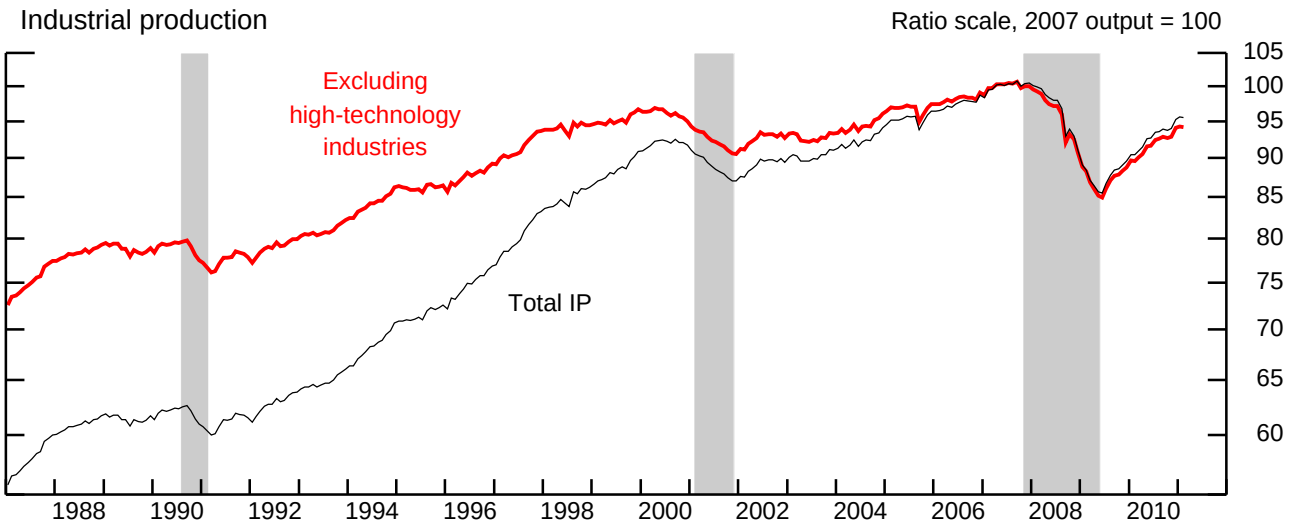


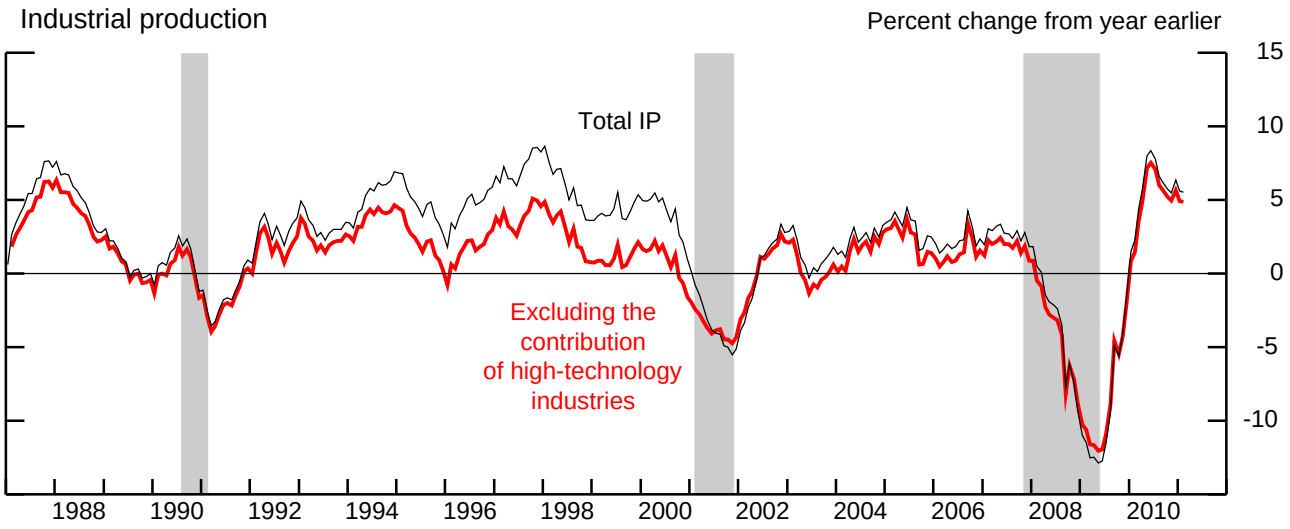
1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

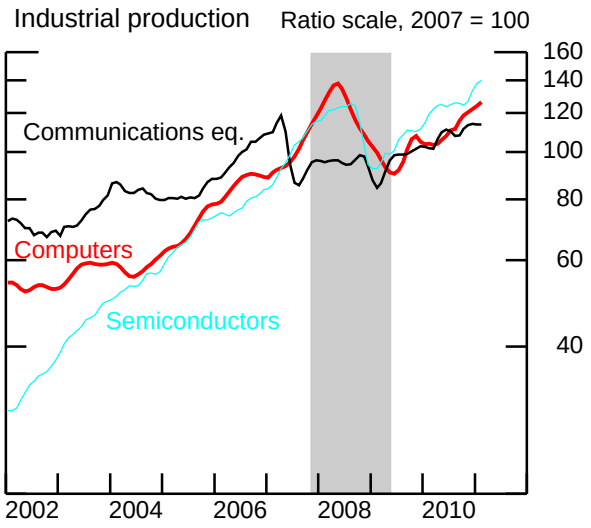


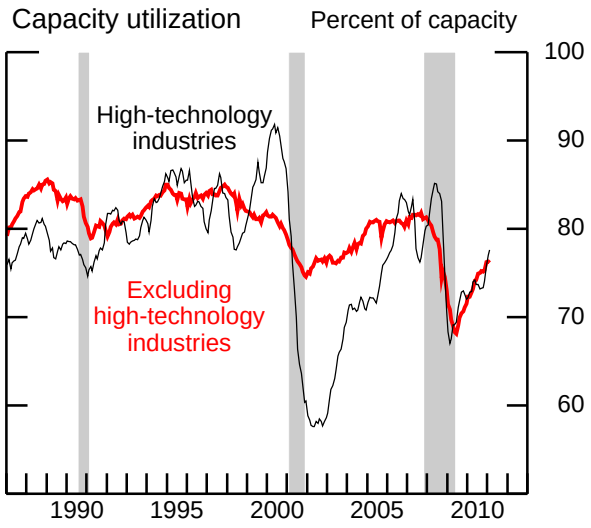
Note: The shaded areas are periods of business recession as defined by the National Bureau of Eonomic Research.

3. Industrial production and capacity utilization



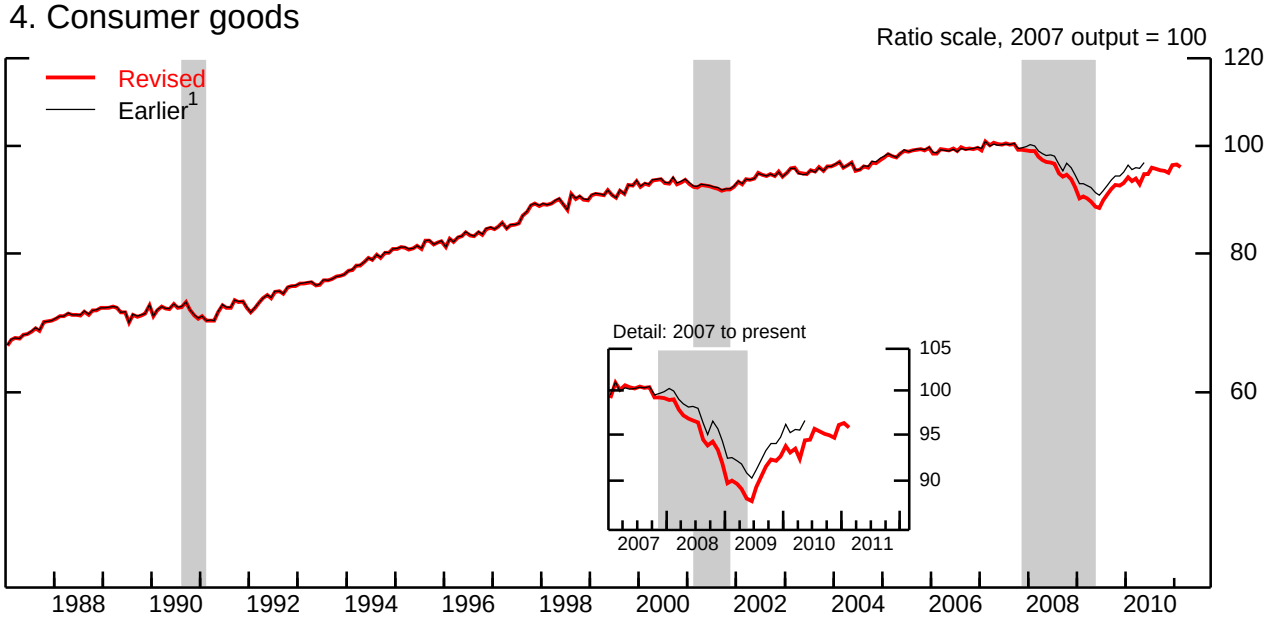






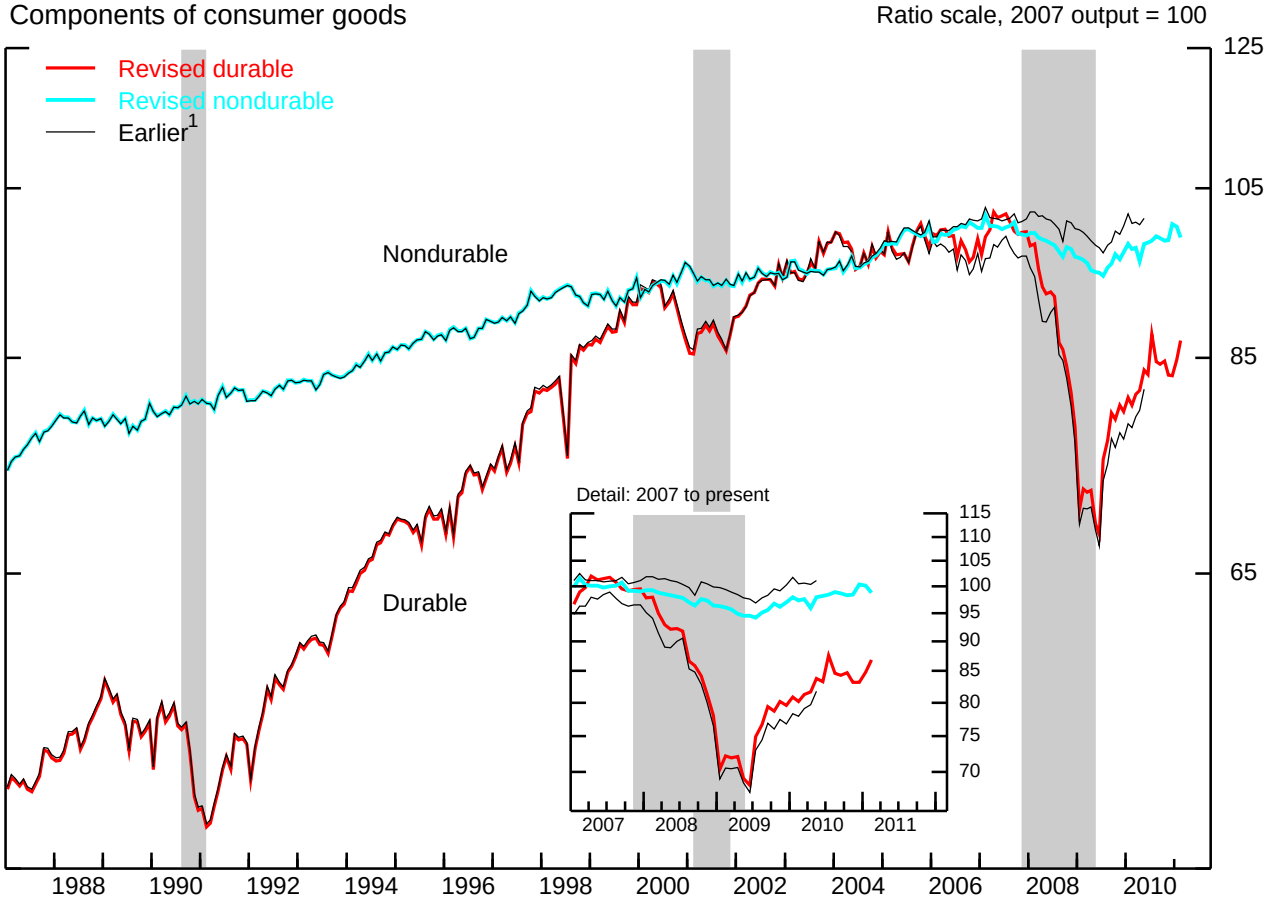
Note: High-technology industries are defined as computers (NAICS 3341), communications equipment (NAICS 3342), and semiconductors and related electronic components (NAICS 334412-9).
The shaded areas are periods of business recession as defined by the National Bureau of Economic Research.

4. Consumer goods



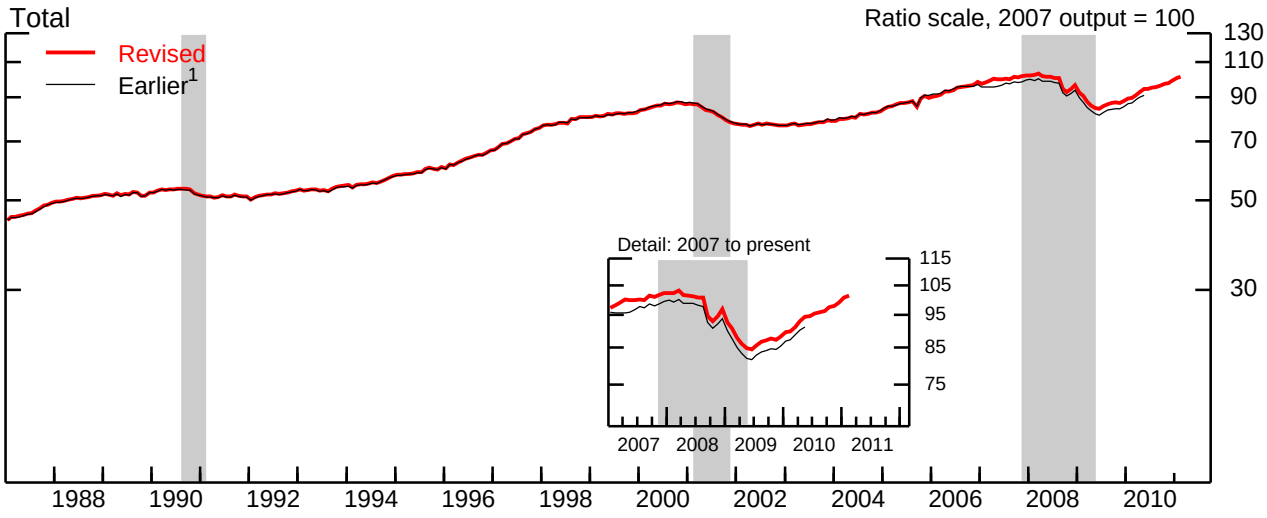
1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

Components of consumer goods

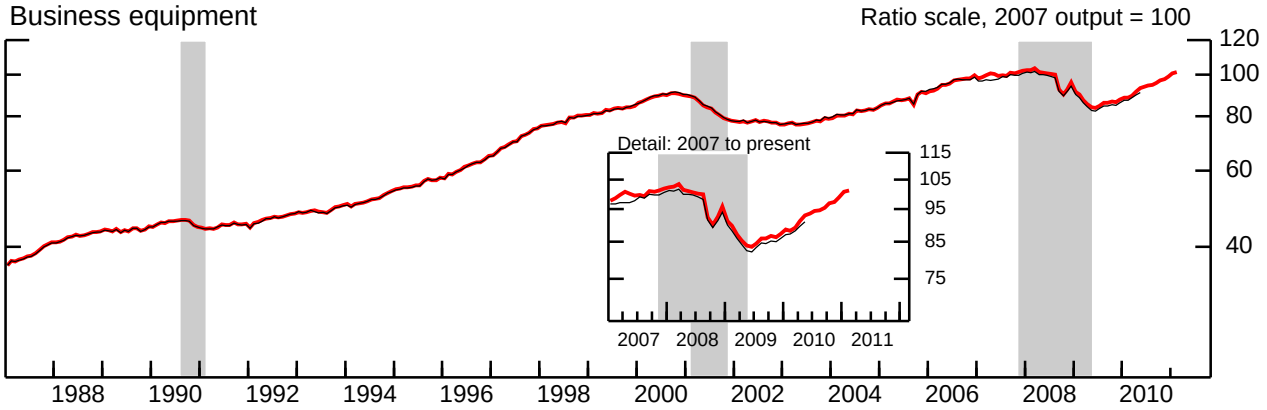


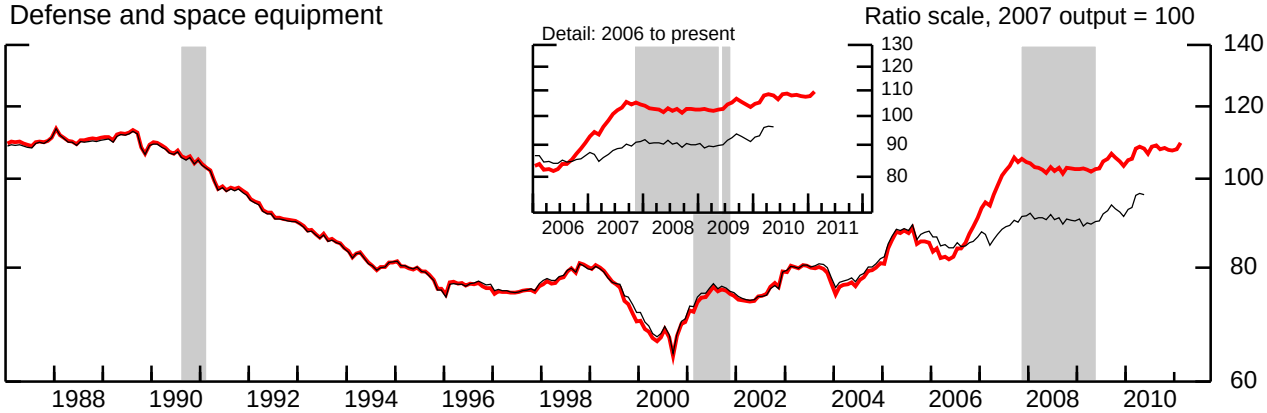
1. For ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.
Note: The shaded areas are periods of business recession as defined by the National Bureau of Economic Research.

5. Equipment



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

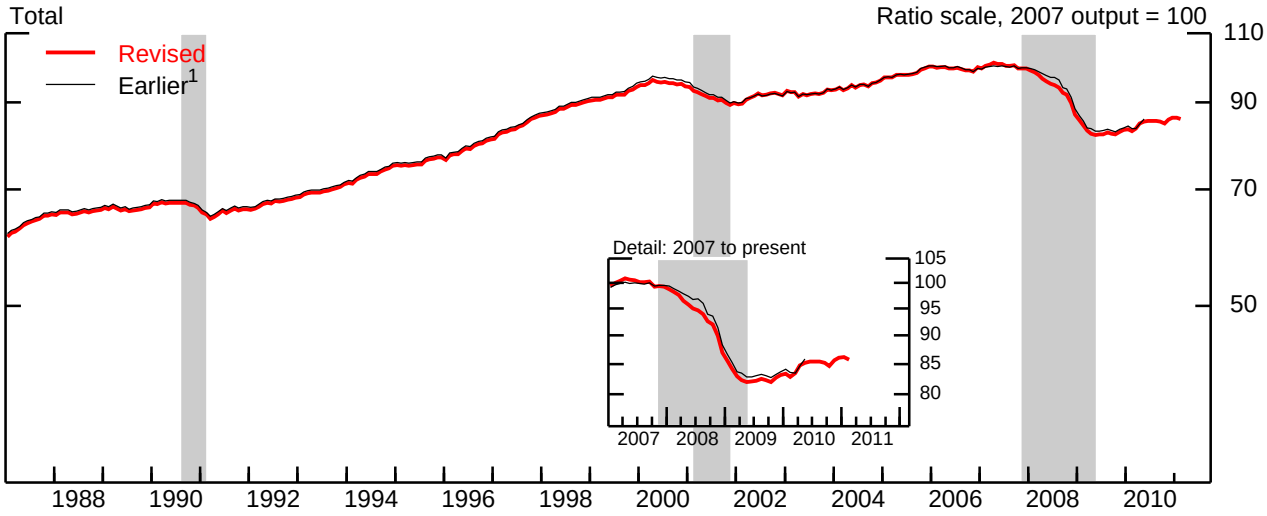


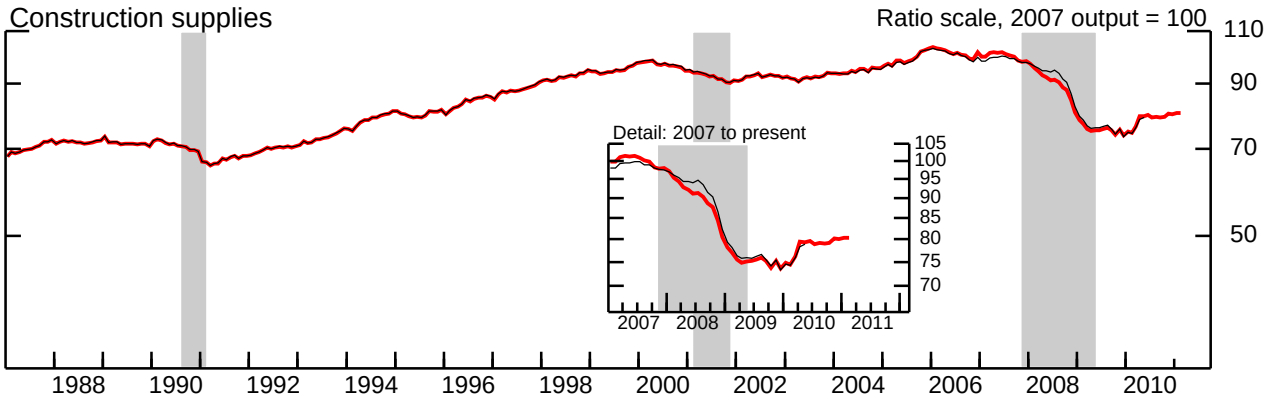


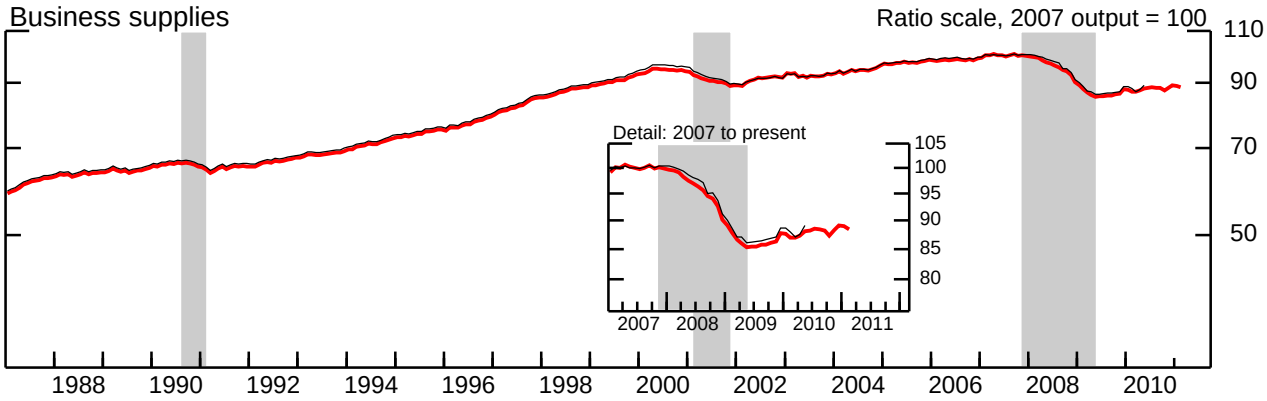
1. In all panels, for ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

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

6. Nonindustrial supplies



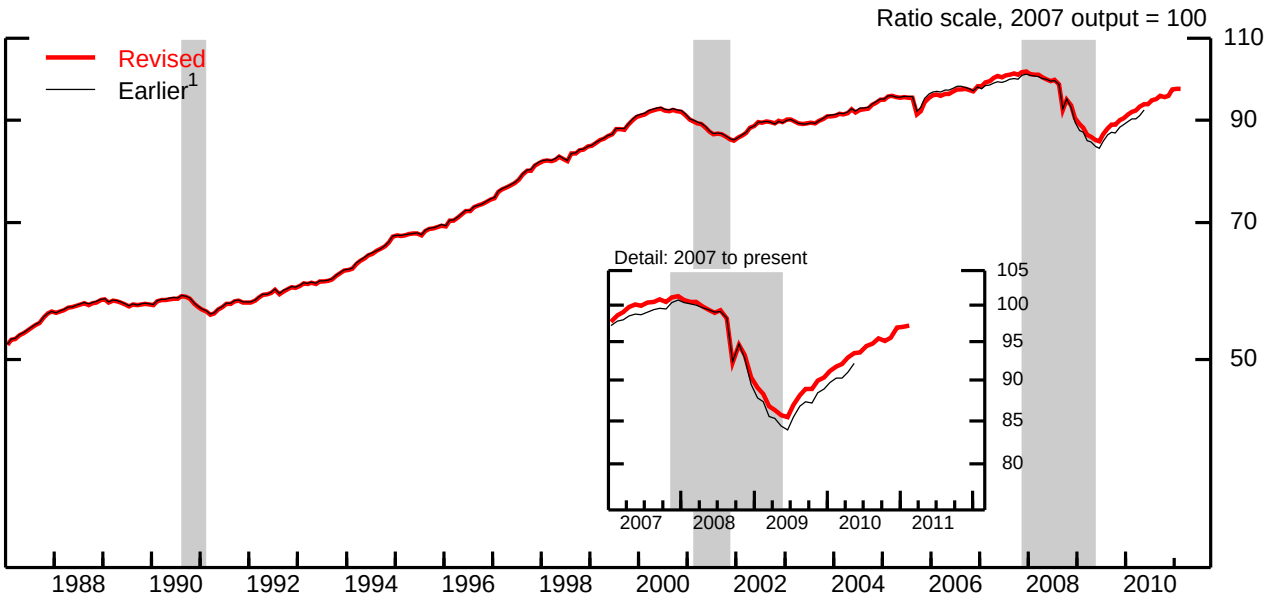




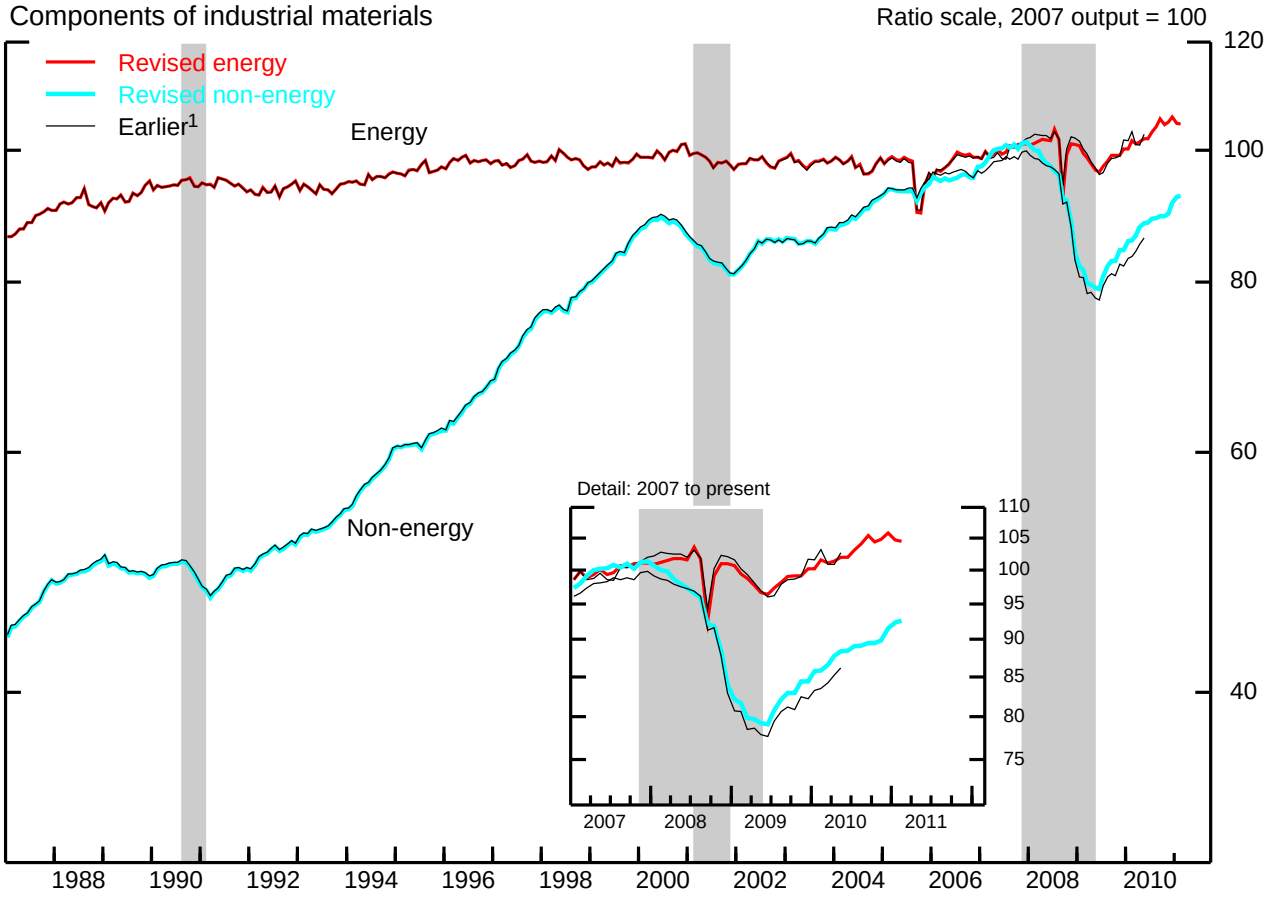
1. In all panels, for ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

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

7. Industrial materials



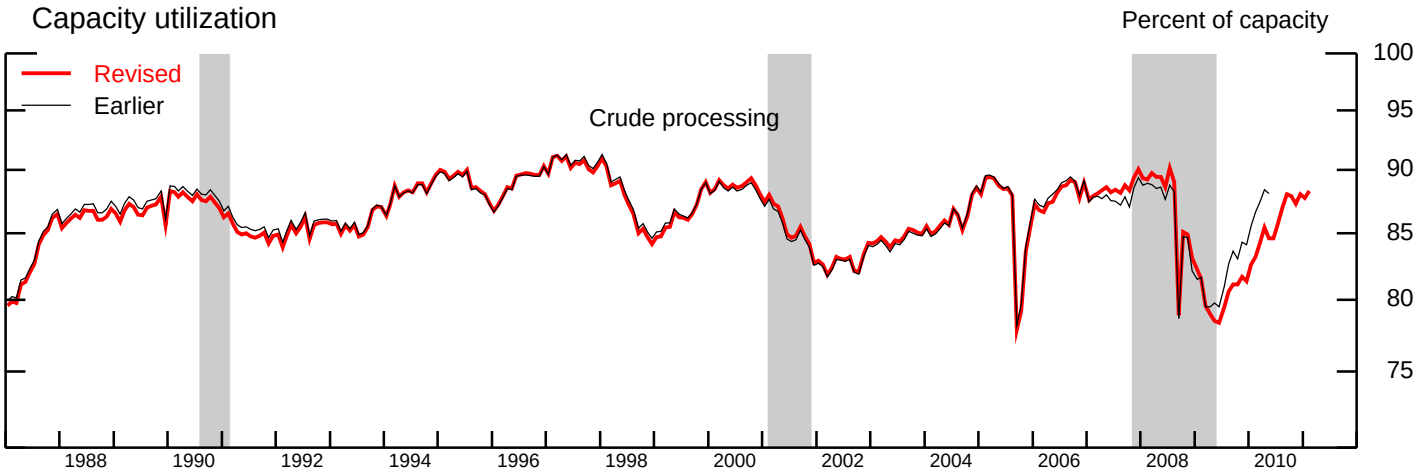
Components of industrial materials

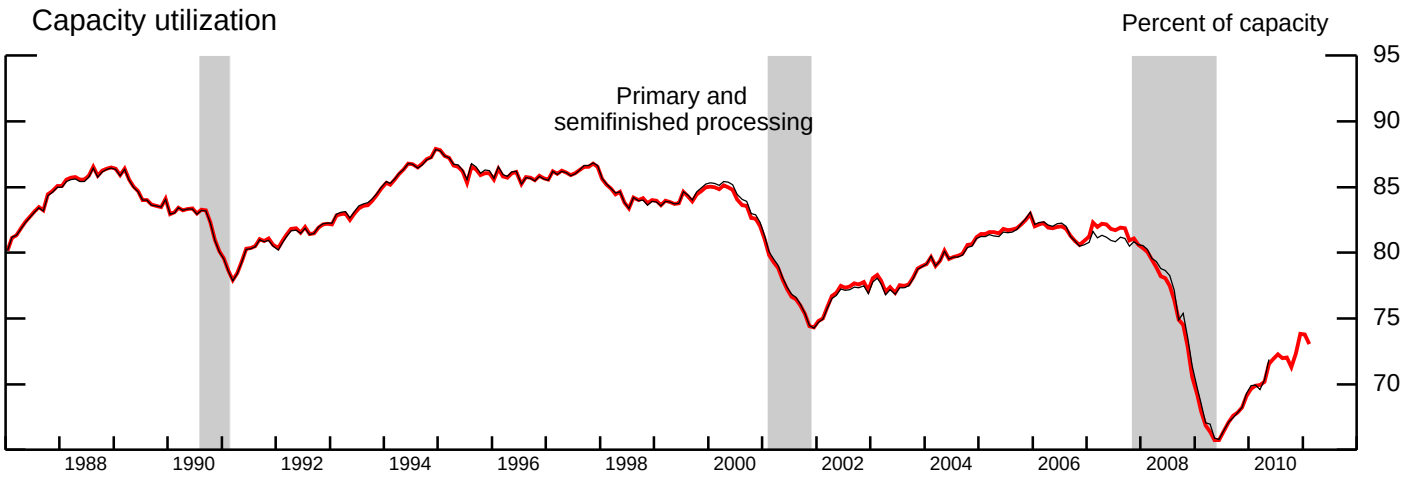


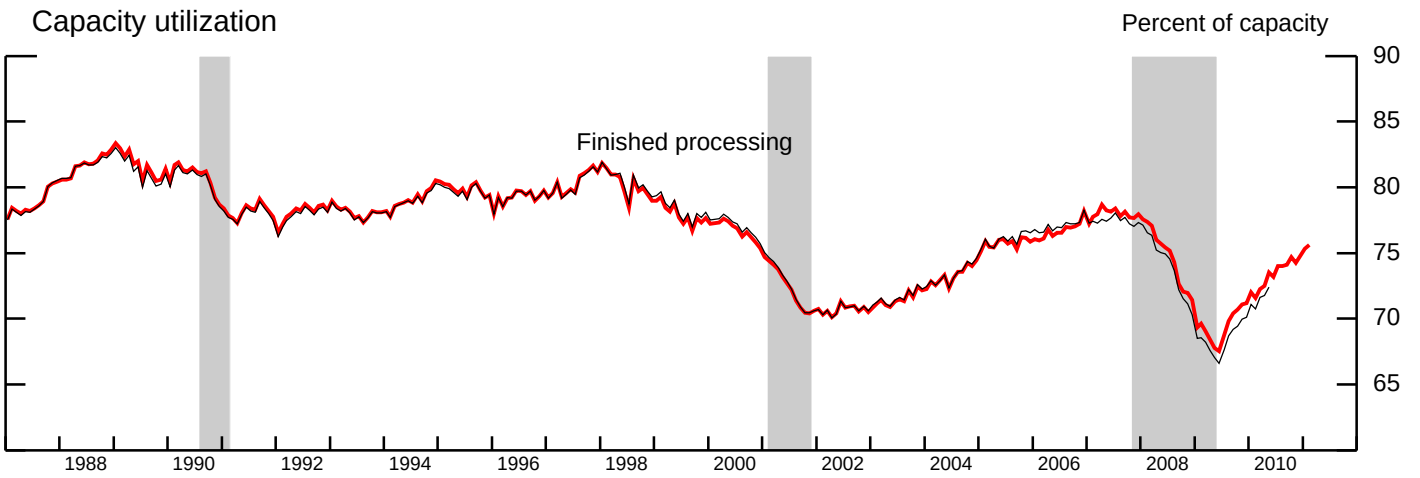
1. In all panels, for ease of comparison, the earlier indexes are adjusted to equal the revised 2007-based indexes in 2002.

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

8. Capacity utilization by stage of process

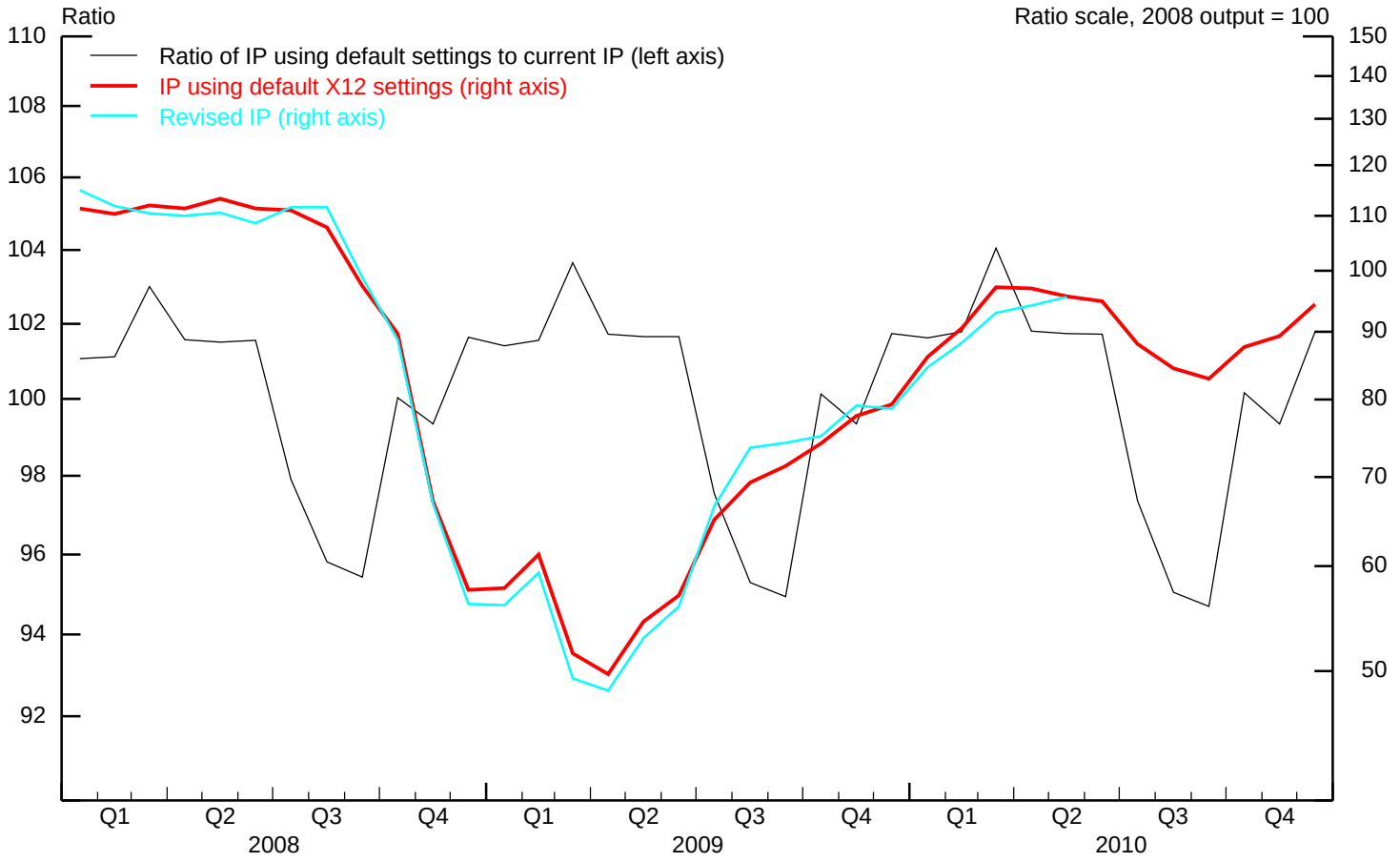




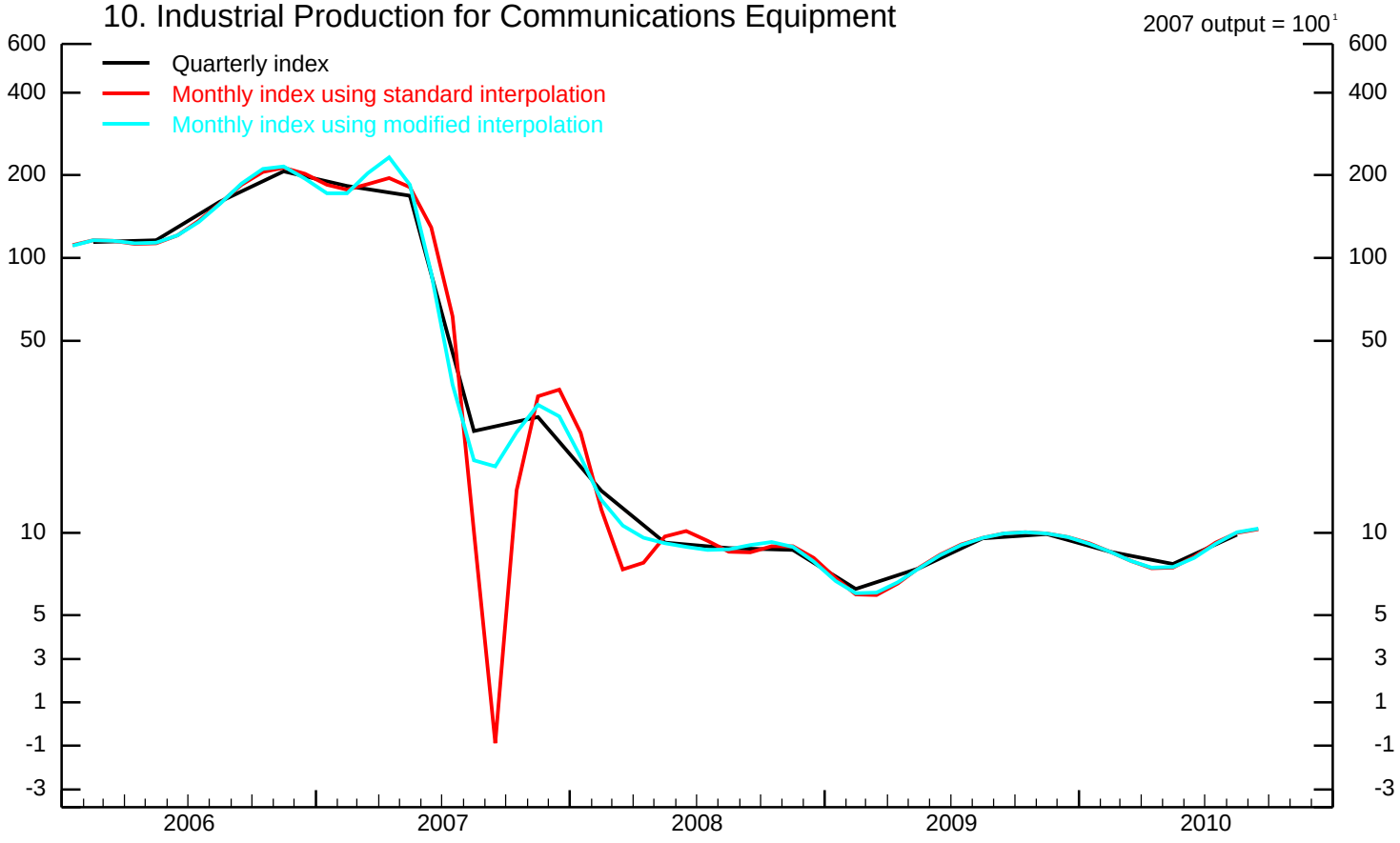


Note: The shaded areas are periods of business recession as defined by the National Bureau of Economic Research.

9. Industrial Production for Raw Steel



10. Industrial Production for Communications Equipment



1. Ratio scale above 5.0, linear scale below 5.0.

Table 1. Rates of change in industrial production, by market and industry groups, 2005–10

Item	NAICS code[1]	Revised change (percent)						Difference between revised and earlier changes (percentage points)					
		2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
Total IP	...	2.3	2.5	2.3	-7.6	-3.8	5.9	-.4	.7	.5	-.9	.9	-.1
MARKET GROUPS													
Final products and nonindustrial supplies	...	4.2	1.6	.9	-7.2	-4.2	5.1	-.1	.5	.2	-1.4	.4	-.4
Consumer goods	...	2.6	.1	-.3	-6.1	-.9	3.1	.2	.0	-.4	-1.9	.4	-1.4
Durable	...	2.1	-2.1	2.5	-18.3	-2.1	5.3	.9	1.1	1.4	-1.1	1.7	-2.4
Automotive products	...	-.2	-2.0	7.2	-24.1	6.0	6.3	1.2	3.1	4.0	-1.7	2.6	-.9
Home electronics	...	10.6	6.3	18.8	-3.4	2.4	-4.8	2.8	-2.5	3.4	-5.0	12.9	-24.2
Appliances, furniture, carpeting	...	1.3	-5.4	-4.4	-18.8	-10.5	1.6	-.2	.2	.7	1.6	-.6	-3.5
Miscellaneous goods	...	4.9	-1.8	-3.8	-11.1	-9.9	7.4	.5	-1.1	-2.8	-.2	-.8	.7
Nondurable	...	2.8	.9	-1.2	-2.0	-.5	2.5	-.1	-.3	-1.1	-1.6	.3	-1.4
Non-energy	...	3.3	.6	-2.4	-3.0	-.4	2.1	-.1	-1.0	-1.6	-1.2	.3	-.6
Foods and tobacco	...	4.2	-1.0	-2.3	-3.6	.5	5.2	.2	-.9	-3.4	-2.4	.3	.1
Clothing	...	-2.8	-13.8	-24.3	-6.1	-13.6	8.2	3.0	-9.0	-23.8	.6	-4.4	-3.4
Chemical products	...	3.3	5.1	-1.1	-1.7	.1	-1.1	-1.0	-.7	3.1	.4	.5	-.4
Paper products	...	-.6	.8	-2.1	-5.2	-5.2	-3.3	-.2	.7	-.3	-1.1	.3	-1.7
Energy	...	1.6	1.5	2.6	1.6	-.9	3.9	-.2	1.6	.7	-2.0	.4	-4.0
Business equipment	...	8.6	8.8	2.8	-8.3	-6.4	12.6	-.5	1.4	.6	.1	.3	.1
Transit	...	14.3	10.7	1.4	-27.1	11.1	4.1	-.7	1.5	2.8	1.9	-.4	-2.6
Information processing	...	11.4	15.3	4.6	.7	-.9	15.6	-.7	4.4	-2.0	-1.3	1.9	1.8
Industrial and other	...	5.2	4.6	2.5	-6.4	-14.3	13.9	-.4	-.2	1.3	1.0	-.7	1.0
Defense and space equipment	...	6.6	4.0	17.8	-1.9	1.8	3.1	-1.4	5.9	12.1	-1.4	-.2	-2.9
Construction supplies	...	7.1	-2.5	-1.7	-14.2	-11.8	7.4	-.2	.8	-.7	-2.6	2.2	2.3
Business supplies	...	2.6	.6	1.3	-7.6	-6.0	1.7	-.3	.3	.0	-.7	.2	.9
Materials	...	-.3	3.7	4.0	-8.2	-3.2	6.8	-.7	.9	.8	-.3	1.3	.2
Non-energy	...	1.9	2.5	5.0	-12.6	-4.8	7.6	-.6	1.0	1.5	-.7	1.6	.6
Durable	...	5.6	1.2	6.2	-12.1	-9.1	10.9	-.4	.8	1.5	-.2	3.4	-1.1
Consumer parts	...	-.1	-4.6	-2.9	-23.6	-7.7	9.8	-.7	1.1	-.6	-3.2	9.4	4.4
Equipment parts	...	12.4	9.1	15.9	-5.7	-8.1	12.5	-.3	2.2	5.5	.8	2.8	-3.9
Other	...	2.7	-2.1	2.5	-13.1	-10.4	9.9	-.3	-.3	-.6	-.2	2.0	-.8
Nondurable	...	-3.6	4.5	3.2	-13.5	2.1	2.9	-1.0	1.5	1.3	-1.5	.1	.9
Textile	...	-.1	-11.9	-9.2	-16.4	-2.2	7.9	-.6	-.3	-2.2	-2.7	1.2	.8
Paper	...	-2.3	1.2	-.7	-11.3	-5.6	.2	-1.4	-.7	.7	-.5	-.9	2.5
Chemical	...	-8.3	10.5	6.7	-18.0	9.5	3.5	-1.0	3.6	2.4	-2.3	1.5	.9
Energy	...	-4.4	6.0	2.1	-.6	-.9	5.6	-.3	.4	-.4	-.9	.8	.8
INDUSTRY GROUPS													
Manufacturing[2]	...	3.5	2.0	2.6	-10.0	-4.1	5.8	-.3	.8	.7	-1.2	1.0	-.2
Manufacturing (NAICS)	31–33	3.7	2.1	2.8	-10.0	-3.7	6.3	-.3	.8	.8	-1.3	1.0	-.1
Durable manufacturing	...	6.8	2.6	5.2	-11.3	-6.3	9.2	-.2	1.4	2.0	-.2	2.3	-.6
Wood products	321	12.9	-10.8	-4.5	-20.9	-10.7	1.4	1.1	2.2	3.0	-.2	1.2	5.7
Nonmetallic mineral products	327	5.1	-2.2	-2.4	-15.9	-11.8	5.1	-.4	1.4	-1.2	-5.6	2.7	1.8
Primary metal	331	-1.9	-4.6	10.9	-23.2	-3.1	11.4	-1.3	-.4	6.6	3.6	2.0	-1.0
Fabricated metal products	332	5.5	4.6	3.3	-7.1	-11.7	11.8	-.6	1.2	.0	-.1	3.7	-3.2
Machinery	333	7.9	3.4	3.0	-8.2	-19.1	18.5	-.4	.6	4.0	2.4	-1.7	.3
Computer and electronic products	334	15.3	12.7	15.4	-2.6	1.7	13.8	.0	3.4	4.4	.1	4.0	-2.7
Electrical equipment, appliances, and components	335	1.5	.2	3.2	-5.6	-10.4	8.7	-.3	.6	-.1	-2.7	.1	-1.6
Motor vehicles and parts	3361–3	.9	-3.9	-2.7	-27.5	1.4	8.3	.8	2.3	-.8	-4.2	8.6	1.2
Aerospace and miscellaneous transportation equipment	3364–9	9.4	9.4	17.5	-13.2	2.6	-.9	-1.5	3.8	6.5	-.6	.1	-1.7
Furniture and related products	337	1.0	-2.7	-1.4	-16.3	-15.2	3.8	-.6	-1.0	1.2	1.5	1.2	-1.1
Miscellaneous	339	7.3	.7	-1.6	-.2	-2.9	2.4	.9	-2.8	-4.5	2.0	-2.7	1.8
Nondurable manufacturing	...	.3	1.6	.0	-8.5	-.6	3.2	-.4	.2	-.7	-2.2	.2	-.3
Food, beverage, and tobacco products	311,2	4.4	-.9	-1.2	-3.3	.0	5.1	.2	-1.0	-3.1	-1.7	-.6	.0
Textile and product mills	313,4	-.8	-12.6	-11.3	-15.1	-5.5	3.5	-.5	-1.3	-4.0	-1.3	1.5	1.3
Apparel and leather	315,6	.0	-7.1	-23.1	-14.9	-13.9	8.1	1.4	-6.7	-22.3	-6.7	-3.3	-2.0
Paper	322	-1.6	.4	-.3	-13.2	-.3	1.6	-1.1	-.1	1.9	-2.3	1.9	2.9
Printing and support	323	-1.8	1.8	.4	-9.2	-14.0	-3.2	-2.3	-.6	1.9	.3	-1.7	-.3
Petroleum and coal products	324	-3.8	6.2	.7	-4.4	-1.5	5.2	-.1	3.9	.4	-4.9	2.1	-2.4
Chemical	325	-1.9	6.5	3.2	-10.4	3.9	1.1	-.8	1.3	2.5	-.6	.8	.0
Plastics and rubber products	326	3.0	-4.4	-.6	-15.0	-8.8	8.3	.5	-1.4	-5.1	-3.2	-1.5	-.8
Other manufacturing (non-NAICS)	**1133,5111**	-.5	-1.2	-2.4	-9.1	-11.3	-4.8	-.2	.0	-.6	-.3	1.5	.4
Mining	**21**	-5.4	8.7	.1	-.3	-4.5	8.8	-.5	-.1	-.3	-1.2	1.9	-5.8
Utilities	**2211,2**	1.9	-.7	3.1	-.3	-1.4	2.6	-.1	-.1	.0	-.6	.0	2.3
Electric	2211	3.4	-1.1	3.4	-1.4	-1.7	2.1	-.1	-.1	.0	-.6	.0	2.5
Natural gas	2212	-4.9	1.2	1.6	4.9	.6	5.8	-.2	-.2	.0	-1.0	.1	-.7

Note: Rates of change are the percent changes 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. For 2010, the differences between revised and earlier changes are based on annualized rates of change between the fourth quarter of 2009 and the three months ending May 2010.

1. Structure based on the 2002 revision of the North American Industry Classification System (NAICS).

2. 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 manufacturing industries 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.

... Not applicable.

Table 2. Capacity utilization rates, by industry groups, 1972–2010

Percent of capacity, seasonally adjusted

Item	NAICS code[1]	Revised rate							Difference between revised and earlier rates (percentage points)					
		1972-2009 Ave.	2005 Q4	2006 Q4	2007 Q4	2008 Q4	2009 Q4	2010 Q4	2005 Q4	2006 Q4	2007 Q4	2008 Q4	2009 Q4	2010 Q1
Total industry	...	80.5	80.1	80.7	81.1	74.3	71.1	75.6	-.3	.1	.7	.1	-.2	-.4
Manufacturing[2]	...	79.1	78.8	79.0	79.1	70.9	68.8	72.9	-.4	.0	.4	-.1	.6	.5
Manufacturing (NAICS)	31–33	78.9	78.6	78.9	79.1	70.6	68.7	73.2	-.3	.1	.4	-.3	.3	.2
Durable manufacturing	...	77.2	77.2	77.3	78.3	69.0	65.6	71.2	-.7	.0	1.3	1.9	3.8	3.7
Wood products	321	78.1	88.3	75.3	71.7	59.0	57.3	62.6	-.9	.1	3.1	4.2	7.3	8.3
Nonmetallic mineral products	327	76.5	78.2	74.7	70.9	59.1	53.5	57.5	.1	2.1	.3	-3.9	-1.2	-.7
Primary metal	331	79.4	81.5	76.5	83.9	63.5	62.6	68.8	-1.8	-3.9	-.2	2.1	3.8	3.9
Fabricated metal products	332	77.3	78.3	81.9	82.0	74.9	67.7	77.1	.7	2.4	1.5	.9	3.6	3.1
Machinery	333	78.1	79.1	82.0	83.6	76.9	63.4	76.5	-.7	.2	3.9	6.6	4.6	4.8
Computer and electronic products	334	78.1	74.1	77.9	76.2	73.1	70.8	74.4	-1.3	-.5	.8	3.7	6.7	5.4
Electrical equipment, appliances, and components	335	82.8	83.3	83.9	86.1	79.5	72.1	79.1	.2	1.6	3.3	1.1	1.5	1.5
Motor vehicles and parts	3361–3	75.4	76.2	69.8	69.0	49.5	54.9	61.3	-.3	-.5	-1.2	-4.0	3.1	3.8
Aerospace and miscellaneous transportation equipment	3364–9	72.9	69.5	75.7	87.7	73.8	72.9	70.5	-3.7	-1.6	3.4	1.8	-.8	-1.5
Furniture and related products	337	77.8	79.2	80.8	80.5	71.9	65.6	71.5	-.6	1.7	2.9	6.8	8.1	7.8
Miscellaneous	339	76.0	78.1	76.1	73.2	72.7	70.2	69.6	1.1	-.2	-1.2	3.3	1.2	1.3
Nondurable manufacturing	...	81.1	80.2	80.8	80.0	72.5	72.6	75.7	.1	.2	-.5	-2.3	-2.9	-2.9
Food, beverage, and tobacco products	311,2	81.3	81.0	80.6	80.0	76.3	75.9	79.3	.7	1.2	.2	-.8	-2.0	-2.3
Textile and product mills	313,4	80.7	77.5	74.4	72.7	63.3	63.3	68.9	-1.0	1.3	1.4	-1.4	-1.1	-1.0
Apparel and leather	315,6	78.6	76.9	75.4	71.2	74.2	69.4	80.9	1.7	-1.4	-6.5	2.0	1.9	1.9
Paper	322	87.0	83.9	84.4	84.5	74.1	75.2	78.2	-.5	.3	1.9	-.2	1.1	2.4
Printing and support	323	82.3	79.0	79.8	77.4	70.9	64.0	64.1	.7	.2	-1.0	-1.8	-4.2	-4.4
Petroleum and coal products	324	86.0	89.0	89.8	87.5	83.4	80.7	86.0	.7	1.0	.4	-2.3	-2.1	-2.6
Chemical	325	78.0	75.3	78.9	78.8	69.8	73.2	74.9	-.5	.0	.2	-.3	-.2	.1
Plastics and rubber products	326	82.1	85.4	79.1	77.8	64.9	61.1	66.4	.2	-2.8	-6.2	-7.8	-8.3	-9.2
Other manufacturing (non-NAICS)	**1133,5111**	83.4	82.7	80.9	79.9	76.2	70.1	66.7	-1.5	-1.3	-.3	3.7	6.3	6.3
Mining	21	87.4	85.2	90.5	89.7	88.1	81.7	88.9	-.3	-.3	-.1	-1.5	-2.9	-4.9
Utilities	2211,2	86.5	85.1	83.5	85.6	83.4	79.8	80.7	-.2	-.2	.3	-.1	-1.2	-1.0
Selected high-technology industries	...	78.1	76.2	83.2	79.4	75.1	72.5	74.4	-1.2	.4	-.2	5.3	9.6	7.4
Computers and peripheral equipment	3341	78.0	74.3	78.2	80.0	77.1	80.1	84.1	.0	-1.3	-1.5	3.0	12.3	9.7
Communications equipment	3342	76.5	61.5	81.1	75.4	84.7	80.2	81.0	-6.0	-1.1	-1.8	10.4	14.0	9.9
Semiconductors and related electronic components	334412–9	80.2	85.3	86.5	80.4	70.3	66.5	68.8	.7	1.7	.4	5.8	7.3	5.6
Measures excluding selected high-technology industries														
Total industry	...	80.6	80.3	80.5	81.2	74.3	71.1	75.5	-.2	.1	.7	-.1	-.7	-.8
Manufacturing[2]	...	79.1	79.0	78.7	79.1	70.6	68.6	72.8	-.3	.0	.4	-.4	.1	.1
STAGE-OF-PROCESS GROUPS														
Crude	...	86.4	82.8	88.6	89.3	84.4	81.4	87.7	-.4	-.2	.9	.5	-2.4	-3.2
Primary and semifinished	...	81.4	82.5	80.8	80.9	72.6	68.4	72.5	-.1	.1	.2	-.8	-.1	.0
Finished	...	77.4	76.1	77.5	77.8	71.8	71.0	74.6	-.5	-.1	.6	.8	1.1	.8

1. See table 1, note 1.
2. See table 1, note 2.
... Not applicable.

Table 3. Revised data for industrial production for total industry, 1980–2010

Seasonally adjusted except as noted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual[1]
IP (*percent change*)																	
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	-2.0	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	.6	.5	1.2	.1	.9	.1	.3	-.1	.3	1.3	7.1	7.2	6.2	3.0	5.8
2011	.3	-.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
IP (*2007=100*)																	
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	91.0	91.5	92.6	92.6	93.5	93.6	93.9	93.7	94.0	95.3	90.6	92.2	93.6	94.3	92.8
2011	95.6	95.5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Note: Monthly percent change figures show the change from the previous month; quarterly figures show the change from the previous quarter at a compound annual rate of change. Production and capacity indexes are expressed as percentages of output in 2007.

Estimates from October 2010 through February 2011 are subject to further revision in the upcoming monthly releases.

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

... Not available as of March 2011.

Table 4. Revised data for capacity and capacity utilization for total industry, 1980–2010

Seasonally adjusted except as noted

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Q1	Q2	Q3	Q4	Annual
Capacity (*percent of 2007 output*)																	
1981	62.9	63.1	63.2	63.4	63.5	63.7	63.8	64.0	64.1	64.2	64.4	64.5	63.1	63.5	64.0	64.4	63.7
1982	64.7	64.8	65.0	65.1	65.2	65.3	65.4	65.5	65.6	65.7	65.7	65.8	64.8	65.2	65.5	65.7	65.3
1983	65.8	65.9	65.9	65.9	65.9	66.0	66.0	66.0	66.1	66.1	66.1	66.2	65.9	65.9	66.0	66.2	66.0
1984	66.3	66.4	66.5	66.6	66.7	66.8	66.9	67.1	67.2	67.4	67.6	67.7	66.4	66.7	67.1	67.6	66.9
1985	67.9	68.1	68.3	68.4	68.6	68.8	68.9	69.1	69.2	69.3	69.4	69.5	68.1	68.6	69.1	69.4	68.8
1986	69.6	69.7	69.8	69.8	69.9	69.9	70.0	70.1	70.1	70.2	70.3	70.4	69.7	69.9	70.1	70.3	70.0
1987	70.5	70.7	70.8	70.9	71.1	71.2	71.4	71.5	71.6	71.8	71.9	71.9	70.7	71.1	71.5	71.9	71.3
1988	72.0	72.1	72.1	72.1	72.2	72.2	72.2	72.3	72.3	72.4	72.4	72.5	72.1	72.2	72.3	72.4	72.2
1989	72.6	72.7	72.8	72.9	73.0	73.2	73.3	73.5	73.7	73.8	74.0	74.1	72.7	73.1	73.5	74.0	73.3
1990	74.3	74.5	74.6	74.8	74.9	75.1	75.2	75.4	75.5	75.6	75.8	75.9	74.5	74.9	75.4	75.8	75.1
1991	76.0	76.1	76.2	76.3	76.4	76.5	76.6	76.7	76.7	76.8	76.9	77.0	76.1	76.4	76.7	76.9	76.5
1992	77.1	77.3	77.4	77.5	77.7	77.9	78.0	78.2	78.4	78.6	78.7	78.9	77.3	77.7	78.2	78.7	78.0
1993	79.0	79.1	79.3	79.4	79.5	79.6	79.7	79.8	79.9	80.0	80.2	80.3	79.1	79.5	79.8	80.2	79.6
1994	80.5	80.6	80.8	81.0	81.3	81.5	81.7	82.0	82.3	82.5	82.8	83.1	80.6	81.3	82.0	82.8	81.7
1995	83.4	83.7	84.0	84.3	84.6	84.9	85.2	85.5	85.9	86.2	86.6	86.9	83.7	84.6	85.5	86.6	85.1
1996	87.3	87.7	88.1	88.5	88.9	89.3	89.7	90.1	90.5	91.0	91.4	91.8	87.7	88.9	90.1	91.4	89.5
1997	92.3	92.7	93.2	93.7	94.2	94.7	95.3	95.8	96.4	97.0	97.6	98.3	92.7	94.2	95.8	97.6	95.1
1998	98.9	99.6	100.2	100.9	101.5	102.1	102.7	103.3	103.8	104.3	104.8	105.3	99.6	101.5	103.3	104.8	102.3
1999	105.8	106.2	106.7	107.1	107.5	108.0	108.4	108.8	109.2	109.6	110.0	110.4	106.2	107.5	108.8	110.0	108.1
2000	110.8	111.2	111.6	112.0	112.4	112.7	113.1	113.5	113.8	114.2	114.5	114.9	111.2	112.4	113.5	114.5	112.9
2001	115.2	115.5	115.9	116.2	116.5	116.8	117.1	117.4	117.7	118.0	118.2	118.4	115.5	116.5	117.4	118.2	116.9
2002	118.7	118.8	119.0	119.1	119.3	119.3	119.4	119.4	119.4	119.4	119.4	119.3	118.8	119.2	119.4	119.4	119.2
2003	119.3	119.2	119.1	119.1	119.0	118.9	118.9	118.8	118.8	118.7	118.7	118.7	119.2	119.0	118.8	118.7	118.9
2004	118.6	118.6	118.6	118.5	118.5	118.5	118.4	118.4	118.4	118.4	118.4	118.4	118.6	118.5	118.4	118.4	118.5
2005	118.4	118.5	118.5	118.6	118.7	118.8	118.9	119.0	119.1	119.3	119.4	119.5	118.5	118.7	119.0	119.4	118.9
2006	119.7	119.8	120.0	120.1	120.3	120.5	120.7	120.9	121.1	121.3	121.5	121.8	119.8	120.3	120.9	121.5	120.6
2007	122.0	122.2	122.5	122.7	122.9	123.1	123.3	123.4	123.5	123.6	123.7	123.7	122.2	122.9	123.4	123.6	123.0
2008	123.7	123.8	123.8	123.9	123.9	124.0	124.1	124.2	124.3	124.5	124.7	124.8	123.8	123.9	124.2	124.7	124.1
2009	125.0	125.1	125.2	125.3	125.4	125.4	125.4	125.4	125.4	125.3	125.2	125.2	125.1	125.4	125.4	125.2	125.3
2010	125.1	125.0	125.0	124.9	124.8	124.8	124.8	124.8	124.8	124.8	124.9	124.9	125.0	124.8	124.8	124.9	124.9
2011	125.0	125.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Utilization (*percent*)																	
1981	80.6	80.0	80.3	79.8	80.1	80.3	80.6	80.4	79.7	79.0	77.9	76.9	80.3	80.0	80.2	77.9	79.6
1982	75.2	76.5	75.8	75.0	74.4	74.0	73.6	72.9	72.5	71.8	71.5	70.9	75.8	74.4	73.0	71.4	73.7
1983	72.2	71.7	72.3	73.2	73.7	74.0	75.2	76.0	77.1	77.7	77.8	78.2	72.1	73.6	76.1	77.9	74.9
1984	79.6	80.0	80.2	80.5	80.8	80.9	81.0	80.9	80.6	80.3	80.4	80.3	79.9	80.8	80.8	80.3	80.5
1985	79.8	80.0	79.9	79.5	79.4	79.3	78.6	78.7	78.9	78.5	78.6	79.3	79.9	79.4	78.7	78.8	79.2
1986	79.6	78.9	78.4	78.3	78.4	78.1	78.5	78.3	78.3	78.6	78.9	79.5	79.0	78.3	78.4	79.0	78.7
1987	79.0	79.9	79.9	80.2	80.6	80.8	81.2	81.6	81.7	82.8	83.1	83.4	79.6	80.6	81.5	83.1	81.2
1988	83.4	83.6	83.8	84.2	84.1	84.3	84.4	84.7	84.4	84.8	84.8	85.1	83.6	84.2	84.5	84.9	84.3
1989	85.2	84.7	84.8	84.7	84.0	83.8	82.9	83.5	83.1	82.8	82.9	83.2	84.9	84.2	83.1	83.0	83.8
1990	82.6	83.2	83.4	83.1	83.1	83.1	82.9	82.9	83.0	82.2	81.1	80.4	83.0	83.1	82.9	81.2	82.6
1991	79.9	79.3	78.7	78.8	79.5	80.2	80.1	80.1	80.7	80.4	80.3	79.9	79.3	79.5	80.3	80.2	79.8
1992	79.3	79.7	80.3	80.7	80.8	80.6	81.1	80.5	80.5	80.9	81.1	81.0	79.8	80.7	80.7	81.0	80.5
1993	81.2	81.4	81.2	81.4	81.0	81.1	81.2	81.1	81.4	81.9	82.1	82.3	81.3	81.1	81.2	82.1	81.4
1994	82.5	82.3	83.0	83.2	83.4	83.7	83.6	83.8	83.8	84.2	84.4	85.1	82.6	83.5	83.7	84.6	83.6
1995	85.0	84.7	84.6	84.2	84.0	84.0	83.3	84.2	84.2	83.6	83.5	83.5	84.8	84.1	83.9	83.5	84.1
1996	82.6	83.6	83.1	83.4	83.5	83.9	83.4	83.6	83.7	83.3	83.6	83.7	83.1	83.6	83.6	83.5	83.4
1997	83.4	84.0	84.2	83.8	83.9	83.8	83.8	84.5	84.7	84.7	85.0	84.7	83.9	83.9	84.3	84.8	84.2
1998	84.5	84.1	83.6	83.4	83.4	82.5	81.7	83.0	82.3	82.5	82.0	81.9	84.1	83.1	82.3	82.1	82.9
1999	81.9	81.9	81.8	81.6	81.9	81.4	81.6	81.7	81.1	81.9	82.0	82.3	81.9	81.6	81.5	82.0	81.8
2000	82.1	82.1	82.1	82.4	82.2	82.0	81.5	81.1	81.2	80.7	80.4	79.9	82.1	82.2	81.3	80.3	81.5
2001	79.1	78.4	77.9	77.5	76.8	76.1	75.6	75.1	74.7	74.2	73.6	73.5	78.5	76.8	75.1	73.8	76.0
2002	73.8	73.7	74.1	74.4	74.7	75.3	75.0	75.1	75.2	75.0	75.3	75.0	73.9	74.8	75.1	75.1	74.7
2003	75.6	75.9	75.8	75.2	75.3	75.4	75.7	75.7	76.1	76.2	76.8	76.8	75.7	75.3	75.8	76.6	75.9
2004	77.0	77.4	77.0	77.4	78.0	77.3	77.8	78.0	78.0	78.7	78.9	79.4	77.1	77.6	78.0	79.0	77.9
2005	79.8	80.3	80.2	80.2	80.4	80.5	80.4	80.4	78.7	79.5	80.3	80.6	80.1	80.4	79.8	80.1	80.1
2006	80.6	80.5	80.6	80.8	80.6	80.9	81.0	81.0	80.8	80.6	80.3	81.0	80.6	80.8	80.9	80.7	80.7
2007	80.6	81.3	81.3	81.7	81.6	81.3	81.4	81.3	81.5	80.9	81.2	81.2	81.1	81.5	81.4	81.1	81.3
2008	80.9	80.7	80.5	79.8	79.4	79.0	79.0	77.9	74.8	75.4	74.5	72.9	80.7	79.4	77.2	74.3	77.9
2009	71.3	70.7	69.6	69.0	68.3	68.2	69.1	70.0	70.5	70.7	71.1	71.6	70.5	68.5	69.9	71.1	70.0
2010	72.3	72.4	72.8	73.2	74.2	74.2	74.9	75.0	75.2	75.1	75.3	76.3	72.5	73.9	75.0	75.6	74.2
2011	76.4	76.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Note: See the general note to table 3.
... Not available as of March 2011.

Table 5. Rates of change in industrial production, 2006–10

Item	NAICS code[1]	2006 H1	2006 H2	2007 H1	2007 H2	2008 H1	2008 H2	2009 H1	2009 H2	2010 H1	2010 H2
Total IP	...	3.1	1.8	4.4	.2	-3.8	-11.4	-14.0	7.6	7.1	3.9
MARKET GROUPS											
Final products and nonindustrial supplies	...	1.5	1.6	3.2	-1.3	-4.4	-10.0	-13.7	6.3	6.3	3.3
Consumer goods	...	-.1	.3	1.9	-2.4	-4.7	-7.5	-9.9	9.1	3.0	2.8
Durable	...	.4	-4.5	9.7	-4.3	-13.5	-22.8	-26.0	29.5	8.8	1.7
Automotive products	...	1.6	-5.5	23.9	-7.2	-21.1	-27.0	-33.1	67.8	9.5	2.7
Home electronics	...	19.4	-5.4	3.8	35.9	16.4	-19.9	-16.1	25.1	-16.3	7.0
Appliances, furniture, carpeting	...	-5.3	-5.5	-3.5	-5.3	-12.2	-24.9	-18.0	-2.3	8.0	-3.8
Miscellaneous goods	...	-1.2	-2.5	-3.1	-4.4	-6.0	-15.9	-21.6	3.5	12.9	1.8
Nondurable	...	-.2	1.9	-.6	-1.8	-1.6	-2.4	-5.0	4.2	1.5	3.1
Non-energy	...	.0	1.2	-2.2	-2.7	-2.4	-3.6	-4.7	4.0	2.0	1.9
Foods and tobacco	...	-3.5	1.6	-1.0	-3.6	-3.2	-4.0	-3.2	4.4	6.7	3.1
Clothing	...	-6.0	-20.9	-29.0	-19.2	-2.9	-9.2	-23.7	-2.1	14.1	2.1
Chemical products	...	6.5	3.6	-2.8	.6	-1.3	-2.1	-1.9	2.2	-3.2	1.0
Paper products	...	1.5	.2	.7	-4.8	-3.2	-7.1	-16.5	7.7	-5.7	-.7
Energy	...	-.9	4.1	4.5	.7	.8	2.3	-6.2	4.7	-.5	7.2
Business equipment	...	9.8	7.9	3.3	2.4	-.5	-15.6	-17.5	6.1	13.8	9.7
Transit	...	22.7	-.1	-6.6	10.1	-10.3	-40.7	8.2	14.1	-3.8	10.7
Information processing	...	11.9	18.7	9.8	-.3	14.8	-11.7	-10.3	9.5	17.1	12.0
Industrial and other	...	4.4	4.9	3.5	1.4	-4.6	-8.1	-27.6	1.3	18.6	7.9
Defense and space equipment	...	-7.7	17.2	22.9	12.9	-4.4	.7	-.5	4.2	6.2	.1
Construction supplies	...	-1.6	-3.5	3.4	-6.5	-11.9	-16.4	-20.5	-2.2	14.6	.6
Business supplies	...	.9	.4	3.5	-.8	-4.7	-10.5	-14.0	2.7	2.7	.7
Materials	...	5.3	2.0	6.0	2.0	-3.1	-13.0	-14.4	9.4	8.2	4.7
Non-energy	...	3.1	1.8	8.7	1.5	-5.8	-19.0	-19.0	11.9	10.4	4.1
Durable	...	2.7	-.2	9.8	2.7	-3.6	-20.0	-27.5	13.9	15.8	5.3
Consumer parts	...	-3.3	-5.9	7.4	-12.1	-18.2	-28.5	-39.1	40.1	13.7	5.2
Equipment parts	...	6.3	12.0	17.2	14.5	5.0	-15.3	-21.9	8.1	15.9	7.8
Other	...	2.3	-6.4	5.4	-.3	-4.8	-20.7	-28.4	12.0	16.3	3.3
Nondurable	...	4.0	5.1	7.0	-.5	-9.3	-17.5	-4.5	9.2	3.0	2.4
Textile	...	-15.1	-8.5	-2.3	-15.5	-15.1	-17.6	-19.4	18.8	9.1	5.7
Paper	...	-.5	2.8	-1.7	.4	-4.4	-17.6	-16.2	6.4	3.1	-2.3
Chemical	...	11.3	9.7	14.4	-.4	-14.2	-21.7	4.8	14.4	2.9	3.4
Energy	...	9.6	2.4	1.2	3.0	1.3	-2.6	-6.8	5.3	4.7	5.5
INDUSTRY GROUPS											
Manufacturing[2]	...	2.2	1.8	5.3	-.1	-5.4	-14.3	-15.3	8.7	7.8	3.3
Manufacturing (NAICS)	31–33	2.2	2.0	5.6	.1	-5.3	-14.5	-14.9	9.0	8.5	3.6
Durable manufacturing	...	3.1	2.2	8.9	1.7	-4.6	-17.5	-21.9	12.5	12.3	5.3
Wood products	321	-8.0	-13.6	2.7	-11.2	-14.5	-26.8	-22.1	2.3	11.2	-6.5
Nonmetallic mineral products	327	-.9	-3.5	2.9	-7.4	-13.5	-18.3	-19.7	-3.0	9.3	.9
Primary metal	331	5.5	-13.7	13.3	8.5	1.3	-41.8	-44.6	69.6	26.0	-1.3
Fabricated metal products	332	5.5	3.6	6.8	-.2	-6.0	-8.2	-25.1	4.1	12.5	9.4
Machinery	333	1.1	5.6	4.4	1.6	-3.2	-13.0	-34.6	-.1	24.7	10.7
Computer and electronic products	334	8.9	16.6	16.0	14.9	13.7	-16.5	-9.9	14.8	17.2	8.9
Selected high-technology industries	...	13.2	19.8	19.6	23.2	20.2	-25.3	-12.3	23.3	16.9	9.9
Computers and peripheral equipment	3341	22.1	10.6	9.7	48.2	43.2	-36.8	-29.1	35.3	-.8	25.1
Communications equipment	3342	22.1	25.3	1.8	-23.2	2.9	1.6	-2.5	13.4	15.5	6.4
Semiconductors and related electronic components	334412–9	6.3	19.9	34.5	41.0	17.7	-28.5	-8.1	23.3	26.3	5.6
Electrical equipment, appliances, and components	335	-1.5	2.0	9.0	-2.4	-1.7	-9.3	-20.4	.8	12.1	4.6
Motor vehicles and parts	3361–3	.4	-8.0	10.0	-13.9	-24.6	-30.3	-43.3	81.3	11.4	4.5
Aerospace and miscellaneous transportation equipment	3364–9	4.5	14.5	20.5	14.7	-9.5	-16.8	6.7	-1.3	-3.2	1.2
Furniture and related products	337	.0	-5.3	-2.3	-.6	-11.3	-21.0	-22.9	-6.7	7.1	.5
Miscellaneous	339	2.8	-1.3	-3.1	.0	2.7	-3.1	-10.5	5.4	2.8	1.7
Nondurable manufacturing	...	1.3	1.9	1.9	-1.8	-6.2	-10.7	-6.2	5.3	4.4	1.8
Food, beverage, and tobacco products	311,2	-3.1	1.5	.0	-2.4	-2.5	-4.1	-3.8	4.0	5.9	3.8
Textile and product mills	313,4	-13.7	-11.6	-7.1	-15.3	-12.7	-17.4	-20.3	12.1	5.3	1.6
Apparel and leather	315,6	-.4	-13.4	-22.9	-23.2	-15.5	-14.3	-24.1	-2.4	10.3	5.1
Paper	322	-2.8	3.6	-1.4	.8	-3.4	-22.0	-8.3	8.4	4.9	-1.3
Printing and support	323	.6	3.0	1.6	-.7	-7.4	-11.0	-23.0	-4.0	-.8	-4.8
Petroleum and coal products	324	5.8	6.5	3.0	-1.6	-3.0	-5.7	-.3	-2.6	8.7	1.7
Chemical	325	7.5	5.5	6.2	.3	-8.6	-12.1	.1	7.9	.3	1.6
Plastics and rubber products	326	-.3	-8.3	1.8	-2.9	-11.3	-18.6	-23.6	8.8	15.2	1.5
Other manufacturing (non-NAICS)	**1133,5111**	.9	-3.3	.2	-5.0	-6.9	-11.3	-23.3	2.5	-5.3	-3.7
Mining	**21**	14.2	3.4	-1.1	1.2	2.3	-2.9	-12.6	4.4	9.3	7.1
Utilities	**2211,2**	-1.6	.2	4.7	1.6	.2	-.8	-6.8	4.2	.5	4.1

Note: The data are semiannual. Rates of change are calculated as the annualized percent change in the seasonally adjusted index from the second quarter of the previous half-year to the second quarter of the half-year specified in the column heading.

1. See table 1, note 1.
2. See table 1, note 2.

... Not applicable.

Table 6. Annual rates of change for industrial production indexes, 2005–10

Item	Revised change (percent)						Difference between revised and earlier changes (percentage points)					
	2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
Total IP	3.2	2.2	2.7	-3.3	-9.3	5.7	-.1	.0	1.2	-1.1	.4	...
MARKET GROUPS												
Consumer goods	2.7	.6	.8	-4.2	-5.8	4.6	.0	.2	-.2	-1.5	-.7	...
Durable	.7	.4	1.8	-10.3	-17.0	11.8	.2	1.4	1.4	-.4	-.1	...
Nondurable	3.4	.6	.4	-2.1	-2.4	2.7	-.1	-.2	-.7	-1.6	-.4	...
Business equipment	7.2	9.2	4.5	-1.5	-12.2	8.0	.2	-.1	1.9	-.3	.2	...
Defense and space equipment	10.4	-1.5	18.3	2.5	1.1	3.6	-.2	.6	14.6	.0	.6	...
Construction supplies	4.7	2.4	-1.2	-9.5	-16.7	3.9	.2	.1	.7	-3.2	1.2	...
Business supplies	3.1	1.1	1.7	-3.8	-10.1	1.7	-.2	-.1	.4	-.9	.1	...
Materials	2.3	2.2	3.7	-2.7	-9.7	6.9	-.1	-.2	1.7	-.8	1.3	...
Non-energy	4.0	2.4	4.6	-4.7	-14.3	8.4	-.1	-.3	2.5	-1.0	1.0	...
Energy	-1.3	1.7	1.9	.7	-2.1	4.5	.0	.0	.2	-1.1	.7	...
INDUSTRY GROUPS												
Manufacturing[1]	4.0	2.5	2.9	-4.5	-11.1	6.0	.0	.0	1.5	-1.3	.2	...
Manufacturing (NAICS)	4.2	2.7	3.2	-4.4	-10.9	6.5	.0	.0	1.6	-1.3	.2	...
Durable manufacturing	5.7	4.6	5.0	-3.6	-14.9	8.9	.3	.2	2.9	-.3	1.6	...
Nondurable manufacturing	2.5	.6	1.1	-5.3	-6.0	4.0	-.3	-.3	.2	-2.4	-.4	...
Other manufacturing (non-NAICS)	-.4	-1.2	-1.3	-6.5	-14.5	-4.4	.0	-.2	.0	-.9	1.2	...
Mining	-1.5	3.0	.5	.8	-5.0	5.7	-.3	-.3	.0	-1.3	1.6	...
Utilities	2.1	-.6	3.4	-.1	-2.6	3.5	.0	.0	.0	-.4	-.1	...

Note: 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.
1. See table 1, note 2. ... Not available.

Table 7. Rates of change in industrial production, by industry groups, special aggregates and selected detail, 2005–10

Item	NAICS code[1]	Revised change (percent)						Difference between revised and earlier changes (percentage points)					
		2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
Total industry	...	2.3	2.5	2.3	-7.6	-3.8	5.9	-.4	.7	.5	-.9	.9	-.1
Energy	...	-2.2	4.7	2.2	.0	-2.0	5.5	-.4	.8	.0	-1.3	1.0	.2
Consumer products	...	1.6	1.5	2.6	1.6	-.9	3.9	-.2	1.6	.7	-2.0	.4	-4.0
Commercial products	...	.4	2.1	2.3	-.5	-.1	2.2	-.1	.9	.5	-1.0	1.4	3.2
Oil and gas well drilling	213111	11.6	14.6	-1.0	6.9	-42.3	44.8	-.3	-.3	-.3	-.1	-.1	10.2
Converted fuel	...	-1.8	2.5	5.9	-5.1	-.5	2.0	.8	.0	.2	-.8	-.2	3.5
Primary energy	...	-5.3	7.2	.9	.8	-1.1	6.6	-.6	.4	-.4	-1.2	1.7	-1.0
Non-energy	...	3.7	1.8	2.3	-10.2	-4.4	6.0	-.3	.6	.6	-.8	1.0	.0
Selected high-technology industries	...	23.3	16.5	21.4	-5.2	4.0	14.2	.7	3.4	3.2	1.7	6.1	-6.4
Computers and peripheral equipment	3341	27.8	16.3	27.5	-4.9	-2.0	13.5	2.6	-5.9	3.3	7.0	2.4	-7.3
Communications equipment	3342	7.0	23.7	-11.5	2.2	5.1	11.4	-1.9	11.3	-18.2	-8.2	9.1	-3.5
Semiconductors and related electronic components	334412–9	28.8	12.9	37.7	-8.2	6.5	16.0	.4	3.1	15.5	6.8	5.5	-14.8
Excluding selected high-technology industries	...	2.4	.9	1.2	-10.5	-4.9	5.5	-.3	.5	.5	-1.0	.7	.2
Motor vehicles and parts	3361–3	.9	-3.9	-2.7	-27.5	1.4	8.3	.8	2.3	-.8	-4.2	8.6	1.2
Motor vehicles	3361	1.0	-3.9	-1.6	-31.5	5.2	10.4	2.4	3.6	.2	-1.1	6.4	-7.2
Motor vehicle parts	3363	-1.2	-3.4	-3.6	-20.7	-2.9	5.1	-.6	.9	-3.9	-5.9	9.4	6.5
Excluding motor vehicles and parts	...	2.5	1.3	1.5	-9.3	-5.3	5.3	-.4	.3	.6	-.8	.2	.1
Consumer goods	...	3.2	.0	-2.1	-5.3	-2.3	2.7	-.1	-.8	-1.0	-1.2	-.1	-.4
Business equipment	...	5.9	7.0	5.3	-8.3	-6.1	11.4	-.7	.8	3.0	.5	-.1	.4
Construction supplies	...	7.2	-2.6	-1.8	-14.3	-12.0	7.4	-.1	.7	-.8	-2.5	2.1	2.4
Business supplies	...	2.2	-.7	.4	-10.2	-8.8	1.0	-.5	-.1	.0	-.4	-.3	-.2
Materials	...	-.2	2.2	3.2	-11.9	-5.7	6.8	-.7	.8	.8	-.7	.3	.3
Measures excluding selected high-technology industries													
Total industry	...	1.2	1.8	1.4	-7.8	-4.1	5.5	-.4	.6	.4	-1.0	.6	.1
Manufacturing[2]	...	2.2	1.1	1.5	-10.3	-4.5	5.3	-.3	.7	.6	-1.4	.6	.0
Durable	...	4.5	.8	3.3	-12.1	-7.5	8.6	-.2	1.2	1.9	-.4	1.8	.0
Measures excluding motor vehicles and parts													
Total industry	...	2.3	2.9	2.6	-6.6	-4.0	5.8	-.5	.6	.6	-.8	.6	-.1
Manufacturing[2]	...	3.7	2.4	2.9	-8.8	-4.4	5.7	-.4	.7	.8	-1.0	.6	-.2
Durable	...	7.8	3.7	6.4	-9.0	-7.1	9.3	-.4	1.2	2.4	.3	1.6	-.8
Measures excluding selected high-technology industries and motor vehicles and parts													
Total industry	...	1.2	2.2	1.7	-6.7	-4.4	5.4	-.5	.5	.5	-.9	.3	.1
Manufacturing[2]	...	2.3	1.5	1.8	-9.0	-4.9	5.2	-.4	.5	.7	-1.2	.2	.0
Measure of non-energy material inputs to													
Finished processors	...	5.6	2.9	6.8	-11.4	-7.3	9.3	-.6	1.2	2.8	-.3	3.3	.2
Primary and semifinished processors	...	-.8	2.2	3.8	-13.5	-3.0	6.5	-.6	.9	.6	-1.0	.6	.7
STAGE-OF-PROCESS GROUPS													
Crude	...	-7.1	8.4	1.7	-4.7	.6	5.8	-.5	.9	.5	-.2	-.3	-1.1
Primary and semifinished	...	3.2	-.2	3.1	-9.3	-6.6	5.2	-.3	.7	.7	-1.3	1.0	.5
Finished	...	5.1	3.7	1.3	-6.9	-2.3	6.7	-.1	.4	.2	-1.0	.5	-.4

Note: Estimates for October 2010 through February 2010 are subject to further revision in the upcoming monthly releases.
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.
For 2010, the differences between revised and earlier changes are calculated based on annualized rates of change between the fourth quarter of 2009 and the three months ending May 2010.
1. See table 1, note 1.
2. See table 1, note 2.
... Not applicable.

Table 8. Rates of change in capacity, by industry groups, 2005–10

Item	Revised change (percent)						Difference between revised and earlier changes (percentage points)					
	2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
Total industry	.9	1.8	1.7	.8	.5	-.3	.0	.3	-.2	-.3	1.4	.5
Manufacturing[1]	1.6	1.7	2.4	.5	-1.2	-.2	.2	.3	.2	-.8	.0	.8
Manufacturing (NAICS)	1.6	1.8	2.6	.8	-1.0	-.2	.2	.3	.3	-.5	.1	.8
Durable manufacturing	3.1	2.5	3.9	.6	-1.3	.5	.7	.5	.2	-1.3	-.7	1.6
Nondurable manufacturing	.2	.9	1.1	.9	-.8	-1.0	-.3	.1	.1	.1	1.0	-.1
Other manufacturing (non-NAICS)	-.3	.9	-1.3	-4.6	-3.6	.0	-.1	-.2	-1.8	-5.6	-2.7	.1
Mining	-1.4	2.3	.9	1.5	3.0	.0	-.3	.0	-.5	.4	3.8	-.3
Utilities	1.4	1.2	.6	2.2	3.1	1.5	-.1	-.1	-.7	-.1	1.3	-.6
Selected high-technology industries	15.2	6.6	27.2	.3	7.7	11.4	3.2	.9	4.2	-6.0	-.7	10.2
Manufacturing[1] ex. selected high-technology industries	.7	1.4	1.0	.5	-1.7	-.8	.1	.3	.0	-.5	.0	.3
STAGE-OF-PROCESS GROUPS												
Crude	-1.2	1.8	.6	1.5	2.6	-.8	-.3	.3	-.8	.2	3.8	-.1
Primary and semifinished	1.0	1.9	3.0	.6	-.7	-.6	-.1	.6	.9	-.2	.3	.5
Finished	2.4	1.5	1.3	.8	-.7	.9	.5	-.3	-1.0	-1.4	-.2	.8

Note: 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.

1. See table 1, note 2.

Table 9. Annual proportion in industrial production, by market groups and industry groups, 2002–10

Item	NAICS code[1]	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total IP	...	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MARKET GROUPS										
Final products and nonindustrial supplies	...	58.7	57.8	56.4	56.0	55.9	54.7	55.0	56.3	55.1
Consumer goods	...	31.0	30.8	29.9	29.3	28.6	27.5	27.3	29.0	28.5
Durable	...	8.9	8.7	7.9	7.3	7.1	6.9	6.4	6.0	6.1
Automotive products	...	4.7	4.6	4.0	3.5	3.4	3.5	3.0	2.7	3.0
Home electronics	...	.4	.4	.4	.4	.4	.4	.4	.3	.3
Appliances, furniture, carpeting	...	1.4	1.3	1.3	1.3	1.2	1.1	1.0	1.0	.9
Miscellaneous goods	...	2.4	2.3	2.2	2.2	2.2	2.0	2.0	1.9	1.9
Nondurable	...	22.1	22.2	22.0	22.0	21.5	20.6	20.9	23.0	22.4
Non-energy	...	18.2	17.9	17.1	16.5	16.2	15.6	16.3	18.1	17.5
Foods and tobacco	...	9.6	9.5	9.2	8.8	8.5	8.2	8.5	9.5	9.5
Clothing	...	.8	.7	.6	.5	.4	.3	.3	.3	.3
Chemical products	...	5.2	5.2	5.0	4.9	5.0	4.9	5.2	5.9	5.5
Paper products	...	2.1	1.9	1.8	1.7	1.7	1.7	1.8	1.8	1.7
Energy	...	3.9	4.2	4.9	5.5	5.4	5.0	4.6	4.9	4.9
Business equipment	...	10.0	9.4	9.2	9.1	9.6	9.6	9.9	9.8	9.7
Transit	...	1.8	1.5	1.5	1.6	1.9	1.9	1.7	1.8	1.7
Information processing	...	3.0	2.9	2.8	2.7	2.8	2.7	2.9	2.9	2.9
Industrial and other	...	5.2	5.0	4.8	4.8	4.9	5.0	5.3	5.0	5.0
Defense and space equipment	...	1.6	1.6	1.5	1.5	1.5	1.8	1.9	2.2	2.1
Construction supplies	...	4.9	4.8	4.8	4.9	5.1	4.9	4.8	4.5	4.4
Business supplies	...	10.8	10.7	10.5	10.5	10.3	10.2	10.3	10.4	9.9
Materials	...	41.3	42.2	43.6	44.0	44.1	45.3	45.0	43.7	44.9
Non-energy	...	30.1	29.5	29.4	28.9	28.5	28.3	28.0	26.7	27.2
Durable	...	18.7	18.3	18.1	17.7	17.6	17.3	17.3	15.7	16.1
Consumer parts	...	4.0	3.8	3.5	3.3	3.1	2.9	2.5	2.1	2.2
Equipment parts	...	6.5	6.4	6.2	6.1	6.0	6.1	6.5	6.1	5.9
Other	...	8.2	8.1	8.3	8.3	8.5	8.4	8.3	7.5	7.9
Nondurable	...	11.4	11.2	11.3	11.2	10.9	11.0	10.7	11.1	11.0
Textile	...	.8	.7	.7	.7	.6	.5	.4	.4	.4
Paper	...	2.8	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.1
Chemical	...	4.4	4.5	5.0	5.1	4.9	5.2	4.7	5.1	5.3
Energy	...	11.2	12.7	14.2	15.2	15.6	17.0	17.0	16.9	17.7
INDUSTRY GROUPS										
Manufacturing[2]	...	83.0	81.2	79.6	78.3	77.6	76.2	75.6	75.4	74.6
Manufacturing (NAICS)	31–33	78.3	76.8	75.3	74.2	73.7	72.4	71.8	71.7	71.2
Durable manufacturing	...	43.0	41.7	40.1	39.1	39.3	39.2	39.4	37.5	37.5
Wood products	321	1.5	1.6	1.5	1.5	1.4	1.2	1.1	1.0	.9
Nonmetallic mineral products	327	2.2	2.2	2.2	2.3	2.3	2.1	2.0	1.9	1.7
Primary metal	331	2.3	2.4	2.7	2.6	2.7	2.8	2.7	2.0	2.5
Fabricated metal products	332	5.7	5.5	5.3	5.3	5.5	5.7	6.0	5.8	5.8
Machinery	333	5.3	5.0	4.8	4.8	5.0	5.1	5.4	4.8	4.9
Computer and electronic products	334	7.8	7.7	7.6	7.2	7.0	6.9	7.3	7.2	7.1
Electrical equipment, appliances, and components	335	2.2	2.0	1.9	1.9	1.9	1.9	2.0	2.0	1.9
Motor vehicles and parts	3361–3	7.4	7.2	6.3	5.8	5.5	5.1	4.2	3.5	4.0
Aerospace and miscellaneous transportation equipment	3364–9	3.5	3.3	3.1	3.2	3.4	4.0	4.1	4.6	4.2
Furniture and related products	337	1.8	1.7	1.6	1.6	1.5	1.4	1.4	1.3	1.2
Miscellaneous	339	3.3	3.3	3.1	3.1	3.1	3.0	3.2	3.5	3.3
Nondurable manufacturing	...	35.3	35.1	35.2	35.2	34.3	33.2	32.4	34.2	33.7
Food, beverage, and tobacco products	311,2	11.3	11.4	10.9	10.5	10.1	9.9	10.3	11.4	11.2
Textile and product mills	313,4	1.4	1.2	1.2	1.2	1.0	.9	.8	.7	.7
Apparel and leather	315,6	1.0	.9	.7	.6	.6	.4	.4	.3	.3
Paper	322	3.1	2.9	2.7	2.6	2.6	2.5	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	1.6
Petroleum and coal products	324	1.8	2.2	3.2	4.0	4.0	3.4	2.4	2.4	2.5
Chemical	325	10.7	10.8	11.1	11.0	10.9	11.2	11.2	12.3	12.1
Plastics and rubber products	326	3.8	3.6	3.4	3.2	3.2	3.0	2.9	2.7	2.7
Other manufacturing (non-NAICS)	**1133,5111**	4.7	4.4	4.3	4.0	3.9	3.8	3.8	3.7	3.3
Mining	**21**	7.4	9.0	10.8	12.0	12.8	14.1	13.8	13.0	14.0
Utilities	**2211,2**	9.6	9.8	9.6	9.7	9.6	9.8	10.6	11.6	11.4
Electric	2211	8.2	8.2	7.9	7.9	8.0	8.1	8.9	10.0	9.8
Natural gas	2212	1.4	1.6	1.7	1.7	1.6	1.7	1.7	1.6	1.6

Note: The industrial production (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.

1. See table 1, note 1.
2. See table 1, note 2.

... Not applicable.

Table 10. Revisions to industrial production and capacity utilization after incorporating benchmark information

Percentage points

Item	Average revision	Mean-absolute revision
Total industrial production	.1	.8
Total industry capacity utilization	.0	.4

Note: The revisions to industrial production are for the annual average rate of change for the year of a new Annual Survey of Manufactures or Census of Manufactures, while the revisions to capacity utilization are for the fourth quarter of the year for which a new Survey of Plant Capacity, Annual Survey of Manufactures, or Census of Manufactures is incorporated, 1997–2009. The revisions had 15 observations for industrial production and 26 observations for capacity utilization.

Table 11. Capacity utilization rates, by industry groups, 2006–10

Percent of capacity, seasonally adjusted

Item	NAICS code[1]	2006 Q2	2006 Q4	2007 Q2	2007 Q4	2008 Q2	2008 Q4	2009 Q2	2009 Q4	2010 Q2	2010 Q4
Total industry	...	80.8	80.7	81.5	81.1	79.4	74.3	68.5	71.1	73.9	75.6
Manufacturing[2]	...	79.1	79.0	80.1	79.1	76.5	70.9	65.6	68.8	71.6	72.9
Manufacturing (NAICS)	31–33	78.9	78.9	80.0	79.1	76.4	70.6	65.4	68.7	71.8	73.2
Durable manufacturing	...	77.6	77.3	79.1	78.3	75.9	69.0	61.5	65.6	69.4	71.2
Wood products	321	82.5	75.3	75.8	71.7	67.2	59.0	54.2	57.3	62.9	62.6
Nonmetallic mineral products	327	77.2	74.7	74.5	70.9	65.4	59.1	53.5	53.5	56.7	57.5
Primary metal	331	83.1	76.5	80.9	83.9	83.8	63.5	47.5	62.6	70.2	68.8
Fabricated metal products	332	80.6	81.9	83.6	82.0	78.4	74.9	65.5	67.7	72.6	77.1
Machinery	333	79.7	82.0	83.4	83.6	82.2	76.9	62.7	63.4	71.5	76.5
Computer and electronic products	334	75.3	77.9	77.0	76.2	79.5	73.1	68.6	70.8	73.6	74.4
Selected high-technology industries	...	79.6	83.2	80.6	79.4	84.9	75.1	69.2	72.5	73.9	74.4
Computers and peripheral equipment	3341	76.8	78.2	73.8	80.0	93.0	77.1	68.1	80.1	77.4	84.1
Communications equipment	3342	70.7	81.1	83.1	75.4	81.3	84.7	80.7	80.2	81.5	81.0
Semiconductors and related electronic components	334412–9	86.3	86.5	82.0	80.4	82.3	70.3	64.9	66.5	69.9	68.8
Electrical equipment, appliances, and components	335	83.1	83.9	87.6	86.1	84.3	79.5	71.1	72.1	76.9	79.1
Motor vehicles and parts	3361–3	73.9	69.8	73.8	69.0	59.3	49.5	38.8	54.9	59.4	61.3
Aerospace and miscellaneous transportation equipment	3364–9	70.9	75.7	82.6	87.7	82.3	73.8	74.7	72.9	70.8	70.5
Furniture and related products	337	81.2	80.8	80.3	80.5	77.7	71.9	65.7	65.6	69.7	71.5
Miscellaneous	339	77.8	76.1	73.9	73.2	73.9	72.7	68.8	70.2	70.2	69.6
Nondurable manufacturing	...	80.4	80.8	81.1	80.0	77.0	72.5	70.3	72.6	74.7	75.7
Food, beverage, and tobacco products	311,2	79.7	80.6	80.9	80.0	78.5	76.3	74.5	75.9	78.0	79.3
Textile and product mills	313,4	74.9	74.4	75.9	72.7	69.0	63.3	57.8	63.3	66.8	68.9
Apparel and leather	315,6	77.6	75.4	72.3	71.2	73.5	74.2	68.0	69.4	75.5	80.9
Paper	322	83.0	84.4	83.9	84.5	83.5	74.1	71.5	75.2	78.0	78.2
Printing and support	323	79.6	79.8	78.9	77.4	74.2	70.9	63.7	64.0	65.0	64.1
Petroleum and coal products	324	89.6	89.8	89.1	87.5	86.3	83.4	82.3	80.7	84.5	86.0
Chemical	325	77.5	78.9	80.0	78.8	74.6	69.8	70.0	73.2	73.8	74.9
Plastics and rubber products	326	83.9	79.1	79.4	77.8	72.4	64.9	57.5	61.1	65.9	66.4
Other manufacturing (non-NAICS)	**1133,5111**	82.7	80.9	81.1	79.9	78.8	76.2	68.3	70.1	68.4	66.7
Mining	**21**	90.3	90.5	89.0	89.7	90.9	88.1	80.5	81.7	85.5	88.9
Utilities	**2211,2**	83.6	83.5	85.3	85.6	84.8	83.4	79.3	79.8	79.2	80.7

1. See table 1, note 1.
2. See table 1, note 2.
... Not applicable.