



# U.S. Industrial Outlook

## Sluggish Growth Ahead for Industrial Activity in 2013, a Pickup Likely in 2014

Economic Outlook | December 2012

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### Summary of Findings and Forecasts

Every three months, the Manufacturers Alliance for Productivity and Innovation (MAPI) provides a detailed look at the health of the domestic manufacturing sector and reviews the performance of a selected group of its most important subsectors. This report covers the actual data available through October 2012 and provides our forecasts, which were completed in late November 2012.

The growth rate of the overall economy was relatively weak in the third quarter of 2012, continuing the sluggish growth pace that is characteristic of the current expansion. Inflation-adjusted GDP increased at only a 2.0 percent annual rate in the first quarter, 1.3 percent in the second quarter, and 2.7 percent in the third quarter of 2012. We predict that GDP growth will increase at less than a 1 percent annual rate in the fourth quarter of 2012. A significant amount of inventory was added in the third quarter, accounting for faster growth in that quarter, but excess stocks will depress production at year-end. Furthermore, the consensus view among economists is that Hurricane Sandy caused about \$30-50 billion in total damage, taking about 0.3 percentage points out of the GDP growth rate in the fourth quarter, but adding that amount back into the economy in the first quarter of 2013 from rebuilding. While the GDP impact washes out, the effect on household balance sheets for those impacted will be decidedly negative. More than half of the losses from the storm are not covered by insurance.

The outlook is for modest growth throughout 2013. Although the pace should pick up in the second half of 2013 and during 2014, it will not be until the second half of 2014 that the economy grows at what could be called a moderate pace. Consumers continue to deleverage from debt and therefore can only increase spending commensurate with after-tax income adjusted for inflation. Less unemployment insurance income and increases in state and local taxes have eaten away at personal income gains. And while credit is more available, it is not plentiful. As a result, consumer spending can increase only at a sluggish pace.

An immediate concern is that business investment in equipment will decline abruptly. Firms have record profits and strong balance sheets as well as relatively high utilization of facilities. Normally, this combination of the ability to invest and the need would trigger a capital spending boom. But new orders for business equipment excluding aerospace and defense equipment were flat in the first 10 months of this year compared with the same period one year ago. We believe concerns over business prospects in Europe, the uncertainties about the U.S. fiscal cliff and federal deficit reduction negotiations, and an increase in worrisome regulations have encouraged businesses to sit on the sidelines and wait to see what happens.

We expect the pause in business equipment orders to end now that the elections are over and the rhetoric on resolving the fiscal cliff is more positive. The outlook is for inflation-adjusted business investment in equipment and software to increase 6.1 percent in 2013 and 7.4 percent in 2014—substantially faster than the 1.8 percent and 2.8 percent rate of growth, respectively, in the overall economy.

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Manufacturing will grow faster than the general economy, but not by much. In 2012, manufacturing growth was all front-loaded. Manufacturing production increased at a 10 percent annual rate in the first quarter of 2012, grew at only a 1 percent annual rate in the second quarter, and fell at a 1 percent annual rate in the third quarter. The Federal Reserve estimates that Hurricane Sandy reduced manufacturing production by 0.9 percent in October 2012 and accounted for the entire decline in manufacturing activity that month. We predict that manufacturing will grow at only a 1.5 percent annual rate in the fourth quarter of 2012.

We forecast that manufacturing production will increase 2 percent in 2013 and 3.2 percent in 2014, and then average 3.6 percent growth from 2015 to 2017. High-tech production is forecast to increase 3 percent in 2013, 8.3 percent in 2014, and average 10.7 percent growth from 2015 to 2017. Non-high-tech or traditional manufacturing, which accounts for 90 percent of value-added in manufacturing, will grow 1.8 percent in 2013, 3.7 percent in 2014, and average 3.3 percent growth from 2015 to 2017.

**Table 1 - MAPI Forecast for Manufacturing Production  
(Annual percent change)**

	2012	2013	2014	2015-2017
Manufacturing	4.2	2.0	3.2	3.6
Computer & Electronic Products	3.8	3.0	8.3	10.7
Non-High-Tech Manufacturing	4.5	1.8	3.7	3.3

Source(s): MAPI

Among the highlights of this report's cyclical analysis of 27 industries are these findings and MAPI forecasts:

- The housing market continues to show broad-based improvement. Housing starts will post large percentage gains (especially apartment units) as new housing is needed to replace the housing stock and absorb new jobholders.
- Consumer spending growth is driven by job growth, with very little wage growth that exceeds the inflation rate. Consumers are diverting spending from nondurables and services to make motor vehicle purchases. Factors driving demand include the replacement cycle for vehicles, recent floods, and continuing growth in the driving age population.
- Corporate profits remain high but factory usage rates have started to decline. Both inside and outside manufacturing, there is a need to replace worn and technologically obsolete machinery and equipment. Nevertheless, worries over global economic growth and uncertainty about the fiscal cliff and tax policy have dampened what could have been an investment boom. Machinery and equipment spending will grow at a slower pace in 2013 than in 2012. A reacceleration is expected in 2014.
- The materials industries—including metals, basic chemicals, and fabricated metals—will see very little change in 2013 because of the weak growth in manufacturing activity.
- Oil prices are volatile but the world price is forecast to stay high enough to encourage more drilling. Natural gas prices are too low to support exploration and are expected to rise as the winter weather patterns return to normal. Mining and drilling equipment production should see no growth in 2013 and modest gains in 2014.
- The replacement boom in engines should moderate and wind turbine production declined in 2013. A moderate rebound is expected in 2014.
- The high-tech industries—semiconductors, electronic computer equipment, communications equipment—have rapidly falling prices; only relatively modest demand growth is expected in 2013. A pickup is predicted for 2014.



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- Medical equipment keeps posting moderately strong growth but pharmaceutical production should decline again next year before posting some growth in 2014. The loss of patent protection on blockbuster drugs is a major impediment to pharmaceutical industry growth in the United States.
- Boeing is delivering the 787 and 747-8 aircraft. They are also successfully launching the 737 MAX. The civilian aircraft backlog is large, with production schedules showing strong growth for several more years.
- Private nonresidential construction surged in 2012 but the political uncertainty and financial crisis in Europe will take a toll on construction activity in 2013 before it accelerates again in 2014.
- Public construction activity, driven by austerity, should decline in 2013 and 2014.

As shown in Table 2, our forecast for 2013 is that 14 of the 24 industries for which our modeling allows a detailed forecast will grow. Production for alumina and aluminum; mining and oil and gas field machinery; electric lighting equipment; and private nonresidential construction are forecast to be unchanged. Six industries are expected to decline: pharmaceutical and medicine; iron and steel products; paper; industrial machinery; engine, turbine, and power transmission equipment; and public works construction.

For 2014, we predict that 23 of the 24 industries will experience growth; only public works construction will decline. On average from 2015 to 2017, we predict that all 24 industries will grow. We do not have forecasting capability for 3 of the 27 industries covered in this report.

**Table 2 – MAPI Forecasts for Manufacturing and Related Production (Annual percent change)**

	2012	2013	2014	2015-2017
Housing starts	25	28	32	10
Motor vehicles and parts	19	5	4	1
Household appliance	-1	2	5	3
Pharmaceutical and medicine	-4	-1	4	6
Iron and steel products	5	-1	7	6
Alumina and aluminum production and processing	4	0	4	4
Fabricated metal products	8	1	4	4
Basic chemical	1	1	3	3
Paper	-3	-1	2	3
Construction machinery	15	2	5	7
Mining and oil and gas field machinery	14	0	3	7
Industrial machinery	-2	-2	5	7
Ventilation, heating, air conditioning, and commercial refrigeration equipment	4	3	7	3
Metalworking machinery	9	2	5	5
Engine, turbine, and power transmission equipment	19	-7	6	5
Electronic computer equipment*	-13	1	2	1
Communications equipment	1	3	10	9
Navigational, measuring, electromedical, and control instruments	11	3	3	4
Electric lighting equipment	3	0	12	10
Electrical equipment	11	3	2	4
Medical equipment and supplies	8	4	6	6
Aerospace products and parts	9	16	17	8
Private nonresidential construction	10	0	11	9
Public works construction	-5	-1	-1	1

\*In current dollars

Source(s): MAPI



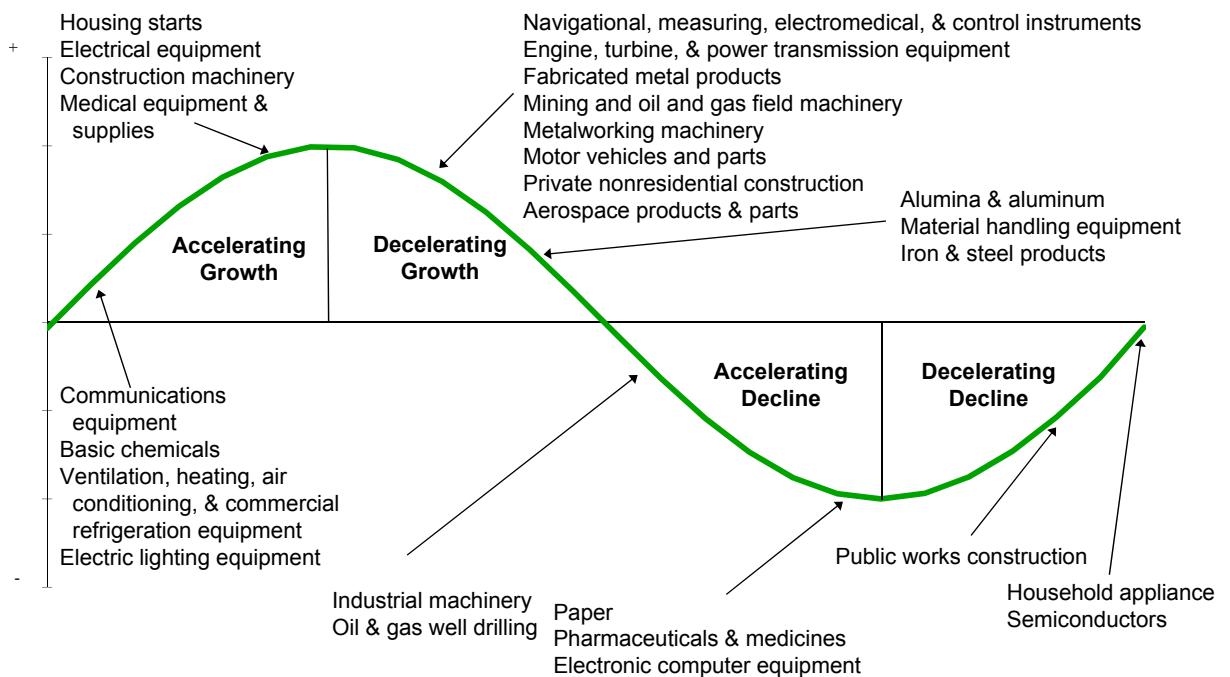
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### Industries in the Current Business Cycle

We provide two figures for each of the 27 industries analyzed in this report. The pairs of figures show the annual level of activity over the last 13 years and the monthly rate of change since October 2000. Forecasts of physical production are shown for 2013 to 2017. The rate of change shown in Figures 2 through 28 is 3/12 (the year-over-year percentage change in a three-month moving average). Analyzing this measure of business activity in the context of the more stable annual change illustrates the cyclical position of each industrial sector.

**Figure 1 - Industrial Sector by Phase of Cycle, October 2012**



Source(s): MAPI

### Individual Analysis for 27 Industrial Sectors

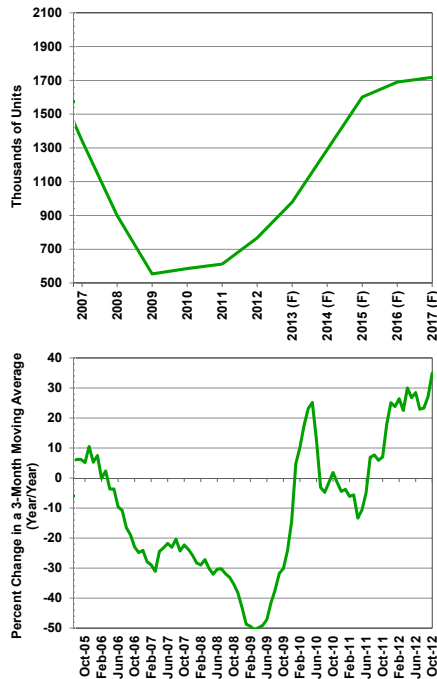
Highlights of inflation-adjusted business activity in selected manufacturing, drilling, and construction markets are discussed below.



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Figures 2a & 2b

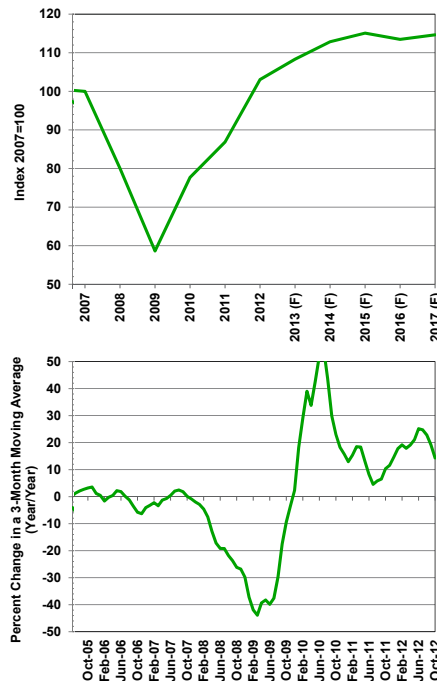


F=Forecast  
Source(s): U.S. Bureau of the Census and MAPI

Housing starts (Figures 2a and 2b)

- Housing starts are forecast to increase 28 percent to 979,000 units in 2013, 32 percent to 1,290,000 units in 2014, and average 1,670,000 units from 2015 to 2017.
- Housing starts increased 35 percent in the period of August to October 2012 from the same time frame one year ago.
- The Case-Shiller housing price index increased at a 5 percent annual rate in the third quarter of 2012 from the second quarter level and was 4 percent above the same period one year ago.
- In the three months ending October 2012, new home sales were 21 percent above year-ago levels and up 3 percent at an annual rate from the previous three months.
- The inventory of new homes was 4.8 months of supply in October 2012, up only slightly from 4.7 months in September—the lowest inventory at current sales rate since 2005.
- The Federal Reserve is targeting mortgage rates in the latest round of quantitative easing. Mortgage rates fell to 3.31 percent in late November, the lowest they have been in many decades.
- In the third quarter of 2012, the combined percentage of all mortgage loans that are in foreclosure or delinquent was 11.7 percent, up 9 basis points from the second quarter of 2012.

Figures 3a & 3b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

Motor vehicles and parts production (Figures 3a and 3b)

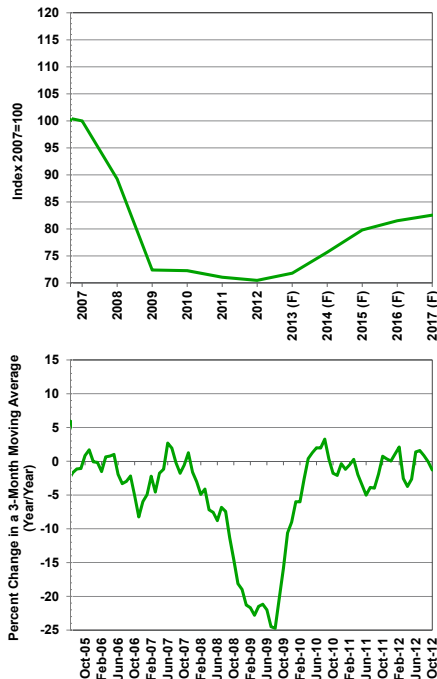
- Motor vehicles and parts production is forecast to increase 5 percent in 2013 and 4 percent in 2014, and then grow at an average 1 percent annual rate from 2015 to 2017. We expect auto and light truck sales to total 15.1 million units in 2013 and 15.6 million units in 2014, and average 16.5 million units from 2015 to 2017.
- Overall production was up 14 percent in the three months ending October 2012 compared with the same period one year ago. Production increased 29 percent for automobiles and showed a 6 percent gain for light trucks and utility vehicles. Auto parts production increased 17 percent over year-ago levels.
- Heavy-duty truck production increased 14 percent in the three months ending October 2012 over the same period one year ago, and truck trailer production was up 8 percent.
- We forecast a 3 percent increase in heavy-duty truck production in 2013 and 6 percent growth in 2014.
- Production of campers and travel trailers gained 8 percent in the three months ending October 2012 over the same period one year ago; big-ticket motor home production increased 25 percent.
- Motor vehicles and parts imports increased 16 percent while exports increased 5 percent; the trade deficit was more negative in the third quarter of 2012 compared with one year ago.



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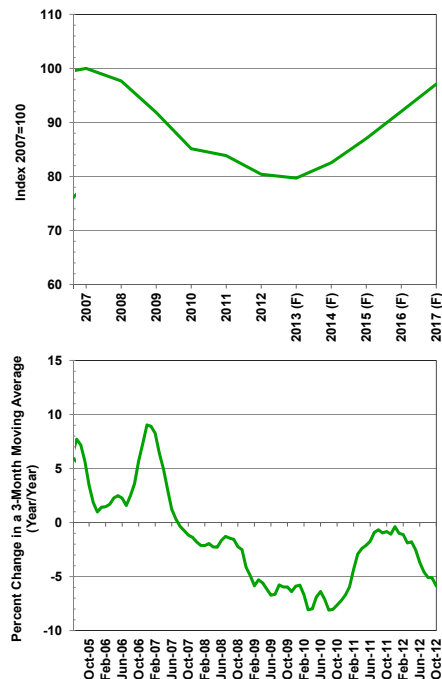
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Figures 4a & 4b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

Figures 5a & 5b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Household appliance production (Figures 4a and 4b)

- Household appliance production is projected to increase 2 percent in 2013 and 5 percent in 2014, and then grow at an average 3 percent annual rate from 2015 to 2017.
- Production declined 1 percent in the three months ending October 2012 compared with the same period one year ago; small appliance production increased 2 percent and large appliance production declined 2 percent. The momentum indicator, relating production from August to October 2012 to that of the previous three months, shows production declining at a 5 percent annual rate.
- Existing home sales in October increased 11 percent from one year ago.
- Household appliance imports increased 6 percent while exports declined 4 percent; the trade deficit was more negative in the third quarter of 2012 compared with one year ago.

## Pharmaceutical and medicine production (Figures 5a and 5b)

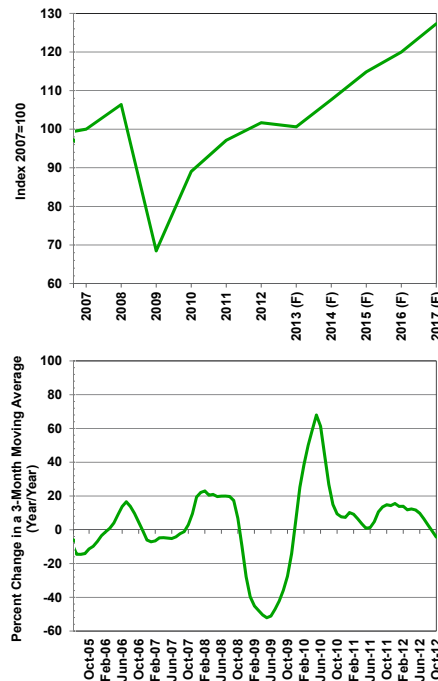
- Pharmaceutical and medicine production should decline 1 percent in 2013 and increase 4 percent in 2014. Growth is expected to average 6 percent a year from 2015 to 2017.
- Production declined 6 percent in the three months ending October 2012 compared with the same period one year ago, and the recent quarter-to-quarter change fell at an 8 percent annual rate.
- The dominant issue in the pharmaceutical industry is that firms are losing patent protection on an increasingly large number of mega-revenue products and are not able to replace the losses with other blockbusters.
- IMS Institute for Healthcare Informatics says that the market share for branded medicines fell from 70 percent in 2005 to 64 percent in 2010 and is expected to decline to 53 percent by 2015.
- Implementation of the Affordable Care Act starting in 2014 will increase access for 30 million people to drug treatments by reducing drug costs to patients and increasing their access to prescribers.
- Pharmaceutical imports declined 2 percent while exports increased 7 percent; the trade deficit was less negative in the third quarter of 2012 compared with one year ago.



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Figures 6a & 6b

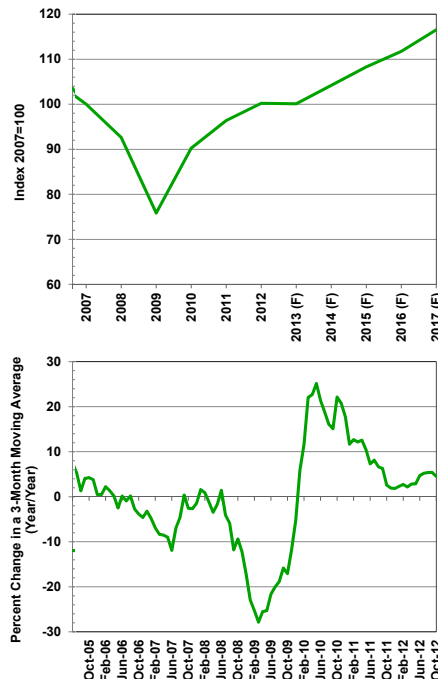


F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Iron and steel products production (Figures 6a and 6b)

- Iron and steel production is forecast to decline 1 percent in 2013 and increase 7 percent in 2014. The average annual rate of growth predicted for steel production from 2015 to 2017 is 6 percent.
- Output fell 4 percent in the three months ending October 2012 versus the same period one year ago. Compared with May to July, however, production momentum declined at a 25 percent annual rate.
- Capacity utilization in the U.S. steel industry was 71 percent in the week of November 24, 2012 (down from 73 percent in the same week in 2011), below the rate for overall manufacturing.
- Production by U.S. durable goods manufacturing industries rose 6 percent during August to October 2012 compared with May to July; these are predominately steel-intensive industries.
- The U.S. steel industry is not alone in its recent decline. Steel production was down 5 percent in Europe (27 countries), down 16 percent in Taiwan, and down 2 percent in Japan in the three months ending October 2012 compared with year-ago levels. Brazil's steel production rose 1 percent, China's was up only 3 percent, and India's rose 6 percent during this time.
- Steel product imports were unchanged while exports declined 4 percent; the trade deficit was more negative in the third quarter of 2012 compared with one year ago.

Figures 7a & 7b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Alumina and aluminum production and processing (Figures 7a and 7b)

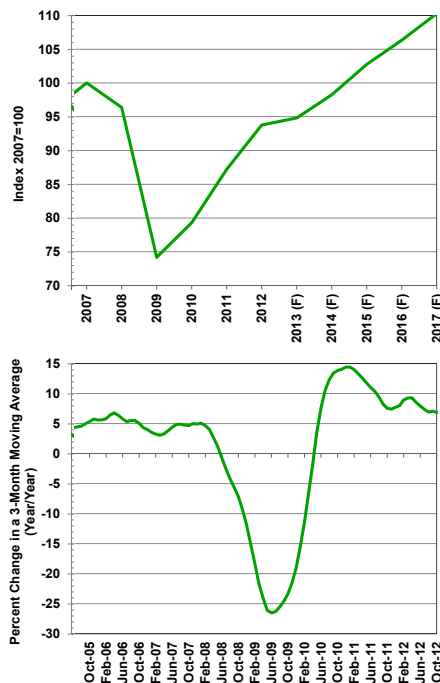
- Alumina and aluminum production is forecast to be flat in 2013 and expand 4 percent in 2014. The average annual rate of growth in production from 2015 to 2017 is predicted to be 4 percent.
- Production increased 5 percent in the three months ending October 2012 compared with the same period one year ago. Primary aluminum production grew 1 percent from year-ago levels, while production of aluminum sheet, plate, and foil was up about 6 percent. Extruded products grew 5 percent.
- Aluminum-using industry posted strong growth: heavy-duty truck production went up 14 percent, light vehicle production rose 13 percent, and aerospace production advanced 5 percent in August to October 2012 compared with year-ago levels.
- The Metals Service Center Institute reported that aluminum product shipments from U.S. metals services centers declined 2 percent in October 2012 versus the same month one year ago.
- Alumina and aluminum production and processing imports fell 19 percent while exports were unchanged; as a result, the trade deficit was substantially less negative in the third quarter of 2012 compared with one year ago.



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Figures 8a & 8b



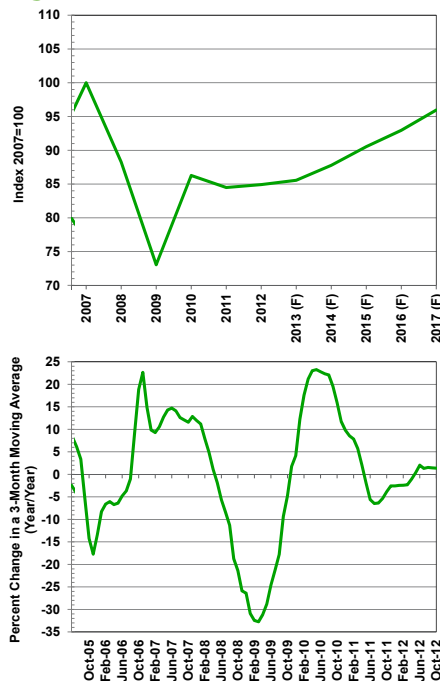
F=Forecast

Source(s): Federal Reserve Board and MAPI

## Fabricated metal products production (Figures 8a and 8b)

- Fabricated metals production is forecast to post modest gains of 1 percent in 2013, 4 percent in 2014, and a 4 percent average annual rate from 2015 to 2017.
- Production was up 7 percent in the three months ending in October relative to the same period one year ago.
- All major types of fabricated metal products (except spring and wire products) saw production increases relative to one year ago. Forging and stamping was up 9 percent, architectural and structural metals 5 percent, machine shop turned products and fasteners 7 percent, and coating, engraving, and heat treating 5 percent in the three months ending in October relative to the same period one year ago.
- Fabricated metal products imports increased 10 percent while exports increased 11 percent; the trade deficit was a little more negative in the third quarter of 2012 compared with one year ago.

Figures 9a & 9b



F=Forecast

Source(s): Federal Reserve Board and MAPI

## Basic chemicals production (Figures 9a and 9b)

- Basic chemicals production is forecast to be up 1 percent in 2013 and 3 percent in 2014, and grow at a 3 percent average annual rate from 2015 to 2017.
- Overall production increased 1 percent in the three months ending October 2012 compared with the same period one year ago but the quarter-to-quarter momentum was a much stronger 9 percent.
- Petrochemical and other organic chemicals production declined 1 percent in the three months ending in October versus one year ago. Hurricane Sandy shut down some East Coast plants. Petrochemical manufacturing includes ethylene, propylene, butylene, toluene, styrene, xylene, ethyl benzene, and cumene made from petroleum and natural gas.
- Inorganic chemicals production increased 7 percent in the three months ending October 2012 compared with the same period one year ago.
- A report from U.S. freight railroads indicates that chemical car loadings fell 1 percent in the first 46 weeks of 2012 versus year-ago levels.
- Basic chemicals imports fell 9 percent while exports declined 4 percent; the trade account was slightly positive in the third quarter of 2012 compared with slightly negative one year ago.

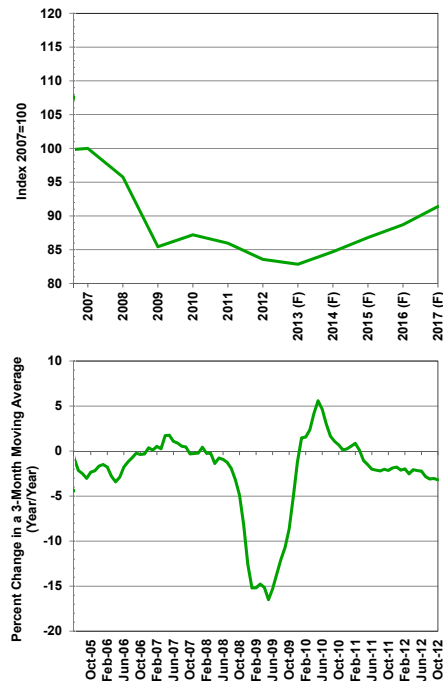




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Figures 10a & 10b

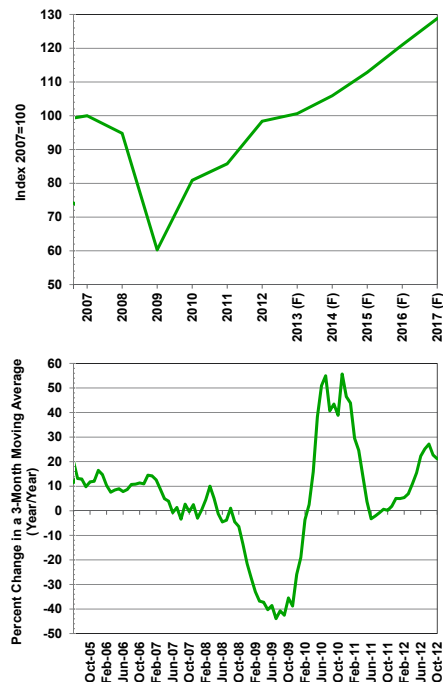


F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Paper production (Figures 10a and 10b)

- The outlook for paper production is for a 1 percent decline in 2013 and 2 percent growth in 2014. From 2015 to 2017, production is predicted to grow an average of 3 percent a year.
- Production fell 3 percent in the three months ending October 2012 compared with the same period one year ago. A more short-term (quarter-to-quarter) analysis reveals greater weakness in production.
- Recent production is declining in paper, paperboard, containers, and bag and coated paper.
- In a related sector, industrial production of food products increased 3 percent in the three months ending October 2012 compared with year-ago levels.
- A report from the American Trucking Association indicated that truck tonnage was down 2.1 percent in October 2012 from October 2011. Nevertheless, truck tonnage was up 3 percent in the first 10 months of 2012 versus one year ago.
- Paper imports declined 4 percent while exports fell 2 percent; the trade surplus was more positive in the third quarter of 2012 compared with one year ago.

Figures 11a & 11b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Construction machinery production (Figures 11a and 11b)

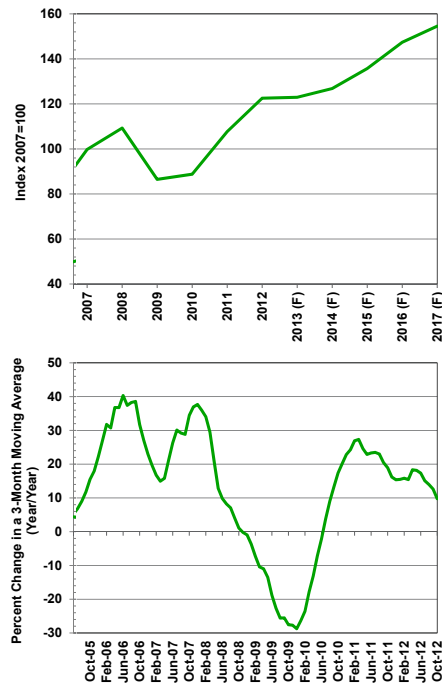
- Construction machinery production is expected to increase 2 percent in 2013 and 5 percent in 2014. From 2015 to 2017, the average annual growth is expected to be 7 percent.
- Production expanded at a 21 percent annual rate in August to October 2012 versus the same period one year ago. The quarter-to-quarter momentum, however, has flattened out.
- Housing starts increased 35 percent and private nonresidential construction activity rose 7 percent, but public works construction fell 7 percent in the three months ending October 2012 compared with the same period one year ago.
- Quarrying production rose 2 percent and logging production gained 4 percent in August to October 2012 versus one year ago.
- Iron ore mining declined 4 percent but nonferrous mining production increased 2 percent in the three months ending October 2012 compared with the same period one year ago.
- Construction equipment production is export-oriented. Imports increased 29 percent while exports rose only 4 percent; the trade surplus was less positive in the third quarter of 2012 compared with 2011.
- Caterpillar attributes the strong North American construction equipment market more to fleet upgrading than to the strength of the construction market; their worldwide machine deliveries to users for retail sales were up 8 percent in October 2012 versus one year ago.



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Figures 12a & 12b

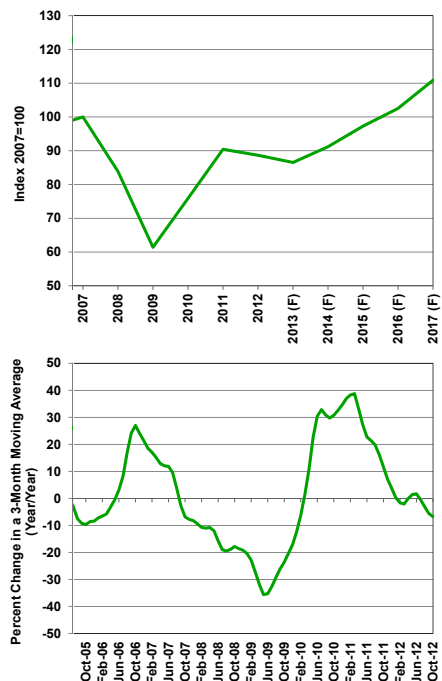


F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Mining and oil and gas field machinery production (Figures 12a and 12b)

- Mining and oil and gas field machinery production is predicted to be flat in 2013, up 3 percent in 2014, and grow at a 7 percent average annual rate from 2015 to 2017.
- Production increased 10 percent in the three months ending October 2012 compared with one year ago, but quarter-to-quarter momentum was negative.
- The Energy Information Administration projects that coal production fell 7 percent in 2012 and will be flat in 2013.
- Gold and silver mining in the United States increased 1 percent in the three months ending October 2012 compared with 2011.
- Oil and gas well drilling production declined 3 percent in the three months ending October 2012 compared with 2011. Momentum in the drilling market was very negative.
- Mining and oil and gas field machinery production is export-oriented. Imports increased 1 percent while exports were flat; the trade surplus was relatively unchanged in the third quarter of 2012 compared with one year ago.

Figures 13a & 13b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Industrial machinery production (Figures 13a and 13b)

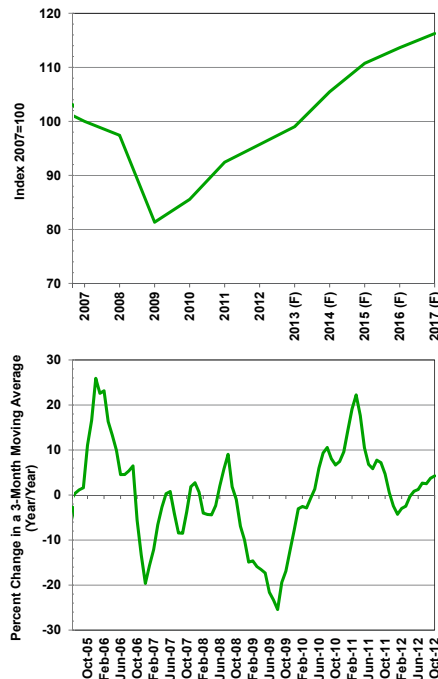
- Industrial machinery is capital equipment for specific nonmetallic manufacturing industries, such as woodworking, plastics, paper, textiles, printing, food products, and semiconductors.
- We forecast production to decline 2 percent in 2013 and increase 5 percent in 2014. From 2015 to 2017, production is predicted to grow an average of 7 percent a year.
- Production declined 7 percent in the three months ending October 2012 compared with the same period one year earlier and the momentum indicator is plunging downward.
- In related sectors, wood products production rose 3 percent, paper production declined 3 percent, textile mill production gained 4 percent, food production rose 3 percent, and plastic products expanded 3 percent in August to October 2012 compared with the previous year.
- Manufacturing capacity utilization was 76 percent in October 2012, a loss of about 2 percentage points in the last three months.
- The Semiconductor Equipment Association reported that equipment bookings in the three months ending October 2012 were 20 percent lower than the same period one year ago.
- Construction of new manufacturing plants increased 5 percent in the August to October 2012 period from one year ago.
- Industrial machinery imports increased 5 percent while exports gained 5 percent; the trade surplus was slightly more positive in the third quarter of 2012 compared with one year ago.



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Figures 14a & 14b

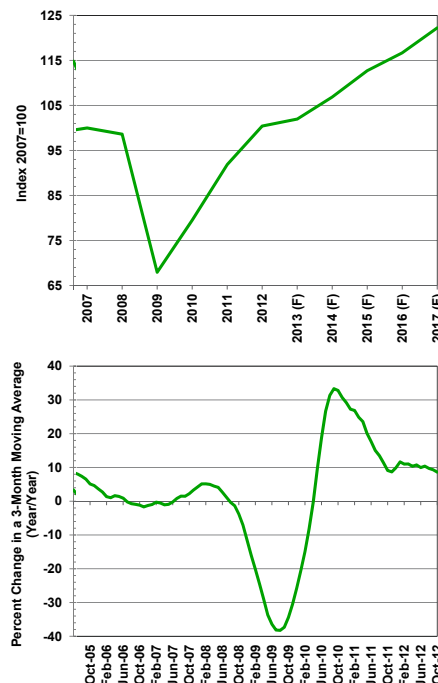


F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Ventilation, heating, air conditioning, and commercial refrigeration equipment production (HVAC) (Figures 14a and 14b)

- HVAC production should trail the rebound in housing and nonresidential construction. A 3 percent increase in 2013, 7 percent gain in 2014, and 3 percent average annual growth from 2015 to 2017 are predicted.
- Production rose 4 percent in the period of August to October 2012 on a year-over-year basis; however, the momentum (quarter-to-quarter growth) declined at an 8 percent annual rate.
- In related sectors, construction spending for home improvement was up 17 percent and inflation-adjusted private nonresidential construction increased 7 percent.
- Construction related to refrigeration is unfavorable. Inflation-adjusted food manufacturing construction fell 35 percent and inflation-adjusted food store construction was down 19 percent.
- HVAC imports increased 1 percent while exports rose 3 percent; the trade deficit was slightly less negative in the third quarter of 2012 compared with one year ago.

Figures 15a & 15b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Metalworking machinery production (Figures 15a and 15b)

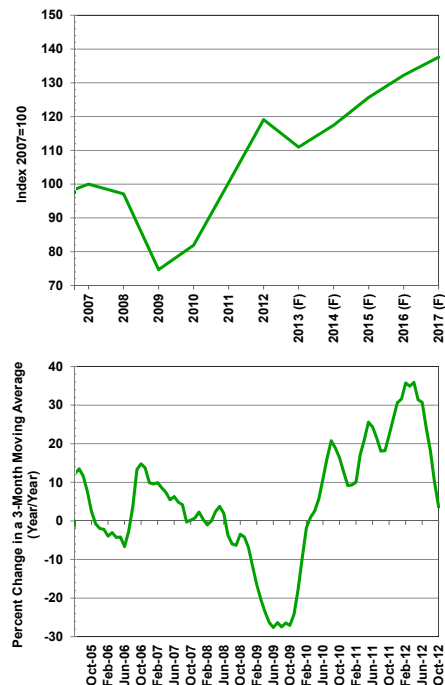
- Metalworking machinery consists of industrial molds; metal cutting and forming machine tools; special tools, dies, jigs, and fixtures; and miscellaneous metalworking machinery (cutting tools and rolling mill machinery).
- Metalworking machinery production should increase 2 percent in 2013 and 5 percent in 2014. From 2015 to 2017, production is predicted to grow an average of 5 percent a year.
- Production increased 9 percent in the three months ending October 2012 over year-ago levels, but the momentum (quarter-to-quarter growth) fell at a 4 percent annual rate.
- The U.S. Census Bureau reported that metalworking machinery orders (in dollars) were up 6 percent in the third quarter of 2012 versus the third quarter of 2011.
- Metalworking machinery imports increased 4 percent while exports rose 1 percent; the trade deficit was more negative in the third quarter of 2012 compared with one year ago.



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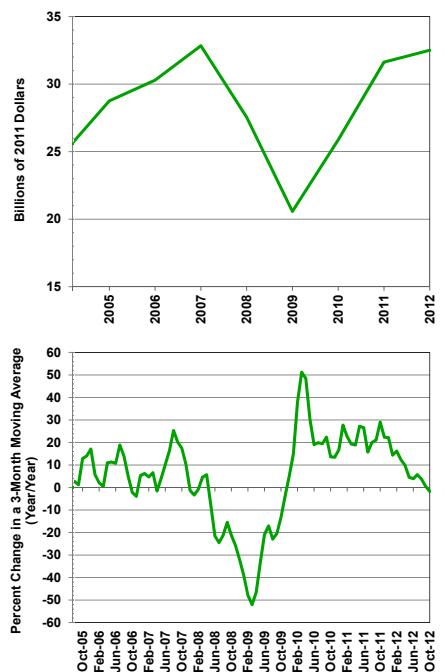
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Figures 16a & 16b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

Figures 17a & 17b



Source(s): U.S. Bureau of the Census and MAPI

## Engine, turbine, and power transmission equipment production (Figures 16a and 16b)

- Engine, turbine, and power transmission equipment is used for freight movement, natural gas transmission, marine engines, and electric power.
- The sector’s production is predicted to decline 7 percent in 2013, grow 6 percent in 2014, and expand at a 5 percent average annual rate from 2015 to 2017.
- Production grew 4 percent in the three months ending October 2012 compared with the same period one year ago but quarter-to-quarter momentum was very negative.
- Heavy-duty truck production was up 14 percent and the production of ships and boats was flat in the three months ending October 2012 over year-ago levels. Ship and boat production is expected to decline 4 percent in 2013 and fall 2 percent in 2014 thanks to defense cuts.
- Gas turbines are used for electric peaking generation. Electric power construction spending increased 21 percent in the third quarter of 2012 versus the same period one year ago.
- Turbines compress gas in pipelines and power oil and gas well drilling. Pipeline and storage construction increased 26 percent in the third quarter versus the same period one year ago, whereas oil and gas drilling in the United States declined 3 percent in the three months ending in October 2012.
- The American Wind Energy Association reported that wind power installations were up 52 percent in the third quarter of 2012 compared with the third quarter of 2011. Businesses are taking advantage of the Section 1603 investment tax credit.
- Engine, turbine, and power transmission equipment imports increased 3 percent while exports rose 6 percent; the trade account is in surplus and was more positive in the third quarter of 2012.

## Material handling equipment new orders (Figures 17a and 17b)

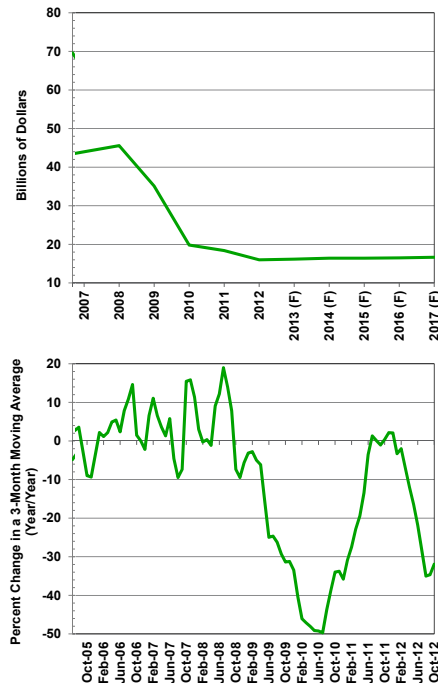
- Material handling equipment consists of elevators, escalators, conveyors, overhead traveling cranes, hoists, industrial trucks, tractors, and trailers.
- In the three months ending October 2012, inflation-adjusted material handling orders fell 2 percent from the activity one year ago.
- The construction of buildings where elevators and escalators could be used is just starting to turn the corner. Construction of private and public buildings increased 3 percent in the third quarter versus the same period one year ago.
- Material handling equipment imports increased 15 percent while exports rose 7 percent; the trade deficit moved into a small deficit in the third quarter of 2012 from a surplus one year ago.



# U.S. Industrial Outlook

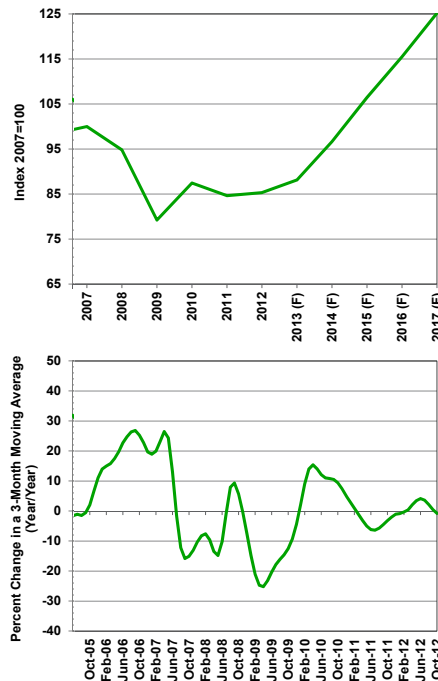
Economic Outlook | December 2012

Figures 18a & 18b



F=Forecast  
Source(s): U.S. Bureau of the Census and MAPI

Figures 19a & 19b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Shipments of electronic computer equipment (Figures 18a and 18b)

- Our modeling predicts that spending for domestic computers (domestic spending plus exports, minus imports) will increase 1 percent in 2013, grow 2 percent in 2014, and expand at less than a 1 percent average annual rate from 2015 to 2017.
- Computer shipments fell 32 percent in the third quarter of 2012 compared with one year ago at a time when electronic computer prices declined 6 percent. Hurricane Sandy is believed to have depressed computer and electronic product production in October.
- Electronic computer imports fell 9 percent while exports rose 1 percent; the trade deficit was less negative in the third quarter of 2012 compared with one year ago.

## Communications equipment production business activity (Figures 19a and 19b)

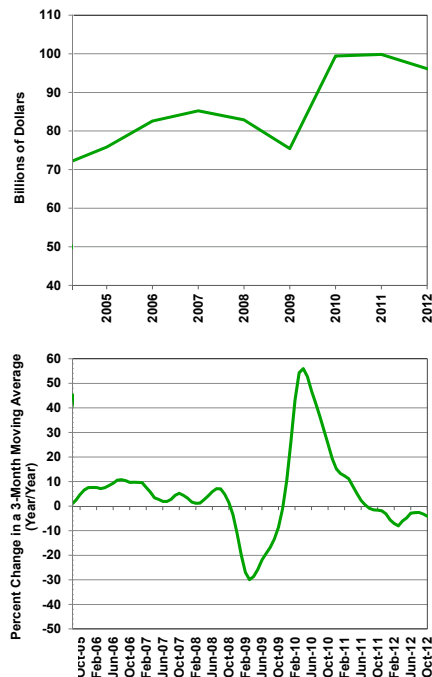
- Communications equipment encompasses telephone apparatus and broadcast and wireless communications equipment. The category also includes alarms, signaling equipment, and safety detectors.
- Communications equipment is measured by an industrial production index that adjusts activity upward to account for quality features.
- Production is expected to increase 3 percent in 2013 and rise 10 percent in 2014. From 2015 to 2017, production is predicted to grow an average of 9 percent a year.
- Production fell 1 percent in the period of August to October 2012 compared with one year ago.
- Construction spending for communications infrastructure declined 3 percent in the three months ending October 2012 versus year-ago levels.
- Defense communications are about one-tenth of the communications equipment market, and new orders in this area declined 33 percent (in dollar terms) in the third quarter of 2012 from one year ago. Civilian communications equipment orders declined 2 percent.
- Indicators show that the production of alarms, signaling equipment, and safety detectors declined in the third quarter from one year ago.
- The communications equipment industry is very dependent on imports from contract manufacturing plants in Asia, and domestic production accounts for only a small proportion of domestic consumption. Imports rose 12 percent while exports fell 4 percent; the trade deficit was substantially more negative in the third quarter of 2012 compared with one year ago.



# U.S. Industrial Outlook

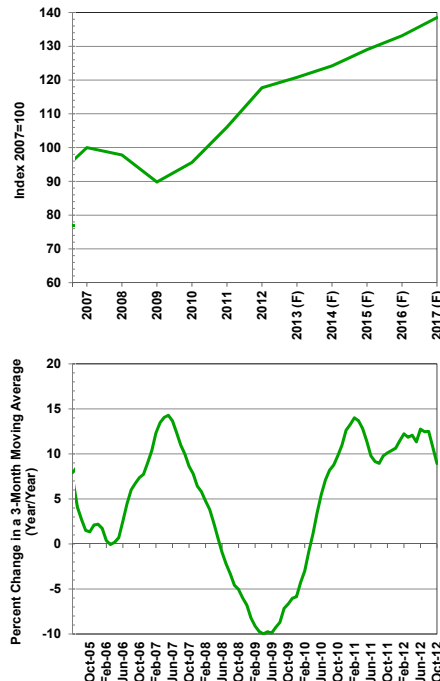
Economic Outlook | December 2012

Figures 20a & 20b



Source(s): Semiconductor Industry Association and MAPI

Figures 21a & 21b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Semiconductors (Figures 20a and 20b)

- The dollar value of global billings reported by the Semiconductor Industry Association (SIA) fell 4 percent in the three months ending October 2012 compared with one year ago, while semiconductor prices fell 6 percent.
- The wireless communication segment for media tablets, smartphones, and industrial electronics is expected to have strong growth. The movement away from personal computers and peripherals is lowering demand.
- World semiconductor revenues are forecast by World Semiconductor Trade Statistics, an association of semiconductor companies, to grow 5 percent in 2013 and 2014.
- The United States is both a large importer and exporter of semiconductors. Imports fell 2 percent while exports fell 5 percent; the trade deficit was slightly more negative in the third quarter of 2012 compared with one year ago.

## Navigational, measuring, electromedical, and control instruments production (Figures 21a and 21b)

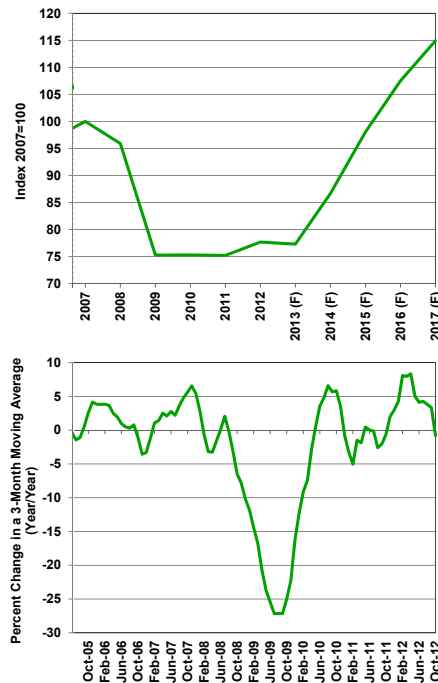
- Instrument industry production is forecast to grow 3 percent in 2013 and 2014. From 2015 to 2017, 4 percent average annual production growth is predicted.
- Instrument production was up 9 percent in the three months ending October 2012 compared with one year ago.
- Search and navigation shipments (in dollars) were unchanged in the third quarter relative to one year ago; defense shipments fell 1 percent and nondefense shipments were up 1 percent.
- The electromedical industry's output is growing modestly. Electromedical apparatus include scopes, defibrillators, EKGs, MRIs, pacemakers, ultrasounds, and many other medical testing instruments. Irradiation apparatus include CT scanners, x-ray machines, and medical radiation therapy machines.
- Industrial process instruments measure, control, or display industrial process activities such as temperature, pressure, vacuum, and viscosity. Industrial production activity is flattening out, the factory utilization rate fell recently, and while industrial construction grew 5 percent in the third quarter of 2012, the quarter-to-quarter momentum was very negative.
- Instruments for measuring and testing electricity and electrical signals seem to have modest growth. Examples of these products include circuit and continuity testers, volt meters, ohm meters, watt meters, multimeters, and semiconductor test equipment.
- Navigational, measuring, electromedical, and control instruments imports increased 6 percent while exports rose 6 percent; the trade deficit was slightly more negative in the third quarter of 2012 compared with one year ago.



# U.S. Industrial Outlook

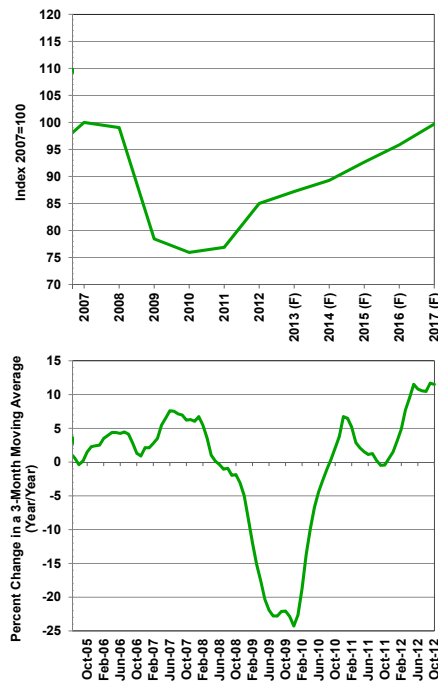
Economic Outlook | December 2012

Figures 22a & 22b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

Figures 23a & 23b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Electric lighting equipment production (Figures 22a and 22b)

- Electric lighting equipment includes electric lamp bulbs and residential, commercial, and industrial lighting fixtures.
- We predict electric lighting equipment production will be flat in 2013, grow 12 percent in 2014, and increase at a 10 percent average annual rate from 2015 to 2017.
- Production fell 1 percent in the three months ending October 2012 compared with one year ago and the quarter-to-quarter momentum was very negative.
- In related sectors, housing starts increased 35 percent and inflation-adjusted nonresidential construction of buildings was unchanged in the three months ending October 2012 versus the same period one year ago.
- The sustainability movement and cost savings from energy efficiency are working in the industry's favor. LEDs and other innovations that reduce energy consumption have attractive returns on investment, which should spur replacement demand from existing buildings.
- Electric lighting equipment imports increased 15 percent while exports were flat; the trade deficit was more negative in the third quarter of 2012 compared with one year ago.

## Electrical equipment production (Figures 23a and 23b)

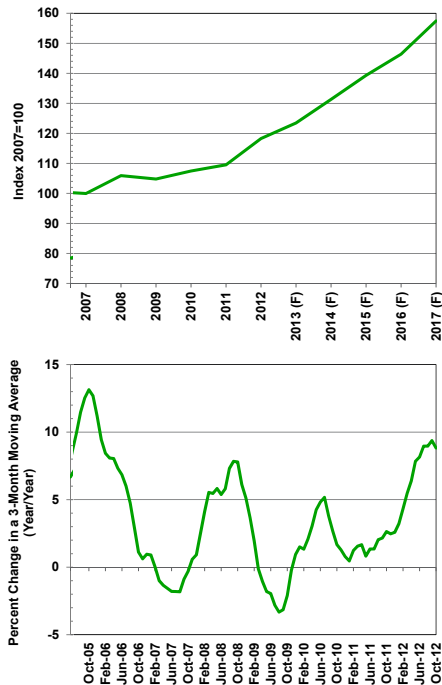
- This sector consists of transformers, motors and generators, switchgear, relays, and industrial controls.
- Electrical equipment production should increase 3 percent in 2013 and 2 percent in 2014, and grow at an average annual rate of 4 percent from 2015 to 2017.
- Production was up 12 percent in the three months ending October 2012 compared with one year ago.
- There is pent-up demand for replacing and upgrading industrial controls. The factory operating rate recovered quickly, reaching 78 percent in July, but the utilization rate has fallen back to 76 percent in October 2012—partly due to Hurricane Sandy.
- Electric motors and generators provide power for many machinery and transportation applications, while generators convert motion into electricity for residential, utility, and industrial uses. Production currently appears to be flat.
- Transformers and power distribution equipment tend to follow electric utility construction, the creation of new communities, and a replacement cycle. Strong transformer replacement activity following recent natural disasters seems to be driving the market.
- Switchgear and switchboard apparatus production is growing.
- Electrical equipment imports increased 13 percent while exports increased 9 percent; the trade deficit was more negative in the third quarter of 2012 compared with one year ago.



# U.S. Industrial Outlook

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Figures 24a & 24b

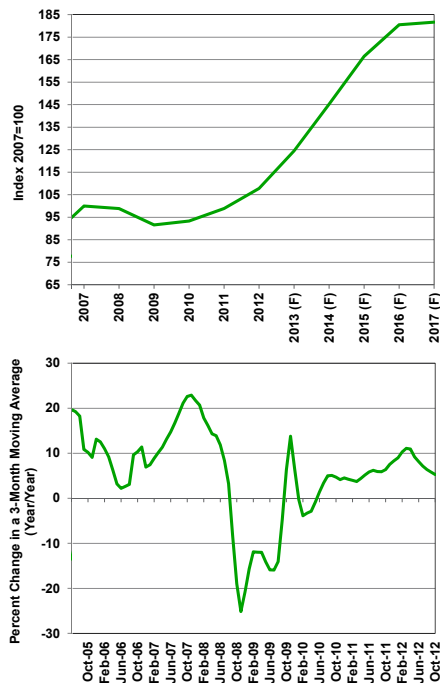


F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Medical equipment and supplies production (Figures 24a & 24b)

- This category encompasses surgical and medical instruments, surgical appliances and supplies, and dental laboratories.
- Medical equipment production is predicted to grow 4 percent in 2013 and 6 percent in 2014. From 2015 to 2017, 6 percent average annual production growth is predicted.
- Production increased 9 percent in the three months ending October 2012 compared with year-ago levels.
- Medical and surgical instruments production is leading the growth in the industry.
- Surgical appliances and supplies; dental laboratories; and safety equipment and supplies and the “all other” group that includes lab equipment and hospital furniture, dental equipment and supplies, and vision care goods all grew at a slow pace in the three months ending in October.
- Medical equipment and supplies imports declined 1 percent while exports increased 5 percent; the trade deficit was less negative in the third quarter of 2012 compared with one year ago.

Figures 25a & 25b



F=Forecast  
Source(s): Federal Reserve Board and MAPI

## Aerospace products and parts production (Figures 25a and 25b)

- Aerospace products and parts production should increase 16 percent in 2013 and 17 percent in 2014, and post average annual growth of 8 percent from 2015 to 2017.
- In the three months ending October 2012, production grew 5 percent compared with one year ago.
- Boeing reported 369 net orders for new commercial airplanes in the third quarter of 2012 and delivered 149 (a 17 percent increase from the third quarter of 2011). Boeing delivered 477 commercial airplanes in 2011, and they expect about 593 deliveries in 2012, a 24 percent increase.
- U.S. airline traffic—measured in revenue passenger miles—rose 1.4 percent in the first eight months of this year.
- The International Air Transport Association (IATA) forecast that world passenger traffic will rise 5 percent in 2013 and world freight traffic will be up 2 percent.
- The defense side of the aerospace business is starting to struggle with imminent military budget cuts and downsizing. Defense aerospace shipments (in dollars)—about 40 percent of the total industry—increased 3 percent in the third quarter of 2012 versus one year ago. Civilian aviation is growing much faster; non-defense aircraft and parts shipments (in dollars) went up 16 percent in this time frame.
- Aerospace imports increased 20 percent while exports increased 16 percent; exports are more than twice as large as imports so the trade surplus was still more positive in the third quarter of 2012 compared with one year ago.

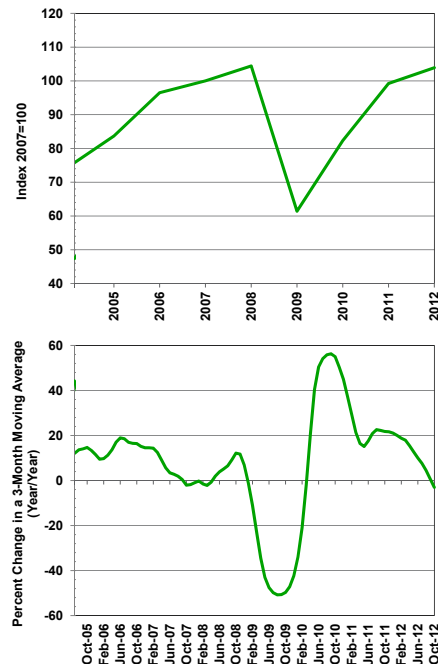




# U.S. Industrial Outlook

Economic Outlook | December 2012

Figures 26a & 26b



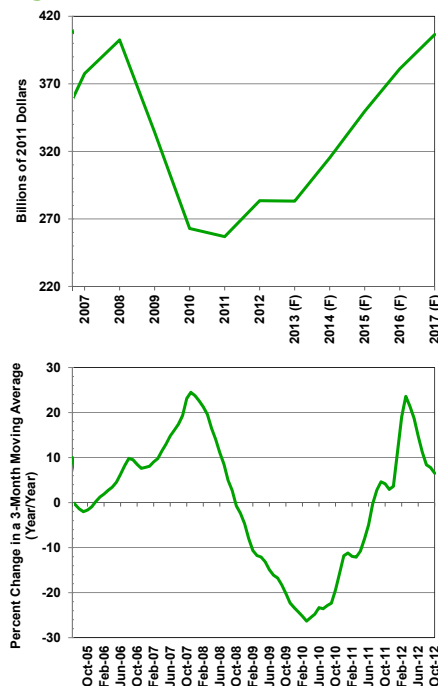
Source(s): Federal Reserve Board and MAPI

## Oil and gas well drilling production (Figures 26a and 26b)

- MAPI does not forecast drilling production.
- Drilling activity declined 3 percent in the three months ending October 2012 relative to one year ago and has strongly negative momentum.
- Brent oil was \$109 per barrel in late October—this incorporates global growth uncertainties and less Iranian oil in the price.
- Baker Hughes reported that the total rig count was 8 percent below year-ago levels in the 13 weeks ending October 21, 2012 versus the same period one year ago.
- 76 percent of operating U.S. rigs were looking for oil in late October 2012. The U.S. rig count for oil drilling was up by 29 percent in the 13 weeks ending October 21, 2012 versus the same period one year ago. The U.S. rig count for natural gas drilling was down 52 percent in the same period.

## Private nonresidential construction put-in-place (Figures 27a and 27b)

Figures 27a & 27b



F=Forecast

Source(s): U.S. Bureau of the Census and MAPI

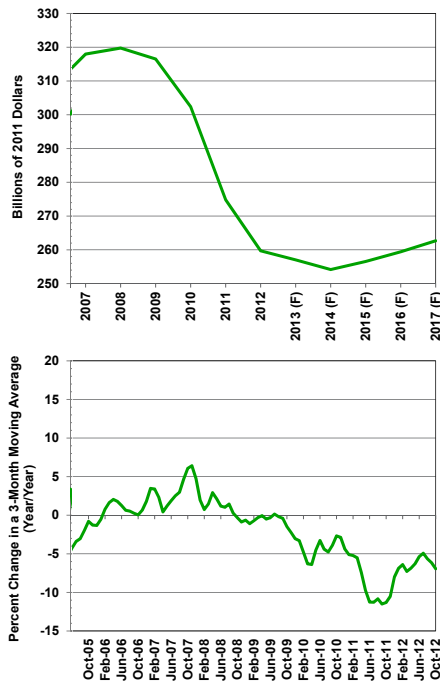
- Inflation-adjusted nonresidential spending is predicted to be flat in 2013 and increase 11 percent in 2014. From 2015 to 2017, 9 percent average annual production growth is predicted.
- Nonresidential construction was up 7 percent in the three months ending September 2012 versus year-ago levels.
- Many of the structures that declined the most during the recession are posting large percentage gains as they rebound from low levels of activity. Lodging, office buildings, private higher education, private transportation, and power construction were very strong in the summer. There were moderate gains in office and commercial construction. A decline in construction activity occurred in amusement and recreation, religious, and communication construction. We forecast that inflation-adjusted commercial construction activity will increase 7 percent in 2013 and grow 23 percent in 2014.
- Manufacturing construction put-in-place slowed in the third quarter and the momentum was very negative. Construction spending for factories rose only 5 percent in the three months ending September 2012 over year-ago levels. The strongest growth was in chemicals and rubber and plastics. The forecast is for inflation-adjusted industrial construction to grow 5 percent in 2013 and 8 percent in 2014.
- Leading indicators are the architectural and engineering firm billings indexes, which have oscillated between growth and decline and a slower rate of growth in employment. The pipeline of projects is filling at a slower rate.
- Electric power construction surged this year to rebuild after a series of natural disasters. A large decline is expected in 2013 without severe weather events.



# U.S. Industrial Outlook

Economic Outlook | December 2012

Figures 28a & 28b



F=Forecast  
Source(s): U.S. Bureau of the Census and MAPI

## Public construction put-in-place (Figures 28a and 28b)

- Construction spending by federal, state, and local governments is primarily directed toward schools, highways, sewers, dams, waterworks, and various public buildings.
- Inflation-adjusted public construction spending is forecast to decline 1 percent in 2013 and 2014. Less than a 1 percent average annual rate of growth is expected for 2015 to 2017.
- Public works construction declined 7 percent in the three months ending October 2012 compared with the same period one year ago and the quarter-to-quarter momentum was similarly negative.
- The largest declines in public construction were in office buildings, conservation and development, and water supply.
- Small declines were found in education, healthcare, public safety, and sewage and waste disposal.
- Modest gains in public construction occurred in the categories of amusement and recreation, transportation, power, and street and highway.
- State and local government receipts from taxes and federal transfers will rise only 3.2 percent in 2013 but should grow 5.5 percent in 2015. The higher personal tax receipts and the rebound in business income tax payments lead the revenue gain. Federal grants-in-aid for Medicaid will get a large boost from the implementation of the Affordable Care Act in 2014.



## Thought Leadership

Manufacturing executives, policymakers, the media, and the association community rely on MAPI's research to gain unbiased insight into the issues facing the manufacturing sector. Rather than lobbying, we leverage our position as a thought leader to raise awareness of what U.S. manufacturing needs to remain innovative, productive, and best-in-class. Our experts are regularly featured in outlets such as the *Wall Street Journal*, *Businessweek*, and the *New York Times*.



## Economic Intelligence

Members use MAPI's economic intelligence to navigate the increasingly complex global marketplace. Our research supports a variety of member decisions, including expansion into new markets, scenario planning, and facility location. Our work includes forecasts and analyses for the U.S., China, India, Japan, Latin America, Europe, and Canada.



## Councils

By leveraging the experiences of their peers, members use MAPI to make their enterprises more competitive and to increase their personal effectiveness. Each Council holds semiannual meetings where members exchange expertise in a vendor-free roundtable setting. Outside the meeting room, members participate in group polls and benchmark surveys that provide insight into current and best practices.

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Ethics & Compliance	Manufacturing	Sustainability
Financial	Marketing	Tax
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Government Contracts	Purchasing	