LIFT OUTLOOK

Spring 2016

INTERINDUSTRY FORECASTING PROJECT
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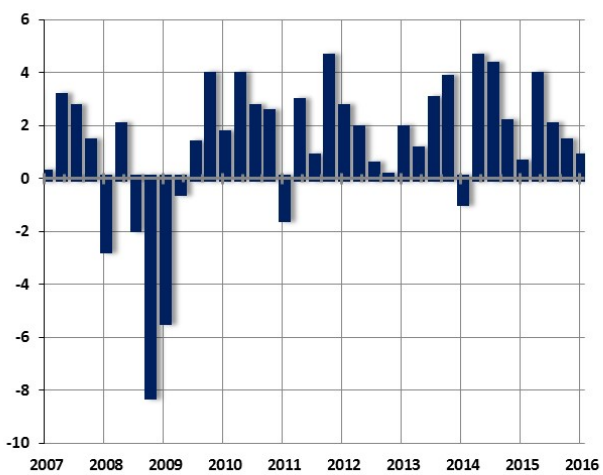
Current Economic Environment

Despite widespread pessimism and deceleration of activity during the fourth quarter, the U.S. economy still displayed significant signs of strength in 2015 for the year as a whole, led by personal consumption and residential construction. These strengths were offset partially by deterioration in energy development and net exports to produce a sixth consecutive year of moderate growth.

The private sector generally did well in 2015 after a sluggish first quarter when bad winter weather hampered construction and other activity. Figure 1 shows that quarter-to-quarter growth in real (inflation-adjusted) GDP surged 3.9% in the second quarter and 2.0% in the third, though growth slipped to 1.4% in the fourth quarter because of collapsing energy-sector investment, falling net exports, and slowing personal and government spending. Table 1 (on page 8) shows that real (inflation-adjusted) GDP increased 2.4% in 2015, matching the 2.4% performance of 2014 and stronger than the (sequester-influenced) 1.5% growth of 2013. Overall growth in 2015 was slightly lower than many analysts expected, and GDP decelerated further to 0.8% in the first quarter of 2016.

Figure 1: Quarterly Real GDP Growth

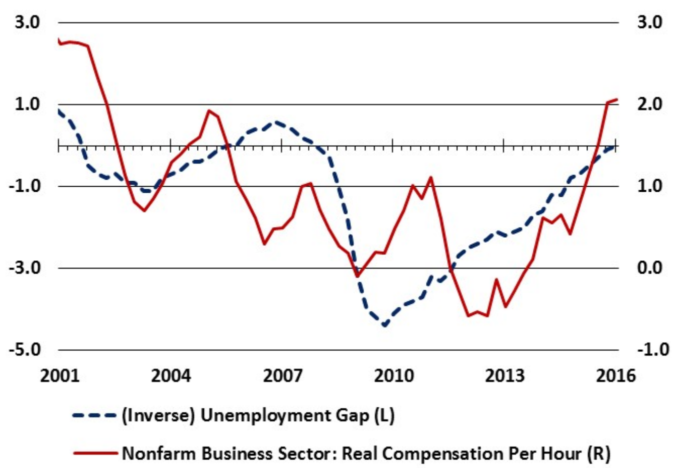
(Seasonally Adjusted Annual Rate)



The best news in 2015 was real disposable income growth of 3.5%. Higher employment levels and a modest rise in wage rates, along with low consumption price inflation, spurred this growth. Nominal wages are creeping upward, with recent year-to-year growth above 2.0%. Real compensation per hour for the nonfarm business sector grew above 3.0% for the second and third quarters of 2015 relative to compensation rates a year earlier, followed by gains of 2.7% and 2.6% in the following two quarters; this is a broader measure of compensation and is adjusted for inflation. Figure 2 shows that real compensation has been climbing as unemployment has moved back to its natural rate (NAIRU) of about 5.0%. Solid wage and employment growth helped to boost real consumption spending by 3.1% in 2015, well above the 1.7% growth of 2013 and 2.7% in 2014.

Figure 2: Wage Growth and Unemployment

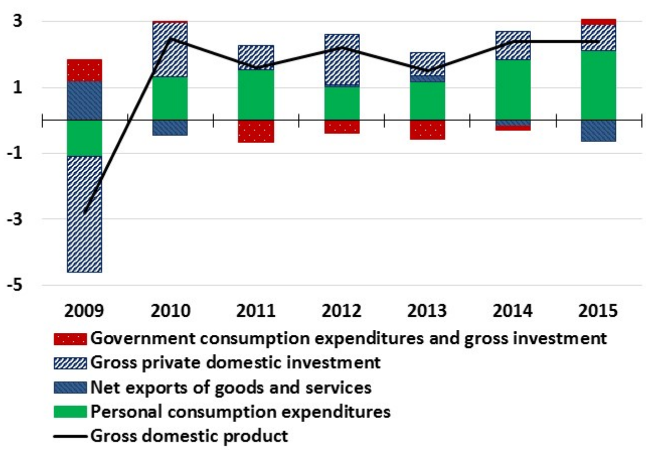
(Smoothed Growth and Inverse Unemployment Gap)



Growth was helped by stabilizing government spending. Inflation-adjusted government consumption and investment expenditures (which includes goods and services but not entitlements) rose for the first time since a slight increase in 2010. Federal non-defense expenditures rose 1.2% in 2015 after a 0.1% decline in 2014. Federal defense spending fell 1.2% during 2015 after falling 3.8% in 2014. Inflation-adjusted state and local spending rose 1.4%. The increase of overall real government spending was 0.7%, which followed a 0.6% drop in 2014.

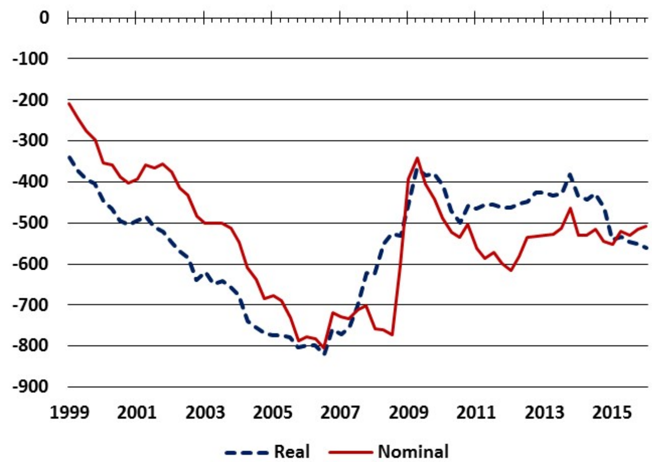
Figure 3 shows the contribution to real GDP growth of its major expenditure components. In contrast to government spending patterns that followed the troughs of other recessions in the past three decades, where fiscal policies typically were expansionary, overall fiscal policy following the Great Recession was contractionary. For the first time since federal stimulus spending began to wane, recent government consumption and investment spending has contributed to growth.

Figure 3: Final Demand Expenditures
(Contributions to GDP Growth)



The biggest disappointment of 2015 was a sudden but persistent drop in net exports at the end of 2014 and beginning of 2015 (Figure 4) as weakness in the economies of major U.S. trading partners in Asia and Europe continued. The associated strengthening of the dollar left domestic producers at a disadvantage, so it is not surprising that real exports grew by a slight 1.1% in 2015 following 3.4% growth in 2014. Healthy income growth, a strong dollar, and low import inflation supported a surge of spending on foreign goods and services. Import growth rose to 4.9% in 2015, compared to 3.8% in 2014. Due partly to the strong U.S. dollar, the nominal trade balance remained flat despite the shift in trade volumes.

Figure 4: Quarterly Net Exports
(Billions of Dollars)



In addition, the collapse of oil prices led to a plunge in exploration activity in the oil and gas industry (Figure 5). The number of active drilling rigs fell to 404 in late May 2016, down from 1,866 two years earlier. Oil prices recovered somewhat in recent months, and twenty rigs were put back into service by mid June. Crude oil and natural gas production continued to grow for much of 2015 but at a decelerating pace (Figure 6); by late 2015, production also began to wane. The collapse of domestic exploration is the primary reason for a fall in real nonresidential construction spending of 1.5% in 2015 compared to an 8.1% rise in 2014. Most other construction sectors fared better.

Figure 5: Drilling Activity and Oil Prices
(Sources: Baker Hughes and EIA)

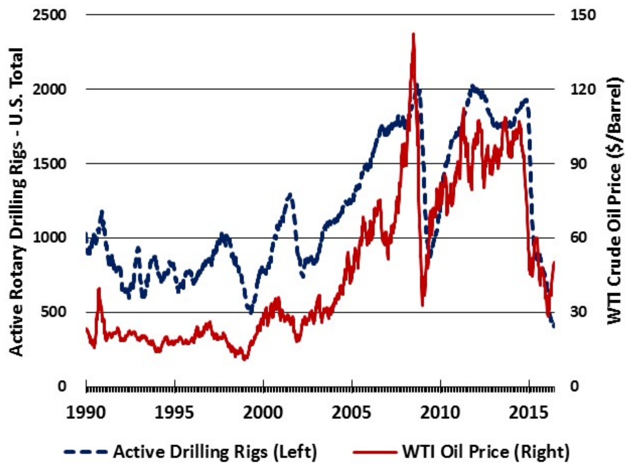
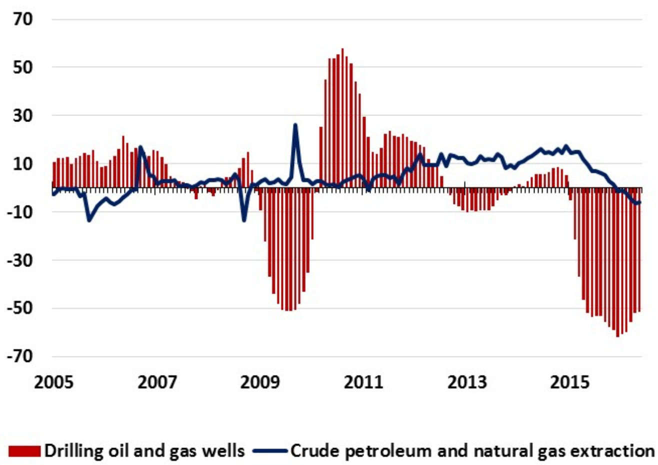
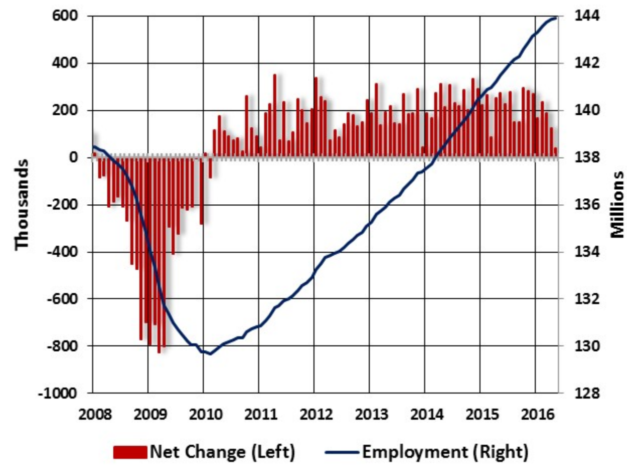


Figure 6: Industrial Production of Oil and Gas – Well Drilling and Extraction
(Percent Change from One Year Ago)



The Fed had its eyes on more promising indicators, however, when it raised rates in December 2015. Figure 7 shows that in the 12 months from March 2015 to February 2016 non-farm payroll employment expanded by an average of 222,000 jobs per month. Although the pace of hiring was lower than the 2014 average of 251,000 jobs per month, it was sufficient to bring the unemployment rate down to 4.9% in January 2016. Following a February 2016 increase of 233,000 jobs, net hiring decelerated to just 38,000 jobs in May, though the unemployment rate fell to 4.7%. This apparent weakening of labor markets encouraged the Fed to postpone the additional rate hike that many had expected by June 2016.

Figure 7: Nonfarm Employment
(Levels and Net Change)

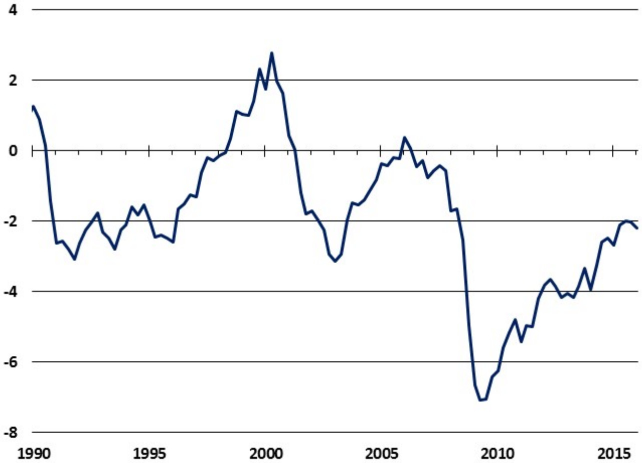


Despite impressive quarters of growth in 2014 and 2015 and potential for continued expansion in 2016, three indicators reveal that the economy still is recovering from the recession.

First, substantial productive slack remains. Although real GDP is well above its previous peak seen in 2007, Figure 8 shows that it remains about 2.0% below its potential level as measured by the Congressional Budget Office (CBO). Capacity utilization for manufacturing, mining, and utilities industries was 77.8% in 2015. Although this was well above the 2009 average of 68.7%, it remains about 3.0% below rates seen in 2007 and indicates that these industries have unused capacity.

Figure 8: GDP Gap

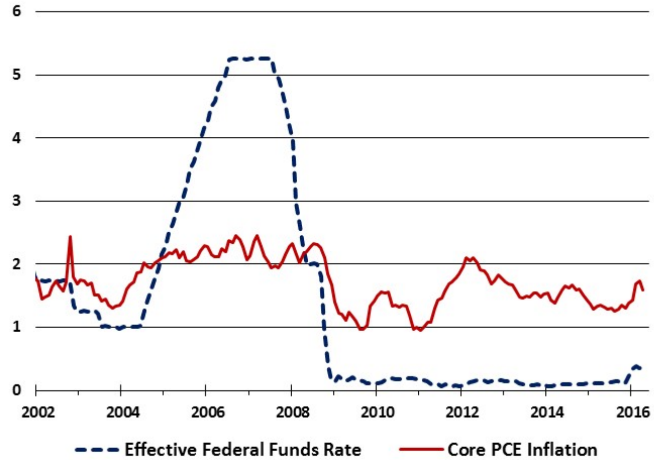
(Percentage Deviation of GDP from Potential GDP)



Second, this economic slack contributes to low general inflation, as is shown in Figure 9. With few exceptions, year-to-year core consumer price (Personal Consumption Expenditure (PCE) deflator) growth since 2009 consistently has remained below the Federal Reserve's target rate of 2.0%. This was true despite Federal Reserve attempts to raise inflation and spur growth that included policy interest rates near zero for seven years and "quantitative easing" (QE) that reached its zenith in 2013. The QE program ended in October 2014, and the Fed began to "normalize" monetary policy by increasing its policy rate in December 2015. Unfortunately, there are few clear signs of rising inflation or vibrant wage growth. Moreover, weakness in Europe and China is leading much of the world to loosen monetary policy. Many economists believe that interest rate increases in these conditions will intensify the low inflation problem by strengthening the dollar.

Figure 9: Core Inflation and the Federal Reserve Policy Interest Rate

(Percent)



Finally, overall labor participation continues its downward trend and is at a 30-year low of under 63%. Figure 10 shows that the rate is down from 66% before the recession and 67% in 2000. A substantial proportion—about half—of this reduction was occurring anyway, given the general aging of the workforce and other demographic changes. Some pursue education and other opportunities, but many simply have given up hope of finding jobs. Full employment and rising wage rates might pull some back into the labor force and allow those who are underemployed to move to better jobs, but so far there is little evidence that this is happening in substantial measure.

Figure 10: Labor Force Participation Rate

(Percent)

These three indicators—a large GDP gap, low inflation, and low labor participation—show that the economy still exhibits lingering effects of financial crisis. During 2008–2010, the collapse of asset prices, and home prices in particular, resulted in a steep loss in net worth for households and businesses. A massive effort to reduce private debt followed, and together with fiscal contraction, this deleveraging slowed economic recovery from 2011 through 2013.

Deleveraging efforts generally were successful, even if they produced costly side effects of reducing demand for goods and services. Figure 11 shows the net worth of households and nonprofit institutions and its two major components—home equity and financial assets (stocks, bonds, businesses, etc.). Since 2009, net financial worth has risen steadily, driven mostly by rising financial asset prices. Growth of home prices and a slow recovery of the residential construction industry began to push up net home equity toward the end of 2012. This rise in equity continues in 2016.

Figure 11: Household Net Worth
(Trillions of Dollars)

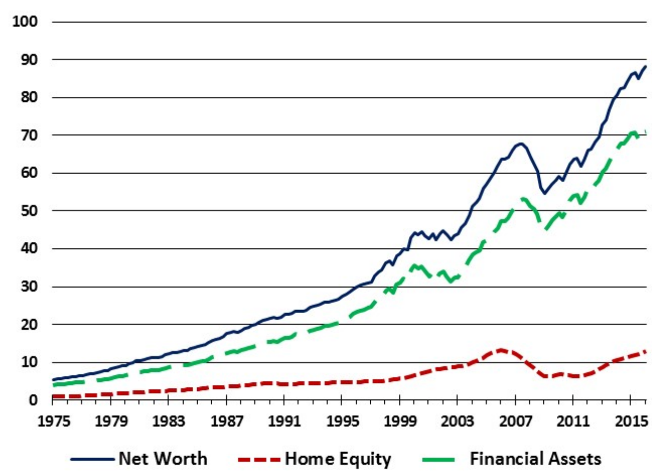
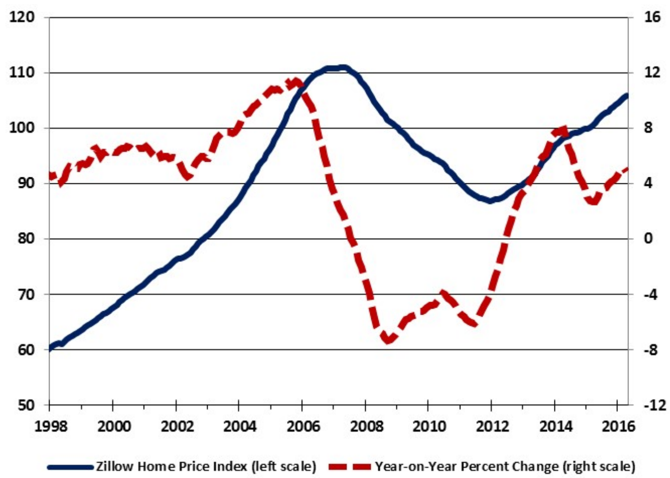


Figure 12 shows the course of housing prices over the last 18 years, displaying the monthly Zillow home value index and the year-over-year growth in that index since 1998. For the first time since the middle of 2007, the 12-month growth of housing prices turned positive in July of 2012. Housing prices decelerated in 2014 but accelerated again in 2015, and home prices are rising ahead of general inflation. In April 2016, national housing prices were 20.4% higher than in June 2012.

Figure 12: Zillow Home Prices
(Index (Jan 2009 = 100) and Year-on-Year Percent Change)



The strength of the household balance sheet complements the much-improved debt service ratio shown in Figure 13. Consumer debt payments, including mortgage payments, fell from more than 13% in 2008 to about 10% of disposable income in 2015. This is the lowest rate in more than three decades. The deleveraging that followed the recession and historically low interest rates allow these lower payment levels. Figure 14 shows that short-term Treasury rates remain near zero and 10-year rates are below 2.0%; mortgage and auto loan rates are similarly low.

Figure 13: Household Debt Service Payments

(Percentage of Disposable Personal Income)

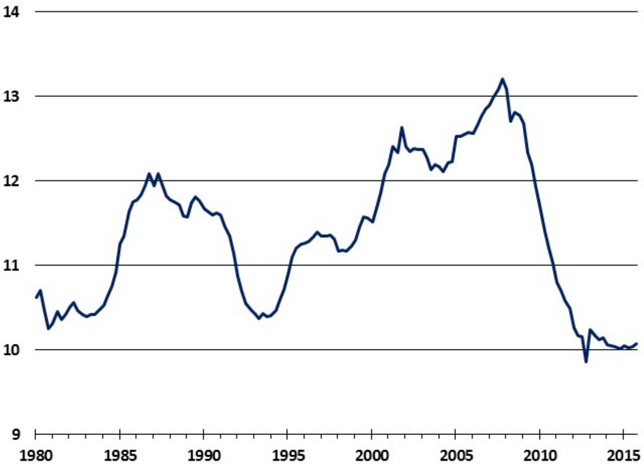
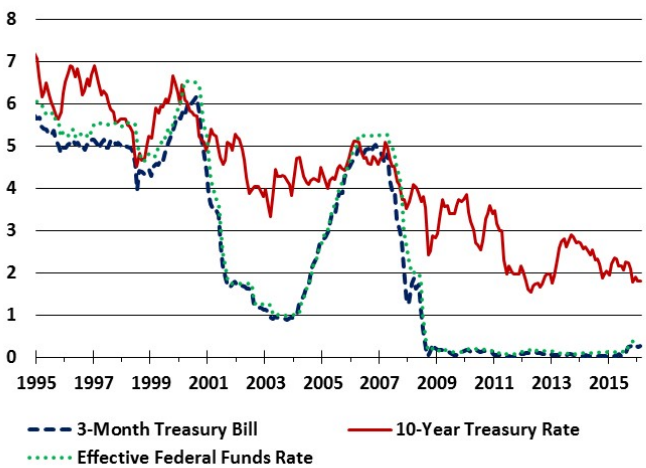


Figure 14: Interest Rates

(Federal Funds, 3-Month Treasury Bill, and 10-Year Treasury Constant Maturity, Percent)



Relatively low debt levels and low borrowing costs help to drive consumption spending such as auto sales and residential investment. In September, October, and November 2015, new car and light truck sales topped an annual rate of 18 million units, a pace seen only twice since 2001 (Figure 15). May 2016 sales remained strong at 17.4 million. New home construction gradually gained strength since the recession (Figure 16), with demand for multi-family homes leading the way. Performance in 2014 and 2015 was mixed, and recovery of residential construction markets remains far from complete. May 2016 brought 1.16 million starts. This was slightly below the 1.21 million starts seen in June 2015, though starts in June were at the highest level since October 2007.

Figure 15: Light Weight Vehicle Sales: Autos & Light Trucks

(Millions, Seasonally Adjusted Annual Rate)

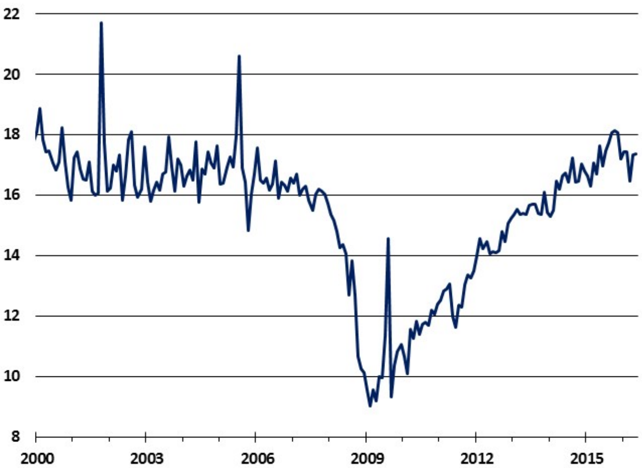


Figure 16: Housing Starts

(Thousands)

Surging auto sales and improving housing starts encouraged robust industrial production growth in 2014, but the widening trade gap and low oil prices in 2015 brought weakness in many manufacturing and mining sectors. Figure 17 shows year-to-year growth rates of industrial production. Rates were about 4.0% early in 2015, but production was falling by late in the year. While losses slowed recently and oil and gas exploration might be increasing, recovery ultimately may depend on stabilization of the U.S. dollar.

Figure 17: Industrial Production

(Year-on-Year Percent Change)

Figure 18 shows that real compensation is running ahead of productivity growth, which has been low in recent years, despite a tendency for the two to move together. It remains to be seen whether these low productivity growth rates present a worrisome new pattern, or whether they are a product of data measurement problems, or whether they simply are a symptom of continuing recovery from the Great Recession. In any case, the improvement seen in labor compensation is welcome.

Figure 18: Productivity and Compensation

(Year-over-Year Growth, 2-Year Moving Average)

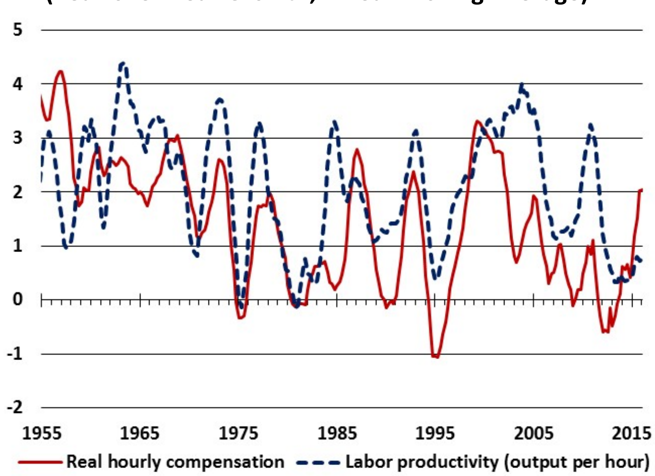
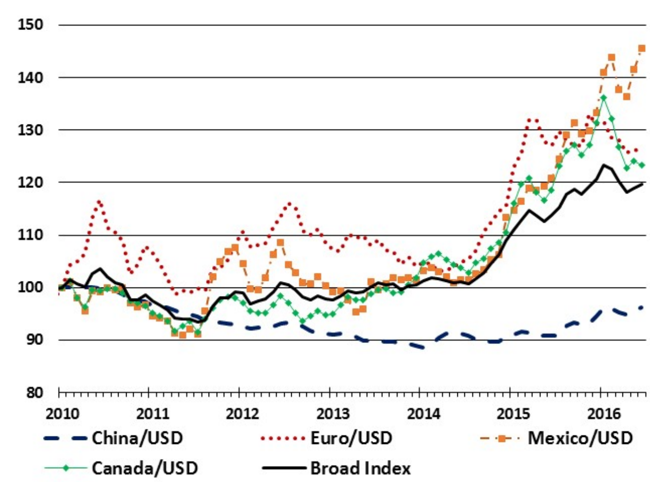


Figure 19 shows the dynamics of exchange rates over the past six years for the currencies of several major U.S. trading partners. Between January 2015 and January 2016, the dollar strengthened 7.1% versus the euro, 17.2% versus the Canadian dollar, and 22.9% against the peso. By June 2016, the Canadian dollar (down 6.2% since January 2015) and Euro (down 3.1%) reduced their losses, but the peso weakened further (down 26.8%). The Chinese renminbi mostly has strengthened along with the dollar, though recent months brought depreciation to 5.7% versus the greenback. These currency realignments have important implications for the U.S. economy. Current conditions resemble the late 1990s, when the U.S. economy was expanding but most other major economies were struggling. Capital surged into the United States, and the dollar appreciated strongly against all major currencies from 1995 through 2002. The U.S. eventually experienced a relatively mild recession in 2001, but the effects of capital inflow and dollar appreciation had lasting consequences. U.S.-based manufacturing contracted sharply and generally failed to recover even after subsequent dollar depreciation. Cheap capital also fueled sub-prime lending that led to collapse of construction and other markets in the financial crisis of 2008.

Figure 19: Foreign Exchange Rates

(2010 Q1 = 100)



Because the global economy is quite fragile, and because the American economy increasingly depends on trade with its partners, projections of U.S. growth must account carefully for the risks to foreign economies. U.S. farmers, oil producers, manufacturers, and other trade-dependent firms are working against a strong U.S. dollar that makes American products relatively expensive both at home and abroad. Recovery elsewhere could boost the U.S. economy substantially, but continued global weakness provides substantial risk to the American economy as well.

Table 1: Forecast for Economic Aggregates, Average Annual Percentage Growth Rates

	14-15	15-16	16-17	17-18	18-19	19-20	20-30	30-40
Real (Inflation-Adjusted) Quantities, Average Annual Growth Rates, Percent								
Gross Domestic Product	2.4	2.0	2.3	2.4	2.4	2.3	2.1	2.0
Personal Consumption	3.1	2.6	2.5	2.3	2.2	2.1	2.0	2.0
Durable Goods	6.0	4.3	3.5	2.9	2.5	2.5	2.5	2.4
Nondurable Goods	2.6	1.9	2.1	1.8	1.7	1.6	1.5	1.8
Services	2.8	2.6	2.5	2.4	2.4	2.2	2.1	2.0
Nonresidential Structures	-1.5	-0.1	5.1	6.6	6.4	5.9	2.8	2.6
Equipment & Intangibles Investment	4.1	0.9	3.2	3.1	3.1	2.8	2.5	2.7
Residential Investment	8.9	9.6	7.6	4.6	4.5	4.3	2.5	2.2
Exports	1.1	1.4	2.8	3.6	4.1	4.5	4.0	3.6
Imports	4.9	2.4	3.9	2.4	2.6	2.7	2.7	2.8
Government	0.7	0.8	1.0	0.6	0.5	0.5	0.8	1.0
Federal	-0.3	-0.4	-0.1	-0.6	-0.7	-0.8	0.0	0.7
Defense	-1.2	-1.5	-0.1	-0.5	-0.8	-0.6	0.0	0.6
Nondefense	1.2	1.2	-0.2	-0.9	-0.5	-1.1	0.1	0.9
State & Local	1.4	1.6	1.7	1.3	1.2	1.2	1.1	1.2
GDP Deflator	1.0	1.4	1.9	2.0	2.4	2.2	2.1	2.1
Consumption Deflator	0.3	1.2	2.0	2.1	2.4	2.2	2.1	2.1
Population	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.6
Labor Force	0.8	1.1	0.9	0.9	0.9	0.8	0.8	0.6
Employment	2.1	1.4	1.1	0.7	0.9	0.7	0.8	0.6
Labor Productivity	0.3	0.7	1.3	1.7	1.5	1.5	1.2	1.4
Potential GDP	1.5	1.5	1.7	1.8	2.0	2.1	2.1	2.1
Real Disposable Income (2009$)	3.5	2.9	2.6	2.4	2.1	1.9	2.0	2.1
	2015	2016	2017	2018	2019	2020	2030	2040
Unemployment Rate	5.2	4.9	4.7	4.9	4.9	5.0	5.0	5.0
Interest Rates								
Treasury Bills, 3-month	0.1	0.4	1.2	2.5	3.2	3.2	3.2	3.2
Yield, 10 yr. Treasury bonds	2.2	2.0	2.7	3.8	4.1	4.1	4.1	4.1
	2015	2016	2017	2018	2019	2020	2030	2040
Nominal Quantities, Billions of Dollars								
Current Account	-603.8	-698.7	-757.5	-698.0	-647.5	-612.2	-291.2	42.0
(% of GDP)	-3.4	-3.8	-3.9	-3.5	-3.1	-2.8	-0.9	0.1
Federal Net Borrowing	-602.3	-545.5	-543.3	-572.5	-564.9	-543.6	-424.3	-778.6
(% of GDP)	-3.4	-2.9	-2.8	-2.8	-2.7	-2.5	-1.3	-1.5

While the year 2016 still holds potential for solid growth, Table 1 shows growth of just 2.0%, below that seen in 2015, as the trade gap widens further and as personal spending stabilizes after rapid expansion in 2015. Such growth matches the potential GDP growth rate of about 2.0%, indicating that economic slack continues to dissipate slowly.

Strong job growth supported overall economic expansion. In 2015, total employment rose by 2.1%, following annual gains of 1.7% in 2013 and 1.9% in 2014. Unemployment fell gradually, from 5.7% in January 2015 to 4.9% in January 2016. Hiring slowed in the first half of the year but employment is projected to grow 1.4% in 2016, a net increase of 2.0 million jobs, followed by gains of about 1.0% in the following two years. Unemployment likely will average 5.0% or below in 2016 and beyond; it was 4.7% in May 2016.

The income flowing from new jobs improves household balance sheets and will continue to boost purchases of new vehicles, housing, and other goods and services. In turn, improved final demand encourages businesses to invest in capital equipment and facilities. Finally, fiscal contraction appears to have ended in 2014, with 2015 bringing a modest gain in real government expenditures. The coming years likely will bring similar positive, albeit low, fiscal expansion.

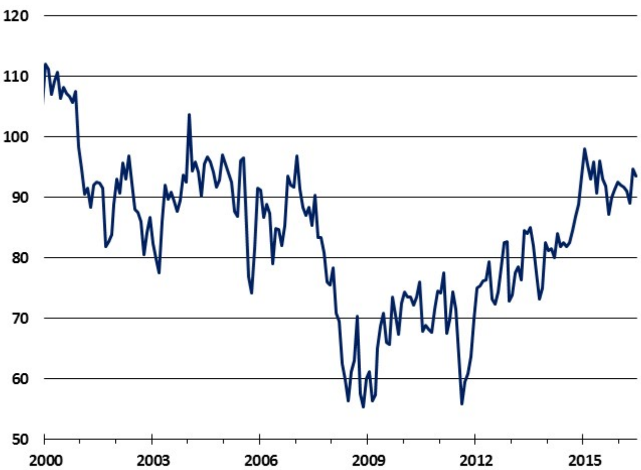
Oil prices plummeted from about $100 per barrel at the beginning of 2014 to $28 in February 2016 before recovering to $50 in early June (WTI). Weak petroleum demand in Asia and Europe and steady production in OPEC nations largely brought this decline, aided by rapid expansion of U.S. production. Average retail gasoline prices fell to $1.73 per gallon in February 2016 from $3.33 per gallon in January 2014, though they rose to $2.35 in early June 2016. While low prices brought exploration to a standstill in many oil and gas fields, reducing jobs and investment spending in energy industries, consumers now can divert funds from their energy budgets to purchase other goods and services.

Indeed, the global energy market has changed markedly, and the implications for the US economy are substantial. U.S. production of crude oil rose quickly since 2008 and natural gas production sustained rapid growth since 2005; the nation became the top producer of both commodities. The energy sector saw consistent and strong capital investment since 2009, and new exploration, production, and ancillary activities created well-paid jobs. Plunging oil prices have led to sharp declines in investment, but domestic production of oil and gas has contracted only moderately so far. The industry eventually will stabilize, and the energy renaissance ultimately should prove durable and help to boost the U.S. economy.

Stabilization in the energy sector will present less drag and ultimately will boost overall economic expansion. GDP growth in the next few years will be sustained by the consumer and private business sectors, as government expenditures will make only small contributions to growth in the foreseeable future. Net exports will continue to present a drag on the U.S. economy, as weak exports and strong imports leave a wide trade deficit. This will pose a challenge for manufacturing and other goods-producing industries overall, though even now some sectors are finding ways to compete effectively.

Reduced household debt levels, increased employment, and low inflation will continue to encourage personal consumption spending. Figure 20 shows consumer sentiment in January 2015 at the highest level in more than a decade, and confidence remained strong in June 2016. Following growth of 2.7% in 2014 and 3.1% in 2015, inflation-adjusted consumer spending will expand about 2.6% in 2016. Spending is paced by moderate growth for nondurables and services, with higher spending growth for automobiles and other durable goods. Personal consumption will continue to grow in 2017 and 2018, expanding at about 2.4% per year. Spending growth for consumer durables will remain strong, albeit with rates that gradually diminish.

Figure 20: University of Michigan Index of Consumer Sentiment
(1966 = 100)



Residential investment activity boosted a sluggish economy with 13.5% growth in 2012, but it decelerated to 1.8% in 2014 before strengthening again to 8.9% in 2015. Housing should lead again in 2016 with growth above 9.0%. Sustained employment and income growth, better creditworthiness, and low but slowly rising mortgage rates will support recovery, particularly for the single-family construction market that has continued to lag.

After expanding by 8.1% in 2014, real spending for non-residential structures fell by 1.5% in 2015. Weakness was concentrated primarily in drilling and other oil field development while investment growth continued for many other types of nonresidential structures. Spending on commercial and health care buildings has done much better, and as oil field activity stabilizes overall growth will follow, slipping about -0.1% for 2016 before rising above 5.0% annually in 2017 and 2018. Private equipment spending rose by 3.1% in 2015. Investment in intellectual property products, including spending on software and intangible assets, rose 5.7% in 2015. Investment growth for equipment and intellectual property will be weak in 2016, at perhaps 0.9%, before strengthening in 2017.

Exports helped overall expansion in 2015, but growth slipped to just 1.1% due to weakness in Europe, Asia, and elsewhere. Export growth in coming years is dependent on substantial and sustained recovery in these markets. Continued strength of the dollar, however, makes rapid demand growth for U.S. goods unlikely this year.

Figure 21 reveals a downward (depreciating) trend in the Federal Reserve's Broad Currency Index from 2001 to 2011, but the dollar strengthened considerably in the past 24 months. Nonetheless, other major currencies should regain ground gradually as their economies strengthen. A small increase in export volume of 1.4% is expected in 2016. The strong dollar also drove real import growth to 4.9% in 2015, substantially widening the trade deficit, and the gap will widen again in 2016 as imports remain high compared to exports. Later years should bring accelerating demand for exports, though imports growth also will strengthen with the U.S. economy.

Figure 21: Federal Reserve Broad Currency Index
(1997 = 100)

Risks to the Outlook

Downside Risks

Recession: Before Britain's vote to leave the European Union, many U.S. economists reckoned the odds of recession in 2016 to be in the neighborhood of 15-20%. Many international forecasters, including those at the IMF and OECD, also were reducing their predictions for global growth in 2016. The pending split between Britain and continental Europe, and Scotland's renewed interest in leaving the United Kingdom, threaten economic turmoil in Europe and beyond, and the odds of recession in the U.S. surely have not diminished. Despite some strength in parts of Asia and sub-Saharan Africa, growth in the EU, Latin America, and China has been disappointing. Adverse balance sheet effects of the strong U.S. dollar and tightening monetary policy, increased global aversion to risk and market volatility, and low commodity prices particularly hurt emerging markets and exacerbate existing debt problems. U.S. exports of manufactured goods and other commodities have suffered from weak investment and consumption expenditures in these economies, particularly as construction and other capital spending has slowed. Persistent weakness in the global economy and continued weakness in energy investment and production could bring stock market losses and undermine consumer and business confidence. This could lead to a brief recession in the second half of the year.

Political Paralysis: As the 2016 election season drags on, legislative progress in Congress remains slight. Some encouraging signs still have appeared, including action on infrastructure budgets. With distractions that include a pending battle over the Supreme Court nomination, though, it seems likely that few gains will be realized on tax reform, discretionary spending levels and allocations, and entitlement reform until after the elections. Uncertainty over the presidential and other elections only adds to the uncertainty brought by the lack of substantial Congressional action, and both hamper business and consumer planning and spending.

International Crises: Trouble in Syria, Ukraine, Nigeria, Venezuela, and elsewhere could flare up quickly to upset international energy markets and other trade flows. If tensions worsen so that Russian oil and natural gas exports become constrained, or if ISIS disrupts production in the Middle East or Africa, then world energy prices could rise substantially despite increased energy production in the U.S. Continued attacks by terrorists on Europe, the U.S., and elsewhere could undermine consumer and business confidence, and the ultimate governmental responses (fiscal and otherwise) to these attacks largely remain to be determined.

Upside Risks

Higher Wages: Economists have predicted that labor market pressures will spark real wage increases that will act to stabilize and strengthen the economy. These pressures ultimately should offset the downward pressure on wages from the retirement of high-wage baby-boomers and the return to employment of low-wage workers who suffered unemployment disproportionately following the recession. With unemployment at 4.7% and strong gains in real disposable income, recent signs are encouraging, though the evidence is not completely convincing. If they do materialize and prove persistent, higher wages will support continued consumer spending growth, in part by helping to relieve the burden of household debt. Government revenues also are helped by higher incomes through income and sales taxes, and so tight budget constraints can be relaxed to support increased spending on infrastructure, education, and other public investment projects.

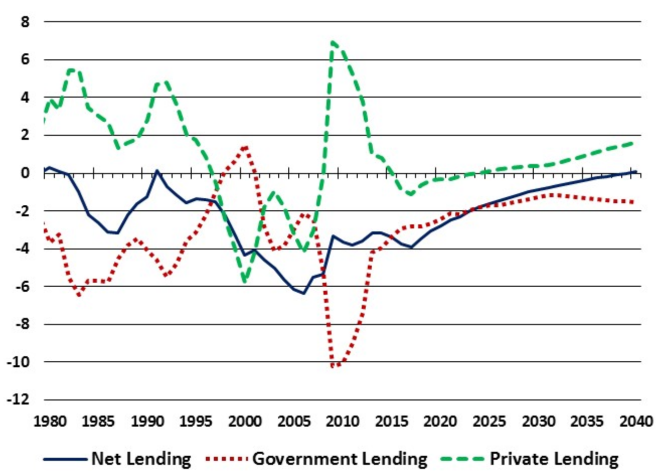
Greater private investment: Many corporations have built substantial cash reserves over the past few years, but little of this has been spent on new capital investment in the United States. Energy producers provided an important exception with spending on oil and gas field development, pipelines, and elsewhere, but recent low energy prices discouraged investment in that industry too. If recent recovery of energy prices proves durable, then oil and gas exploration once again could become profitable and drive higher nonresidential investment spending. Faster economic growth, helped by stabilization of energy markets and the dollar, will encourage domestic investment spending. An increase of foreign capital spending in the U.S. could provide an additional boost in expenditures on equipment and nonresidential structures.

Greater Public Investment: Despite widely varying claims by presidential candidates and current politicians, the federal deficit has fallen rapidly to 3.4% of GDP in 2015 from 10.2% in 2009. Congress recently approved a 5-year highway bill, and a general expansion of overall federal nondefense and state and local expenditure lends hope that repairs and improvements will be made to roads and highways, airports, waterways, and other long-neglected infrastructure. These are important factors in private activity, and domestic producers would welcome a boost to their productivity as they face fierce competition from abroad.

We calibrate the LIFT forecast to exhibit long-run sustainability of the economy's basic nominal balances as a percentage of GDP. Figure 22 depicts the long-term trajectories for net lending (or borrowing) as a percentage of GDP for the private sector (including both household and corporate business sectors), the government sector (federal plus state and local), and for the economy as a whole. Each line shows the excess of income over consumption and capital investment expenditures for the sector as a percentage of GDP. The line marked "Net Lending" is equal to the current account deficit, or the economy's net lending abroad, which mostly has been negative over the past four decades. It is the sum of household, business, and government (including state and local governments) net lending.

Figure 22: Net Lending

(Shares of Nominal GDP)



Note the unique circumstances of the recession years. Recession meant that the current account deficit as a percent of GDP fell from more than 6% in 2006 to about 3% in 2011 and 3.4% in 2015. Substantial deleveraging in the private sector that took place among businesses as well as consumers drove this retrenching. In 2009, the private sector lent, on a net basis, nearly 7% of its current income relative to GDP. The ratio was negative throughout most of preceding decade.

Long-run forecasts of the real economy are guided by Census Bureau projections of population levels and by labor force participation rates that are similar to, though slightly higher than, projections by the Bureau of Labor Statistics (BLS) and the Congressional Budget Office (CBO). Together, these largely determine the size of the labor force. The natural rate of unemployment (NAIRU) largely follows the CBO outlook. The labor force level and NAIRU together determine the full-employment level. Potential growth of real GDP follows CBO projections through the medium term and growth rates remain constant in the long run. The long-run LIFT forecast of the real economy thus converges to these projections of full employment and potential real activity levels. Prices largely are guided by GDP inflation rates that converge to the Federal Reserve target of approximately 2.0%.

Residential construction and related activity have contributed substantially to economic growth and employment gains in 2015 and 2016. Table 2 displays major components of fixed investment and other macroeconomic detail for selected years. Also shown is investment spending detail for several types of residential construction and employment growth for several manufacturing sectors that are related to housing. Residential investment was the strongest component of final demand in 2015, with growth of 8.9%. While construction of single-family homes rose about 10%, demand for multi-family homes again rose faster, at about 25%.

Table 3 displays several key indicators of residential construction activity. In general, the residential construction market has continued its recovery through May 2016. New building permits have exceeded rates of one million per year since September 2013. Seasonally-adjusted housing starts also show signs of sustained growth. The number of housing starts in May 2016 more than doubled those recorded in January 2009, though starts remain far short of peak rates. Real estate markets continue to improve, helped by revitalization of household balance sheets and thirty-year mortgage interest rates that remain at historically low levels. Rates fell through July 2013, increased in the following year to about 4.5%, but since then have dropped again to under 4.0%.

Table 2: Construction Sector Macro Drivers, Percent Change

	2015	2016	2017	2018	2019	2020	2030	2040
Real GDP	2.4	2.0	2.3	2.4	2.4	2.3	2.1	2.1
Fixed Investment								
Equipment and Software Investment	4.1	0.9	3.2	3.1	3.1	2.8	2.7	2.8
Nonresidential structures*	-1.5	-0.1	5.1	6.6	6.4	5.9	2.5	2.7
Residential Investment	8.9	9.6	7.6	4.6	4.5	4.3	2.1	2.3
Single Family	10.1	12.3	10.3	7.0	7.5	4.8	2.3	2.6
Multifamily	25.4	16.3	10.0	5.6	0.3	1.9	1.9	1.3
Other**	5.9	6.1	5.1	2.2	2.7	4.6	1.9	2.1
Disposable Income	3.8	4.1	4.6	4.5	4.6	4.2	4.1	4.2
Real Disposable Income	3.5	2.9	2.6	2.4	2.1	1.9	2.0	2.0
Real Consumption Spending	3.1	2.6	2.5	2.3	2.2	2.1	2.0	2.0
Furniture and Furnishings	6.4	5.4	3.7	3.2	3.0	2.7	2.9	3.1
Appliances and Hand Tools	3.6	3.1	4.0	3.6	3.2	3.0	2.8	2.8
Rental of tenant-occupied nonfarm housing, group housing	1.4	0.9	0.9	0.9	0.9	0.9	0.8	0.7
Employment	2.1	1.4	1.1	0.7	0.9	0.7	0.7	0.6
Construction Employment	4.8	2.2	2.4	1.7	1.8	1.6	0.8	0.6
Wood products	2.2	1.3	-0.3	0.2	0.6	0.4	0.0	0.3
Furniture and related products	2.8	-2.0	-4.0	-3.1	-2.4	-2.6	-2.4	-2.5
Unemployment Rate	5.2	4.9	4.7	4.9	4.9	5.0	5.0	5.0

** Includes Brokers' Commissions*

*** Includes Brokers' Commissions and Residential Equipment*

Table 3: Residential Construction Indicators, Thousands of Units, Seasonally Adjusted Annual Rates

	Jan 2008	Jul 2008	Jan 2009	Jul 2009	Jan 2010	Jul 2010	Jan 2011	Jul 2011	Jan 2012
New Building Permits*	1,094	921	545	595	636	579	576	621	715
Total Housing Starts*	1,084	923	490	594	614	546	630	623	723
New One Family Houses Sold*	627	477	336	411	345	283	307	296	335
30-Year Mortgage Rate	5.8	6.4	5.1	5.2	5.0	4.6	4.8	4.6	3.9
	Jul 2012	**Jan 2013**	**Jul 2013**	**Jan 2014**	**Jul 2014**	**Jan 2015**	**Jul 2015**	**Jan 2016**	**May 2016**
New Building Permits*	840	928	986	1,001	1,053	1,073	1,142	1,188	1,138
Total Housing Starts*	740	888	891	902	1,085	1,101	1,147	1,128	1,164
New One Family Houses Sold*	369	442	376	447	402	524	498	526	551
30-Year Mortgage Rate	3.5	3.4	4.4	4.4	4.1	3.7	4.1	3.9	3.6

**Thousands of Units, SAAR*

Source: U.S. Census Bureau, U.S. Federal Reserve

Table 4 displays historic retail sales revenue for building supplies stores and related retail outlets, as published by the U.S. Census Bureau. The reported growth rates measure both changes in sales volumes and inflation. Data are shown for two categories of retail businesses: 1) furniture and home furnishing stores and 2) building materials, garden equipment, and supplies stores.

As indicated above, the numbers for housing permits and starts suggest that the construction sector's recovery was beginning by 2011. Retail sales at stores that primarily sell housing-related products show a similar pattern, with flat or improved revenue levels in 2010 followed by subsequent years of growth. Furniture store revenue growth has risen since 2013, accelerating to a robust 6.6% last year. Home furnishings stores, meanwhile, have realized positive growth for a fifth straight year. Revenue at building materials, garden equipment, and supplies stores followed a similar trajectory. The losses endured during the Great Recession gave way to growth by 2011. Revenue growth strengthened each year to reach 7.2% in 2013. Recent sales figures remain strong at 5.3% in 2014 and 4.7% in 2015.

Table 4: Retail Trade Revenue Growth, Percent Change

	2010	2011	2012	2013	2014	2015
Furniture and home furnishings stores	0.6	2.6	4.4	4.1	4.6	5.7
Furniture stores	1.9	2.2	4.4	2.2	4.7	6.6
Home furnishings stores	-0.8	3.2	4.4	6.4	4.4	4.7
Building materials, garden eqpt, supplies	-0.4	3.4	4.5	7.2	5.3	4.7
Building materials and supplies dealers	-0.8	3.1	4.1	7.2	5.4	5.3
Paint and wallpaper stores	0.2	5.7	8.4	3.5	8.8	2.7
Hardware stores	0.2	7.1	3.5	1.4	7.5	3.5

Source: U.S. Census Bureau

Table 5 lists employment growth figures for many segments of the industry through 2015, where data are provided by the U.S. Bureau of Labor Statistics. During the trough of the Great Recession, residential building contractors slashed payrolls and eliminated over 20.0% of their workforce. The industry slowly stabilized and began to add jobs in 2012. Employment growth accelerated to 7.8% in 2014 before tempering to 4.8% expansion in 2015. Among residential builders, new multi-family general contractors added jobs at the quickest pace in 2015, raising employment by 8.0%. Nonresidential building construction employment also grew in each of the last four years, reaching 3.8% in 2015. Specialty trade (e.g., plumbing, drywall, and painting) employment rose by more than 5.0% in both 2014 and 2015.

Employment at housing-related retail industries realized modest gains in 2011, a significant improvement over the severe job losses endured during the Great Recession. Furniture and home furnishings stores employment growth was slight in 2011 and 2012, but hiring since has accelerated to 2.9% in 2015. Post-recession job growth at building materials and supplies stores reached 2.8% in 2013. Since then, hiring has continued at 1.7% in 2014 and 0.8% in 2015. Employment at architectural and engineering firms has risen moderately for five consecutive years. Specialized design services, including interior design, have recorded slightly faster job formation, including a 6.3% expansion in 2015.

Table 5: Construction and Related Employment, Percent Change

	2010	2011	2012	2013	2014	2015
Construction	-8.3	0.3	2.0	3.7	5.0	4.8
Construction of buildings	-9.4	-0.6	1.5	3.7	5.6	4.3
Residential building	-10.4	-1.1	2.7	5.3	7.8	4.8
New single-family general contractors	-13.7	-4.0	0.9	4.0	8.3	3.6
New multifamily general contractors	-12.5	-2.1	5.8	12.3	11.1	8.0
New housing operative builders	-12.6	0.3	-0.2	12.5	14.8	6.7
Residential remodelers	-5.5	2.5	4.8	5.5	6.4	5.6
Nonresidential building	-8.5	-0.2	0.5	2.3	3.6	3.8
Heavy and civil engineering construction	-3.1	1.4	3.8	1.9	3.1	2.5
Specialty trade contractors	-9.0	0.3	1.8	4.2	5.3	5.5
Building foundation and exterior contractors	-12.7	-1.7	3.0	3.7	5.9	6.5
Building equipment contractors	-7.1	1.1	1.7	4.1	4.8	5.3
Electrical contractors	-9.0	0.1	2.3	4.1	3.6	4.8
Plumbing and HVAC contractors	-5.7	2.1	1.3	4.3	5.9	6.2
Other building equipment contractors	-3.9	0.7	0.9	3.2	4.8	1.8
Building finishing contractors	-12.3	-1.5	1.2	5.8	5.5	5.5
Drywall and insulation contractors	-17.3	-0.5	-1.1	6.1	3.7	5.8
Painting and wall covering contractors	-9.2	-0.6	2.8	5.7	5.0	2.9
Flooring contractors	-10.3	-5.8	3.1	5.3	6.3	8.1
Tile and terrazzo contractors	-15.3	-6.0	6.2	4.0	11.6	8.1
Finish carpentry contractors	-9.0	-2.9	0.5	5.8	8.2	6.6
Other building finishing contractors	-7.8	2.9	0.6	6.5	3.6	5.9
Other specialty trade contractors	-6.0	2.8	1.4	3.0	5.9	5.0
Site preparation contractors	-6.1	0.8	0.7	2.9	6.3	4.0
All other specialty trade contractors	-5.9	4.8	2.0	3.2	5.6	6.1
Furniture and home furnishings stores	-2.5	0.2	0.1	1.5	2.3	2.9
Furniture stores	-3.2	-1.3	-0.7	0.2	1.2	2.4
Home furnishings stores	-1.9	1.7	0.9	2.7	3.2	3.4
Building mat. and garden equip. and supplies dealers	-2.1	1.2	2.5	2.8	1.7	0.8
Building mat. and supplies dealers	-2.2	0.5	2.4	2.7	1.6	0.9
Paint and wallpaper stores	-4.9	-0.2	2.0	3.7	3.7	2.5
Hardware stores	-3.7	-0.5	1.2	1.0	2.7	1.9
Architectural and engineering services	-3.7	1.4	2.2	1.7	2.2	2.5
Architectural services	-11.3	-2.4	1.3	1.8	5.4	5.7
Landscape architectural services	-11.5	1.1	-0.8	1.3	6.1	11.9
Specialized design services	-8.9	1.6	3.2	3.8	3.3	6.3
Interior design services	-13.8	1.3	6.1	5.1	6.3	5.9
Graphic design services	-6.6	0.5	0.5	2.1	-0.3	4.1

Source: U.S. Bureau of Labor Statistics

Overview of the Sectoral Outlook

Recovery from Recession Remains Incomplete While the U.S. economy has grown consistently, though slowly, the world economy remains weak. This reduces U.S. growth, particularly as the strong dollar leaves American goods and services expensive relative to their foreign alternatives. Residential construction activity strengthened considerably in 2015, but declining oil and gas exploration dragged down overall nonresidential construction spending. Residential investment momentum should continue, and nonresidential activity should stabilize. Although real defense spending continues to decline, overall government real spending is rising slowly.

Expansion in the Health Care Industry Spending strengthened in 2014 among health care services sectors, and production accelerated in 2015. Steady growth is expected as newly insured persons take advantage of new benefits. Health product manufacturing sectors have seen mixed performances. Nursing home spending is growing steadily.

Job Growth is Resuming in Most Private Service Sectors, But Manufacturers Are Struggling Most private-sector services industries experienced job growth in 2015, but many goods-producing sectors saw declines, with employment in the mining sector hit particularly hard. Government employment continues to be weak, but overall government employment levels perhaps are stabilizing.

Manufacturing Besieged Many manufacturing sectors struggled in 2015 as the strong dollar weakened exports demand and made imported goods more attractive. Durables manufacturing, machinery, transportation equipment, and metals manufacturing generally will see recovery in the coming years, but growth will be sluggish. Recovery of European and other markets ultimately will bring exports growth, though this process will be slow. Production in food manufacturing sectors continues modest growth.

The Top Performers When ranking industries by output growth for 2015-2020, construction appears near the top. Growth recently has weakened considerably for natural resource exploration and extraction, including oil and natural gas, but strength could be regained if energy prices continue to rise. High-tech, finance, and wholesale trade sectors, along with sectors that largely serve consumers such as health care, child care and social assistance, and movie recording complete the top 10.

Bringing Up the Rear The bottom ten include commodities that have been in decline. At the bottom of list is Tobacco products, with output falling through the forecast period. Some sectors suffer from continuing defense spending cuts, including Aerospace products and parts manufacturing. Environmental concerns threaten domestic coal consumption, though rising exports perhaps ultimately could stabilize production levels for Coal mining.