The Inforum Economic Outlook

The U.S. economy expanded 2.9% in 2018, the ninth consecutive year of moderate gains and the best performance since 2015. Growing labor markets, relatively strong personal consumption spending, and recovering investment in energy exploration led the economy. These offset slipping residential investment and a widening trade deficit. The unemployment rate fell to 3.9% and GDP inflation rose to 2.4%; the Federal Reserve responded by raising rates four times in 2018.

The first quarter of 2019 brought healthy GDP growth of 3.1%, though growth decelerated to 2.1% in the third quarter. Growth will stand at about 2.3% in 2019 and will fall to about 1.9% in 2020. After narrowing early in the year, the trade gap widened in 2019 and net exports likely will weaken further. Personal spending was relatively strong in 2019; spending will decelerate in 2020. Nonresidential investment spending rose 6.4% in 2018, about 2.4% in 2019, and may rise about 1.8% in 2020. Residential investment fell through Q2 2019 but rose 5.1% in Q3; sluggish improvement may follow in 2020. The unemployment rate fell to 3.5% in November 2019 and will remain low. GDP inflation was about 1.8% in 2019 and will increase to about 2.1% in 2020.

The Current Economic Environment

The U.S. economy accelerated in 2018, rising from 2.4% growth in 2017 to 2.9% in 2018 (see Table 1); this equaled the best performance since the expansion started in 2010. The federal spending bill adopted in January 2018 allowed the fastest real (adjusted for inflation) federal spending growth since 2010. GDP rose about 2.3% in 2019, and the current economic expansion will reach ten years. Recent growth was helped by consumer spending, which rose about 2.6% in 2019, and by nonresidential investment. These overcame the effects of a widening trade deficit and falling residential investment.

Figure 1 shows that quarter-to-quarter annualized growth in real (inflation-adjusted) GDP reached 3.5% in 2018 Q2 but decelerated to 1.1% by 2018 Q4. GDP then rose 3.1% in Q1 2019 with strong inventory accumulation and a narrowing trade gap, but it decelerated to 2.0% in Q2 and 2.1% in Q3 2019. Weak investment activity slowed the third quarter performance, as nonresidential investment fell even as residential investment realized improvement.

Figure 1: Quarterly Real GDP Growth
Seasonally Adjusted Annual Rate

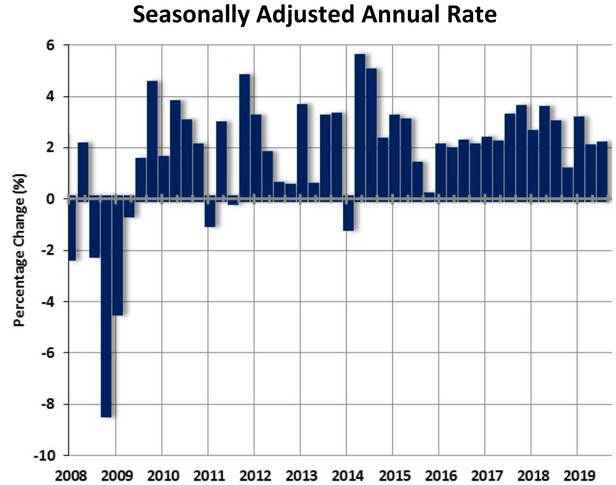
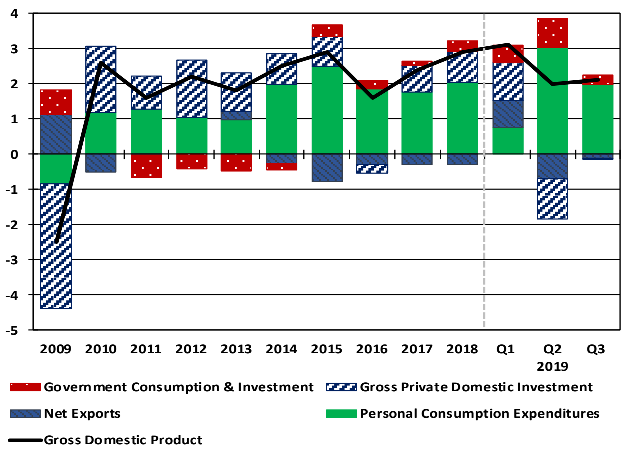


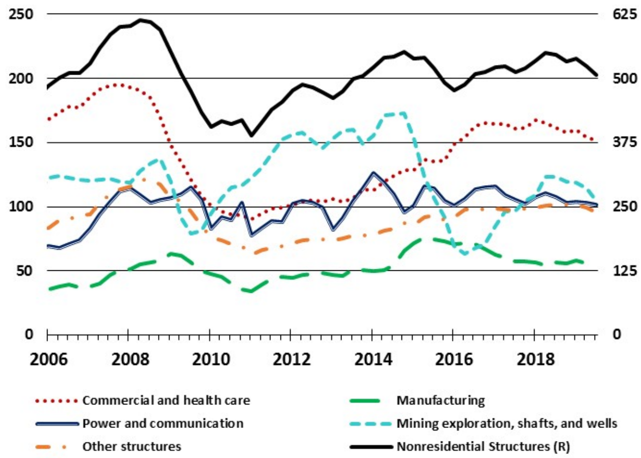
Figure 2 shows the contributions to real GDP growth of its major expenditure components. Personal consumption expenditures provided the highest contribution to real GDP growth in 2018, adding 2.1 percentage points, and gross private domestic investment contributed 0.9 percentage points. Government consumption and gross investment added 0.3 percentage points to growth. Of the major components of GDP, only net exports subtracted from growth in 2018, reducing expansion by 0.3 percentage points. By Q3 2019, personal consumption provided the only substantial contribution to GDP growth.

Figure 2: Final Demand Expenditures
Contributions to GDP Growth



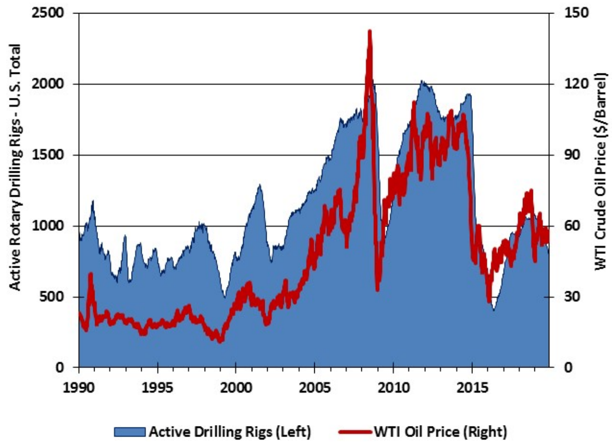
Energy exploration continued to support higher overall investment spending, even during recent years of relatively low energy prices. The collapse of domestic exploration was the primary reason for a fall in real nonresidential construction spending in 2016 (Figure 3). Most other nonresidential construction sectors fared better in 2016 before slowing in 2017. Still, the spending surge since 2016 for energy development pushed overall private nonresidential construction growth to 4.4% in 2017 and 6.4% in 2018. Spending fell in 2019, with the volatile energy sector leading the way but commercial and healthcare spending slipped too.

Figure 3: Nonresidential Construction
Billions of 2012 Dollars



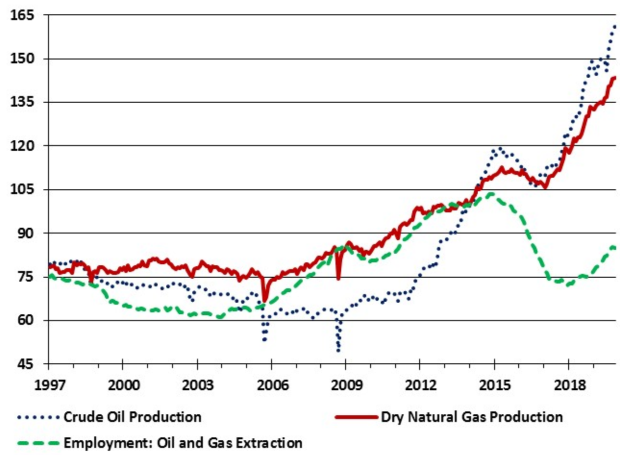
West Texas Intermediate (WTI) oil prices plummeted from about $100 per barrel at the beginning of 2014 to $28 in February 2016, and this quickly led to plunging exploration activity in the oil and gas industry (Figure 4). The number of active drilling rigs fell to 404 in late May 2016, down from 1,866 just two years earlier and more than 2,000 rigs in 2008. Weak petroleum demand in Asia and Europe and steady production in OPEC nations largely brought the price decline in 2014, aided by rapid expansion of U.S. production. Action by OPEC and Russia to curtail production led to a price surge late in 2016. Oil prices quickly recovered and reached $75 per barrel (WTI) in October 2018 before again dropping sharply. Prices rose early in 2019 but largely have remained below $60 per barrel. Despite the price volatility, more than 1,000 rigs were in active service in April 2018 but subsequent declines left just 802 in service by late November 2019. Gradual increases in oil prices may support an increase in drilling activity. Even if prices fail to rise substantially, oil prices above $50 per barrel should prove sufficient to avoid sharp contraction of investment spending.

Figure 4: Drilling Activity and Oil Prices
Sources: Baker Hughes and EIA



The global energy market has changed markedly, with substantial effects on the American economy. U.S. production of crude oil rose quickly since 2008 and natural gas production sustained rapid growth since 2005; for a time, the nation became the top producer of both commodities. The energy sector saw consistent and strong capital investment from 2009, and new exploration, production, and ancillary activities created well-paid jobs. Plunging oil prices in late 2014 led to sharp declines in overall energy investment spending and moderate contraction of domestic oil and gas production, but dramatic recovery began in the middle of 2016. Following months of decline, crude oil and natural gas production began to rise again (Figure 5); crude oil production reached a record high in November 2019 of 13.03 million barrels per day, surpassing production levels seen in the early 1970s, and November natural gas production reached 95 billion cubic feet per day, a 72% gain over November 2009 production. Reduced operating costs and new technology allowed production to remain high despite low prices and reduced exploration, and increased efficiencies boost profits as output rises. Employment in oil and gas extraction (not including exploration activities) followed production volumes upward from about 2005, though employment plunged with output in 2015 and 2016. Rising labor productivity and reduced need for workers to put new wells into production subsequently allowed volumes to recover while employment remained low. Still, over the past year employment rose from 75% to 85% of its January 2014 level. The earlier decline in production employment was dwarfed by job cuts in drilling and mining support; while these job numbers recovered substantially through January 2019, employment fell again through November.

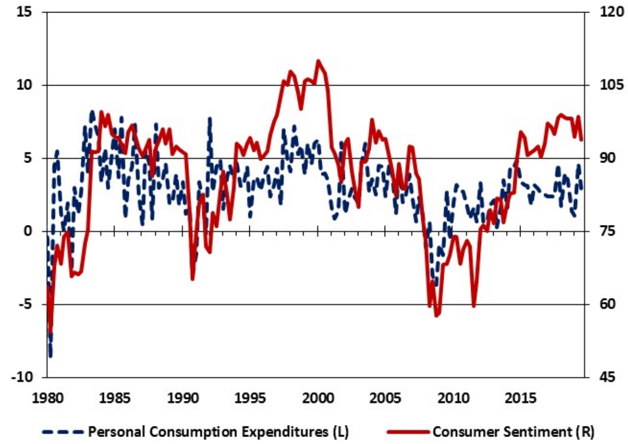
Figure 5: Crude Oil and Natural Gas Extraction
Production and Employment, Jan 2014 = 100



March 2018 consumer sentiment reached 101.4, a 13-year high (Figure 6). Consumer sentiment cooled to 89.8 in August 2019, representing its lowest point since October 2016. Despite political gridlock in Washington, strong labor markets have helped consumer sentiment climb back to 96.8 in November. Inflation-adjusted consumer spending expanded 3.0% in 2018 before decelerating slightly to 2.6% in 2019. Spending is paced by moderate growth for nondurables and services, with higher spending growth for automobiles and other durable goods. Average retail gasoline prices fell from $3.69 per gallon in June 2014 to $1.76 per gallon in February 2016, and they averaged $2.60 in November 2019; lower prices allow consumers to divert funds from their energy budgets to purchase other goods and services.

Figure 6: University of Michigan Index of Consumer Sentiment and Real Personal Consumption Spending

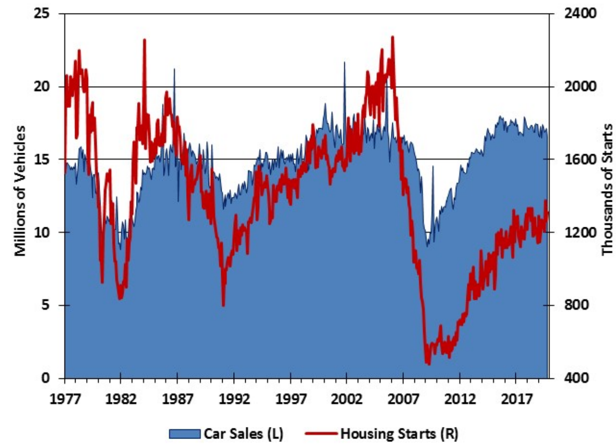
1966 = 100 and Percent



Higher incomes, improving creditworthiness, and low interest rates helped to drive auto sales and residential investment, though both markets have been sluggish recently. In September 2017, new car and light truck sales topped an annual rate of 18 million units, a pace seen only twice since 2001 (Figure 7), as hurricane recovery brought particularly strong sales in the final months of 2017. About 17.2 million light vehicles were sold in 2018, and November 2019 sales remained strong at an annual rate of 17.1 million; 2019 brought about 16.9 million in sales. New home construction recovered slowly from the Great Recession, with investment in multifamily homes rising faster than for single-family homes. Performance has been mixed, and recovery of residential construction markets remains far from complete. Since the recession, housing starts first reached an annual rate of 1.20 million units in April 2015, but it nevertheless appears that residential construction markets have stalled. In December 2018 starts were just 1.14 million units; starts in October 2019 improved to 1.31 million (annual rate), and the year will bring about 1.26 million. Real residential investment spending showed similar weakness until recent improvement, with growth of 10.2% in 2015 falling to -1.5% in 2018. Weakness continued into 2019; spending fell by 1.0% in Q1 and 3.0% in Q2 before gaining 5.1% in Q3 2019.

Figure 7: Light Weight Vehicle Sales and Housing Starts

Millions and Thousands



Demand for new homes has been restrained by low population growth and slow household formation. Nevertheless, Figure 8 shows that vacancy rates for owner-occupied houses and for rental housing both have fallen considerably since the Great Recession. The fall in rental vacancy rates was particularly significant in light of the relatively rapid construction of multi-family housing units, and rental prices continue to climb faster than inflation rates. Vacancy rates for owner-occupied housing have returned to the range typically seen from 1985 to 2006. Rental vacancy rates stabilized in 2016, but since then vacancies for owner-occupied housing continued to fall. Low rates for both suggest that substantial slack has been removed from housing markets, and low vacancy rates ultimately should spur residential investment in coming years.

Figure 8: Residential Vacancy Rates

Percent

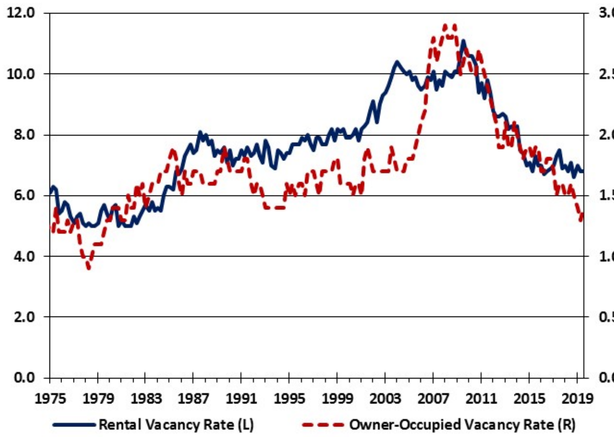
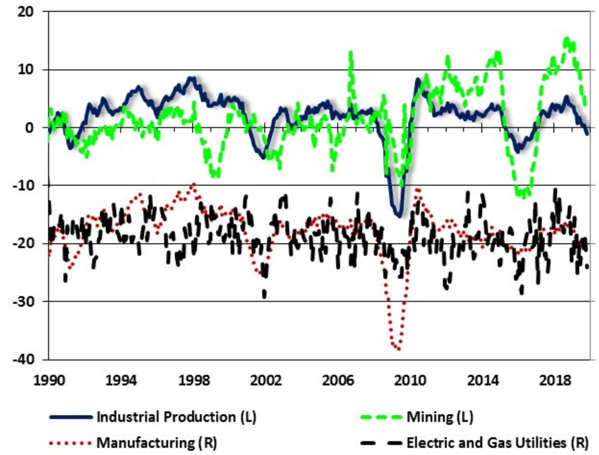


Figure 9: Industrial Production

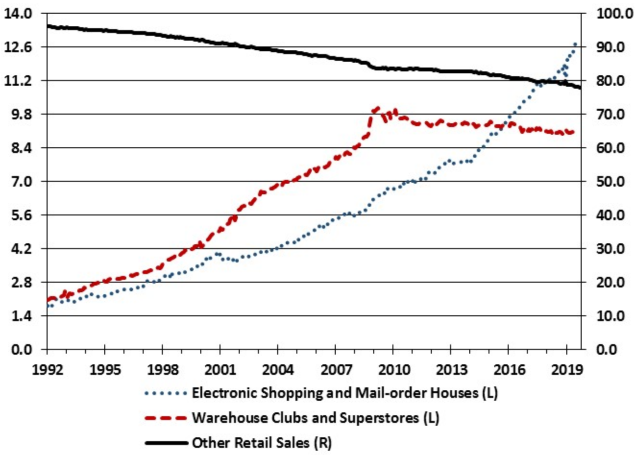
Year-on-Year Percent Change



Robust auto sales and improving housing starts spurred industrial production in 2014, but the widening trade gap and low oil prices in 2015 brought weakness to mining and other sectors. Manufacturing activity held up overall, though some industries were hit hard. Figure 9 shows year-over-year (Y/Y) growth rates of industrial production and its manufacturing, mining, and utilities components. Year-over-year growth slipped for much of 2015 and 2016, but gains returned by 2017. Trade wars and other policy uncertainty contributed to deceleration by the fall of 2018. Most recently, Y/Y performance has turned negative. Production prospects ultimately will depend on the strength of the U.S. dollar and growth of foreign economies, together with trade policy and the outcome of the 2020 presidential election.

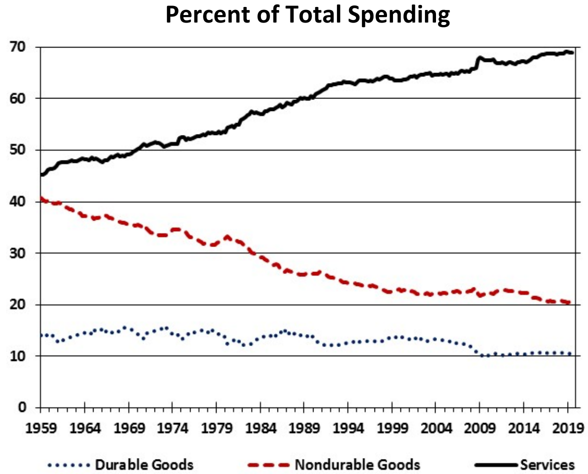
Although many sectors show signs of stabilization and strength, the retail sector is adjusting to long-term changes in consumer demand and spending patterns. Traditional retail stores, including department stores, continue to lose ground to newer forms of distribution. Even these newer establishments face rapidly growing competition from non-store retailers, including internet sales. Both internet retailers and warehouse clubs grew rapidly through the 1990s, but internet sales faltered with the dot-com bust while warehouse club sales surged (Figure 10). As recession took hold in 2008, however, warehouse club sales in proportion to total retail sales suddenly stopped its upward climb; in the years since, sales lagged total retail spending. Internet sales continued to gain market share, and these sales accelerated in 2014. Together, the two now account for about 22% of total retail sales, and traditional stores and dealers steadily lose market share.

Figure 10: Components of Retail Sales,
Percent of Total Sales



Consumers also are spending a declining share on goods and instead are spending more on consumer services (Figure 11). Spending on health care by far accounts for the greatest shift, and the aging population will sustain this expansion. Spending on other services has risen too, including telecommunications, financial services, and higher education. At the same time, the spending shares for food and clothing continue decades-long declines, and spending on motor vehicles and household furnishings has slipped more recently. Spending on consumer services, as reported in the national accounts, currently amounts to nearly 70% of total spending, with about 10% allocated to durable goods and 20% to nondurable goods.

Figure 11: Components of Personal Consumption Spending
Percent of Total Spending



The U.S. dollar has maintained strength in recent years due to the comparative stability and relatively good health of the American economy. While cheaper prices of imports allow consumers to purchase greater quantities of goods and services, increased foreign competition leaves many American producers struggling to compete at home and abroad. Real net exports (Figure 12) dropped suddenly at the end of 2014 and beginning of 2015 and then stabilized briefly, but the trade gap again widened abruptly in the fourth quarter of 2016 when exports contracted and imports surged. Due partly to the strong U.S. dollar, the nominal trade balance mostly remained flat after 2014 despite the shift in trade volumes, but the nominal trade deficit then grew sharply late in 2016. Though it remained high, the dollar weakened in 2017 following a January 2017 peak, and the trade deficit remained flat through Q3 2017 before widening in Q4. The trade deficit expanded despite strong exports growth, as imports grew faster still, in part due to replacement of vehicles and repair of homes damaged and destroyed by hurricanes. Volatility came in 2018 with disruptions caused by imposition of new tariffs, but the trade deficit continued to widen through the third quarter of 2019.

Figure 12: Quarterly Net Exports
Billions of Dollars

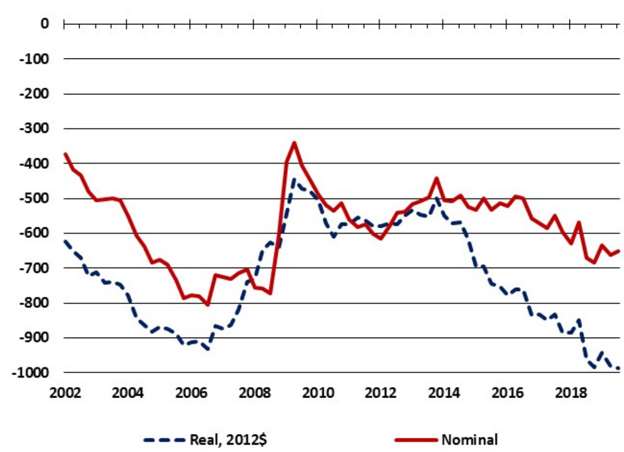
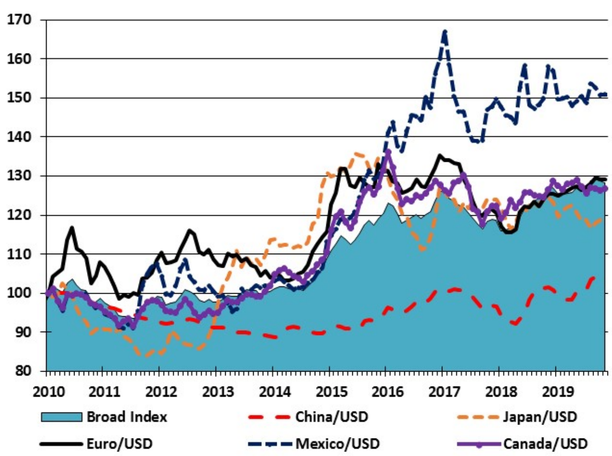


Figure 13 shows the dynamics of exchange rates over the past nine years for the currencies of several major U.S. trading partners; these contribute to the patterns indicated by the Federal Reserve Board's Broad Currency Index. Between January 2017 and January 2018, the broad index fell 8.0% as the euro gained 12.8%, the peso rose 11.6% (though it slipped again late in the period) and the renminbi strengthened 6.8%. The drop in 2017 was considerable and acted to restrain imports, though the effects of strong U.S. consumption demand and rising investment spending drove the trade gap substantially wider in Q4 2017. The dollar gained strength between January 2018 and November 2019, with the Broad Index rising 10.6%; only the yen rose against the dollar, and the Euro weakened 10.4%. The real trade gap passed $900 billion (2012$) in 2018 for the first time since 2006, and it likely will reach about $976 billion in 2019. The nominal trade gap widened too, exceeding $680 billion in Q4 2018 before falling to $652 billion in Q3 2019, but its slow expansion despite the surging deficit in real trade provides another indication of the dollar's continuing strength.

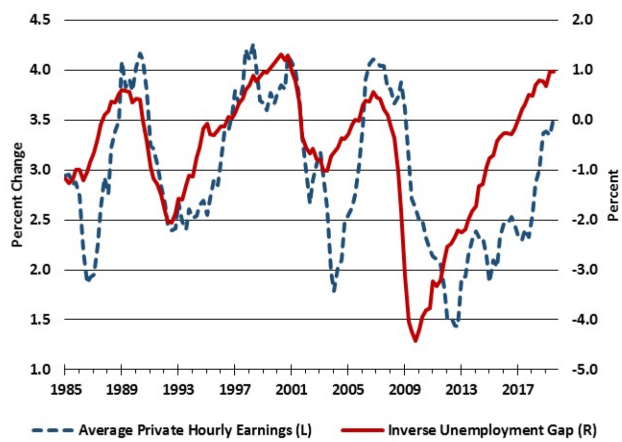
Figure 13: Foreign Exchange Rates
January 2010 = 100



A bright spot in the U.S. economic record of the past several years was growth of real disposable personal income. Growth rates of 4.1% in 2014 and 2015 unfortunately were not sustainable, and income decelerated to 1.8% in 2016 and 2.9% in 2017. In part, the slow rise of real income in 2016 and 2017 was due to rising consumption price inflation that slowly has moved toward 2.0%. Consumer prices rose 1.8% in 2017 and 2.1% in 2018, up from just 0.2% in 2015, and this normalization of inflation rates is an indication of improving economic health despite the reduction of purchasing power. Real disposable income rose 4.0% in 2018, boosted by cuts to federal tax rates and rising wage rates, and likely will sustain expansion of about 2.9% in 2019.

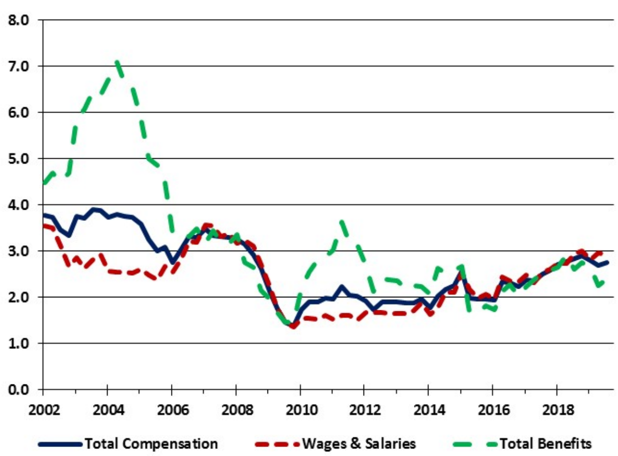
Consumption price inflation nevertheless remained moderate, unemployment rates continued to fall, and wages trended higher in 2018, with all of these gradually pushing real income higher. Figure 14 shows that recent year-over-year nominal hourly earnings growth has been above 3.0% for private employees. Wages accelerated through 2018 and in Q3 2019 were 3.5% greater than wages four quarters earlier. Wages began to surge as the unemployment rate moved below its natural rate of unemployment (known as NAIRU in economic literature) of about 4.6%.

Figure 14: Wage Growth and Unemployment Gap
Year-over-Year Growth Rates and Rate



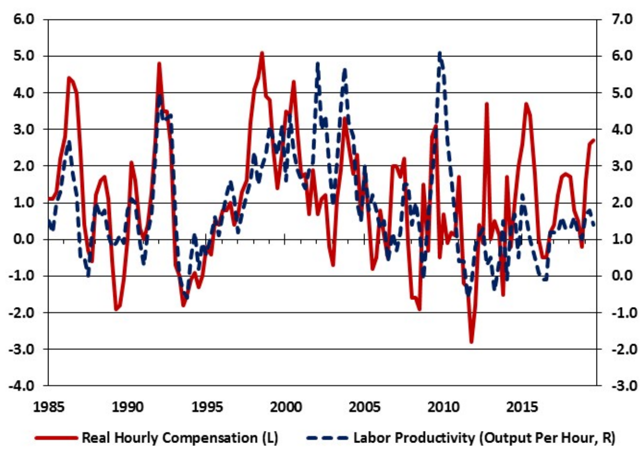
In Q4 2018, the Employment Cost Index rose at its fastest Y/Y pace since 2008, and growth was nearly as high in Q3 2019. Wages and salaries approximately kept pace with benefits since 2016 after years of lagging behind (Figure 15); wages rose faster than benefits in recent quarters. Real wages sustained Y/Y growth rates near 2.0% between Q1 2015 and Q3 2017 for the median full-time worker, though Y/Y growth fell in Q4 2017 through Q2 2018 before surging 2.9% Y/Y in Q4 2018; Q3 2019 brought Y/Y growth of 1.4%. Strong growth of median real wages suggests improved wages for blue-collar occupations and others at the lower end of the wage distribution, despite the erosion of nominal gains due to rising consumer prices. The fall of real compensation in late 2017 and early 2018 was due, in part, to rising consumer price inflation that offset moderate strengthening of wages and benefits. Higher wages, especially among blue-collar workers, and full employment supported relatively strong real consumption spending growth of 2.6% in 2017 and 3.0% in 2018. Consumer spending in Q1 2019 expanded just 1.1% but strengthened to 4.6% in Q2 2019, followed by 2.9% gains in Q3. Though performance was uneven, consumer spending supported stronger GDP growth each quarter since Q4 2009.

Figure 15: Employment Cost Growth
Year-over-Year Growth Rates



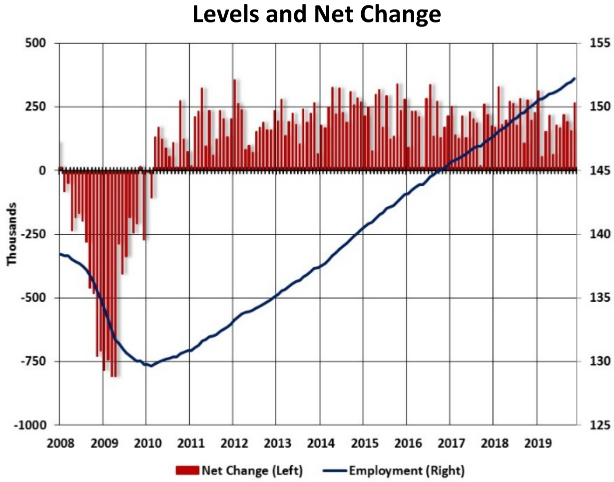
Labor productivity growth has been low since the Great Recession, both in the United States and in many other countries. Although productivity and real compensation tend to move together, Figure 16 shows that the correlation has been weaker in the past decade. The fact that real compensation accelerated in 2015 after years of volatility and sluggish improvement was welcome news, but the higher compensation growth did not last. Moreover, the low productivity growth is puzzling and perhaps presents reason for concern. It remains to be seen whether these low productivity growth rates present a worrisome structural shift; whether average rates are pulled down by heavily indebted and inefficient "zombie" firms that survive only because of low interest rates; whether they are a product of data measurement problems; or whether they simply are a symptom of slow recovery from the Great Recession. Still, although longer-run evidence on real wages and productivity lend less reason for concern, nominal wages recently surged and real wages rose 2.7% in Q3 2019, while Y/Y productivity gains have been rising since 2016 and rose 1.4% in Q3 2019.

Figure 16: Productivity and Real Compensation
Year-over-Year Growth



The Federal Reserve operates with a dual mandate to encourage full employment through economic growth while keeping inflation stable, with short-term policy interest rates a key tool. Satisfying the mandate requires careful balance, as a move to raise interest rates tends to damp inflation but also to reduce economic growth. The Federal Reserve held rates near zero after 2009 with hopes of encouraging economic growth, and despite these low rates inflation largely remained in check. In December 2015, it seemed that the economy was strong enough to support a move toward normalization of interest rates, and so the policy interest rate was raised for the first time since the recession. Increasing economic strength was expected to spur additional rate increases at a steady pace, but periodic volatility in labor markets limited the speed through 2016 and 2017. Hiring nonetheless sustained a rapid pace in 2018 at an average of 223,000 jobs per month (Figure 17). Rates were raised four times in 2018, amounting to nine hikes since December 2015. Hiring was uneven early in 2019, and with little inflation pressure the Federal Reserve indicated its intention to slow the pace of rate hikes. Pressure on the Fed in mid-2019 led the central bank to adopt a conciliatory tone and to seriously consider the possibility of reducing rates. Ultimately, the Federal Reserve cut rates for the third time this year in October 2019. This action helped to end months of inversion, during which the rate on 3-month Treasuries was above the rate on 10-year bonds; this anomaly often precedes recession. This monetary policy stance could support continued moderate economic growth, but the implications of the months of inverted rates are not clear.

Figure 17: Nonfarm Payroll Employment
Levels and Net Change



In late 2017, the Federal Reserve began reduction of its $4.5 trillion in holdings of Treasury and mortgage securities; while the pace was slow, the action ultimately was expected to support higher long-term rates (Figure 18). However, a recent slide in long-term rates brought yield curve inversion, and recent shortages of liquidity caused short-term rates to surge before the Federal Reserve intervened by buying assets.

Figure 18: Interest Rates and Inflation
Percent

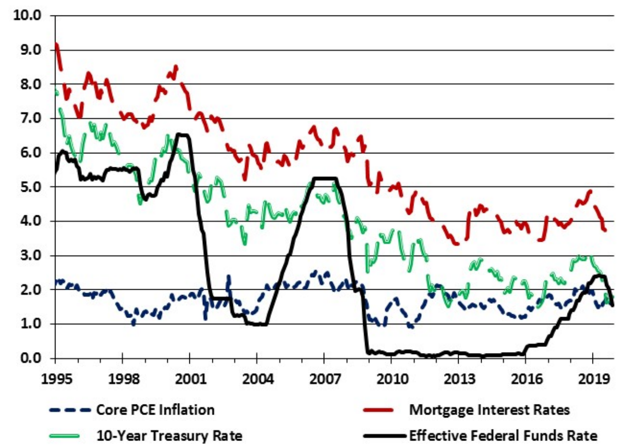
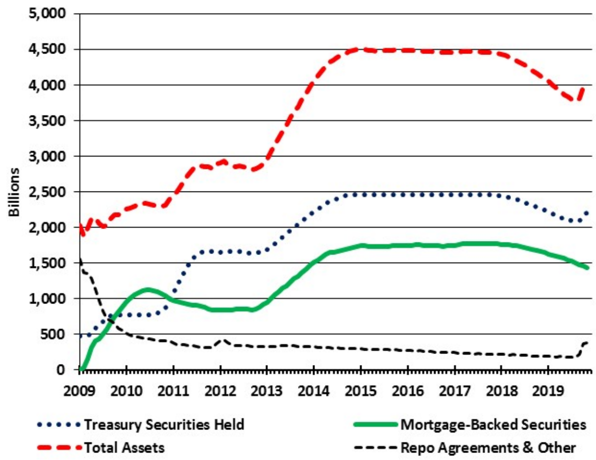


Figure 19 shows the levels of U.S. Treasury securities, mortgage-backed securities, and other assets held by the Federal Reserve, together with total assets. Net holdings amassed with Quantitative Easing programs began to fall substantially in the final months of 2017, though the level remained high in mid-2019. Still, the Federal Reserve announced intentions to end the reduction in its total assets later in 2019. The debate shifted from the level of total assets to the ideal mix of Treasury bills, notes, and bonds, with some advocating a shift toward shorter maturities. This would allow the Federal Reserve to provide economic stimulus when needed, without adding to its total assets, by shifting its mix once again to favor bonds with longer maturities and thus to push down long-term interest rates. Insufficient liquidity brought trouble in repurchase markets in September that pushed the Fed to buy repurchase agreements and other short-term securities, and total assets began to increase in Q3. In October the Fed announced it would begin buying Treasury bills every month until Q2 2020. At the same time, it continued to reduce holdings of mortgage-backed securities.

Figure 19: Securities Held by the Federal Reserve

Billions of Dollars



Full employment and rising wage rates are pulling some back into the labor force and encouraging others to work beyond retirement age. Overall labor participation has been rising slowly but remained near 30-year lows of 63.2% in November 2019; participants include workers and those seeking jobs. Participation is down from 66% before the Great Recession and 67% in 2000, though rates seem to have stabilized since 2013. A substantial portion of this reduction was occurring anyway, given the general aging of the workforce and other demographic changes. Figure 20 shows that the composition of the labor force is changing, with the share of labor provided by the young (particularly ages 16 to 19 years old) continuing to decline. The share of prime-age workers between ages 25 and 54 perhaps is beginning to stabilize but continues to slip. The share of workers aged 55 and older is rising steadily though already at historically high rates.

Figure 20: Composition of Labor Force

Percentage of Total Labor Force

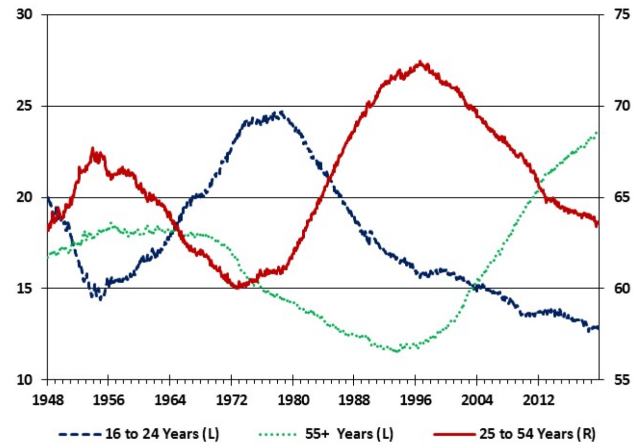


Figure 21 shows that the participation rate for older workers climbed from about 1995 to 2010, but since then it has been stable. Still, as baby boomers cause the share of the overall population above age 55 to swell, its share of the labor force continues to rise. While participation of teens and those aged 55 and above has been stable, rates for those between ages 24 and 54 recently have risen; these increases largely explain the slight rise in the overall participation rate.

Figure 21: Labor Force Participation Rates

Percentage

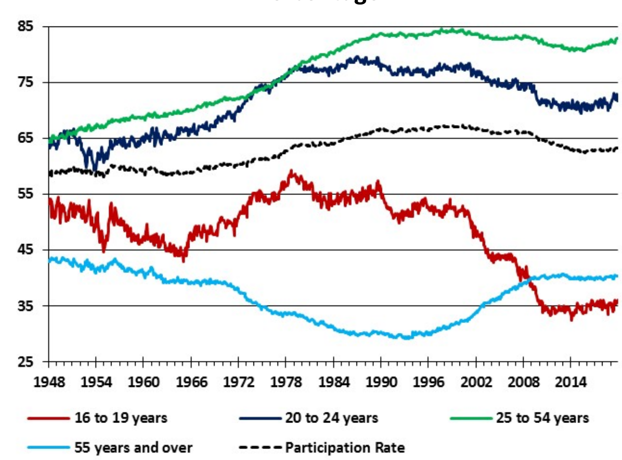
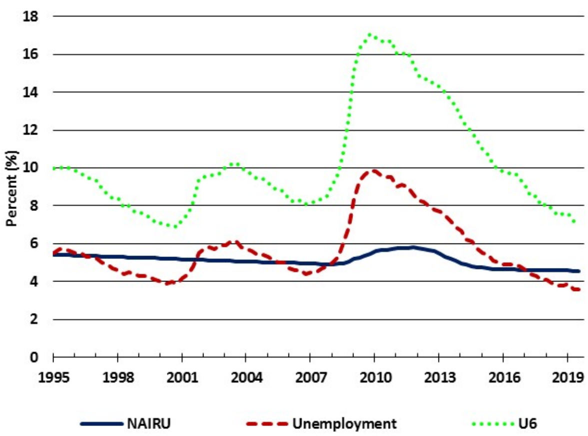


Figure 22 shows NAIRU together with the standard unemployment rate and a broader measure of unemployment (U6) that includes marginally attached workers (discouraged workers who are not actively looking for jobs) and those who work part-time for economic reasons. Late in 2016, the standard unemployment rate slipped below

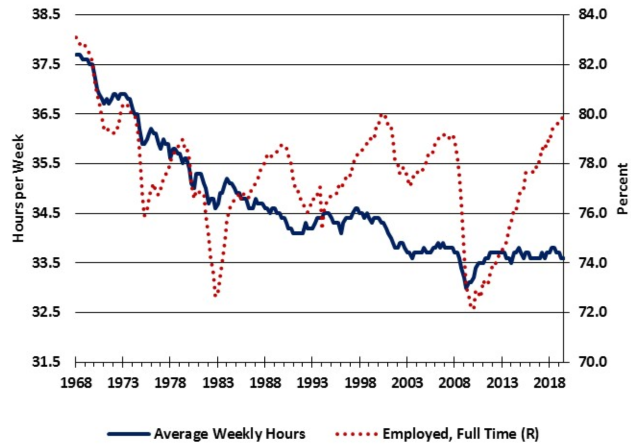
NAIRU, indicating full employment, and the broader measure of unemployment returned to rates seen in the mid-1990s and just before the Great Recession. These low rates suggest substantial tightness in labor markets, and any remaining slack thus is more evident in low participation rates than in unemployment rates.

Figure 22: Unemployment Rates
Percent



Another measure of slack also is shown in Figure 23: the share of workers holding full-time jobs. This share dropped from above 79% in 2008 to just above 72% in 2010; by Q2 2018, over 79% of the labor force held full-time jobs, again indicating substantial tightness in labor markets and mounting upward pressure on wage rates. Also shown is the average number of hours worked per week by production and nonsupervisory workers. After declining for decades, this number largely has been flat for the past fifteen years, though weekly hours dipped dramatically during the recession before recovering. Hours per week, the share of full-time workers, and the labor force participation rate have room to rise, and so low unemployment rates do not necessarily indicate that the U.S. economy is constrained by labor shortages.

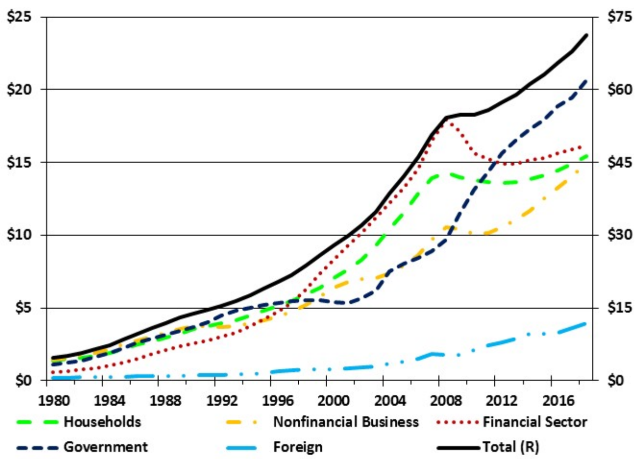
Figure 23: Unemployment Rates
Hours and Percent



The U.S. economy expanded ten consecutive years through 2019, a welcome but unusually long expansion that slowly rebuilt the wealth destroyed in the Great Recession. Still, expansions die not of old age but because of unanticipated disruptions, such as oil embargos of the 1970s, or because an unsustainable imbalance collapses, such as the dot-com bust of the early 2000s and the housing and financial collapses of the Great Recession. Fortunately, few signs of serious imbalances are evident now, though misguided policies and external forces still could derail growth.

Debt rose rapidly just before the recession, as is indicated by Figure 24. Financial-sector debt rose particularly quickly, but substantial deleveraging followed the crisis in 2008; debt in 2018 remained well below the peak. Nonfinancial businesses and households reduced debt loads as well, though less dramatically and over a shorter period. Among these broad sectors, most notable is that nonfinancial business debt has become relatively high and is growing quickly, and concern is rising over surging BBB-rated debt, but government debt is higher still. Government and nonfinancial corporate debt levels were similar until 2008, but then governments borrowed heavily while businesses reduced debt so that by 2018 a gap of $5 trillion split the two. Acceleration of government debt in 2018 particularly is evident, as federal policy changes led to reduced revenue and increased expenditure.

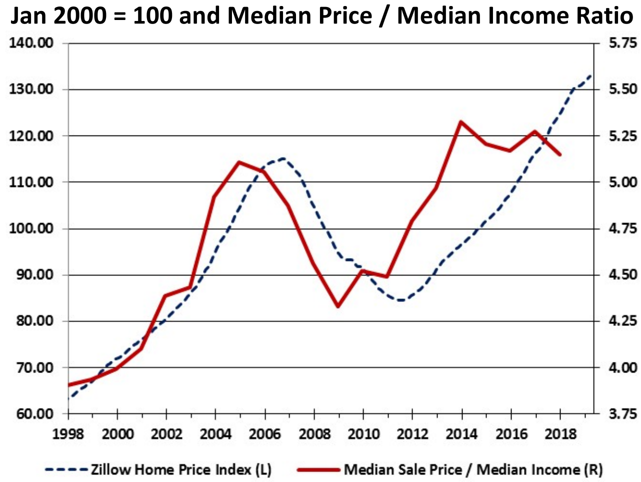
Figure 24: Debt Outstanding by Sector,
Trillions $



Consumers continue to do well in general, despite valid concerns about rising inequality. Home and other asset prices collapsed from 2008 to 2010, and net worth dropped dramatically for households and businesses. The sluggishness of subsequent economic recovery was due in part to efforts to reduce private and public debt. Though they were painful, many of these efforts ultimately were effective. The net worth of households and nonprofit institutions has 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, and this rise in equity continued in 2018.

Figure 25 indicates the extent of the housing price collapse between 2007 and 2012, according to the Zillow Home Value Index. Over the past six years, home prices have risen far ahead of general inflation. In March 2017, home prices finally returned to peak levels of April 2007. In October 2019, national housing prices were 55.9% higher than in June 2012 and surpassed the high of April 2007 by 45.6%. Still, although home equity builds wealth as prices rise, higher prices also raise housing cost burdens on those with little equity and low incomes. Figure 25 also displays the median price of houses sold in proportion to overall median personal income. In the mid-1980s, the median home price was about 3.5 times the median income. By 1997, the proportion still was below 4.0, but by 2005 it rose to 5.1. The financial crisis and collapse of housing markets reduced the measure dramatically, but in 2018 median home prices were 5.2 times median income; median home prices rose in 2018, but median incomes rose faster, implying a small improvement in the affordability of housing. Still, the combination of rising prices, both in absolute terms and in proportion to incomes, and rising mortgage rates helps to explain the sluggishness of residential construction activity. Mortgage rates fell in Q3 2019 and residential investment rose 5.1%, but this came after six consecutive quarters of declining investment.

Figure 25: Home Prices
Jan 2000 = 100 and Median Price / Median Income Ratio

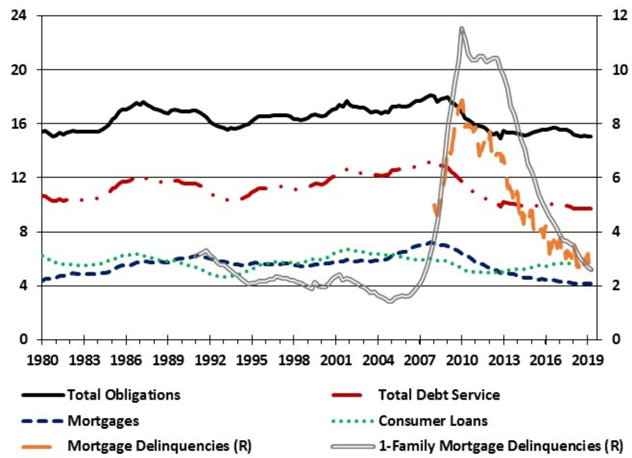


Improving personal incomes and low interest rates supported the reduced debt service ratio shown in Figure 26. The ratio of household debt to GDP fell from 99.2% in Q1 2008 to about 76% in 2019. Consumer debt service payments, including mortgage and consumer loan payments, fell from more than 13% in 2008 to about 10% of disposable income in 2012. This is the lowest ratio in more than three decades, and these ratios now have been stable for eight years. Total obligations – a broader measure of consumer liabilities that includes rent payments on tenant-occupied property, auto lease payments, homeowners' insurance, and property tax payments – fell from about 18% in 2007 to below 15% in 2012; obligations since have been stable.

Figure 26 also shows the share of mortgages that are 30 days or more overdue, and it shows delinquencies rates for single-family homes. Delinquencies began to rise in Q2 2005, well before the collapse of housing markets. These rates rose sharply as the economy collapsed in 2008 and 2009, and nearly 9% of homeowners were behind in payments in 2010. By March 2019, the rate fell to 2.6% for both single-family homes and for the broader market. Still, recovery remains uneven, and home prices and delinquency rates vary widely. More than 12% of mortgages in Mississippi were delinquent in 2010, and 5.4% were delinquent in March 2019. Just 1.2% were delinquent in Oregon in March 2019 after falling from about 5.5% in 2010. In general, consumer debt service payments and obligations appear low relative to income, and mortgage delinquencies and defaults to banks for credit card and consumer loans remain low.

Figure 26: Household Debt Service Payments and Mortgage Delinquency Rates

Percentage of Disposable Personal Income and Percent



Rising corporate debt levels, as seen above in Figure 24, are driving growing concern, particularly for marginal BBB-rated debt and for so-called leveraged loans. Leveraged loans are issued to firms with relatively low credit ratings that already have high debt levels compared to income. Interest rates typically float with the LIBOR benchmark rate. These loans often are packaged into Collateralized Loan Obligations (CLOs) that are traded in financial markets. Concern is driven both by the surging size of the market (to roughly $1.4 trillion at the end of 2018, about double the level in 2011) and by the vulnerability of the borrowers and lenders. Borrowers risk default as the economy decelerates and as interest rates rise, making repayment more difficult. Lenders face the possibility of collapsing asset prices following downgrades of credit ratings for borrowers. In contrast to junk bonds, leveraged loans are not regulated by the Securities and Exchange Commission, and so transactions can be slow. Low liquidity implies that lenders might not be able to sell debt quickly in the face of trouble, and so lenders face substantial risk of dramatic losses. The past year brought change, as defaults rose while investors sold assets at reduced prices. At the same time, BBB-rated debt, which has the lowest credit rating among investment-grade bonds, swelled to well over $3 trillion, eliciting fear that large amounts of debt are vulnerable if the economy slows.

Although certain market segments show signs of vulnerability, and such imbalances can pose significant risk to the overall economy, it is not clear that the broader business sector is struggling. Figure 27 shows default rates for commercial and industrial loans from commercial banks. Although delinquencies rose since 2015, these default rates remain near 30-year lows, falling from 6.75% in Q1 1987 to 1.13% in Q3 2019. Business bankruptcy filings also have been falling, from nearly 61,000 in 2009 to about 22,000 in 2018.

Figure 27: Business Loan Delinquencies and Business Bankruptcies
Percent and Filings per Year

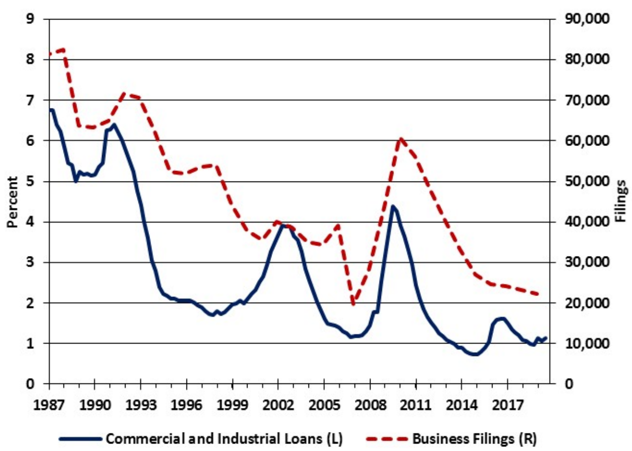
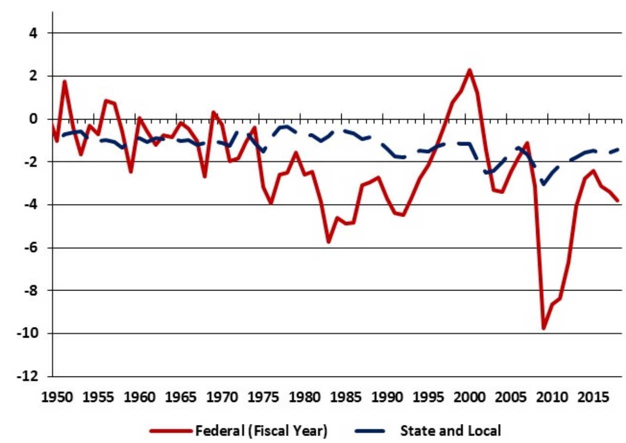


Figure 28 shows government deficits relative to GDP. By far, the greatest federal deficits since the 1930s came during WWII, with the gap exceeding 25% of GDP. The only other period in which federal deficits approached 10% of GDP was the Great Recession. Since the 2009 deficit of 9.8%, federal borrowing fell to 2.4% of GDP in fiscal year (FY) 2015. The deficit has risen since then, to 3.8% in FY 2018, despite moderately strong economic growth. In addition to defense and nondefense spending, other federal expenditures also contribute to the deficit, including entitlements such as Medicare and Social Security and interest payments on federal debt. Despite the limited contribution of government consumption and investment to GDP growth, and even before the effects of tax cuts and spending hikes took hold in 2018, the federal deficit was expanding faster than the economy. The rising federal deficit presents cause for concern. State and local net borrowing also rose to historically high rates in 2009, at 3.0% of GDP, but diminished to 1.4% of GDP in 2018.

Figure 28: Government Surplus or Deficit
Percentage of GDP

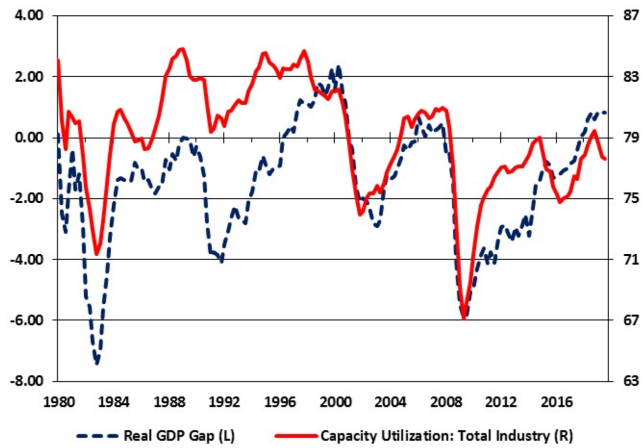


In addition to financial risks posed by high debt loads and other factors, an economy that exceeds its production capacity typically faces rising inflation and falling growth that ultimately can bring recession. Figure 22 (above) shows that the unemployment rate fell below the full-employment rate early in 2017. Protracted periods of tight labor markets often portend recession, with rising inflation and interest rates providing early signs. Inflation rates and short-term interest rates indeed have risen, but inflation in 2019 was moderate and short-term rates fell; long-term interest rates were rising but since have declined. The extent to which labor markets truly are tight is uncertain, as the rising but still-low labor market participation rate suggests the possibility that more workers could be pulled from the sidelines by higher wage rates. Also, the natural rate of unemployment (NAIRU) may be overestimated.

Another measure of tightness in the real economy is the difference between real GDP its potential level as measured by the Congressional Budget Office (CBO). The gap (Figure 29) became positive in Q4 2017 for the first time since Q4 2007. Capacity utilization for manufacturing, mining, and utilities industries was 79.0% in Q4 2014; it fell to 75.0% in Q3 2016 before rising to 79.4% in Q4 2018. This was far above the 2009 average of 68.5%, though it remains below rates seen in 2007 and indicates that these industries might still have unused capacity; by Q3 2019, utilization slipped to 77.6%. These measures – unemployment below its natural rate, GDP slightly above its potential, and relatively high and generally rising capacity utilization rates – suggest that the real economy is pushing against its limits. For substantial growth to continue, some combination of additional workers and substantial public and private investment to boost productivity will be needed.

Figure 29: GDP Gap (Deviation of Actual GDP from Potential GDP) and Capacity Utilization

Percent



Inflation-adjusted (2012$) GDP accelerated in 2018 to 2.9%. According to current Inforum estimates (Table 1), growth will subside to 2.3% in 2019 and to 1.9% in 2020. Personal spending strengthened in 2018 following tax cuts that boosted disposable personal income, and spending remains relatively strong in 2019 but will decelerate to about 2.2% in 2020. Corporate tax cuts (reducing the corporate statutory rate from 35% to 21%), allowing immediate deduction of certain business investment expenses, and encouraging repatriation of foreign earnings bolstered private investment spending. Business investment spending will continue to grow but at lower rates. Spending on nonresidential structures should stabilize after falling in 2019. Stronger government spending provided stimulus in 2018. Real government consumption and investment spending remain at high levels in 2019, but growth is expected to slow in 2020. Export sales had been rising with international economic growth, but U.S. economic expansion also spurred strong import demand that led to a wider trade gap. The imposition of high tariffs on some imports, with retaliatory reactions by U.S. trading partners and slower global growth, added volatility to international trade and threatens to limit potential for U.S. export growth. Net exports are expected to fall from -$920 billion in 2018 to -$976 in 2019 and -$1,003 in 2020.

Robust job growth boosted personal income and consumer spending. In 2018, employment rose by 1.7%, following an increase of 1.6% in 2017. Unemployment continued to fall gradually, to 3.9% in 2018 and 3.7% in 2019. Job gains averaging 223,000 per month in 2018 were encouraging, and despite volatility early in 2019, gains averaged 180,000 jobs per month through November. Annual total employment gains of about 1.1% are anticipated in 2019, before slipping below 1.0% annual expansion in following years. Unemployment will likely remain below 4.0% through 2020 but then normalize over the forecast horizon.

These new jobs raise personal income and will continue to support purchases of new vehicles, housing, and other goods and services, though hiring, income, and spending will decelerate. Higher spending nevertheless encourages businesses to invest in capital equipment and facilities. Years of government spending cuts largely ended in 2014, with most following years bringing modest gains in real government consumption and investment expenditures. A new spending bill early in 2018 boosted federal defense and nondefense expenditures. Future spending particularly is uncertain as Republicans control the Executive branch and Senate while Democrats control the House. Given deficits that already are large, it seems unlikely that federal expenditure will continue to rise rapidly, and so real federal consumption and investment spending may decelerate in 2020 and 2021 after stronger expansion in 2019. State and local government real spending rose 1.0% in 2018 and about 2.0% in 2019; coming years likely will bring moderate rates of fiscal expansion.

Despite volatility, the oil and gas industry renaissance should prove durable and support the U.S. economy if oil and gas prices remain stable and above the threshold of profitability, as is expected. Despite support from the Trump Administration, coal production continues its trend downward that began in 2008. The commitment to wind and solar electricity generation, improved energy efficiency, and the development and adoption of electric vehicles is less clear, as is the likelihood of significant legislation to reduce greenhouse gas emissions. Still, rapid technological developments and falling prices for solar and other advanced technologies suggest that investment spending will remain strong for these sectors regardless of federal policy.

Net exports will continue to present a drag on the U.S. economy, as weak demand for exports and moderate imports demand, despite increased tariffs levied by the Trump Administration, leave a wide trade deficit. This poses a challenge for manufacturing and other goods-producing industries overall, though even now some agricultural and other sectors are finding ways to compete effectively and new markets are opening for exports of natural gas and petroleum. However, new tariffs already have hurt exports of some agricultural and other products, and this presents a serious threat to these industries.

Reduced household debt levels, increased employment and income, and moderate inflation will continue to encourage personal consumption spending. Personal consumption spending will sustain about 2.6% growth in 2019 before decelerating to about 2.0% by 2021. Auto sales will slow, though sales in 2019 have been better than expected, but the slowdown will be widespread.

Residential investment activity boosted a lethargic economy with 13.0% growth in 2012, but spending since has been volatile. Housing investment fell 1.5% in 2018 and about 1.4% in 2019. Residential investment growth is expected to expand by about 1.6% in 2020 and slowly gain strength in following years. Sustained employment and income growth, better creditworthiness, and rising but still low mortgage rates will support continued recovery, particularly for the single-family construction market.

After expanding by 10.6% in 2014, real spending for nonresidential structures fell in 2015 and 2016. Weakness was concentrated primarily in drilling and oil field development while investment growth continued for many other types of nonresidential structures, particularly for commercial and health care buildings. Oil field activity stabilized in 2017. Overall nonresidential construction activity growth of 4.1% in 2018 was offset by a 3.8% decline in 2019, as spending on intellectual property rose strongly but spending on oil and gas and other structures fell. Expansion should stabilize at moderate rates in later years. Private equipment spending, which rose 6.8% in 2018, is projected to rise 1.3% in 2019. Growth in 2020 will be similar, with somewhat higher rates following. Investment in intellectual property products, including spending on software, research and development, and other intangible assets, rose nearly 8.0% in 2019; growth should continue through 2022, but at a slower pace.

Over the past decade, sluggishness proved persistent not only in the United States but across much of the global economy. Global growth finally began to improve in recent years, but this could be threatened by faltering activity in China and Europe. Because the American economy increasingly depends on trade with its partners, projections of U.S. growth must account for the risks to foreign economies and trading relationships. U.S. producers of agricultural commodities, energy products, manufactured goods, and other trade-dependent firms are working against exchange rates that make American products relatively expensive both at home and abroad; moderation of the U.S. dollar in 2017 helped, but the dollar gained strength again in 2018 and 2019. Economic indicators point to economic slowdown in 2019 for many emerging markets, such as India and Argentina, while expansion moderates in the U.S., Europe, Japan, and China. In November, the Organization for Economic Cooperation and Development (OECD) estimated global growth of 2.9% in 2019 (the lowest level seen since 2008-2009), 2.9% in 2020, and 3.0% in 2021.

Despite regained strength of the U.S. dollar and other headwinds, exports rose 3.0% in 2018, just behind the 3.5% gain in 2017. However, the Trump Administration's trade policies have incited trade wars that hurt most U.S. exporters. Already, exports of soybeans have suffered, and other exporter markets are realizing serious harm. Although tariffs might help some domestic producers, the damage done to exporters who face retaliatory tariffs and restrictions, as well as to domestic buyers of foreign goods who are forced to pay higher prices, likely makes the remedy worse than the disease. Export volumes were flat in 2019 and are expected to sustain moderate growth in the coming years.

The strong U.S. dollar drove real import growth to 5.3% in 2015, substantially widening the trade gap. Import volumes rose 4.7% in 2017 and 4.4% in 2018, though the increases were offset somewhat by rising export growth. Import growth decelerated to about 1.5% in 2019 as exports slowed. These drove substantial expansion of the real trade deficit, which increased from $920 billion (2012 dollars) in 2018 to $975 billion, though nominal balances were relatively stable. Slow global growth through 2021, as some are predicting, lend little hope of strong export growth, even without escalation of trade wars with major trading partners. Even with sustained growth in exports, though, high import demand implies that net exports will remain a drag on GDP growth.

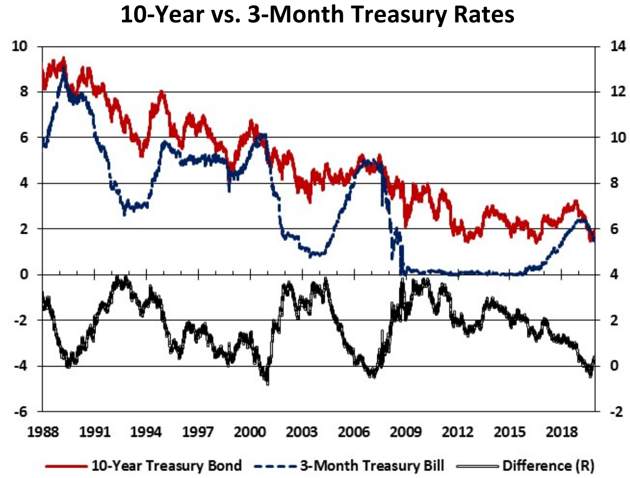
Table 1: Forecast for Economic Aggregates, Average Annual Percentage Growth Rates

	17-18	18-19	19-20	20-21	21-22	22-25	25-30	30-45
Real (Inflation-Adjusted) Quantities, Annual Growth Rates (Percent), Unless Otherwise Specified								
Gross Domestic Product	2.9	2.3	1.9	2.0	2.0	2.0	2.0	2.0
Personal Consumption	3.0	2.6	2.3	2.0	2.0	2.0	1.9	1.9
Durable Goods	6.3	4.2	2.7	2.3	2.4	2.4	2.5	2.4
Nondurable Goods	3.0	2.1	1.6	1.3	1.4	1.4	1.5	1.6
Services	2.5	2.5	2.4	2.1	2.1	2.1	2.0	1.9
Gross Private Domestic Investment	5.1	1.6	0.7	2.8	2.8	3.6	3.3	3.3
Gross Private Fixed Investment	4.6	1.6	1.7	2.8	2.8	3.6	3.3	3.3
Nonres. Fixed Investment	6.4	2.4	1.8	3.0	2.6	3.2	3.3	3.3
Nonresidential Structures	4.1	-3.8	2.3	2.1	2.5	2.7	2.2	1.8
Equipment Investment	6.8	1.3	1.5	3.0	3.0	3.3	3.2	3.4
Intellectual Property	7.4	8.0	1.8	3.6	2.2	3.4	3.9	4.0
Residential Investment	-1.5	-1.4	1.6	2.0	3.4	4.9	3.6	3.2
	2018	2019	2020	2021	2022	2025	2030	2045
Inventory Change (billion 2012$)	48.1	76.6	42.2	42.4	44.4	50.8	63.4	106.4
Net exports (billion 2012$)	-920.0	-975.6	-1002.8	-1029.1	-1043.8	-1132.4	-1218.4	-1665.5
	17-18	18-19	19-20	20-21	21-22	22-25	25-30	30-45
Exports (% change)	3.0	-0.1	2.6	4.0	3.3	3.3	3.3	3.4
Imports (% change)	4.4	1.5	2.7	3.6	2.8	3.2	2.8	3.1
Government	1.7	2.5	2.0	1.3	0.8	0.8	0.7	0.9
Federal	2.9	3.3	2.1	0.6	0.1	0.2	0.3	0.7
Defense	3.3	4.4	2.2	0.5	0.3	0.2	0.3	0.6
Nondefense	2.4	1.6	2.0	0.9	-0.1	0.3	0.5	0.9
State & Local	1.0	2.0	1.9	1.6	1.2	1.2	0.9	1.1
GDP Deflator	2.4	1.8	2.1	2.1	2.1	2.0	2.1	2.1
Consumption Deflator	2.1	1.8	1.9	2.2	2.2	2.3	2.2	2.2
Population	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.6
Labor Force	1.0	1.1	0.8	0.8	0.6	0.4	0.4	0.4
Employment	1.7	1.2	0.7	0.4	0.5	0.5	0.4	0.4
Labor Productivity	1.2	1.3	1.4	1.5	1.4	1.5	1.6	1.6
Real Disposable Income (2012$)	4.0	2.9	2.1	1.9	2.1	2.0	1.9	1.8
	2018	2019	2020	2021	2022	2025	2030	2045
Unemployment Rate	3.9	3.7	3.7	4.2	4.4	4.5	4.5	4.5
Interest Rates								
Treasury Bills, 3-month	1.9	2.1	1.5	1.7	2.0	2.3	2.6	3.0
Yield, 10 yr. Treasury bonds	2.9	2.1	1.8	2.2	2.6	3.0	3.3	3.6
Nominal Quantities, Billions of Dollars								
Current Account	-509.5	-517.1	-544.8	-573.3	-605.5	-751.8	-965.0	-2570.7
(% of GDP)	-2.5	-2.4	-2.4	-2.5	-2.5	-2.7	-2.9	-4.2
Federal Net Borrowing	-1065.8	-1136.7	-1143.7	-1201.8	-1281.0	-1513.2	-1814.1	-3515.5
(% of GDP)	-5.2	-5.3	-5.1	-5.2	-5.3	-5.5	-5.4	-5.8

Downside Risks

Inverted Yield Curve: The yield curve is a useful forecasting tool for recessions, having inverted (where long-term interest rates are lower than short-term interest rates) before each of the last seven recessions. The 10-year bond yield minus 3-month CD rates provides a measure of the yield curve that often is employed by economists (Figure 30). When this yield curve becomes inverted, there is high probability that recession will follow within 6-months to two years. However, the inverted yield curve also can give false signals as happened in January and September of 1966. Inverted yield curves push lenders away from long-term loans toward more profitable short-term lending, restricting access to finance and thus reducing economic activities. An inverted yield curve could also lead to a self-fulfilling prophecy. The yield curve is inverted in March 2019 and again from mid-May and mid- October, suggesting significant risk of weakness ahead.

Figure 30: Yield Curve
10-Year vs. 3-Month Treasury Rates



Political Gridlock: The White House and Congress continue a trend of hardening partisanship, with a significant share of time in Washington being spent on investigations and hearings. While important, many other pressing matters are left unattended. Much of the legislation passed by House Democrats hits a dead end in the Republican-controlled Senate. Unless the Democratic House, the Republican Senate, and the Executive branch can find ways to cooperate more effectively, little progress will be made despite mounting need to address fiscal, regulatory, environmental, and other matters. Bitter fighting threatens to intensify as campaigns are waged for the 2020 presidential election.

Policy Uncertainty: The quickly-approaching 2020 presidential election has the potential to usher in a significantly different policy environment. Ambitious proposals such as wealth taxes, free college education, Medicare for All, and the Green New Deal are sharp departures from current policies. These have varying levels of support of American voters, but additional research is needed to analyze the implications of such policies. If the Trump administration wins reelection, there is little reason to believe that the chaotic style evident in the first term would change. The specter of impeachment also looms large. Regardless of who is Commander in Chief, all domestic businesses would benefit from a more stable economic and policy outlook.

Federal Deficit: Despite its rapid growth, there is little appetite in Washington to address the federal budget deficit. The Congressional Budget Office projects that the deficit will average 4.7% of GDP between 2020 and 2029. By comparison, this figure averaged 2.9% of GDP from 1969 to 2018. The Congressional Budget Office projects that federal debt held by the public will reach 78.9 percent of GDP in FY 2019, its highest level since the conclusion of World War II. Under current law, debt is expected to climb to 95.1 percent of GDP by 2029 and 144 percent of GDP by 2049. The unsustainability of perpetually large deficits and mounting debt represents a significant risk to the domestic economy, particularly as rising rates and debt levels propel interest payments. A more immediate concern is that the already-large federal deficit reduces our ability to temper recession through aggressive fiscal policy. Because tax rates were cut and spending levels raised during the current expansion, there may be little room to maneuver should recession arrive within the next several years. While tax reform brought welcome improvement, particularly by cutting the corporate tax rate, additional changes are needed to establish sensible and sustainable treatment of capital income and other aspects of tax policy.

Trade Wars: The White House's reliance on tariffs as a policy tool has led to trade battles on multiple fronts. This complicates business planning and particularly hurts domestic manufacturing and agriculture sectors.

Particularly troubling is the escalation of the trade war with China. For more than a year, both countries have imposed substantial tariffs on imports of the other's goods. While both sides have signaled desire to end the trade war, no deals have been struck. On November 27th, President Trump signed a piece of legislation demonstrating support for Hong Kong protestors. This action is welcomed by many but has the potential to derail negotiations and reduces the chance of a resolution in the near future. The next round of tariffs (15% duties on $300 billion of Chinese imports) are scheduled to take effect on December 15th. While manufacturers and farmers endured most of the previous tariff impacts, American consumers will feel the effects of the next round of tariffs. Goods subject to duties will include clothing, televisions, and other consumer electronics. In response, China plans to introduce tariffs targeting $75 billion worth of American goods.

While some may benefit from the Trump administration's trade agenda, other segments of the U.S. and global economy are being hurt. U.S. consumers bear at least a significant portion of the costs of tariffs. If escalation continues, the risk of recession will rise.

Geopolitical Instability: Political uncertainties around the globe could prove damaging both to domestic and foreign economies. Protests related to an extradition law in Hong Kong have highlighted the tensions between the region and mainland China. Demonstrations became increasingly violent in recent months and gained attention throughout the world. Increased scrutiny of China's treatment of the Uyghur people is placing additional pressure on Xi Jinping and other Chinese leaders. These events are taking place while China's domestic economy is slowing and the country is engaged in a bitter trade war with the United States.

Unrest abounds, including in Chile, Ecuador, Iran, Iraq, and Lebanon. According to the IMF, the world economy is in a "synchronized slowdown". Some argue that globalization is to blame, while others believe that populist policies are the root of the problem. Leaders throughout the world are forced to confront these tensions.

Ties between the U.S. and North Korea remain strained, despite multiple meetings between President Trump and Kim Jong Un. While the failure of recent negotiations reduced hopes of denuclearization in North Korea, an upcoming G-20 summit could provide new opportunities for President Trump to negotiate with South Korean, Chinese, and other stakeholders.

Finally, the Brexit saga drags on. Following several defeats of Brexit deals within her own Parliament, Prime Minister Theresa May resigned in May 2019. Her successor, Boris Johnson, has had similar success in crafting a deal that satisfies stakeholders in the United Kingdom. Just prior to the October 31 deadline, Mr. Johnson requested yet another extension. The UK presently has until January 31, 2020 to broker a deal and leave the European Union. If that fails to occur, the UK could suffer sharp drops in the value of its currency and shortages of important goods such as medicines. Separation without a deal also would hurt the EU, potentially raising the likelihood of continent-wide recession.

Climate Change: Greater attention is being paid to the effect of climate change on the economy. The National Climate Assessment, a report produced by the federal government, suggests that negative impacts of climate change could reduce U.S. GDP by up to ten percent by 2100. Reduced economic activity is associated with increased rates of health problems, reduced world trade, diminished agriculture yields, and other risks. While no location or industry is immune to the effects of climate change, some regions and sectors of the economy are predicted to be affected disproportionately. In particular, corn and soybean producers in the Midwest are expected to be hit hard by higher temperatures, droughts, and floods. Poor policies to reduce emissions or to mitigate the consequences of climate change also pose risk of harm. Even well-designed policies that bring substantial long-run benefits may require significant short-run economic costs.

Upside Risks

Sensible Policy: Many of the downside risks above could follow poor policy decisions, including trade and federal fiscal legislation that pose high costs while offering limited benefits. At the same time, we have potential to adopt sensible policies that offer economic benefits within, and even beyond, American borders.

In early December, a breakthrough was made concerning the United States-Mexico-Canada Agreement (USMCA). It had previously been delayed as House Speaker Pelosi suggested that the agreement's enforcement provisions needed to be strengthened. A revised agreement has been put forth and House Democrats announced their support. The legislation still needs to be voted on by Congress, but bipartisan support is expected. This represents a welcome shift from the political gridlock that has plagued Washington in recent years. Ultimate implementation of the USMCA should strengthen the U.S. manufacturing and agricultural sectors while bolstering protection of intellectual property. Additionally, the certainty of a North American trade deal will aid CEOs and other business planners.

Higher Investment: U.S. corporate tax rates long were among the highest in the world, and while firms found ways to cut tax bills, doing so was expensive and disruptive. Many firms yielded to the pressures imposed by tax and other policies by moving production elsewhere, inverting their corporate structures by moving headquarters to other countries, and by recording profits in nations with low tax rates. Many corporations built substantial cash reserves. However, avoidance of U.S. corporate taxes and too few investment opportunities at home left much of the money overseas, and cash that was spent went to buy back equity. Capital spending in the United States suffered. Legislation passed in December 2017 cut the corporate rate from 35% to 21%, allowed immediate deduction of certain business investment expenses, and encourages repatriation of foreign earnings. GOP politicians argue that the bill will help American workers and boost economic growth, and if deregulation progresses as the Administration intends, then such changes to tax and regulatory policy could spur additional private investment. With rising employment costs adding to the pressure, establishment of sensible federal tax policy is essential. Although nonresidential investment growth was strong in 2018, growth was lower in 2019 and much remains to be learned about the merits of the current legislation. If firms respond by repatriating funds held overseas, and if these funds are put to effective use, then higher investment spending could boost labor productivity growth. The President's vision for improved infrastructure relies heavily on private investment, and so the potential for private funds to boost productivity extends beyond the traditional scope for capital deepening.

The general expansion of federal nondefense and state and local expenditures lends hope that agreement will be reached to make needed repairs and improvements on roads and highways, airports, waterways, water utilities, 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. If the federal government joins state and local governments, and perhaps the private sector too, in rebuilding aging equipment and structures, it could provide a substantial boost to GDP. Reduction of traffic congestion alone offers opportunity for investment to boost American efficiency and capacity for years to come.

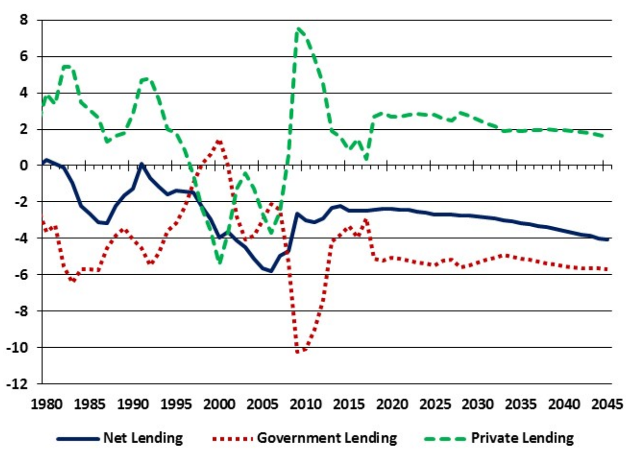
Effective Stimulus: If productivity rises sufficiently to alleviate labor shortages and other potential bottlenecks, or if higher after-tax wage rates induce greater labor participation beyond the slight rise seen recently, then the tax cuts and spending hikes could boost growth beyond what was seen immediately after their passage. Nominal wages are accelerating, and tax cuts raise after-tax income further. The extent to which this will attract potential workers who have been on the sidelines remains to be seen, but higher participation rates could raise GDP and reduce the likelihood of overheating. Moreover, higher after-tax incomes for workers and firms allow more consumption spending and greater expenditures for housing and other investments. However, timing matters, and many economists believe that multipliers for stimulus during expansions are significantly less than multipliers for recession-era stimulus, and so much depends on the supply-side response to federal policy changes.

Energy Market Opportunities: Energy producers provided an important exception during years of sluggish growth with substantial spending on oil and gas field development, pipelines, and other assets. The Energy Information Administration's Annual Energy Outlook projects that the U.S. will be a net energy exporter every year between 2020 and 2050. Not only would this create jobs in the energy sectors, i.e. primarily fossil fuel producers, but associated investment would provide additional jobs for equipment manufacturers, engineering services, and other firms. Other opportunities for energy producers and users abound, as technological advances bring lower prices for wind and solar electricity production and as electric-powered vehicles become practical and affordable. Sound policies to foster development and adoption of such technologies could bring significant environmental improvement and opportunity for economic gain, despite high costs of shifting from reliance on fossil fuels to various alternatives.

We calibrate the LIFT forecast to exhibit long-run sustainability of the economy's basic nominal balances as a percentage of GDP. Figure 31 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 31: 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 2.4% in 2016. 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, about 7% of its current income relative to GDP. The ratio was negative throughout much of the preceding decade.

Long-run forecasts of the real economy are guided by Social Security Administration projections of population growth and by labor force participation rates that are similar to projections 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. CBO projections inform potential growth of real GDP through the medium term and growth rates remain stable 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 are guided by GDP inflation rates that converge to the Federal Reserve target of approximately 2.0%. Energy Information Administration projections guide energy prices. Transfer spending follows projections by the Centers for Medicare and Medicaid Services, the Social Security Administration, and the Congressional Budget Office.

Overview of the Sectoral Outlook

Mining – Domestic mining industries, particularly in the energy sector, have enjoyed relatively high commodity prices since 2017, though some prices are faltering in 2019. The mining industrial production index, a measure of general mining activity, rose every quarter between Q3 2016 and Q2 2019, though it dipped mildly in the third quarter of 2019. Healthy expansion is expected to continue. Output of mining support firms, including exploration, is expected overcome a weak 2019 performance and rise steadily over the medium-term. Projections of crude oil and natural gas extraction are strong in the near term, but growth is expected to decelerate by the late 2020s.

Construction – Housing starts, an important indicator of the health of the residential construction sector, finished October 2019 at an annual rate of over 1.3 million homes. This represents an 8.5% improvement over the same month in 2018. This is welcome news, as residential investment performance was sluggish in recent years, including a 1.5% decline in 2018. Residential investment is expected to accelerate slowly in the coming years. Nonresidential structures investment is also expected to improve in the forecast period. Expansion of at least 2.0% per year is projected through 2030.

Manufacturing – The domestic manufacturing sector is experiencing mixed effects of Trump-era policies, including help from reduced regulations and lower corporate tax rates. The manufacturing industrial production index rose from 100.7 in August 2016 to 107.5 in December 2018. This represents the highest level since the Great Recession. Since then, however, the manufacturing sector has followed a downward trend, falling to 105.2 in October 2019. Several factors could limit the potential of a manufacturing resurgence, including trade wars with China and other countries, upward pressure on wages, and uncertainty about federal policy that hampers business planning.

Retail – Historically-low unemployment and rising disposable income should support moderately strong spending by U.S. consumers on goods and services. However, the face of retail is changing. Business is booming for internet retail establishments and package delivery services. Traditional brick-and-mortar stores, however, must adapt quickly to an increasingly digital marketplace that threatens to leave many establishments unable to compete.

Healthcare – Health care remains one of the most hotly debated topics in the United States, and for good reason. Expenditures on health care accounted for 17.7% ($3.6 trillion) of GDP in 2018. This number is expected to increase in the coming years, reaching 19.4% in 2027. The outcome of the 2020 election has the potential to bring significant changes to the health sector, especially if policies like Medicare for All are adopted. Regardless of federal policy, the aging American population will continue to raise demand for health care products and services.

Table 2: Overview of the Inforum Outlook

	2018	2019	2020	2021	2022	2025	2030	2045	17-18	18-19	19-20	20-21	21-22	22-30	30-45
REAL ACTIVITY (Billions of chained 2009$)															
Gross domestic product	17,568	17,979	18,332	18,698	19,065	20,250	22,382	30,008	2.7	2.3	2.0	2.0	2.0	2.0	2.0
Personal consumption	12,193	12,512	12,795	13,049	13,307	14,108	15,527	20,469	2.6	2.6	2.3	2.0	2.0	1.9	1.9
Nonres structures investment	487	468	479	489	501	543	606	789	4.1	-3.8	2.3	2.1	2.5	2.4	1.8
Equipment investment	1,182	1,198	1,217	1,253	1,291	1,421	1,666	2,738	6.9	1.3	1.5	3.0	3.0	3.2	3.4
Intellectual property	802	866	881	913	933	1,032	1,249	2,237	7.4	8.0	1.8	3.6	2.2	3.7	4.0
Res structures investment	600	592	601	614	635	732	874	1,404	-0.9	-1.4	1.6	2.0	3.4	4.1	3.2
Inventory Change	36	57	31	32	33	38	47	79							
Net exports, goods & services	-654	-702	-721	-738	-746	-807	-851	-1,106							
Exports	2,324	2,322	2,383	2,479	2,560	2,823	3,320	5,487	5.7	-0.1	2.6	4.0	3.3	3.3	3.4
Imports	2,978	3,023	3,104	3,217	3,306	3,629	4,171	6,594	5.8	1.5	2.7	3.6	2.8	2.9	3.1
Govt consumption & investment	2,935	3,007	3,067	3,106	3,131	3,208	3,327	3,822	1.1	2.5	2.0	1.3	0.8	0.8	0.9
Federal defense	686	715	731	734	736	739	748	816	2.7	4.3	2.2	0.4	0.3	0.2	0.6
Federal nondefense	449	456	465	469	469	473	484	551	0.5	1.6	2.0	0.9	-0.1	0.4	0.9
State & local	1,798	1,834	1,870	1,900	1,923	1,991	2,087	2,439	0.7	2.0	1.9	1.6	1.2	1.0	1.0
NOMINAL ACTIVITY (Billions of $)															
Gross domestic product	20,323	21,183	22,057	22,963	23,895	26,942	33,119	60,269	4.9	4.2	4.1	4.1	4.1	4.2	4.1
Gross national product	20,549	21,420	22,304	23,219	24,163	27,243	33,489	60,944	4.9	4.2	4.1	4.1	4.1	4.2	4.1
Labor compensation	10,698	11,164	11,645	12,141	12,656	14,304	17,444	31,529	3.4	4.4	4.3	4.3	4.2	4.1	4.0
Taxes on production and imports	1,342	1,420	1,484	1,561	1,640	1,905	2,437	4,542	5.8	5.8	4.5	5.2	5.0	5.1	4.2
Corporate profits	2,091	2,118	2,205	2,308	2,403	2,698	3,345	6,342	9.2	1.3	4.1	4.7	4.1	4.2	4.4
Proprietor income	1,271	1,354	1,424	1,448	1,486	1,635	2,022	3,674	7.9	6.6	5.1	1.7	2.7	3.9	4.1
Capital consumption allowances	2,687	2,791	2,871	2,987	3,112	3,516	4,282	7,582	3.6	3.9	2.9	4.0	4.2	4.1	3.9
PERSONAL INCOME															
Personal income	17,360	18,267	19,131	19,936	20,807	23,710	29,587	54,101	5.4	5.2	4.7	4.2	4.4	4.5	4.1
Adjusted personal income	12,993	13,643	14,251	14,796	15,390	17,351	21,284	38,068	5.5	5.0	4.5	3.8	4.0	4.1	4.0
Disposable income	15,254	15,980	16,620	17,306	18,057	20,521	25,171	45,518	5.8	4.8	4.0	4.1	4.3	4.2	4.0
Disposable income in 2009$	13,262	13,649	13,924	14,192	14,483	15,390	16,927	22,164	3.6	2.9	2.0	1.9	2.1	2.0	1.8
Federal net borrowing	-1,039	-1,108	-1,114	-1,171	-1,248	-1,475	-1,764	-3,416	85.3	6.7	0.5	5.1	6.6	4.4	4.5
Fed. income taxes, % of adj. PI	12.6	12.5	12.7	12.8	12.9	13.3	15.7	17.4	-3.6	-1.1	1.7	0.9	0.6	2.5	0.7
CHAIN-TYPE PRICE INDEXES, 2009=100															
GDP deflator	115.7	117.8	120.3	122.8	125.3	133.0	148.0	200.8	2.2	1.8	2.1	2.1	2.1	2.1	2.1
PCE deflator	115.0	117.1	119.4	121.9	124.7	133.3	148.7	205.4	2.1	1.8	1.9	2.2	2.2	2.2	2.2
Export deflator	112.1	112.6	114.3	117.1	119.7	127.8	141.4	186.5	4.1	0.5	1.5	2.4	2.3	2.1	1.9
Imports deflator	106.5	105.5	107.3	110.0	112.8	122.2	137.9	197.4	2.5	-0.9	1.8	2.5	2.6	2.5	2.4
INTEREST RATES															
Treasury bills, 3-month	1.9	2.1	1.5	1.7	2.0	2.3	2.6	3.0							
Yield, 10 yr. Treasury bonds	2.9	2.1	1.8	2.2	2.6	3.0	3.3	3.6							
EMPLOYMENT and POPULATION															
Unemployment Rate	3.9	3.7	3.7	4.2	4.4	4.5	4.5	4.5							
Labor productivity	64.5	65.4	66.4	67.3	68.3	71.5	77.3	97.5	1.0	1.4	1.5	1.5	1.4	1.6	1.6
(Real (2009$) GDP per hour)															
Civilian labor force (mil.)	162.0	163.8	165.2	166.5	167.6	169.6	173.2	184.7	1.0	1.1	0.8	0.8	0.6	0.4	0.4
Labor force participation rate	62.9	62.9	62.9	62.8	62.6	61.7	60.8	59.7							
Population, total (in millions)	328.7	331.5	334.2	336.9	339.6	347.8	361.2	393.1	0.8	0.8	0.8	0.8	0.8	0.8	0.6
Working age population	257.7	260.2	262.8	265.3	267.8	274.8	284.7	309.6	1.0	1.0	1.0	1.0	0.9	0.8	0.6
Eligible for social sec.	51.4	53.0	54.6	56.3	58.1	63.3	70.9	79.4	3.1	3.1	3.1	3.1	3.1	2.5	0.8
Ratio, Working Age to SocSec Pop	5.0	4.9	4.8	4.7	4.6	4.3	4.0	3.9							

Table 3: Output and Jobs by Aggregate Industry

PRODUCTION, Billions of 2009$															
	2018	2019	2020	2021	2022	2025	2030	2045	17-18	18-19	19-20	20-21	21-22	22-30	30-45
Agriculture, forestry, fishery	398	404	408	414	422	445	495	664	-0.4	1.4	1.0	1.5	1.8	2.0	2.0
Mining	498	524	535	547	559	588	626	676	13.9	5.2	2.1	2.3	2.1	1.4	0.5
Utilities	517	516	514	517	520	532	550	634	4.7	-0.2	-0.2	0.5	0.6	0.7	1.0
Construction	923	919	933	948	967	1042	1164	1624	0.0	-0.5	1.5	1.6	2.0	2.4	2.2
Nondurables manufacturing	2640	2646	2682	2716	2761	2907	3208	4371	0.3	0.3	1.4	1.3	1.7	1.9	2.1
Durables manufacturing	2713	2775	2742	2796	2858	3044	3502	5413	4.1	2.3	-1.2	1.9	2.2	2.6	2.9
Trade	2726	2811	2872	2942	3016	3261	3735	5708	3.3	3.1	2.2	2.4	2.5	2.7	2.9
Transportation	1018	1047	1068	1093	1120	1208	1384	2130	2.6	2.9	2.0	2.4	2.5	2.7	2.9
Information	1621	1687	1734	1788	1840	2015	2365	3878	4.6	4.1	2.8	3.1	2.9	3.2	3.4
Finance,Insurance,Real estate	5341	5508	5638	5765	5900	6334	7147	10325	1.9	3.1	2.4	2.3	2.3	2.4	2.5
Professional, business services	4309	4481	4582	4705	4825	5250	6104	9805	5.4	4.0	2.2	2.7	2.5	3.0	3.2
Edu, health, social services	2672	2758	2838	2920	3003	3262	3675	5100	2.8	3.2	2.9	2.9	2.8	2.6	2.2
Arts, amusements, accomm, food	1325	1356	1385	1411	1438	1524	1687	2281	3.4	2.3	2.1	1.9	1.9	2.0	2.0
Other private services	781	805	826	842	857	904	995	1347	4.2	3.0	2.5	2.0	1.8	1.9	2.0
Government and govt enterprises	2419	2453	2488	2510	2525	2584	2688	3162	1.7	1.4	1.4	0.9	0.6	0.8	1.1
Miscellaneous	15	14	14	15	15	15	16	22	8.3	-6.7	4.3	4.3	0.4	0.7	2.3
JOBS, Millions of persons															
	2018	2019	2020	2021	2022	2025	2030	2045	17-18	18-19	19-20	20-21	21-22	22-30	30-45
Civilian jobs	161.2	163.1	164.2	164.9	165.7	168.2	171.8	183.3	1.7	1.2	0.7	0.4	0.5	0.5	0.4
Private sector jobs	140.3	142.1	143.2	143.8	144.5	146.7	149.9	159.7	1.9	1.3	0.8	0.4	0.5	0.5	0.4
Agriculture, forestry, fishing	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.0	-1.8	-1.1	0.4	-0.4	-0.1	-0.3	-0.4
Mining	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	9.0	0.0	0.3	0.9	0.5	-0.1	-0.7
Utilities	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.4	-0.1	-0.5	-1.5	-1.2	-1.0	-1.5	-1.3
Construction	9.2	9.1	9.1	9.2	9.3	9.7	10.1	11.2	4.6	-1.5	0.6	0.7	1.0	1.1	0.6
Nondurable manufacturing	5.3	5.2	5.1	5.1	5.0	4.9	4.9	4.6	1.0	-1.7	-1.3	-1.1	-0.6	-0.4	-0.3
Durable manufacturing	7.7	7.7	7.5	7.3	7.3	7.0	6.8	6.2	2.6	0.2	-3.0	-1.8	-1.0	-0.8	-0.6
Wholesale trade	6.2	6.1	6.0	5.9	5.9	5.8	5.6	5.5	0.7	-1.0	-1.3	-1.5	-0.8	-0.5	-0.2
Retail trade	16.7	17.0	17.1	17.2	17.2	17.3	17.4	18.0	-0.1	1.4	0.9	0.2	0.1	0.2	0.2
Transportation	5.8	5.9	6.0	6.0	6.0	6.2	6.4	7.5	4.1	1.6	0.6	0.3	0.8	0.8	1.0
Information	2.9	3.0	2.9	2.9	2.9	2.7	2.6	2.3	0.2	0.7	-0.9	-1.3	-1.3	-1.2	-0.9
Finance, insurance, real estate	9.3	9.4	9.5	9.5	9.5	9.4	9.3	9.0	1.5	0.9	0.5	-0.2	-0.1	-0.2	-0.3
Professional, business services	23.3	23.8	24.0	24.2	24.4	24.9	25.5	27.7	2.4	2.3	0.9	0.8	0.7	0.5	0.5
Edu, health, social services	24.9	25.5	26.0	26.5	26.9	28.2	30.0	35.0	2.1	2.3	2.2	1.8	1.6	1.4	1.0
Arts and recreation	2.9	3.0	3.1	3.1	3.1	3.2	3.3	3.6	2.6	2.9	2.5	1.3	1.1	0.8	0.4
Accommodation and food services	14.2	14.5	14.7	14.8	14.9	15.1	15.5	16.7	1.7	1.8	1.3	0.7	0.7	0.6	0.5
Other services, except govt	8.2	8.5	8.6	8.7	8.7	8.8	9.0	9.6	1.3	2.6	1.8	0.7	0.5	0.4	0.4
Federal general govt defense	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.2	0.4	0.1	-0.6	0.0	0.1	0.3
Federal general govt nondefense	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.8	-0.2	0.1	0.1	0.1	0.1	0.2	0.3
Federal government enterprises	0.7	0.7	0.7	0.7	0.8	0.8	0.9	1.1	-1.1	2.1	1.5	1.8	1.9	1.9	1.8
S&L general government	18.5	18.5	18.6	18.6	18.7	18.8	19.2	20.4	0.6	0.2	0.2	0.3	0.3	0.3	0.4
S&L government enterprises	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.5	-0.2	0.8	0.5	0.4	0.5	0.8	0.9
ADDENDA															
Gross Domestic Product, bil 2009$	17568	17979	18332	18698	19065	20250	22382	30008	2.7	2.3	2.0	2.0	2.0	2.0	2.0
Labor productivity (GDP/Hr)	64.5	65.4	66.4	67.3	68.3	71.5	77.3	97.5	1.0	1.4	1.5	1.5	1.4	1.6	1.6
Civilian Labor Force (millions)	162.0	163.8	165.2	166.5	167.6	169.6	173.2	184.7	1.0	1.1	0.8	0.8	0.6	0.4	0.4