



Chapter 8

The Year in Review and the Years Ahead

The U.S. economy experienced a strong and economically notable acceleration in 2017, with growth in real gross domestic product exceeding expectations and increasing to 2.5 percent, up from 1.8 percent during the four quarters of 2016, and the unemployment rate falling 0.6 percentage point to 4.1 percent, the lowest since 2000. Over the course of 2017, the economy added 2.2 million nonfarm jobs, averaging 181,000 per month, with particular strength in the manufacturing (+189,000 jobs) and mining (+53,000) sectors, which had lost 9,000 and 98,000 jobs, respectively, in 2016. Challenges remain, however, because the combination of strong employment growth and modest output and real earnings growth in recent years reflects low labor productivity growth, due in part to historically low levels of capital deepening—an issue that the recently enacted Tax Cuts and Jobs Act was intended to address (see chapter 1 of this *Report*). In addition, long-term downward trends in labor force participation due to the aging Baby Boom generation will require fresh policy ideas to offset (see chapter 3).

Acknowledging these challenges, the Administration's baseline forecast for the longer term is for output to grow by an overall average annual rate of 2.2 percent through 2028, excluding the effects of the December 2017 Tax Cuts and Jobs Act. The full, policy-inclusive forecast, however, which assumes implementation of the Administration's agenda, is for real gross domestic product to grow by 3.0 percent a year, on average, through 2028. We expect growth to moderate slightly after 2020, as the capital-to-output ratio approaches its new, postcorporate tax reform steady state, and as the pro-growth effects

of the individual elements of the Tax Cuts and Jobs Act dissipate (though the level effect remains permanent). The current Administration's long-run, policy-inclusive forecast is conservative relative to those of previous administrations, and is in fact slightly below their median of 3.1 percent. Moreover, the baseline forecast is exactly in line with the long-run outlook given in the 2017 *Economic Report of the President*, reflecting our view that nonimplementation of the Administration's policy objectives would simply result in a reversion to the lower growth expectations of recent years. But if these objectives are implemented, the expected contribution to long-run growth of the resulting deregulation and infrastructure investment will offset the declining contribution to growth of corporate and individual tax cuts and reforms near the closing of the budget window. On average, through 2028, the Administration expects deregulation and infrastructure investment to each contribute to GDP growth beyond 2020 (as discussed in chapters 2 and 4, respectively). Consistent with growth slowing slightly in the latter half of the budget window, from 3.2 percent in 2019 to 2.8 percent in 2028, the Administration expects unemployment to gradually return to its natural level, which will also stabilize inflation.

From 2010 through 2016, the United States' real gross domestic product (GDP) grew at an average annual rate of 2.1 percent. The pace of economic recovery was slow by historical standards; indeed, recent research finds that deep recessions are typically followed by strong recoveries in the United States, and that the correlation is in fact stronger when the contraction is accompanied by a financial crisis (Bordo and Haubrich 2017). Since 1882, there have been only three exceptions to this observation—the Great Depression, the recession of 1990–91, and the aftermath of the Great Recession of 2007–9.

As discussed in chapter 1, on tax reform, factors in this historically weak recovery included the coincidence of high and rising global capital mobility with an increasingly internationally uncompetitive U.S. corporate tax code and worldwide system of corporate taxation. This combination had the effect of deterring U.S. domestic capital formation, thereby restraining capital deepening, labor productivity growth, and, ultimately, output and real wage growth. The five-year, centered-moving-average contribution of capital services per

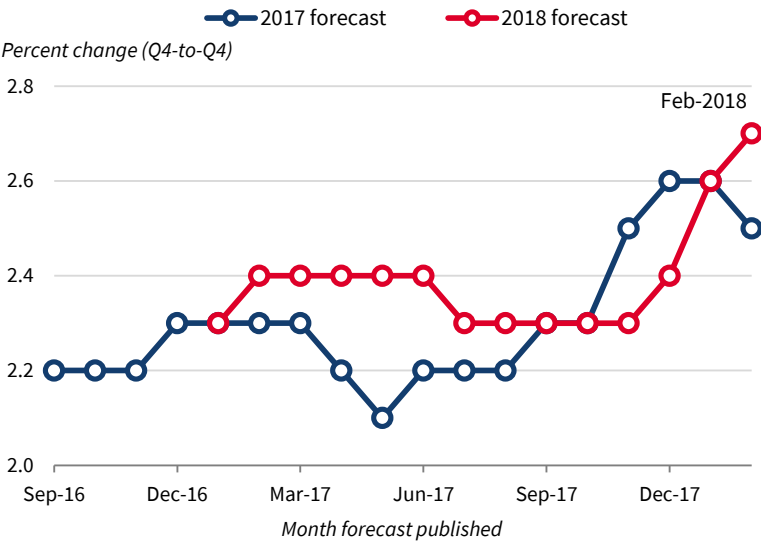
hour worked to labor productivity actually turned negative in 2012 and 2013 for the first time since World War II. Moreover, as demonstrated in chapters 2 and 3 on, respectively, deregulation and labor, an increased regulatory burden on businesses and recession-era labor policies had additional negative effects on productivity growth, particularly through the effect of regulation on firm entry and exit, and labor force participation among prime-age workers.

During the four quarters of 2017, real GDP grew by 2.5 percent; and annualized quarterly growth rates rose from 1.2 percent in the first quarter of 2017 (hereafter, 2017:Q1, etc.) to, respectively, 3.1, 3.2, and 2.6 percent in 2017:Q2, 2017:Q3, and 2017:Q4. The year 2017 therefore constituted a positive surprise to expectations. After four-quarter growth of 2.0 and 1.8 percent in 2015 and 2016, expectations for 2017 were subdued. The 2017 *Economic Report of the President* anticipated four-quarter real GDP growth of 2.4 percent, while in January 2017 the Blue Chip panel of professional forecasters predicted four-quarter growth of 2.3 percent (figure 8-1). With 2017 thus surpassing expectations, the January 2017 Blue Chip consensus forecast of 2.3 percent for 2018 was revised upward in February 2018 to 2.7 percent, while “nowcasts” from the Federal Reserve Banks of New York and Atlanta have projected 2018:Q1 growth above 3 percent.

Consider the expenditure-side components of GDP in turn: During the four quarters of 2017, real consumer spending growth of 2.8 percent exceeded real disposable income growth, such that the personal saving rate fell, which could in part reflect the effect of a \$7.7 trillion rise in household wealth during the four quarters of 2017, driven primarily by rising equity prices. Business fixed investment grew 6.3 percent during the four quarters of 2017, up from only 0.7 percent during 2016, the strongest four-quarter growth rate since 2014:Q3. Residential investment increased 2.3 percent during the four quarters of 2017, similar to the 2.5 percent growth in 2016; this was a somewhat surprisingly modest rate, given the solid fundamentals: low mortgage interest rates, rising real income, and rising house prices. Inventory investment—one of the most volatile components of GDP—subtracted 0.3 percentage point from average growth during the four quarters of 2017, and accounted for much of the quarterly fluctuations. Government purchases were roughly neutral in their effect on overall GDP during the four quarters of 2017. Exports contributed 0.6 percentage point to real GDP growth during the four quarters of the year, a notable increase from the average contribution of –0.1 percentage point in the years 2015–16, which partly reflected emerging economic growth among the United States’ trading partners.

Over the course of 2017, the U.S. economy added 2.2 million nonfarm jobs, averaging 181,000 per month, thereby extending the streak of positive nonfarm employment growth to 87 consecutive months (or 88 consecutive months, through January 2018). There was particular strength in the manufacturing (+189,000 jobs) and mining (+53,000) sectors, which lost 9,000 and

Figure 8-1. Evolution of Blue Chip Consensus Forecasts for Real GDP Growth During the Four Quarters of 2017 and 2018

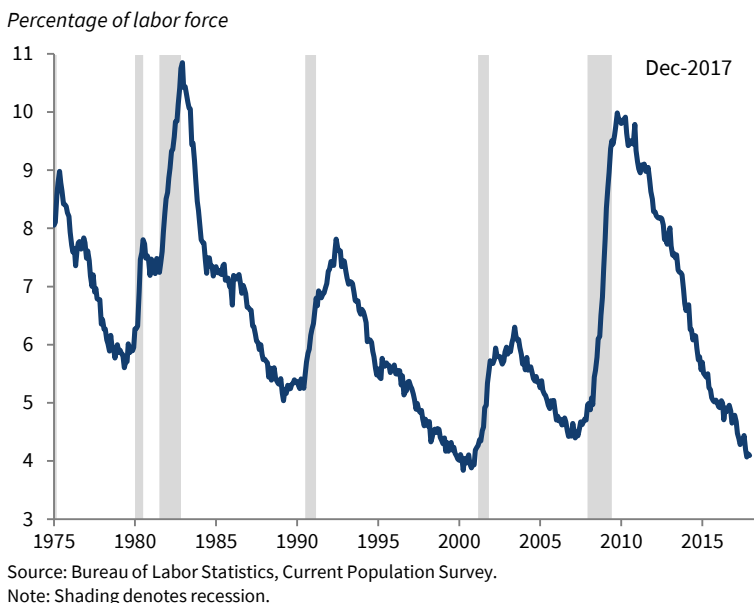


Sources: Blue Chip Economic Indicators, published September 2016 to February 2018.

98,000 jobs, respectively, in 2016. By the end of 2017, the unemployment rate had fallen to 4.1 percent, the lowest rate since 2000 and down 0.6 percentage point since December 2016 (figure 8-2). The unemployment rate for African Americans was down 1.1 percentage points during the 12 months through December 2017, to 6.8 percent—the lowest rate recorded in a series that began in 1972. Meanwhile, after falling from 2008 through 2015 due to factors including the retirement of Baby Boom generation cohorts, an atypically slow recovery from the 2007–9 recession, and additional supply-side factors (see, e.g., Mulligan 2012), in 2016 and 2017 the annual average labor force participation rate edged up slightly as a tightening labor market offset negative demographic trends.

The conjunction of a falling unemployment rate and output growth below historical averages reflects slow labor productivity growth during this business cycle’s expansion relative to its long-term average. The slow growth of labor productivity, along with falling participation rates, have accounted for a decline in growth of real GDP per capita from a 1953:Q2–2007:Q4 average of 2.1 percent a year to 0.7 percent a year since the business cycle peak in 2007. As discussed in this chapter and chapter 1, on tax reform, one factor holding down labor productivity growth has been slow growth in business fixed investment during the 10 years since the 2007 business cycle peak (1.7 percent at an annual rate, down from 4.8 percent during the preceding 54 years since the 1953 business cycle peak). Notably, business fixed investment picked up to 6.3 percent and labor productivity in the nonfarm business sector picked up to 1.1 percent

Figure 8-2. Unemployment Rate, 1975–2017



during the four quarters of 2017, and the reduction in the cost of capital by the Tax Cuts and Jobs Act (TCJA) was specifically conceived to promote increased investment and capital deepening.

Despite low and declining unemployment, inflation remained low and stable, with consumer price inflation, as measured by the consumer price index (CPI), only 2.1 percent over the 12 months through December, the same pace as a year earlier. Low import prices continue to restrain overall inflation. The core CPI, which excludes volatile food and energy, increased 1.8 percent over the 12 months through December. Over the same period, personal consumption expenditure (PCE) inflation increased 1.7 percent, remaining below the Federal Reserve’s 2 percent target. Real average hourly earnings of nonfarm private sector employees rose 0.6 percent during the 12 months through December, as nominal wage growth continued to exceed the subdued pace of price inflation, building upon the 0.6 percent gain during 2016.

Challenges remain for 2018 and the longer term, including increased opioid dependence (see chapter 6 on health), the recent low rate of labor productivity and real wage growth, and downward pressure on the labor force participation rate from demographic shifts. However, these challenges are not policy-invariant, as is discussed in chapters 1 and 3, on tax reform and the labor market, respectively. Capital deepening, a key driver of labor productivity, has been lackluster in recent years, in large part due to the combination of increasing capital mobility and an internationally uncompetitive corporate tax code, headwinds that the TCJA was designed to counteract. Meanwhile, though

demographics are a principal determinant of long-run trends in labor force participation, this participation is not policy-invariant, and demographics are not destiny. Policy has affected participation in the past and can do so again. For example, as demonstrated in chapter 3, policies designed to mitigate the demand-side effects of rising unemployment during the Great Recession and other structural factors—such as regional variation in unemployment and geographic immobility (see chapters 2 and 4, on regulation and infrastructure, respectively)—have had persistently negative effects on the labor supply of both prime-age and young adults. Chapter 1 also demonstrates that the supply-side effects of reductions in marginal income tax rates through the TCJA may be concentrated at the upper end of the age distribution, with important implications both for labor force participation and labor productivity, as highly productive, near-retirement workers with higher elasticities of labor supply are incentivized to defer retirement.

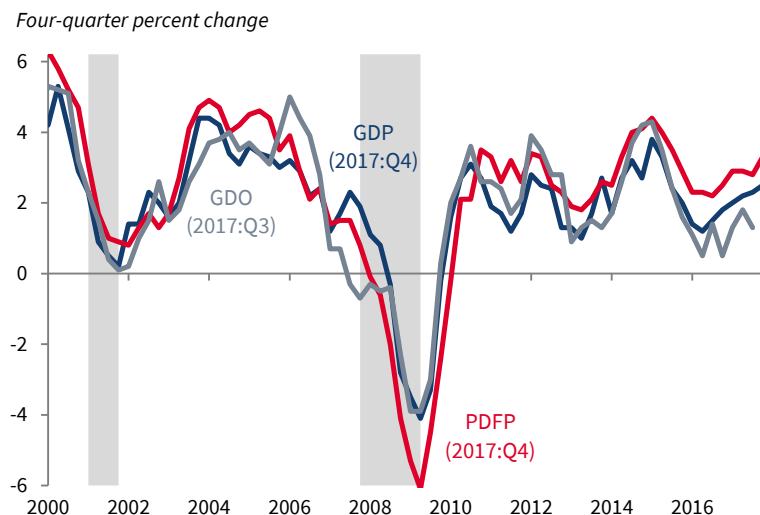
Accordingly, the Administration expects real GDP to grow at 3.1 percent during the four quarters of 2018, and 2.8 percent in the long term, a forecast that assumes enactment of the President’s policy proposals. In 2018, consumer spending and exports are expected to continue to sustain solid growth, with a lift from a pickup in business fixed investment and a sharp decline in corporate profit shifting. The unemployment rate is expected to fall slightly from its projected 2017:Q4 rate of 4.1 percent to 3.7 percent in 2019:Q4. Inflation, as measured by the price index for GDP, is expected to rise from its projected rate of 1.6 percent during the four quarters of 2017 to 2.0 percent during the four quarters of 2021, and to continue at that pace thereafter. Yields on 10-year Treasury notes are expected to edge up from their projected rate of 2.3 percent during the four quarters of 2017 to 3.6 percent in the mid-2020s, due partly to increasing inflation and partly to term premiums returning to more historically normal levels.

Output

Real GDP grew by 2.5 percent during the four quarters of 2017, somewhat above its pace in recent years. Real gross domestic output—an average of GDP and gross domestic income that is generally a more accurate measure of output than GDP—grew at a similar 2.4 percent annual rate during the first three quarters of 2017, up from 1.2 percent during the four quarters of 2016. The overall composition of demand during the four quarters of 2017 shows that most of the growth was accounted for by strong increases in consumer spending and business fixed investment. These were partially offset by a decline in inventory investment, while contributions from net exports and other sectors were generally small.

Real GDP accelerated to a 2.5 percent rate of growth during the four quarters of 2017, from a 1.8 percent pace during 2016. The 2017 acceleration

Figure 8-3. Real Growth in GDP, Private Domestic Final Purchases (PDFP), and Gross Domestic Output (GDO), 2000–2017



Source: Bureau of Economic Analysis, National Income and Product Accounts.

Note: Shading denotes recession. GDO is the average of GDP and gross domestic income.

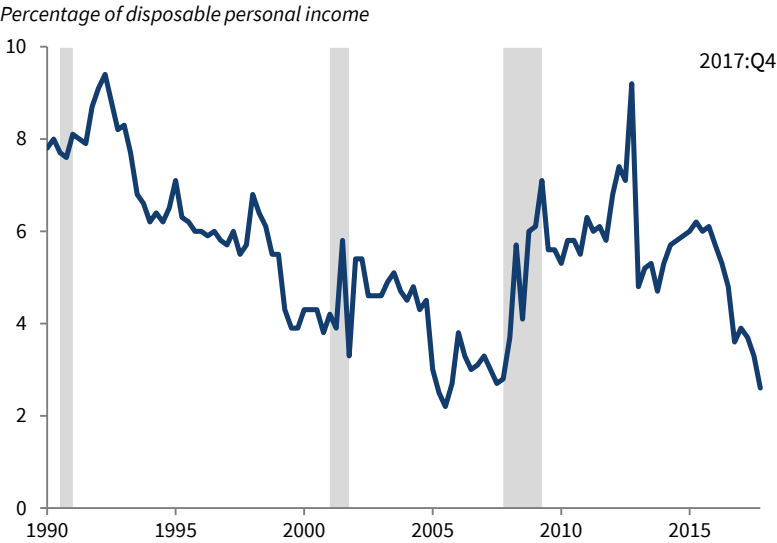
was largely accounted for by business investment and exports. Within business investment, the step-up in growth was due to equipment investment, which grew 8.8 percent (contributing 0.5 percentage point to overall real GDP growth) during 2017, after shrinking 3.7 percent a year earlier. The faster pace of export growth during 2017 reflects the emerging strength among our trading partners, as discussed below. Real consumer spending grew 2.8 percent during the four quarters of 2017, the same pace as 2016.

The aggregate measure of consumption and private fixed investment, known as private domestic final purchases (PDFP), rose 3.3 percent during the four quarters of 2017 (faster than overall output), up from 2.5 percent in 2016 (figure 8-3). Real PDFP growth is typically a better predictor of future real GDP growth than is real GDP growth itself (possibly because it aggregates the best-measured components of demand). The strength of PDFP suggests somewhat better growth prospects for 2018 than might be inferred from GDP alone.

Consumer Spending

Consumer spending, which constitutes 69 percent of GDP, was the major demand-side contributor to real GDP growth during 2017. Real consumer spending grew faster than disposable income (1.8 percent), so the personal saving rate fell from 3.6 percent in 2016:Q4 (and an average 4.9 percent during 2016) to 2.6 percent by 2017:Q4 (and an average 3.4 percent during 2017) (figure 8-4). Real consumer spending outpaced real income, probably because of large increases in household net worth attributable to the substantial gains

Figure 8-4. Personal Saving Rate, 1990–2017



Source: Bureau of Economic Analysis, Personal Income and Its Disposition.
Note: Shading denotes recession.

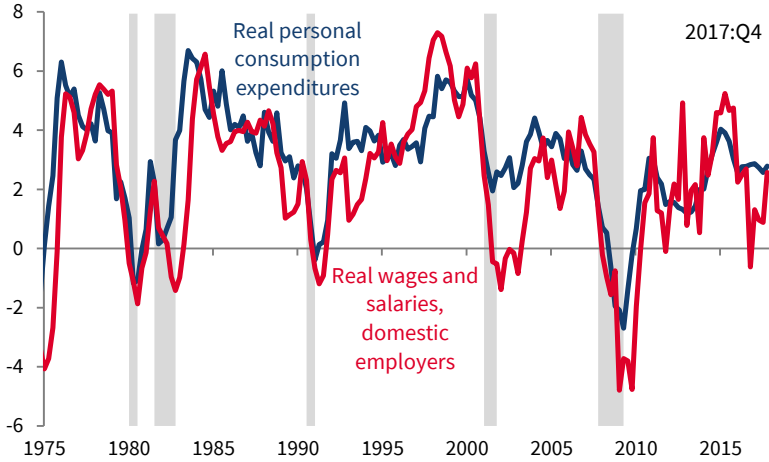
in the stock market, continued increases in housing wealth, and a stable household debt-to-income ratio. Low interest rates and improving access to credit also supported consumer spending. In general, real consumption growth and the wages-and-salaries component of real income growth tend to track one another well, as was the case in 2017 (figure 8-5). The low saving rate is consistent with the elevated level of employment expectations, which in 2017:Q4 was at the 87th percentile of its historical distribution (according to data from the University of Michigan’s Surveys of Consumers), indicating that consumers are optimistic about the economic future and thus are not engaging in precautionary “buffer stock” savings (Carroll 1997).

During the past four quarters, growth was strong for real household purchases of durable goods (7.4 percent) and nondurable goods (3.2 percent), while services purchases grew moderately (1.9 percent). Light motor vehicles sold at an annual rate of 17.1 million units during the 12 months of 2017, down slightly from the 17.5 million units sold during 2016, which was the strongest selling pace on record. Domestic automakers assembled 10.8 million light vehicles in 2017, down from 11.8 million units, on average, during the two preceding years.

Consumer sentiment increased in 2017, due in part to a strong labor market, low inflation, and the stock market highs (figure 8-6). In 2017:Q4, the two major indices of consumer sentiment—the University of Michigan’s Index of Consumer Sentiment, and the Conference Board’s Index of Consumer Confidence—reached their highest quarterly averages since 2000:Q4.

Figure 8-5. Real Consumer Spending and Real Compensation, 1975–2017

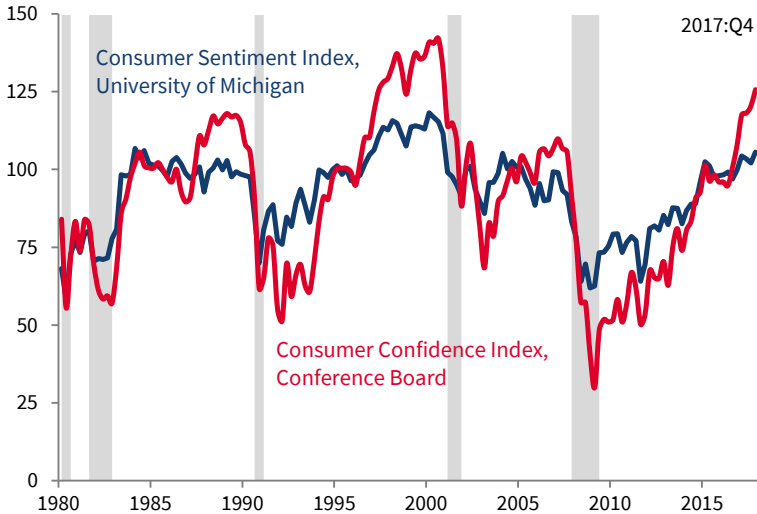
Four-quarter percent change



Sources: Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.
Note: Shading denotes recession. Wages and salaries of domestic employers are deflated using the personal consumption expenditure chain price index.

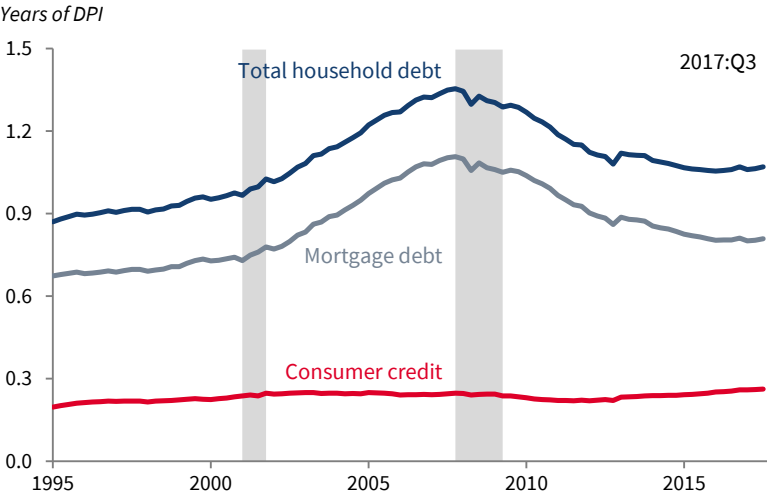
Figure 8-6. Consumer Sentiment, 1980–2017

Index (1985 = 100)



Sources: University of Michigan; Conference Board; CEA calculations.
Note: Shading denotes recession.

Figure 8-7. Household Debt Relative to Disposable Personal Income (DPI), 1995–2017



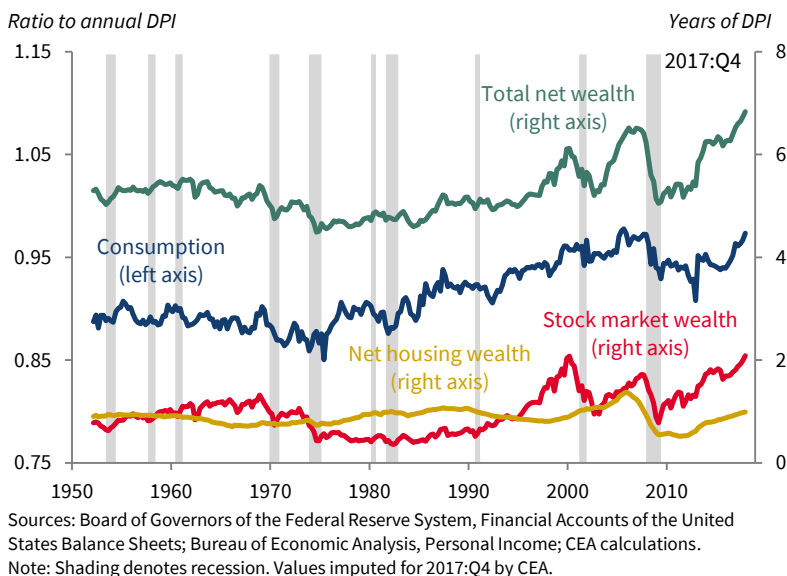
Sources: Board of Governors of the Federal Reserve System, Financial Accounts of the United States Balance Sheets; Bureau of Economic Analysis, Personal Income; CEA calculations.
Note: Shading denotes recession.

Meanwhile, U.S. household debt relative to income was stable during the first three quarters of 2017 (figure 8-7). Before the financial crisis, household debt relative to income rose dramatically, largely due to rising net mortgage originations, and then declined sharply after the crisis through 2016, a pattern known as “deleveraging,” which entailed declines in new mortgage originations and less consumer borrowing. Charge-offs of delinquent mortgage debt also played a role (Vidangos 2015). The level of mortgage debt relative to income edged down during the first three quarters of 2017, while the level of consumer credit (including credit cards, automobiles, and student loans) relative to income increased slightly.

Moreover, with low interest rates, the amount of income required to service these debts has fallen dramatically. Still, it needs to be noted that estimates based on aggregate data could mask higher debt burdens for some families, because the health of personal finances varies substantially among households. Nonetheless, in the aggregate, deleveraging has brought levels of debt relative to income and ratios of debt service to income back to the comfortable proportions of the early 2000s.

Gains in nominal household net worth (i.e., assets less debts, also referred to as household wealth) during 2017 were accounted for by increases in equity wealth of about 19 percent and in real estate wealth of roughly 9 percent. These gains in wealth were only slightly offset by increases in liabilities that were in line with income. By the end of 2017, household wealth had reached a value equivalent to seven years of income, the highest ratio of wealth

Figure 8-8. Consumption and Wealth Relative to Disposable Personal Income (DPI), 1952–2017



to income since records began to be kept in 1947 (figure 8-8). These gains in wealth supported consumer spending growth in 2017 because the consumption share of income tends to increase along with increases in net worth. Because the saving rate is the inverse of the consumption-to-income ratio, high levels of the wealth-to-income ratio can support a low saving rate, such as the 2.6 percent rate in 2017:Q4.

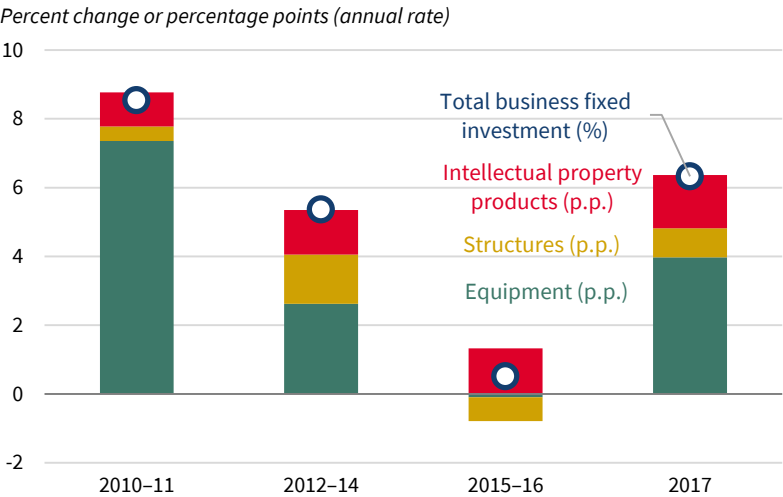
Three caveats need to be added about this correlation between net worth and the consumption rate. First, changes in net worth have been spread unevenly across households, and these disparities may have implications for families and macroeconomic activity. Second, in the Federal Reserve’s Financial Accounts of the United States, the household sector includes the endowments of nonprofit institutions. And third, stock market wealth is volatile, so this picture could change quickly.

Investment

The main types of investment include business fixed investment, residential investment, and inventory investment. This subsection considers each in turn.

Business fixed investment. Business fixed investment was a bright spot in 2017, after two years of little growth. It grew by 6.3 percent during the four quarters of 2017, an acceleration from an annual rate of 0.5 percent during the years 2015–16. And its three major subcomponents also grew during the four quarters of 2017 (figure 8-9): Equipment investment grew by 8.8 percent, up from a 3.7 percent contraction in 2016; intellectual property products grew by

Figure 8-9. Composition of Growth in Real Business Fixed Investment, 2010–17



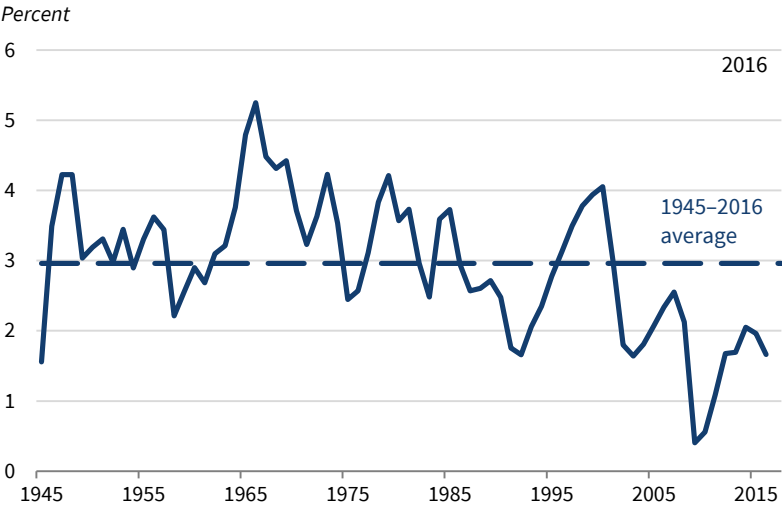
Sources: Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.
Note: Components may not sum to total due to rounding. Growth rate computed using Q4-to-Q4 changes.

4.8 percent, down slightly from 5.2 percent growth in 2016; and nonresidential structures grew by 3.7 percent, similar to 3.5 percent growth in 2016.

Net investment (gross investment less depreciation) is required to increase the capital stock. It is a matter of concern that net investment has been generally falling as a share of the capital stock during the past 10 years, which limits the economy’s productive capacity. In 2016, net investment as a share of the capital stock fell to a level previously seen only during recessions (figure 8-10). The Tax Cuts and Jobs Act is designed to increase the pace of net investment. As discussed further below, the slowdown in investment has also exacerbated the slowdown in labor productivity growth.

The rate of payouts to shareholders by nonfinancial firms, in the form of dividends together with net share buybacks, has been gradually trending higher for several decades, although it fell in 2017 (figure 8-11). Nonfinancial corporations returned nearly half the funds that could be used for investment to stockholders in 2017. In a well-functioning capital market, when mature firms do not have good investment opportunities, they should return funds to their stockholders, so the stockholders can invest these funds in young and growing firms. Although it may be admirable for individual firms to thus return funds to their shareholders, the rising share of paybacks to shareholders suggests that investable funds are not being adequately recycled to young and dynamic firms. Gutiérrez and Philippon (2016) find that firms in industries with more concentration and more common ownership invest less.

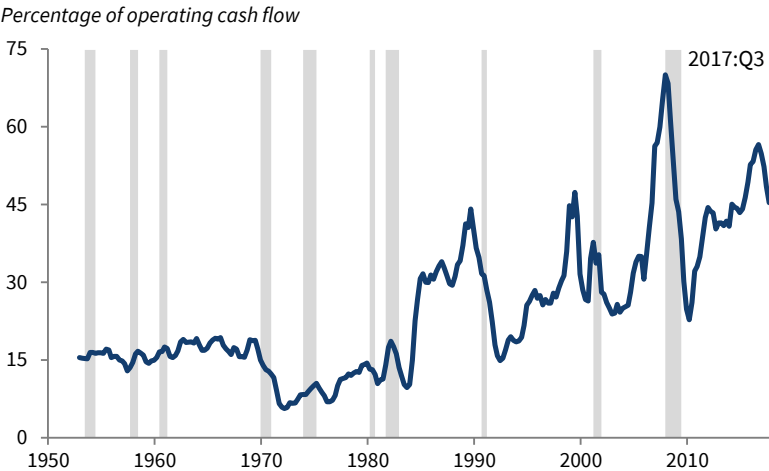
Figure 8-10. Net Investment as a Share of the Capital Stock, Private Nonresidential, 1945–2016



Sources: Bureau of Economic Analysis, Fixed Assets Accounts tables 1.1, 1.3, and 1.5; CEA calculations.

Note: Net nominal investment as share of the current-cost capital stock.

Figure 8-11. Total Payouts to Shareholders, Nonfinancial Corporate Businesses, 1952–2017



Sources: Board of Governors of the Federal Reserve System, Financial Accounts of the United States; CEA calculations.

Note: Shading denotes recession. Series shown is the four-quarter moving average of the ratio of dividends plus share buybacks relative to profits plus depreciation minus taxes.

Residential investment. Residential investment was one of the driving sectors of demand during 2015, before it slowed in 2016 and 2017. It slowed from 10.3 percent growth during the four quarters of 2015 to 2.5 percent during 2016, and to 2.3 percent during 2017. Even with this slowing growth, many housing indicators reached their highest levels during this business cycle expansion, including sales of newly constructed single-family homes and single-family housing starts.

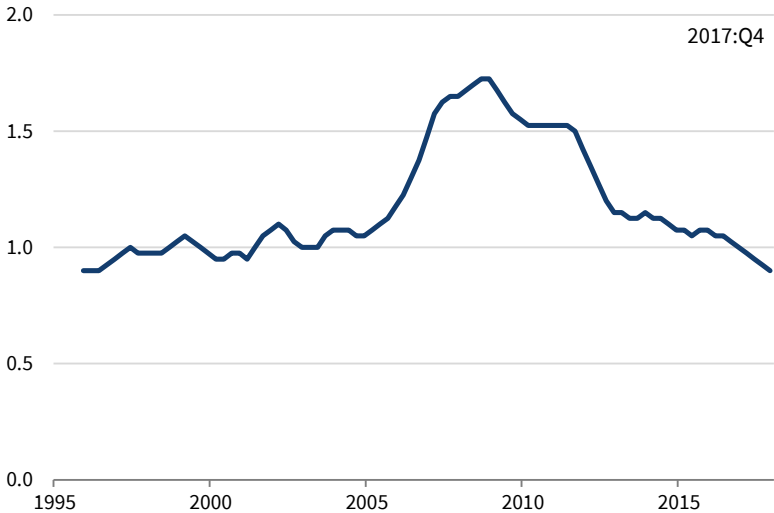
Although the housing market has continued its recovery since the recession, several structural challenges remain, including a constrained housing supply, low affordability in some areas of the country, and persistently muted household formation for 18- to 34-year-olds. Housing supply is constrained: the inventory of homes available for sale was below its historical average during 2017, and vacancy rates of owner-occupied homes for sale, another indicator of excess supply, have fallen to levels that had prevailed before 2004 (figure 8-12). Sales volumes of the most affordable new single-family homes, particularly those sold for less than \$200,000, are lower than before the crisis. The share of young adults living with their parents remains above its long-run historical average, stifling household formation. These challenges may explain why housing starts (at about 1.2 million units during 2017) are below their projected long-run, steady state pace of about 1.6 to 1.8 million units per year (Herbert, McCue, and Spader 2016).

House prices continued to rise in 2017, similar to the pace in 2015 and 2016. National home prices increased 6.2 to 7.0 percent (depending on the index) during the 12 months ending in November 2017, up slightly from 5.2 to 6.5 percent a year earlier. (National home price indices from Zillow, CoreLogic, Federal Housing Finance Agency Purchase-Only, and S&P CoreLogic Case-Shiller were used.) Although price increases are above their pre-bubble historical average, they are not as rapid as the increase of 6 to 11 percent during the 12 months of 2013. Nominal house prices are 1 to 13 percent above their prerecession peak (figure 8-13). However, in real terms (adjusting for inflation with the PCE chain price index), house prices remain 4 to 16 percent below their prerecession peak.

Continued house price increases have improved owners' equity relative to their mortgage debt. As of 2017:Q3, homeowners' equity equaled slightly more than half the total value of household real estate (59 percent), which was 22 percentage points higher than the recessionary trough and near the post-1975 average of roughly 60 percent. Rising home prices in 2017 helped lift many households out of negative equity positions, reducing the overall share of single-family homeowners with an underwater mortgage (i.e., when mortgage debt exceeds the value of a house) to 4.9 percent in 2017:Q3, down from 6.3 percent a year earlier (figure 8-14). In addition, in 2017:Q2, the share of mortgages that were delinquent (when the homeowner misses at least one monthly payment) reached its lowest level in 17 years, though the share of

Figure 8-12. Year-Round For-Sale Vacant Housing Units, 1996–2017

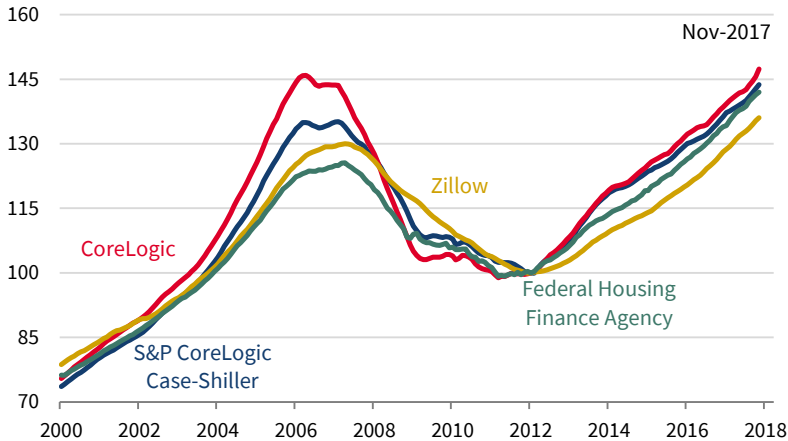
Percentage of housing units (four-quarter moving average)



Sources: Census Bureau, Housing Vacancy Survey; CEA calculations.
Note: Covers for-sale housing units that are vacant all year.

Figure 8-13. National House Price Indices, 2000–2017

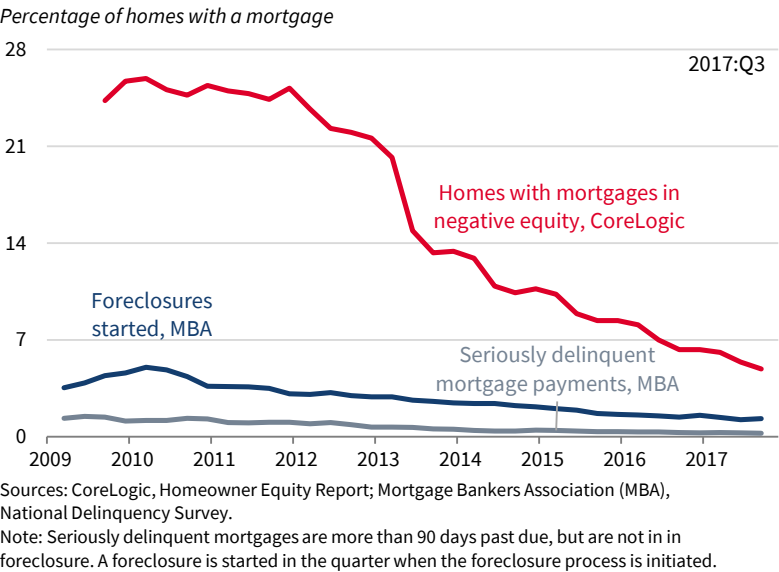
Index (January 2012 = 100)



Sources: Zillow; CoreLogic; Federal Housing Finance Agency; Standard & Poor's; MacroMarkets LLC; CEA calculations.

Note: The S&P CoreLogic Case-Shiller, Federal Housing Finance Agency, and CoreLogic indices all adjust for the quality of homes sold, but only cover homes that are bought or sold. Zillow reflects prices for all homes on the market. Indices are seasonally adjusted.

Figure 8-14. Share of Mortgages with Negative Equity, Past Due Installments, and in Foreclosure, 2009–17

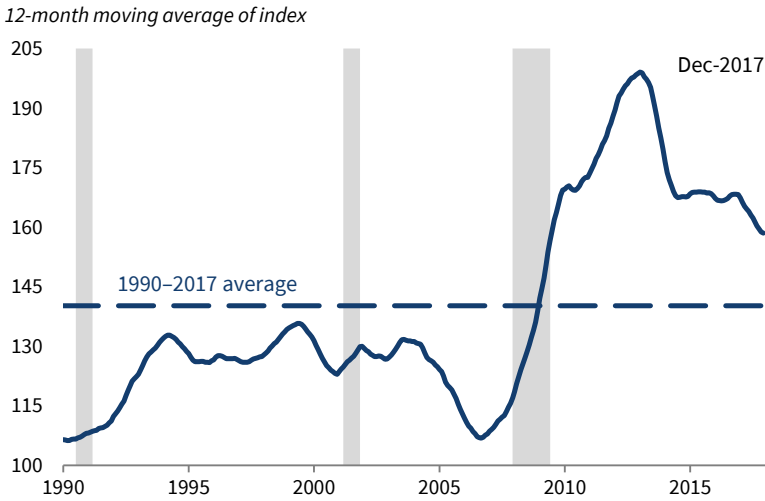


mortgages that were seriously delinquent (with payments more than 90 days overdue, and the bank considering the mortgages to be in danger of default) remained above its historical average. The overall mortgage delinquency rate increased in 2017:Q3, possibly due to hurricanes Harvey, Irma, and Maria. Falling delinquencies support overall economic growth because homeowners with underwater or delinquent mortgages are less likely to spend or relocate in search of better-paying jobs (Ferreira, Gyourko, and Tracy 2012).

Single-family homes were still more affordable in 2017 than the historical average, as rising incomes and low and stable mortgage rates partially offset the effect of rising house prices on the cost of homeownership (figure 8-15). Nevertheless, affordability has decreased somewhat during the past five years because median existing home prices have, on average, grown roughly 4 percentage points faster than median family incomes each year.

The national homeownership rate was 64 percent in 2017:Q4, lower than the 66 percent historical average since 1980, due to demographic and financial trends. The decline has been concentrated among young households. The homeownership rate of those age 18 to 34 years averaged 35 percent during the four quarters of 2017, lower than the 39 percent historical average since 1994 (when the series began). The decline in homeownership for young people reflects the fact that young adults are waiting longer to get married or form households. As a result, first-time homebuyers are older, on average, than they were in the 1980s. Second, credit availability remains tight for borrowers with credit scores below 620.

Figure 8-15. Housing Affordability Index, 1990–2017



Sources: National Association of Realtors; CEA calculations.

Note: Shading denotes recession. A value over 100 means that the median-income family has more than enough income to qualify for a mortgage on a median-priced home. Index is 100 when the median-income family can exactly qualify for a mortgage on a median-priced home.

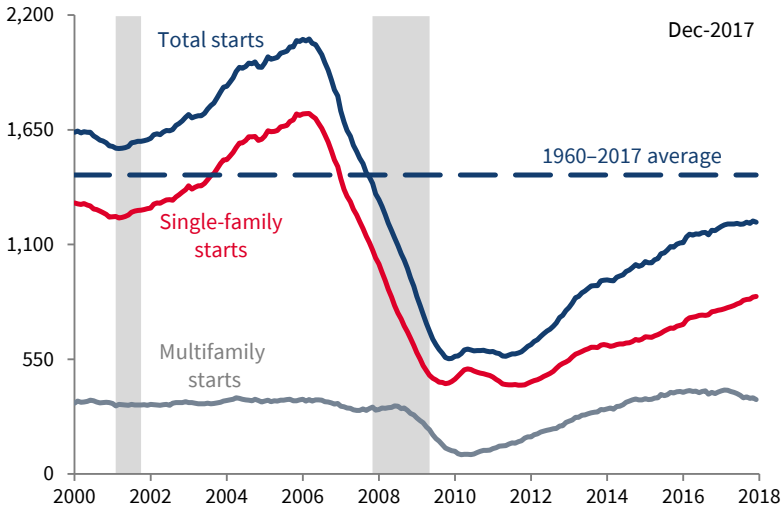
The overall rate of household formation (e.g., when a young adult leaves home to set up a new household) has been weak since 2007. On average, 1.0 million additional households were formed each year from 2013 to 2017, according to the Current Population Survey, which collects household data in March of each year. This is the same pace as in the period 2008–12, but down from the average 1.4 million additional households formed each year from 1980 to 2007.

Housing starts also remained well below the projected rate of 1.6 to 1.8 million that is consistent with long-term demographics and the replacement of the existing housing stock (Herbert, McCue, and Spader 2016). The 1.2 million starts during 2017 represented an increase of 2.5 percent relative to 2016 as a whole, but remained below their historical average (figure 8-16). Furthermore, because the rates of homebuilding have been below that pace since the recession, pent-up demand for housing may be playing a role in supporting further recovery in the housing market. However, an increase in housing demand, if not accompanied by an increase in housing supply, would not bring about a full recovery in the housing market.

The accumulation of State and local barriers to housing development—including zoning, other land-use regulations, and unnecessarily lengthy development approval processes—have reduced the ability of many housing markets to respond to growing demand (Glaeser, Gyourko, and Saks 2005). Although land-use regulations sometimes serve reasonable and legitimate purposes, they can also give extranormal returns to entrenched interests at

Figure 8-16. Housing Starts, 2000–2017

Housing units (thousands, 12-month moving average)



Sources: Census Bureau, Housing Starts and Building Permits; CEA calculations.

Note: Shading denotes recession. Housing units are seasonally adjusted at an annual rate.

the expense of everyone else (see box 2-6 of the 2016 *Report* for an in-depth discussion of constraints on the housing supply).

Inventory investment. Real inventory investment—the change in the inventory stock—subtracted from output growth during the four quarters of 2017, concentrated in the first and fourth quarters. Although inventory investment is volatile, and can greatly affect quarterly GDP growth rates, its contribution to output growth generally averages close to zero over four- or eight-quarter horizons, aside from recessions and their immediate aftermath (figure 8-17).

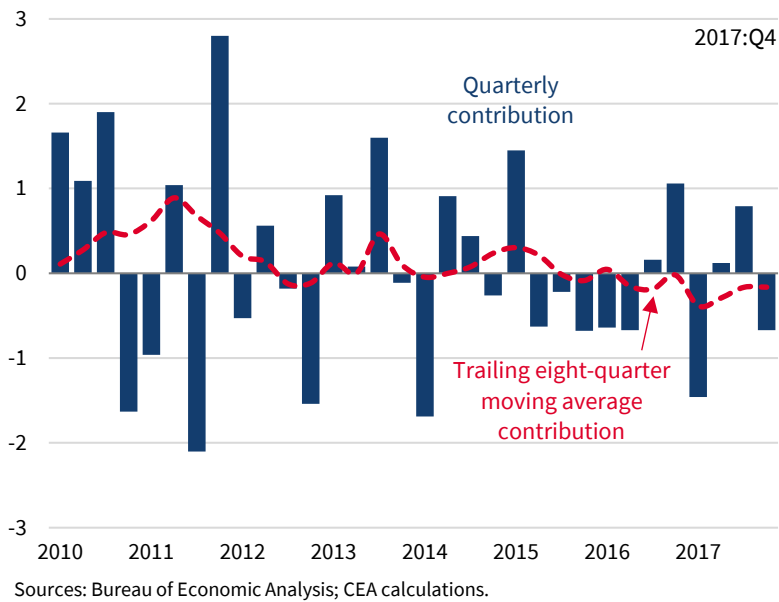
Government Purchases

Real government purchases—Federal, State, and local consumption, plus gross investment—contributed 0.1 percentage point to real GDP growth during the four quarters of 2017, roughly the same contribution as 2016 (figure 8-18). Real Federal purchases increased 1.1 percent, after decreasing slightly (0.3 percent) during 2016. Defense purchases—defense consumption and gross investment—contributed modestly, increasing 2.4 percent during the four quarters of 2017, after decreasing 1.4 percent in 2016. State and local government purchases—consumption plus gross investment—contributed slightly to real GDP growth during the four quarters of 2017, edging up 0.5 percent during 2017, after increasing 0.8 percent during 2016.

State and local purchases as a share of nominal GDP fell from their historical peak of 13.0 percent in 2009 to 10.8 percent in 2017, a share not seen

Figure 8-17. Contribution of Inventory Investment to Real GDP Growth, 2010–17

Percentage points (annual rate)



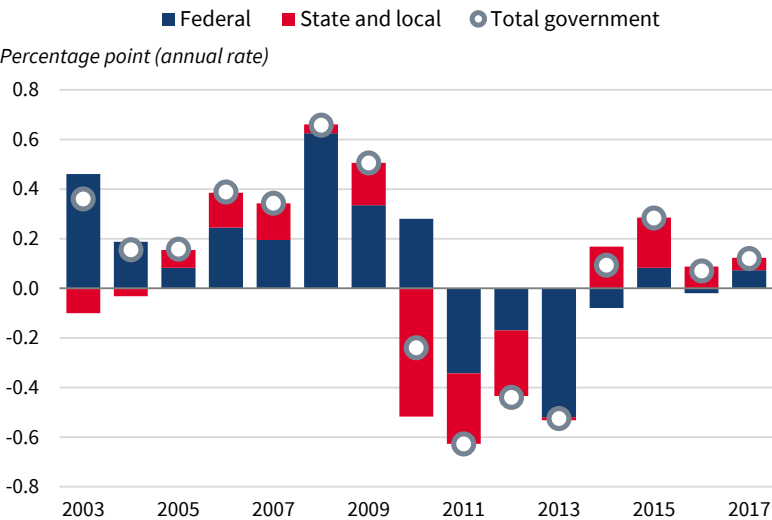
since the mid-1980s, as State and local governments cut their purchases in the face of budget pressures.¹ Even so, State and local government purchases as a share of nominal GDP have exceeded the Federal share since 1984 (figure 8-19). The roughly 90,000 State and local governments employ about 13 percent of nonfarm workers, and they added about 31,000 jobs during 2017. See box 8-1 for a discussion of some of the challenges facing the State and local sector.

Net Exports

Real U.S. exports of goods and services rose 4.9 percent during the four quarters of 2017, up from 0.6 percent in 2016—the strongest rate of growth since 2014:Q2. Exports contributed 0.6 percentage point to real GDP growth during the four quarters of 2017 (figure 8-20). The pickup of U.S. export growth was supported by the pickup in global growth and the pickup in global demand that has come with it. Real exports tend to reflect trade-weighted global growth rates, and, as global growth seems to be stabilizing, real export growth rates have begun to rise as well (see figure 8-39 in “The “Global Macroeconomic

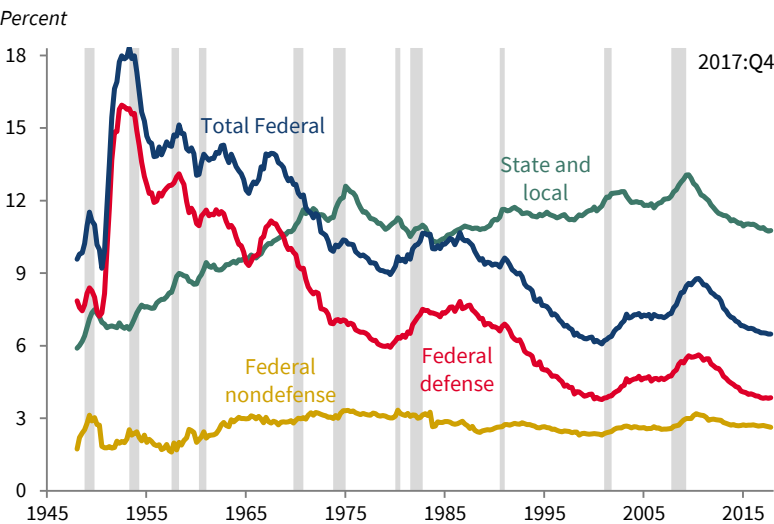
¹ A total of 49 of the 50 states have constitutions or statutes mandating a balanced budget, and many local governments have similar provisions (National Conference of State Legislatures 2010). This does not prevent them from running deficits. Many of those balanced budget statutes apply only to the operating budget, while deficits may be allowed on their capital accounts. Also, spending from “rainy day funds” appears as a deficit in the National Income and Product Accounts.

Figure 8-18. Contribution of Government Purchases to Real GDP Growth, 2003–17



Sources: Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.
Note: Contributions are computed using Q4-to-Q4 changes.

Figure 8-19. Government Purchases as a Share of Nominal GDP, 1948–2017



Sources: Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.
Note: Shading denotes recession.

Box 8-1. Challenges in the State and Local Sector

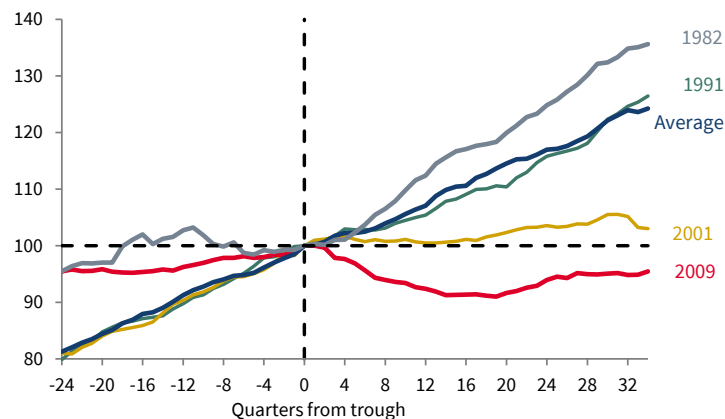
During the current expansion, growth in State and local purchases has been the weakest of any business cycle recovery in the post-World War II period (figure 8-i). Although State and local spending tends to grow quickly during a typical recovery, during the current business cycle, this spending has sharply contracted and, after eight years, still has not rebounded to its precrisis levels.

Real State and local government consumption expenditures and gross investment (particularly investment in structures) remain below their pre-crisis levels (figure 8-ii). Real State and local government consumption expenditures—which consist of spending to produce and provide services to the public, largely public school education—remain 1.3 percent below their peak in 2009:Q4. Real State and local government gross investment—which consists of spending for fixed assets that directly benefit the public, largely highway construction and maintenance—remains 20.2 percent below its peak in 2003:Q3.

Despite some recovery in 2017, there are still factors likely to restrain the growth of spending by State and local governments. These governments continue to spend more than they collect in revenues, and their aggregate deficit during the first three quarters of 2017 amounted to about 1 percent of GDP (figure 8-iii). During this period, their expenditures (including transfers and interest payments, as well as purchases) were roughly flat, at about 14 percent of GDP, and their revenues held at about 13 percent of GDP. Until 1990, these governments only ran deficits during recessions.

Figure 8-i. Real State and Local Government Purchases During Recoveries, 1960–2017

Index (level at trough = 100)

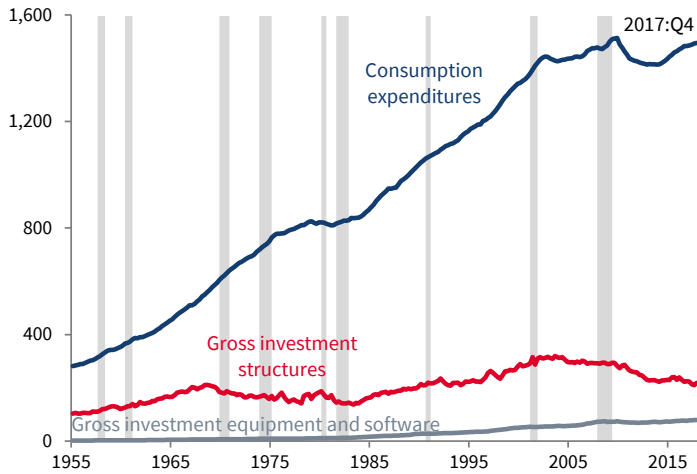


Sources: Bureau of Economic Analysis, National Income and Product Accounts; National Bureau of Economic Research; CEA calculations.

Note: "Average" indicates average across recovery periods from 1960 to 2007, excluding the 1980 recession due to overlap with the 1981–82 recession. Data are through 2017:Q4 (advance).

Figure 8-ii. Real State and Local Expenditures, 1955–2017

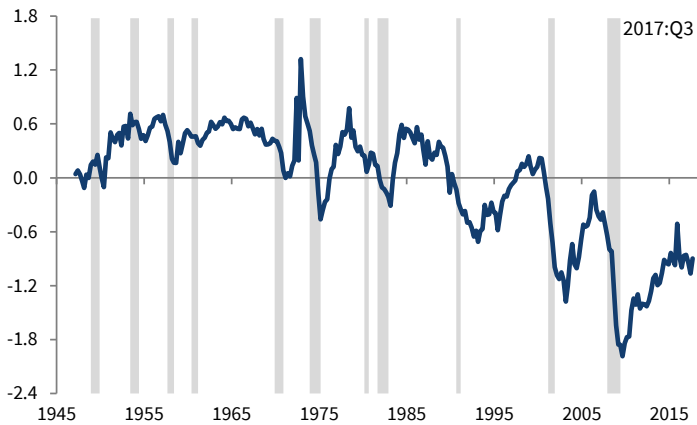
Real dollars (billions, \$2009)



Source: Bureau of Economic Analysis, National Income and Product Accounts.
Note: Shading denotes recession. Data are seasonally adjusted.

Figure 8-iii. State and Local Government Surplus as a Share of Nominal GDP, 1947–2017

Percent



Sources: Bureau of Economic Analysis, State and Local Government Current Receipts and Expenditures; CEA calculations.
Note: Shading denotes recession.

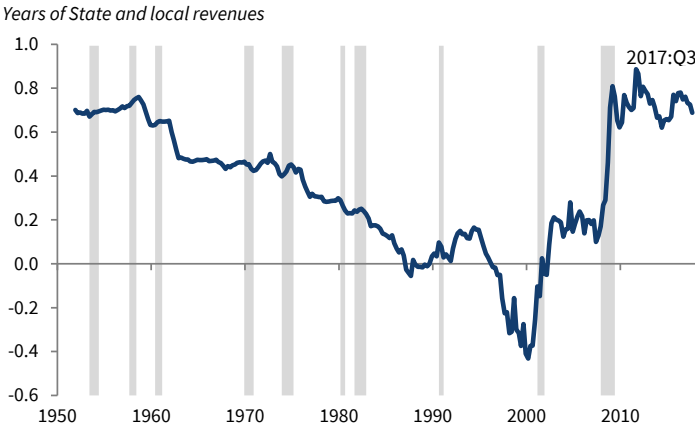
Unfunded pension obligations—the shortfall between benefits promised to government workers and the savings available to meet these obligations—place a burden on the finances of many State and local governments.

Unfunded liabilities, measured on a net-present-value basis, equal the difference between liabilities (the amount the governments owe in benefits to current employees who have already accrued benefits they will collect in the future) and assets held in public pension funds, and indicate the amount of benefits accrued for which no money is set aside.

The size of these unfunded pension liabilities relative to State and local receipts ballooned immediately after the recession—driven by a combination of factors, including underfunding and lower-than-expected investment returns—and remain elevated, at a level that was about 70 percent of a year’s revenue in the first three quarters of 2017 (figure 8-iv). Assets may fall short of liabilities when governments do not contribute their full Actuarially Determined Employer Contribution (ADEC), when they increase benefits retroactively, or when returns on investments are lower than assumed. (The ADEC replaced the Actuarially Required Contribution when new reporting standards were established by the Governmental Standards Accounting Board; see GASB 2012.)

Additionally, unfunded liabilities can grow if actuaries’ assumptions do not hold true. For example, if beneficiaries live longer than anticipated, they will receive more benefits than predicted, even if the government has been consistently paying its required contributions. Unfunded liabilities will eventually require the government employer to increase revenue, to reduce benefits or other government spending, or some combination of these.

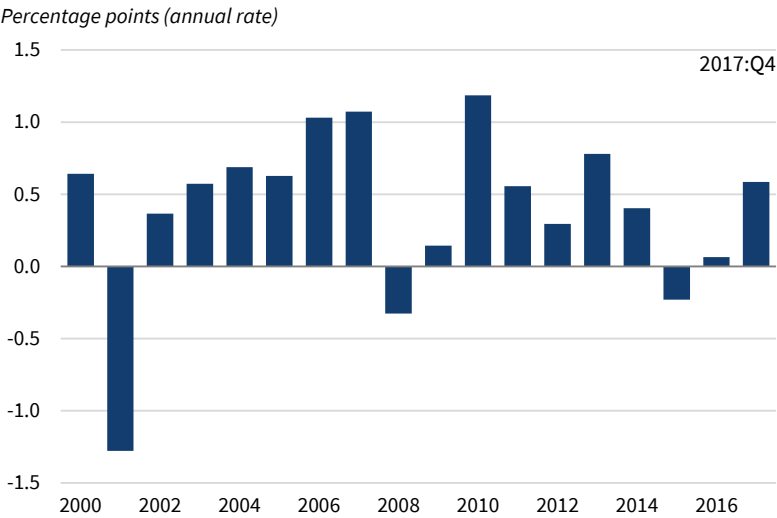
Figure 8-iv. Unfunded Liabilities of State and Local Pension Systems Relative to Revenues, 1951–2017



Sources: Board of Governors of the Federal Reserve System, Financial Accounts of the United States; CEA calculations.

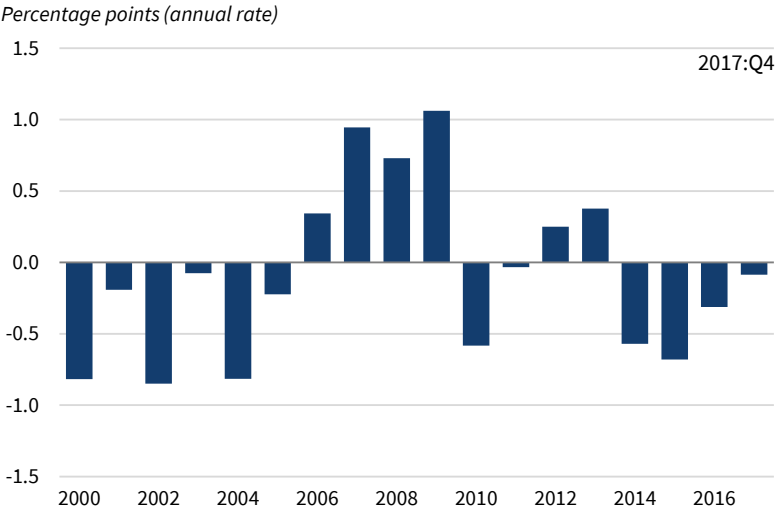
Note: Shading denotes recession. State and local unfunded pension liabilities divided by total annual receipts.

Figure 8-20. Contribution of Exports to U.S. Real GDP Growth, 2000–2017



Sources: Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.
Note: Contributions are computed using Q4-to-Q4 changes.

Figure 8-21. Contribution of Net Exports to U.S. Real GDP Growth, 2000–2017



Sources: Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.
Note: Contributions are computed using Q4-to-Q4 changes.

Situation” section below). (Trade-weighted global growth is calculated as a weighted average of real GDP growth for 25 foreign economies and the euro zone, using those economies’ share of U.S. goods exports as weights.)

At the same time, real U.S. imports increased 4.6 percent during the four quarters of 2017, more slowly than exports. Taken together, net exports subtracted 0.1 percentage point from real GDP growth during the four quarters of 2017, after subtracting 0.3 percentage point from overall growth during 2016 (figure 8-21).

The Labor Market

The labor market continued to improve in 2017, as many measures of labor market performance recovered to their prerecession levels or surpassed them. During 2017, the U.S. economy added 2.2 million nonfarm jobs, continuing its longest streak of total job growth on record (figure 8-22). The unemployment rate fell to 4.1 percent in December 2017, down 0.6 percentage point from a year earlier. And despite the low and falling unemployment rate, nominal wage inflation for private workers was fairly stable, at 2.7 percent during the 12 months of 2017, the same pace as the year earlier.

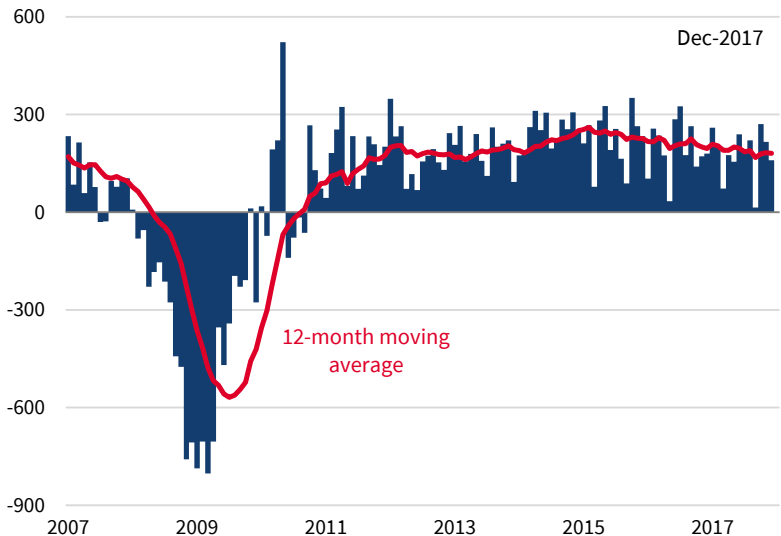
Private employment increased by 2.2 million jobs during the 12 months of 2017, after rising by 2.1 million jobs in 2016. During the 12 months of 2017, 43 percent of the gains in private sector jobs came from professional and business services and from education and health services, even though these services make up only about 35 percent of the economy’s private sector jobs. During the 12 months of 2017, 11 percent of private sector job gains came from manufacturing and from mining, a reversal from 2016, when both sectors suffered job losses.

The labor market’s improvement was apparent in the continued decline of the unemployment rate. By December 2017, the unemployment rate had fallen to 4.1 percent, the lowest level since 2000, and 0.6 percentage point below its level a year earlier. The unemployment rate for African Americans was down 1.1 percentage points during the 12 months through December, to 6.8 percent, the lowest rate recorded in a series that began in 1972. The unemployment rate for Hispanics was down 1.0 percentage point during the 12 months through December, to 4.9 percent, near the lowest rate on record. With growth prospects remaining strong, further declines in the unemployment rate are expected—it is projected to fall to 3.7 percent by 2019:Q4.

Although the overall unemployment rate was below its prerecession average during the 12 months of 2017, other indicators showed relatively more labor market slackness, in the sense that they had not fallen below their prerecession levels until the fourth quarter. For example, the long-term unemployment rate remained at or just above its 1.0 percent prerecession average

Figure 8-22. Monthly Nonfarm Payroll Job Growth, 2007–17

Monthly job gains or losses (thousands, seasonally adjusted)



Sources: Bureau of Labor Statistics, Current Employment Statistics; CEA calculations.

(December 2001–November 2007) for much of 2017—although, by December 2017, it had fallen to 0.9 percent (figure 8-23).

Similarly, the share of the labor force working part time for economic reasons (i.e., those working part time who would prefer to work full time), fell 0.4 percentage point during the 12 months of 2017, to 3.1 percent in December (figure 8-24).²

The relatively elevated rate of part-time work for economic reasons—that is, compared with other measures of slackness—is largely responsible for the relatively elevated U-6 “underemployment” rate. U-6, the broadest measure of unemployment, includes both people who have stopped looking for a job and part-time employees who want to work full time—and it was the last of the alternative measures of unemployment to reach its prerecession average, falling to that rate in March 2017. By December 2017, the U-6 rate had fallen to 8.1 percent, 1.0 percentage point lower than a year earlier and below its prerecession average (figure 8-25).

² Care must be taken when comparing the share of employees who work part time for economic reasons before and after the 1994 redesign of the Current Population Survey. The CEA used the multiplicative adjustment factors reported by Polivka and Miller (1998) in order to place the pre-1994 estimates of those who worked part time for economic reasons on a comparable basis with post-redesign estimates. For the part-time series for which Polivka and Miller do not report suitable adjustment factors, the pre- and post-redesign series were spliced by multiplying the pre-1994 estimates by the ratio of the January 1994 rate to the December 1993 rate. This procedure generates similar results to Polivka and Miller’s factors for series for which multiplicative factors are available.

Figure 8-23. Unemployment Rate by Duration, 1990–2017

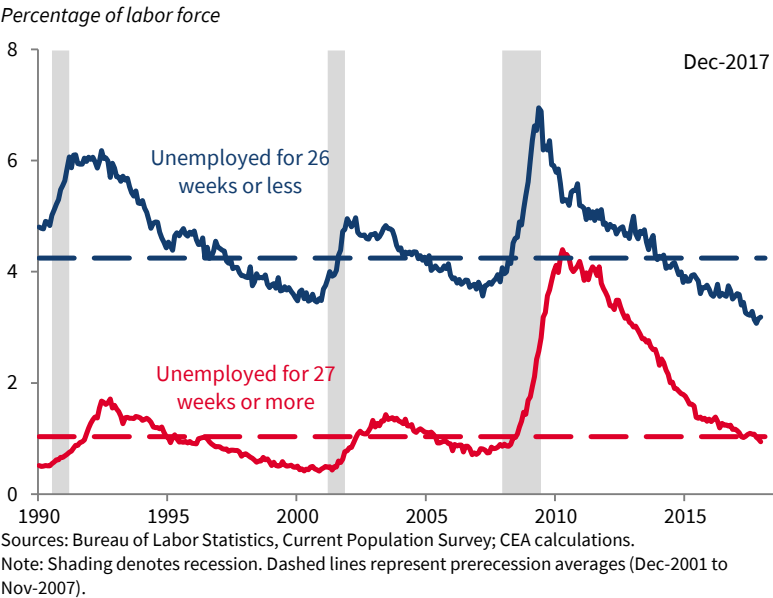
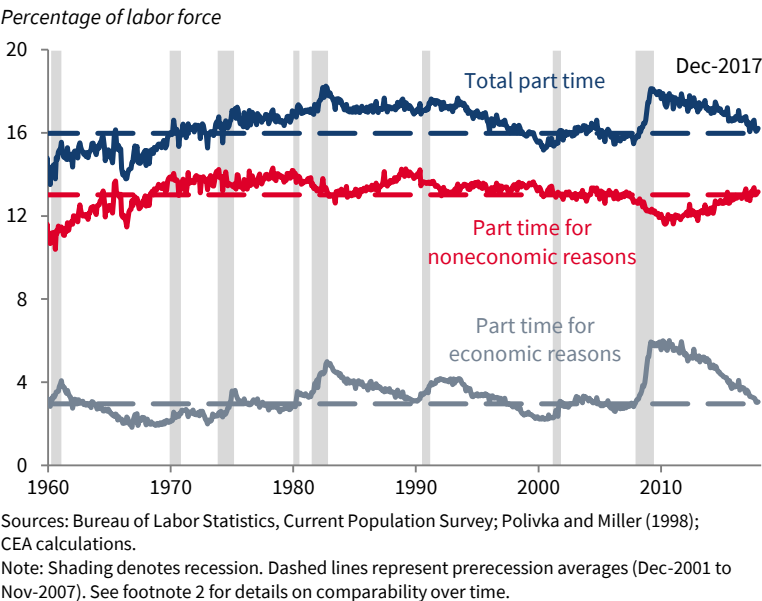


Figure 8-24. Rates of Part-Time Work, 1960–2017

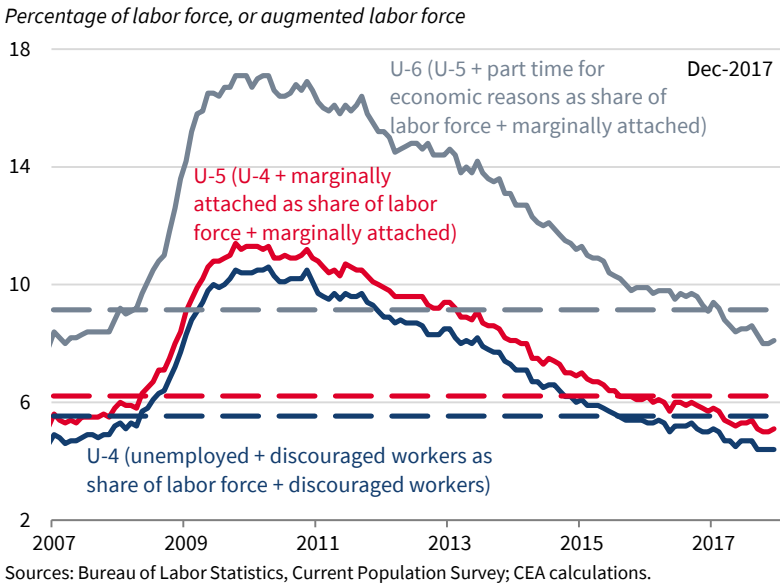


After falling continuously since 2007, the 12-month moving average of the labor force participation rate edged up in 2016 and 2017. Between 2007 (as a whole) and 2016 (as a whole), the participation rate fell 3.3 percentage points. A CEA analysis found that most of this decline was attributable to aging cohorts of the Baby Boom generation entering retirement (CEA 2014). However, Fernald and others (2017) find that forces other than demography nonetheless accounted for one-third of the overall decline in participation during the recovery, and about half the decline since the cyclical peak in 2007:Q4. They note that “although demographic shifts are and will continue to be an important part of the decline in the participation rate, demographics provide only a partial explanation. The complete explanation will also consider changes in family structure, real wages, taxes, benefits, and the value of time spent outside the labor market.”

In the years immediately after the financial crisis of 2007–9, cyclical factors—specifically the lack of job opportunities during the Great Recession and its aftermath—exacerbated the decline in the labor force participation rate, though by 2017 the effect of cyclical factors had flipped from negative to positive. In addition, nondemographic structural factors were therefore also important in observed declines in participation after 2007. For instance, as demonstrated in chapter 3, on labor markets, increases in fiscal transfers during the Great Recession to mitigate the demand-side effects of rising unemployment have also had persistent negative effects on the labor supply, while structural unemployment coincident with limited geographic mobility, an opioid crisis (see chapter 6), and shifting time use have similarly exacerbated downward trends in participation among prime-age workers and young adults. As discussed in chapter 3, there are policy options to counteract these adverse nondemographic trends.

Though demographic-related downward pressures in labor force participation will become steeper in the near term as the peak of the Baby Boom generation retires, the -0.25 -percentage-point effect of demographic trends on participation in 2017 was partially offset by rising participation rates among those in their 60s, and by a tighter labor market encouraging discouraged workers to reenter it. Moreover, reductions in marginal income tax rates, as implemented by the Tax Cuts and Jobs Act, can have economically important effects on participation at the upper end of the age distribution, as highly productive near-retirement workers are incentivized to defer retirement (for more on this, see chapter 1, on tax reform). That is, there is evidence that older workers are more responsive to changes in marginal income tax rates than younger workers. Yet, though demographic trends will again become more decisive as positive short- and medium-term cyclical factors dissipate, neither the decision to retire nor longer-term trends among prime-age workers and young adults are policy-invariant.

Figure 8-25. Alternative Measures of Labor Force Underutilization, 2007–17



Policy Developments

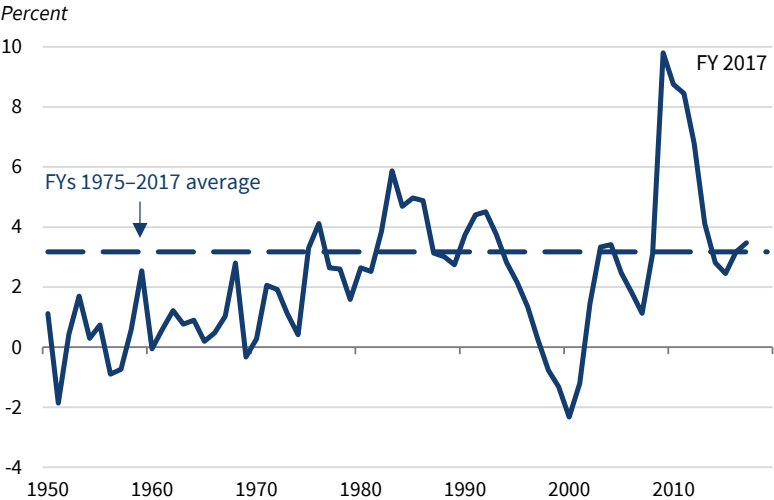
Principal developments in the realm of policy pertain to fiscal and monetary matters. This section considers each of these in turn.

Fiscal Policy

In December 2017, the Tax Cuts and Jobs Act was enacted with four main goals: tax relief for middle-income families, simplification of individuals' taxes, economic growth through business tax relief, and repatriation of overseas earnings. The Joint Committee on Taxation (JCT 2017) estimated that the TCJA's static effect (i.e., without macroeconomic feedback) would lower revenues by \$136 billion in fiscal year (FY) 2018 and by \$280 billion in FY 2019. Macroeconomic feedback (the effect of faster economic growth on revenues) can be expected to dynamically offset some of these revenue losses. As discussed in chapter 1, the TCJA's individual provisions are projected to raise GDP by 1.3 to 1.6 percent over two to three years, while the corporate provisions are estimated to raise GDP by 2 to 4 percent over the long run, and furthermore boost average annual household wages by about \$4,000.

In FY 2017, the Federal fiscal deficit increased by 0.3 percentage point, to 3.5 percent of GDP, after an increase a year earlier of 0.7 percentage point, to 3.2 percent of GDP (figure 8-26). In FY 2016, outlays as a share of GDP rose by 0.4 percentage point, partly reflecting the temporary \$80 billion in sequester relief included in the Bipartisan Budget Act of October 2015, along with the

Figure 8-26. Federal Budget Deficit as a Share of Nominal GDP, FYs 1950–2017



Sources: Office of Management and Budget, Federal Budget Projections; Bureau of Economic Analysis, National Income and Product Accounts; CEA calculations.
Note: Budget deficits/surpluses are calculated for fiscal years (FYs).

Fixing America’s Surface Transportation (known as FAST) Act, signed into law in December 2015, which authorized \$305 billion over five years for surface transportation, including roads, bridges, and rail. In FY 2017, with spending governed by continuing resolutions (in which Federal spending is reauthorized at the previously authorized level), outlays as a share of GDP edged down by 0.1 percentage point. (Timing issues with certain outlays—delayed from weekends to weekdays—also suppressed FY 2017 outlays slightly, by 0.2 percentage point, according to the Congressional Budget Office.) The increase in the deficit was also accounted for by falling revenues, which, as a share of GDP, fell by 0.4 percentage point in both FYs 2016 and 2017. The FY 2016 decline in revenues may be partly accounted for by the PATH (Protecting Americans from Tax Hikes) Act, signed into law in December 2015, which retroactively made permanent several tax credits that had “expired” at the beginning of 2015 (tax incentives for research and experimentation, and a 50 percent bonus depreciation). This retroactive continuation of previously existing tax provisions may have led to overpayments in FY 2015 and refunds in FY 2016. The FY 2017 drop in revenues was unexpected, and does not appear to be accounted for by any major provisions of tax policy, although minor tax-reducing developments included a \$34 billion drop in taxes paid on Federal Reserve Bank profits and a one-year moratorium on the Affordable Care Act’s fee on health insurance providers, which depressed revenues by about \$12 billion. The deficit-to-GDP ratio of 3.5 percent is slightly larger than the 3.1 percent average during the preceding 40 years.

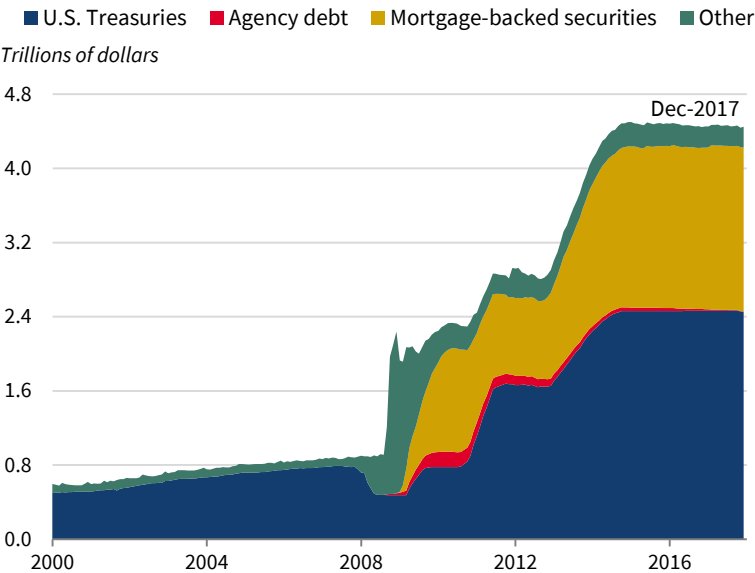
Monetary Policy

As of December 2017, the Federal Open Market Committee (FOMC; the monetary policy body within the Federal Reserve System) was targeting a range for the Federal funds rate of 1.25 to 1.50 percent after three rate hikes of 25 basis points each during 2017. In the wake of these rate hikes, the FOMC stated (with some slight variation after its December meeting) that “the stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.” In October, the FOMC also announced its intention to follow through on its plan (outlined at its June monetary policy meeting) to “gradually reduce the Federal Reserve’s securities holdings by decreasing its reinvestment of the principal payments it receives from securities held in the System Open Market Account. Specifically, such payments will be reinvested only to the extent that they exceed gradually rising caps” (FRB 2017a, 2017b, 2017c).

Unlike the previous few years, the Federal Reserve’s realized pace of raising rates in 2017 was in line with the median forecasted pace of FOMC participants at the close of the previous year—December 2016. In December 2016, the median of FOMC participant projections was three 25-basis-point rate hikes in 2017. In 2017, the target range for the Federal funds rate increased from 0.50-to-0.75 percent to 1.25-to-1.50 percent. The rate hikes were decisions made by the committee reflecting the fact that the “labor market has continued to strengthen and that economic activity has been rising at a solid rate,” and the FOMC continues to believe that “inflation on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee’s 2 percent objective over the medium term.” The FOMC’s decisions frequently noted that “the Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the Federal funds rate; the Federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run.” Throughout the year, the market-implied Federal funds rate for the end of 2017 was below the median forecast of FOMC participants at the time. It is particularly important that the FOMC emphasized throughout 2017 that monetary policy is not on a “preset course” and that the projections of FOMC participants are only an indication of what they view as the most likely path of interest rates, given beliefs on the future path of the economy. The FOMC raised its median economic forecast for real GDP growth by 0.4 percentage point, to 2.5 percent, during the four quarters of 2018; and by 0.1 percentage point, to 2.1 percent, in 2019—keeping long-term projections unchanged at 1.8 percent (FRB 2017a, 2017b, 2017c).

The Federal Reserve declared that, in October 2017, the FOMC would initiate the balance sheet normalization program announced in June. In November 2008, at the depth of the Great Recession, faced with a zero lower bound on nominal interest rates, the FOMC had started buying long-term securities. This unconventional monetary policy tool to lower medium- and longer-term

Figure 8-27. Federal Reserve Total Assets, 2000–2017



Sources: Board of Governors of the Federal Reserve System (FRB), Consolidated Statement of Condition of all Federal Reserve Banks; FRB, Factors Affecting Reserve Balances of Depository Institutions and Condition Statements of Federal Reserve Banks; CEA calculations.

interest rates has been referred to as quantitative easing (QE). This led to the largest expansion of the Federal Reserve’s balance sheet since World War II, which, as of December 2017, stood at \$4.45 trillion (figure 8-27).

The initial round of QE, which began in November 2008 and ended just over a year later, consisted of \$1.25 trillion in purchases of mortgage-backed securities, \$200 billion in Federal agency debt, and \$300 billion in long-term Treasury securities. The Federal Reserve’s stated goals for purchasing mortgage-backed securities in round one of QE were to “reduce the cost and increase the availability of credit for the purchase of houses, which in turn should support housing markets and foster improved conditions in financial markets more generally.” The purpose of increasing credit availability by buying Treasuries was to “promote a stronger pace of economic recovery and to help ensure that inflation, over time, is at levels consistent with its [the Fed’s] mandate” (FRB 2008, 2010). Later rounds of QE led to the disposition of assets shown in figure 8-27.

The Federal Reserve’s System Open Market Account, its domestic and foreign portfolio, was \$4.2 trillion in December 2017, almost six times its size in January 2005. Initially, the decline in this account’s securities holdings was capped at \$6 billion per month for Treasury securities and \$4 billion per month for agency debt and agency mortgage-backed securities. These caps will gradually rise to maximums of \$30 billion per month for Treasury securities and

\$20 billion per month for agency debt and agency mortgage-backed securities during the process of normalizing the balance sheet. Furthermore, beginning in January 2018, the Federal Reserve is rolling over maturing Treasury securities in excess of \$12 billion per month (doubled from the 2017 threshold of \$6 billion per month). Similarly, maturing agency debt and agency mortgage-backed securities will be rolled over only when they exceed \$8 billion per month, up from the previous threshold of \$4 billion per month (FRB 2017a, 2017b, 2017c).

In recent years, FOMC participants have tended to lower their projections of the longer-run level for the Federal funds rate. As of December 2017, the median of FOMC participants' projections of the long-run Federal funds rate was 2.8 percent, down from 3.0 percent a year earlier and from 3.5 percent in December 2015. These downward revisions are consistent with long-term, downward trends in short-term interest rates in U.S. and global financial markets.

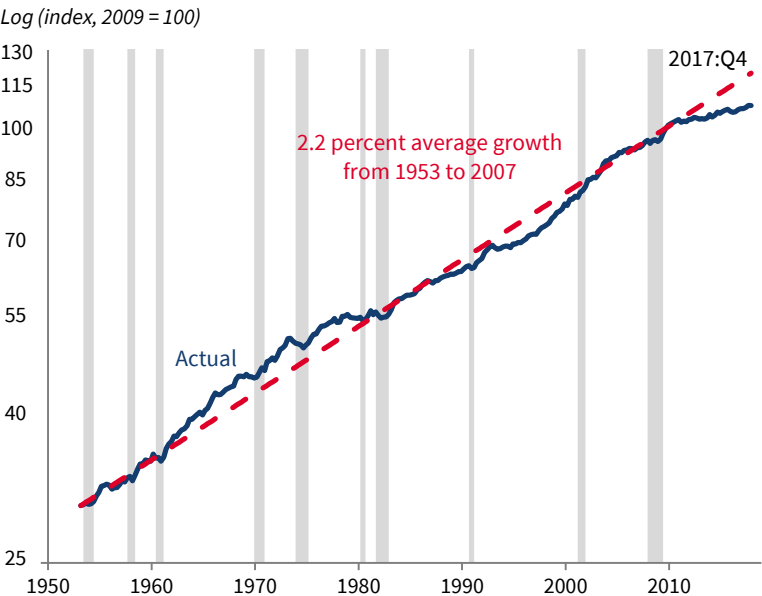
Productivity

In the decade before 2017, growth in labor productivity, defined as nonfarm output per hour worked, grew at historically low rates. Productivity growth slowed first in about 2005 and then further after 2011, averaging just 0.5 percent over the five years ending in 2015:Q4—the slowest five years during an expansion in postwar data. Labor productivity growth picked up, however, during the four quarters of 2017, growing 1.1 percent, though it remains below its 2.2 percent average during the years 1953–2007 (figure 8-28). Productivity movements during recessions and recoveries reflect a variety of factors besides technology, such as the ease in varying output relative to hiring and firing workers and variation in the quality of the pool of available workers during the course of a recovery. Over longer periods of time, the growth in labor productivity reflects capital services and technology, and the growth in real output and real wages depends on rising productivity, so the slowdown since the 2007 business cycle peak has been a cause for concern.

A useful way to analyze labor productivity is to decompose its growth into three factors: increased capital services per hour worked (capital deepening); increased skills per worker (labor composition); and increased technology or efficiency, which is technically termed “total factor productivity” and is measured as a residual. Labor productivity slowed from a 2.23 percent annual rate of growth before 2007 to 1.17 percent thereafter. Of this 1.1 percentage point slowdown in labor productivity growth, 0.7 percentage point was accounted for by the slowdown in total factor productivity, while 0.4 percentage point was accounted for by slower capital deepening. The contribution of labor composition increased 0.1 percentage point (figure 8-29).

In the period from 1953 to 2007, about 0.9 percentage point (40 percent) of labor productivity growth was attributable to additional capital services per

Figure 8-28. Nonfarm Business Productivity, 1953–2017



Sources: Bureau of Labor Statistics, Productivity and Costs; CEA calculations.
Note: 1953 and 2007 are NBER business-cycle peaks.

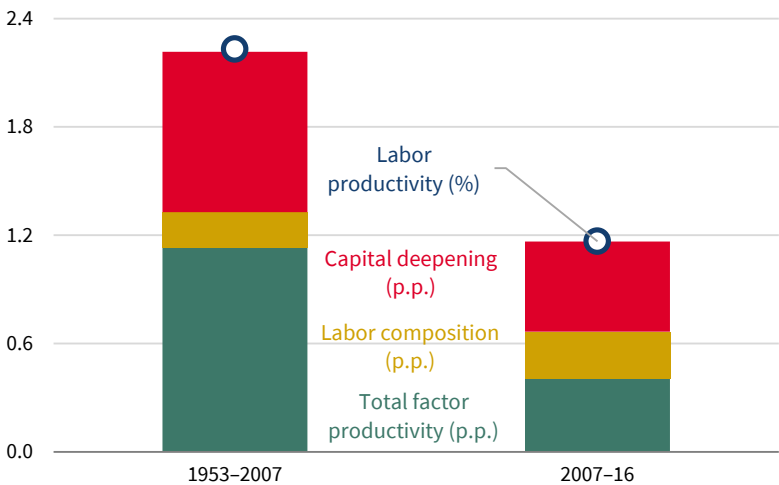
worker, but this slowed to 0.5 percentage point during the nine years 2007–16. Even as the recovery was under way from 2010 to 2015, the role of capital deepening vis-à-vis labor productivity growth was actually negative; in 2014 and 2015, a worker had fewer capital services at his or her disposal than five years earlier—the first time this had occurred during any five-year period since the end of World War II. As noted above, these data suggest that net investment (i.e., gross investment less depreciation) has not sufficed to grow capital services in line with the increase in hours worked.

However, on the positive side, the contribution of labor composition to labor productivity growth has increased since 2007, relative to its long-run average. With Baby Boomers continuing to move into their 60s, the contribution of labor composition to productivity growth may be a target for policy. Specifically, policies that incentivize highly skilled and experienced older workers with relatively high elasticities of labor supply to defer their retirement—such as the marginal income tax rate reductions enacted by the TCJA—could also have important implications for both labor force participation and productivity growth (Keane and Rogerson 2012, 2015).

Longer-standing declines in the economy’s fluidity and dynamism could also be exacerbating slower productivity growth. As documented by Davis and Haltiwanger (2014), the entry of new firms has been slowing for decades, and to the extent that these young firms drive both investment and productivity

Figure 8-29. Sources of Labor Productivity Growth, 1953–2016

Percent change or percentage points (annual rate)



Sources: Bureau of Labor Statistics, Net Multifactor Productivity and Cost; CEA calculations.

Note: 1953 and 2007 are NBER business-cycle peaks. Productivity is calculated for the private nonfarm business sector.

growth, their decline is important. The lack of business dynamism may also underlie the incomplete recycling of investment funds into young and growing firms.

A pessimistic view put forward by the economist Robert Gordon is that the global economy may have simply run through the best productivity-enhancing innovations—such as the steam engine, the telephone, and indoor plumbing—and thus more recent innovations may not have the same impact on output (Gordon 2012). But this pessimistic view of the future is not universally held; it has been critiqued by, among others, Mokyr (2014a, 2014b, 2014c) and Mokyr, Vickers, and Zeibarth (2015). The world has more educated and connected people than at any time in history. Investment in intellectual property products has been strong throughout the recovery. In particular, spending on the research-and-development component of investment has risen to almost its highest share of GDP on record, which suggests that innovations will likely continue. Many new technologies—such as robotics, e-learning, and the use of big data—promise strong productivity growth in the near future. Taken together with the globalization of invention, whereby all countries benefit somewhat from innovations anywhere, one can argue for higher labor productivity growth in the next 10 years than in the recent past (Branstetter and Sichel 2017).

In the future, a number of the President’s proposed and recently enacted policies would and should contribute to increasing productivity growth. Reductions in excessive regulations, as discussed in chapter 2, would improve economic efficiency by boosting investment and increasing production and

labor productivity—in particular by facilitating the entry of new, more innovative firms. Infrastructure spending would lift public investment, thereby raising effective capital services per worker, and would also address the challenges of structural unemployment, declining labor force participation, and regional variation in total factor productivity by improving geographic mobility (for an in-depth discussion of the benefits of infrastructure spending, see chapter 4 of this *Report*). Broader policies would aid as well—supportive entrepreneurship policies would encourage both investment and firm dynamism; and the recently enacted business tax reform will stimulate domestic investment in plants, equipment, and innovation. There is no silver bullet for improving productivity growth. But sound policy across a range of initiatives could support it, raising real wages and living standards in the process.

Wage and Price Inflation

Nominal wage inflation was stable in 2017, even as the labor market continued to grow stronger amid robust job growth (figure 8-30). Average nominal hourly earnings for all private sector employees increased by 2.7 percent during the 12 months of 2017, the same pace as in the period a year earlier. Nominal hourly compensation for private sector workers, as measured by the employment cost index, increased 2.6 percent during the 12 months of 2017, up from 2.2 percent during 2016.

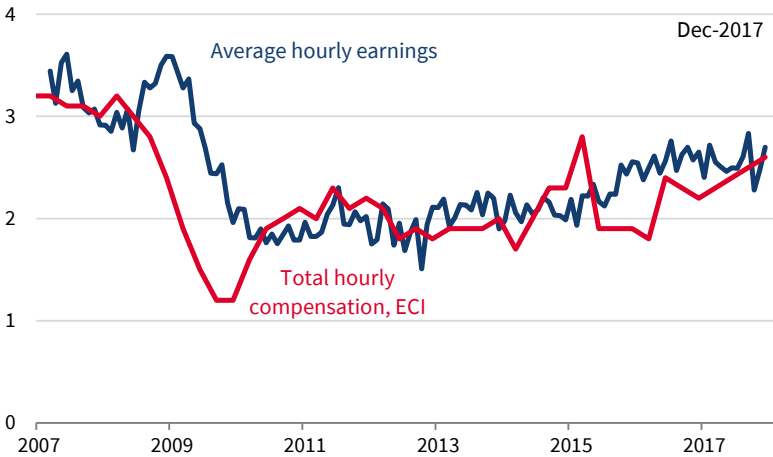
Consumer prices—as measured by the price index for personal consumption expenditures, shown in figure 8-31—increased 1.7 percent during the 12 months of 2017. The inflation rate was elevated by energy price increases. Core PCE inflation—which excludes energy and food prices, and tends to be a better predictor of future inflation than overall inflation—was also less than the 2 percent target for overall PCE inflation, at 1.5 percent during 2017.³ Lower prices for imported goods likely weighed on core inflation in 2017. The pass-through of low import prices and uncertain energy prices will be two keys to the economy’s inflationary pressures in 2018.

The low rates of consumer price inflation were unexpected. For example, the November 2016 forecast by the Survey of Professional Forecasters of the core PCE price index was 1.9 percent over the four quarters of 2017 (above the 1.5 percent realized value). The low rate of price inflation is puzzling because

³ The Federal Reserve defines its inflation objective in terms of the PCE price index. The CPI is an alternate measure of prices paid by consumers and is used to index some government transfers, such as Social Security benefits. Largely because of a different method of aggregating the individual components, but also because of different ways of measuring some components, PCE inflation has averaged about 0.3 percentage point a year less since 1979 than the measure of inflation called the “Consumer Price Index for All Urban Consumers Research Series” (CPI-U-RS). The CPI-U-RS is a research version of the CPI that revises the historical series using current methods. During the 12 months ending in December 2017, core CPI prices increased 1.8 percent, more than the 1.5 percent increase in core PCE prices.

Figure 8-30. Nominal Wage Growth for Private Sector Workers Over Past Year, 2007–17

Percent change from a year earlier

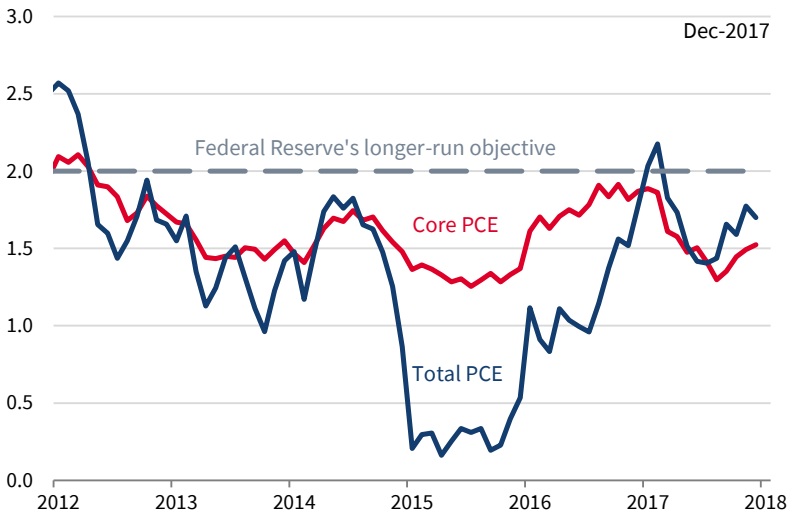


Sources: Bureau of Labor Statistics (BLS), Employment Cost Index (ECI); BLS, Current Employment Statistics.

Note: Compensation per hour includes wages, salaries, and employee benefits.

Figure 8-31. Consumer Price Inflation, 2012–17

12-month percent change

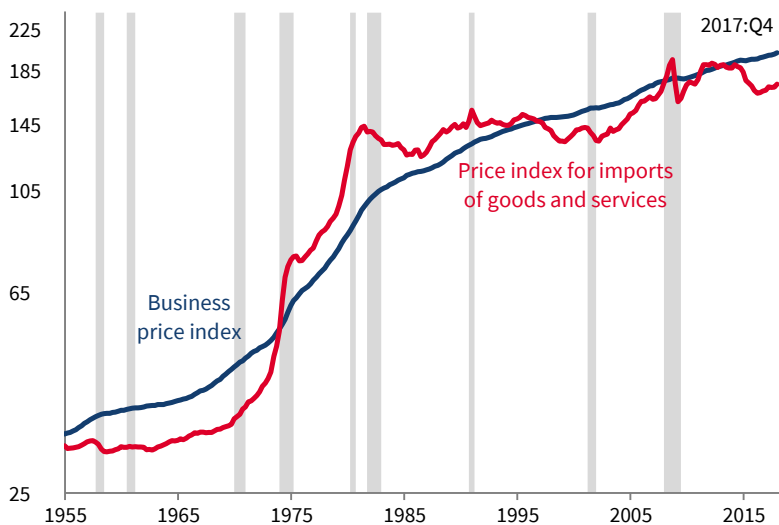


Source: Bureau of Economic Analysis, Personal Income and Outlays.

Note: PCE is the personal consumption expenditures chain price index.

Figure 8-32. U.S. Prices versus Import Prices, 1955–2017

Log (price indices, 1947–2017 = 100)



Sources: Bureau of Economic Analysis; CEA calculations.

Note: Shading denotes recession.

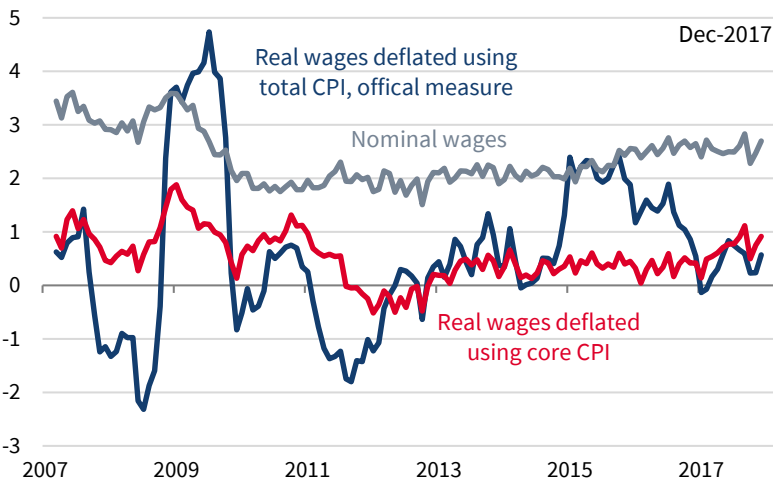
the primary measure of economic slackness, the unemployment rate, was low for the entire year, falling from 4.7 percent in 2016:Q4 to 4.1 percent in 2017:Q4. The unemployment rate is just one factor affecting the path of inflation. Another important reason for low inflation has been international competition in the form of low import prices. Periods of high or low import prices (relative to business prices) can be seen in figure 8-32, where both the business price and import price series have been reindexed so that their entire historical series average to 100. As can be seen in figure 8-32, the reindexed level of import prices has been well below the reindexed level of U.S. business prices since 2014, holding down U.S. rates of inflation.

Real wage growth fluctuates primarily because of the variation in the volatile components of prices rather than of nominal wages. During the 12 months of 2017, for example, the official measure of real wages of all private sector employees increased 0.6 percent, similar to 0.5 percent in 2016, but down from 1.9 percent in 2015. In contrast, an alternate measure of real wages, one that is deflated by the core consumer price index, rose 0.9 percent, up from 0.4 percent in both 2015 and 2016 (figure 8-33). During the past three years, nominal wage growth has been stable in the range of 2 to 3 percent, while the alternate (core CPI deflated) measure of real wages has been stable in the range of 0 to 1 percent. The large and mostly unanticipated changes in food and energy prices have driven the volatility in the official measure of real wages.

This calculation of real wages follows the Bureau of Labor Statistics' practice of deflating by the official CPI, although it tracks a fixed market basket,

Figure 8-33. Growth in Real and Nominal Average Hourly Wages of Private Sector Workers, 2007–17

12-month percent change



Sources: Bureau of Labor Statistics (BLS), Establishment Survey; BLS, Consumer Price Indexes (CPI); CEA calculations.

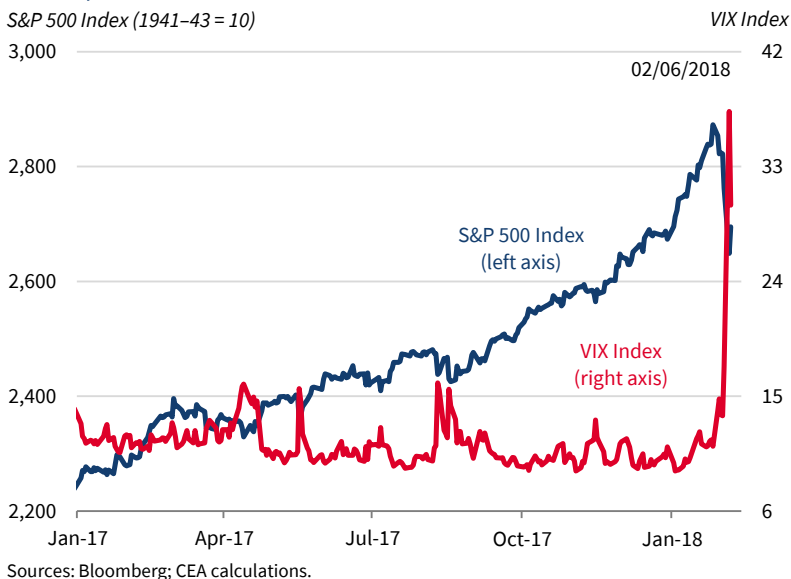
Note: Nominal average hourly earnings for all private sector workers are deflated using the CPI and core CPI for all urban consumers.

without recognizing consumers’ response to changes in relative prices. The bureau’s research series “the chained CPI” adjusts for this bias and shows lower inflation (averaging 0.23 percentage point per year since 2002). If the market basket is allowed to vary with consumer choices—as is done with the chained CPI—then real wages would be growing 0.23 percentage point faster, on average.

The Financial and Oil Markets

During 2017, equity indices reached all-time highs, government bond yields were mixed, and credit spreads evolved to a lower level. Oil prices dipped in the first half of the year, but increased in the second half ending with the December prices of West Texas Intermediate Crude Oil at more than \$60 per barrel, up about \$7 from 12 months earlier. Tax reform plans solidified during the year with the TCJA’s enactment in late December, and the anticipated cuts in the corporate tax rate were one factor boosting the stock market. Throughout 2017, the Standard & Poor’s (S&P) 500 Index rose 19.4 percent, reaching an all-time nominal high in December, an upward movement that continued into January 2018 but was reversed in early February. The perceived volatility of the financial markets—as measured by the Chicago Board Options Exchange’s Market Volatility Index (VIX), which translates prices for stock options into a

Figure 8-34. S&P 500 and VIX (Chicago Board Options Exchange) Indices, 2017–18



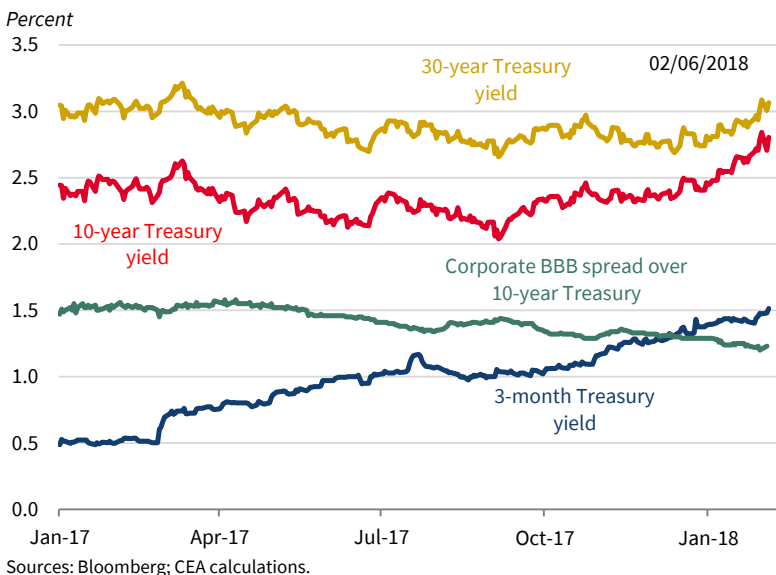
measure of volatility—was roughly stable through the end of 2017, but spiked in early February 2018.

Equity Markets

The S&P 500 Index rose 19.4 percent in 2017, reaching an all-time high in nominal terms (figure 8-34). In real terms, the S&P 500 Index also reached an all-time high (deflated by the official consumer price index), and increased by about 16 percent in December from a year earlier. In 2017, the index experienced fairly steady growth, with gains in 11 of the 12 months. Increases continued in January 2018, but were reversed in early February, and the index was essentially unchanged after the final trading day in 2017 (up 0.8 percent, through February 6). The VIX, which uses the prices of options to uncover investors' expectations of volatility for the S&P 500, fell 21.4 percent during 2017, to a year-end value of 11.0 (VIX levels below 15 are generally considered low). The VIX jumped in the first week of February 2018, and closed at 30 as of February 6. The VIX has not seen these heights since August 2015.

Small-cap stocks, which typically are those with a market capitalization under \$2 billion, experienced similar gains in 2017 as well. The Russell 2000 Index, which measures the performance of small-cap equities, increased by 13.1 percent during 2017. The Russell 2000 has since reversed some of its gains in 2017, falling nearly 2 percent on net in the first five weeks of 2018.

Figure 8-35. Nominal Long- and Short-Term Interest Rates, 2017–18



Cryptocurrencies, in particular bitcoin, experienced massive gains in 2017. At the end of 2017, the total world value of bitcoin was more than \$240 billion, when the price per bitcoin was more than \$14,000. The current bitcoin-dollar cross stands at nearly \$8,000, and has fallen about 46 percent in 2018 as of February 6. (To read more about the technology behind bitcoin, see chapter 7 of this *Report*, on cybersecurity.)

Interest Rates and Credit Spreads

During the course of the year, short-term yields on Treasury notes (of two years or less) generally edged higher, following the lead of the Federal Reserve, which raised the Federal funds rate three times during the year (figure 8-35). The yield on 10-year Treasury notes, in contrast, was essentially unchanged during the 12 months of the year, after falling through September and then rebounding thereafter. The 10-year yield finished 2017 at 2.41 percent. Through February 6, the 10-year yield increased by almost 40 basis points in 2018, with the majority of the increase following the January 2018 labor market report. As of February 6, 2018, the yield on a 10-year Treasury stands at 2.8 percent for the first time since April 2014. Market participants' perceptions of default risk, as measured by credit default swap (CDS) spreads, fell steadily during the year, reaching new lows. An aggregate of North American investment-grade CDS spreads fell 19 basis points over the year, to their lowest levels on record. Moreover, North American high-yield CDS spreads fell 48 basis points. Though

both investment-grade and high-yield CDS spreads increased sharply in early February (through February 6), they remain below their historical averages.

At the same time, consensus forecasts of long-run U.S. interest rates fell during 2017. The long-term forecast by the Blue Chip consensus of professional forecasters fell from 2.9 percent in March 2017 to 2.7 percent in October 2017. Similarly, the market-implied expectation for the 10-year Treasury yield (10 years from now) fell during the year, to 2.99 percent, although it moved upward in early 2018.

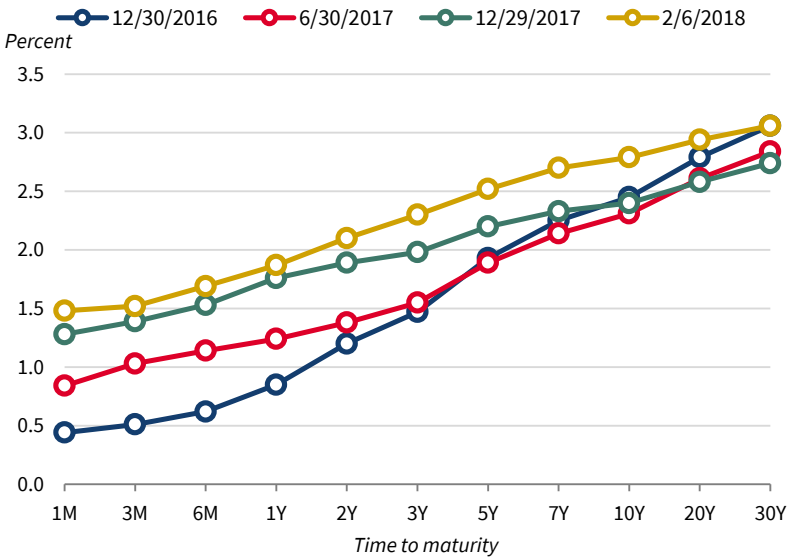
The yield curve for U.S. Treasury notes flattened during the 12 months of 2017, as yields on short-term debt increased while yields on long-term debt were little changed (figure 8-36). The 10-year U.S. Treasury yield ended the year at 2.41 percent, 3 basis points below its level on December 31, 2016. During the 12 months of 2017, the spread between the 10-year and 2-year yields fell 73 basis points. (In January and early February 2018, however, some of the preceding year's flattening was reversed, so the roughly 13-month drop in the spread was 56 basis points.)

A substantial body of literature documenting the slope of the yield curve for U.S. Treasury notes helps predict economic activity, with much of the history reflecting periods when Federal Reserve tightening was designed to suppress inflation (e.g., Estrella and Mishkin 1996). At this moment, however, there are reasons to believe that different, unusual factors are causing the flattening. During previous episodes of tightening, inflation was above the Federal Reserve's desired rates, but inflation is now below its target. Despite the past year's narrowing, the 10- to 2-year spread on February 6, 2018, was not particularly small (at 70 basis points), at about the 40th percentile of its historical distribution. The rise in short-term yields reflected the Federal Reserve's three 2017 hikes in the Federal funds rate, and also expectations of future rate hikes during the years 2018–19. The small yield decline during 2017 at the long end (i.e., for 20- or 30-year Treasury notes) may partly reflect lower long-run inflation expectations, or some spillover from unconventional monetary policies in the euro zone and Japan, although declining expectations of real GDP growth cannot be ruled out.

Interest rates increased at maturities of two years or longer during the first two months of 2018, likely reflecting the TCJA's late-December enactment, together with the related perception of emerging economic strength in 2018. Since the last trading day of 2017, the yield curve has steepened, as the yield on 2-year Treasury notes rose 22 basis points through February 6, while the 10-year yield rose nearly 40 basis points. The implicit forecast of the 10-year rate 10 years forward has increased 28 basis points since the last business day of 2017, to 3.27 percent on February 6, 2018.

The mortgage rate for 30-year fixed rate contracts was down 21 basis points during 2017, finishing at 3.85 percent, and reflected the stability of long-term Treasury yields, which are still low relative to their long-term averages.

Figure 8-36. U.S. Treasuries Yield Curve, 2016–18



Source: U.S. Department of the Treasury.

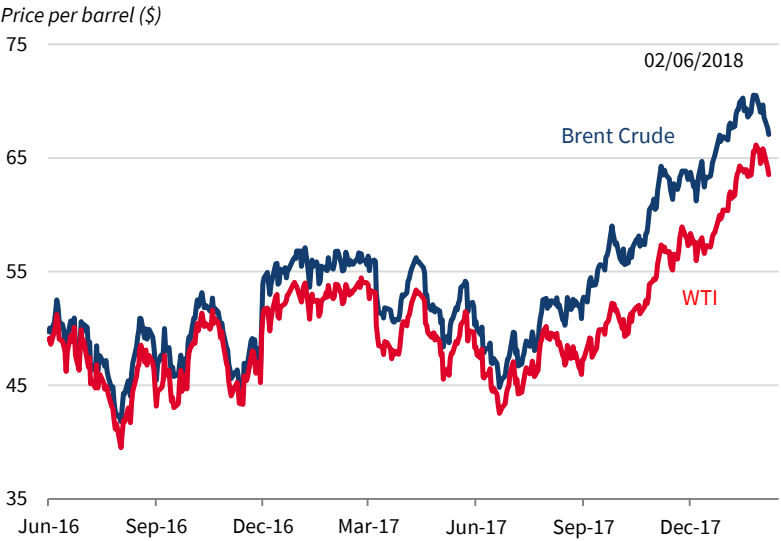
Note: December dates represent the last trading day of each respective year.

The 30-year mortgage rate rose in the first five weeks of 2018 after substantial increases in long-term Treasury yields. Unusually low interest rates are not unique to the United States; relatively low interest rates were common among the Group of Seven economies in 2017.

Market measures of risk perception eased during 2017. Borrowing costs for BBB-rated companies decreased more than 10-year U.S. Treasury yields did in 2017, with the BBB spread over 10-year U.S. Treasuries declining from 150 basis points at the end of 2016 to 128 basis points at the end of December 2017. The BBB spread in December 2017 was well below its average postrecession level of 190 basis points. This downward trend has continued into 2018, with spreads tapering even further. Narrowing corporate credit spreads relative to Treasury notes mean that the market is requiring less compensation for the credit risk of corporate debt, consistent with the downward movement of CDS spreads for corporate debt over the year. Because CDS spreads are the cost of insurance against the default of a corporate borrower, falling CDS spreads mean that the market perceives corporate debt defaults as less probable now than at the start of the year. With risk perceptions down, corporate bond issuance has been proceeding at a robust pace; in 2017, corporate bond issuers issued \$1.7 trillion in debt, the largest amount on record.⁴

⁴ This measure was provided by the Securities Industry and Financial Markets Association, and it includes all nonconvertible corporate debt, medium-term notes, and Yankee bonds, but excludes all issues with maturities of one year or less and certificates of deposit.

Figure 8-37. Brent Crude and West Texas Intermediate (WTI) Prices, 2016–18



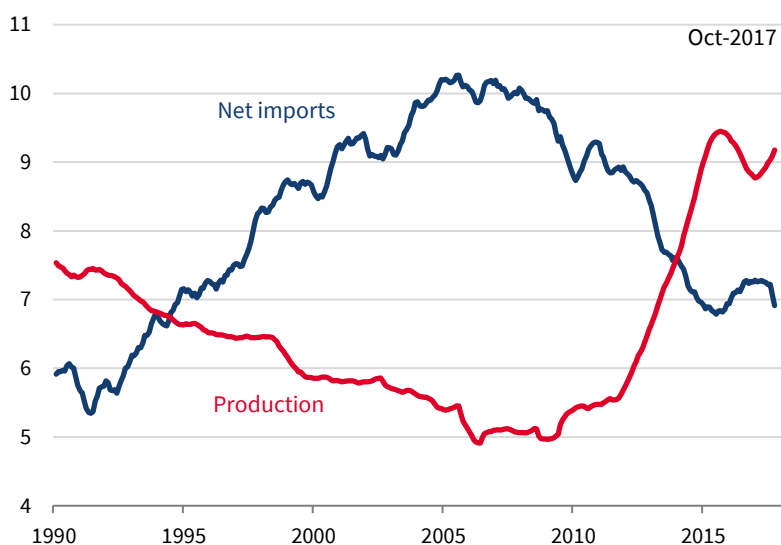
Oil Prices and Production

Oil prices edged down in the first half of the year, with a more-than-offsetting increase in the second half (figure 8-37). Prices of West Texas Intermediate (WTI)—a benchmark grade of U.S. crude oil—increased nearly \$7 per barrel during 2017, ending the year at more than \$60 per barrel. Prices of Brent Crude Oil increased by almost \$12 per barrel during 2017, ending the year at nearly \$69. Some of the increase in oil prices in the second half of the year was attributable to Hurricane Harvey, which temporarily shut down many oil rigs in the Gulf of Mexico, along with Texas refining operations. An announcement in November 2016 by the Organization of the Petroleum Exporting Countries, stating that it would cap production, also put upward pressure on prices during the year. As of February 6, 2018, the prices of WTI and Brent were \$63.50 and \$67.00, respectively, with WTI adding over \$3 a barrel since the end of 2017 but Brent adding only \$0.19.

Crude oil production in the United States has increased dramatically in recent years, and the increase in domestic production has replaced U.S. demand for net imports (figure 8-38). Much of the increase in domestic production reflects technological advances in extracting “tight” oil from unconventional formations. Although the 2014–15 decline in world oil prices resulted in a 2015–16 decline in domestic production, 2017’s oil price increase has led to a partial rebound in petroleum extraction.

Figure 8-38. Crude Oil Production and Net Imports, 1990–2017

Barrels per day (millions, 10-month moving average)



Sources: Energy Information Administration, Petroleum Supply Monthly.

Note: Data are not seasonally adjusted.

The Global Macroeconomic Situation

Exports are a key contributor to economic growth in the United States, nearly doubling as a share of GDP over the past three decades. As figure 8-39 shows, U.S. export growth has closely followed the growth of foreign GDP.⁵ This section provides an overview of the macroeconomic situation among the United States' major trading partners. It also discusses several major ongoing global trends that affect the demand for U.S. products, including (1) the global slump in productivity growth; (2) the low wage growth in advanced economies, despite strengthening labor markets; and (3) the increasing pockets of financial vulnerability across certain emerging market and developing economies.

Developments in 2017

The global recovery continued in 2017, with a slight increase in growth from the 2016 pace of 3.2 percent. In its October 2017 *World Economic Outlook* (IMF 2017d), the International Monetary Fund forecasted that global growth will continue during the four quarters of 2018 at 3.7 percent, a bit higher than the forecasted 2017 pace. Growth in 2017 was supported by pickups in investment and industrial production, and was facilitated internationally by a pickup in international trade. Downside risks remain for the longer-term growth

⁵The CEA calculates trade-weighted global growth as a weighted average of real GDP growth for 25 foreign economies and the euro zone, using these economies' share of U.S. goods exports as weights.

Figure 8-39. Foreign Real GDP and U.S. Real Export Growth, 2000–2017

Four-quarter percent change



Sources: Bureau of Economic Analysis; national sources; Haver Analytics; CEA calculations.

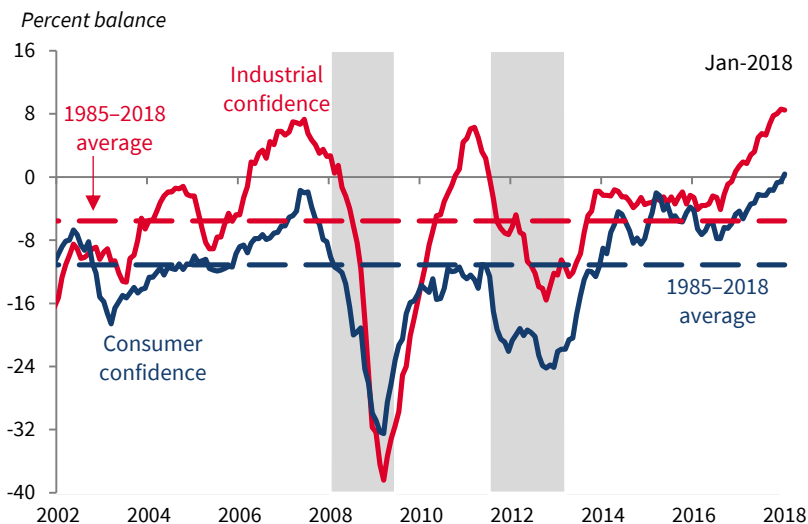
Note: 2017:Q3 GDP data are unavailable for Argentina and Saudi Arabia.

outlook, however, for reasons including geopolitical tensions and rising public and private debt levels across several developed and developing countries. These risks are exacerbated by continuing low productivity growth in several advanced economies, along with limited conventional monetary policy space, due to already-low interest rates.

In advanced economies and regions—such as Germany, France, Japan, the United Kingdom, and the European Union—output gaps are closing as real GDP growth rates exceed potential growth rates (i.e., the rate at which the economy would grow with full employment and stable inflation). Most advanced economies, however, face medium-term growth rates that are below their precrisis rates. Inflation is below or barely at target levels in most advanced economies, despite a decade’s worth of accommodative, unconventional monetary policy measures—such as quantitative easing, credit easing, forward guidance, and negative interest rate policies. Inflation is arguably picking up slowly in the EU, although it remains below target rates, while inflation in Japan remains barely positive. Recent economic indicators for Europe are promising (figure 8-40), however, suggesting that these economies might be emerging from this low-growth environment.

The banking sector in Europe remains weak due to lingering concerns about factors such as the continued low profitability of banks, depressed valuations, and the large stock of nonperforming loans. Although progress has been made in improving the quantity of capital, much remains to be done to improve the health of banks, including the introduction of the European bank

Figure 8-40. European Union Consumer and Industrial Confidence Indicators, 2002–18



Sources: European Commission, Business and Consumer Surveys; CEA calculations.

Note: Percent balance equals the percentage of respondents reporting an increase minus the percentage of respondents reporting a decrease. Shading denotes euro zone recession.

deposit insurance system in the euro zone—an important step toward creating a banking union. The creation of a banking union has been touted as integral to maintaining stability in a common currency area such as the euro zone, where debt-ridden banks and debt-ridden governments prone to dragging each other down due to the close links between public sector finances and the banking sector. Uncertainty also remains in European markets as the Brexit negotiations unfold.

In emerging and developing economies—such as Brazil, China, India, Russia, and certain other countries in Africa, Asia, and Latin America—strengthening the external environment continues to help output growth recover (IMF 2017a). There are, however, certain risks to future growth. As monetary policy normalizes with higher interest rates in advanced economies, emerging and developing economies could face an outflow of capital. Financial stability risks are also increasing due to the increase in nonperforming loans on the private sector balance sheets of two of the biggest and fastest-growing emerging market economies, China and India. Credit growth in China has arguably also become excessive, as it continues to shift from growth led by exports and investment to an economy led by internal demand.

Growth in India has slowed due to the effects of its structural economic reforms. India's demonetization of large-denomination notes in November 2016 invalidated 86 percent of the cash in circulation in an economy where more than 90 percent of transactions were cash based. The introduction in July

2017 of a single, countrywide sales tax replaced a vast number of different state and local tax rates, and has created short-term uncertainty.

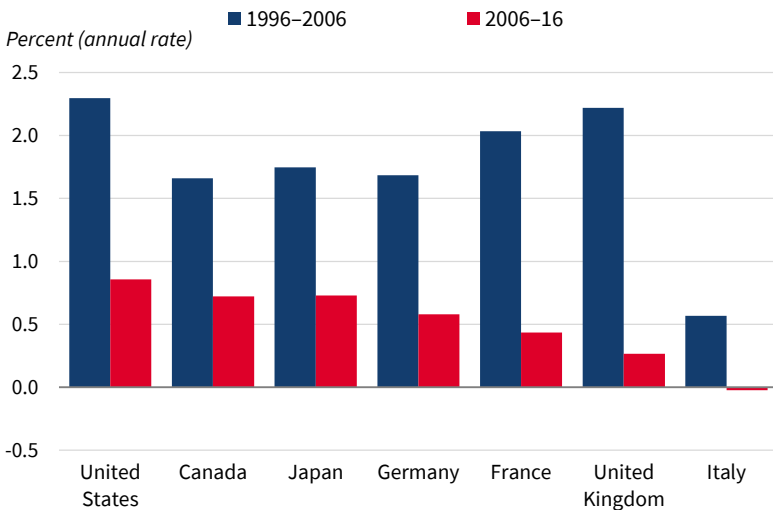
Growth in emerging and developing economies in Latin America is gathering steam as recessions in a few countries in the region—notably Argentina and Brazil—are abating. Among other policy actions, Brazil has been pursuing an accommodative monetary policy stance, and Argentina passed a tax reform bill in December 2017 designed to reduce inefficient taxes and the tax burden (IMF 2017f). Growth in commodity-exporting economies, in general, is picking up somewhat as commodity prices slowly recover from the slump in mid-2015, but the adverse effects of lower commodity revenues linger, especially for fuel exporters (IMF 2017a).

The Global Productivity Slowdown

Labor productivity growth has been slowing in the major advanced economies (figure 8-41), driven by an estimated decline of 0.3 percent in annual multifactor productivity growth relative to average precrisis growth of 1 percent a year. This slowdown is broad-based, also affecting developing and emerging market economies. Although the causes of this productivity slowdown are unclear, a number of hypotheses have been offered—including financial crisis legacies, such as weak demand and lower capital investment; the trade slowdown; the aging of the post-World War II Baby Boom generation in its various forms around the world; the rising share of low-productivity firms; and a widening gap between high- and low-productivity firms.

The Organization for Economic Cooperation and Development (OECD) finds that the survival of abnormally low-productivity firms may have contributed to the slowdown in productivity growth (Andrews, Criscuolo, and Gal 2016; McGowan, Andrews, and Millot 2017). During the 2000s, a substantial gap in labor productivity growth emerged between frontier firms and laggard firms around the globe in manufacturing—with frontier firms defined as the 100 most productive firms in a given sector. The frontier firms grew at an annual rate of 3.5 percent, compared with 0.5 percent for nonfrontier firms. Despite the huge resulting difference in productivity today, the nonfrontier firms continue to survive. Such businesses, termed “zombie” firms by the OECD, often have trouble meeting their interest payments (Andrews, Criscuolo, and Gal 2016). Not only does this dampen aggregate productivity growth; the rising share of nonviable firms is also increasingly crowding out growth opportunities for more productive firms (McGowan, Andrews, and Millot 2017). The low-productivity firms could be surviving due to the permissive legacies of the financial crisis—including accommodative financial and monetary policies such as bailouts, low interest rates, and asset purchases. Also, increased regulatory burdens can depress the flows of new firms entering the market and established firms exiting it (this is discussed in chapter 2, on regulation).

Figure 8-41. Average Annual Labor Productivity Growth in Selected Advanced Economies, 1996–2016



Sources: Conference Board, Total Economy Database; CEA calculations.

Note: Labor productivity is per hour worked in 2015 U.S. dollars (converted to 2015 price level with 2011 purchasing power parity).

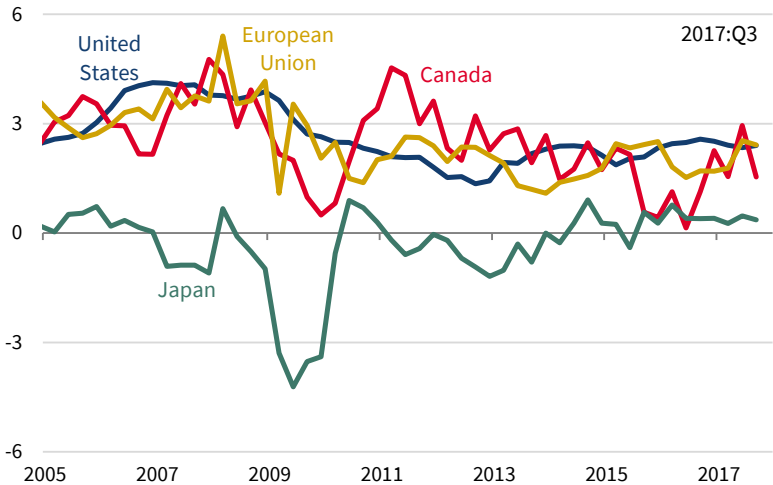
Advanced Economies' Sluggish Increase in Wage Inflation

Although unemployment rates are generally back at precrisis levels and other labor market indicators have improved, nominal wage growth remains sluggish. In the European Union, nominal wage increases have been stable, at about 2.1 percent, during the four years through 2017:Q3 (figure 8-42), even as the unemployment rate fell to 7.4 percent in October 2017, just short of the precrisis low point of 6.9 percent in 2008:Q1. In Japan, wages during the four quarters through 2017:Q3 increased just 0.4 percent, the same as the increase a year earlier, despite an unemployment rate of 2.8 percent, lower than any rate during the 2000s. Several reasons have been offered for these trends. Increasing global integration could be putting downward pressure on wage growth because firms can more easily substitute cheaper labor available in foreign economies. As discussed below, cyclical factors, such as labor market slackness (aside from what is measured by the unemployment rate), and structural factors, such as the slowdown in productivity growth, are also contributing to tepid wage growth.

Although unemployment rates have fallen to low levels in most of the advanced economies, other labor market indicators suggest some enduring slackness. One of these, involuntary part-time employment, remained higher as of the end of 2017 in most advanced economies compared with precrisis levels (IMF 2017d). Although involuntary part-time employment rose during the recession and then fell during the ongoing expansion, it remains higher now than before the crisis in advanced economies, including France (7.8 percent in

Figure 8-42. Nominal Wage Inflation in Selected Economies, 2005–17

Four-quarter percent change



Sources: National sources; CEA calculations.

Note: U.S. data are for production and nonsupervisory employees.

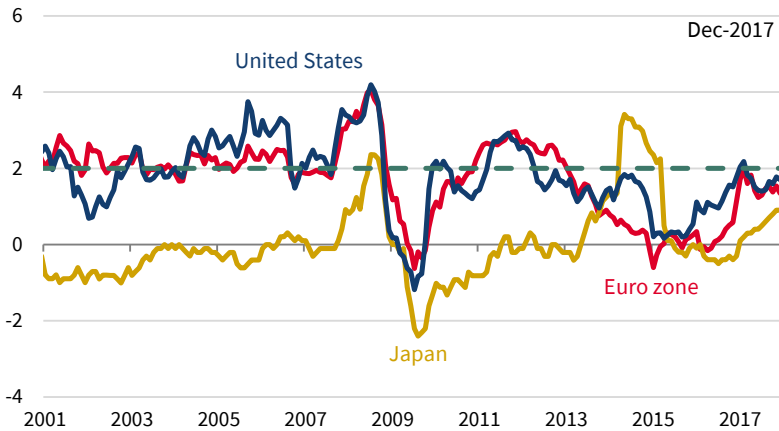
2017, compared with 5.3 percent in 2007) and the United Kingdom (3.9 percent in 2017, compared with 2.4 percent in 2007). In addition, temporary employment contracts in most advanced economies are also more prevalent now than in the years before the financial crisis. More part-time and contractual jobs are one reason why the hours per employee continue to decline in advanced economies, despite low unemployment levels. These could be due to weak demand for labor, which in turn reflects the fact that that aggregate demand for final goods has not yet fully recovered. Besides the cyclical changes in the labor market, structural changes, such as low growth in labor productivity (mentioned above), directly lower both real and nominal wage increases.

Too-Low Price Inflation in Advanced Economies

Like wage inflation, price inflation has also remained low—and lower than might have been expected, given the high and improving rate of resource utilization, and lower than what key central banks have targeted (figure 8-43). As noted above, the Federal Reserve has endeavored to raise the inflation rate to its target of 2 percent, but the actual rate remains shy of this target. The shortfalls from target inflation rates are larger in the euro zone and Japan. In the euro zone, core consumer price inflation was 0.8 percent during the 12 months of 2017, and has not been higher than 1.1 percent since mid-2013. These inflation rates are well below the European Central Bank’s inflation cap of 2 percent for overall consumer prices, despite unconventional monetary policies, such as asset purchases and negative interest rates. Still, some economic slackness

Figure 8-43. Central Bank Inflation Measures for Selected Economies, 2001–17

12-month percent change



Sources: National sources; CEA calculations.

Note: The horizontal dashed line represents the 2 percent inflation target or cap for each central bank. The inflation measures used are the overall Harmonized Index of Consumer Prices for the euro zone, the overall PCE for the U.S., and the overall CPI excluding fresh food for Japan.

appears to persist in the euro zone; the unemployment rate fell to 8.7 percent in November 2017, a bit higher than the 8.5 percent that it averaged during the six years through 2008. In Japan, core consumer prices inched up just 0.1 percent during the 12 months of 2017, far below the Bank of Japan's target of 2 percent for nonfood consumer price inflation. Except during the years 2013–15, when Japan's consumer price inflation was boosted by the anticipation and actual implementation of a sales tax, core inflation (excluding food and energy) has been negative or near zero for the past decade.

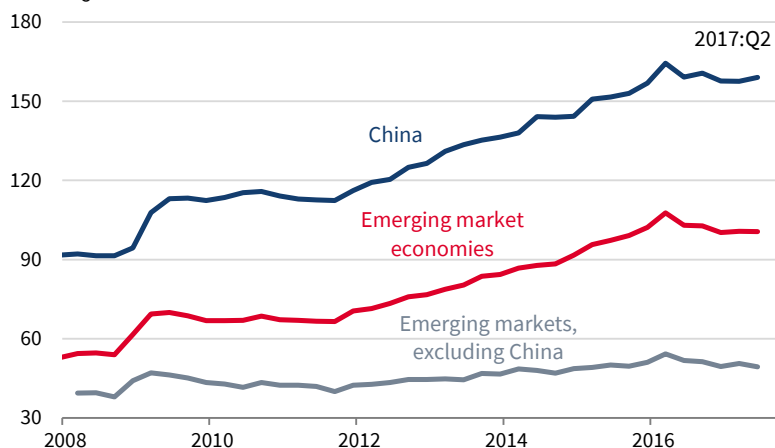
Financial Vulnerability in Emerging Market Economies

Despite the improvement in macroeconomic fundamentals across emerging market economies over the past couple of decades, pockets of financial vulnerability remain. According to the Federal Reserve's emerging and developing economies vulnerability index (Powell 2017, figure 6), while economic and financial vulnerability in emerging and developing economies is lower now than in the 1990s, it has been trending up over the past decade. Excessive credit growth and nonperforming loans (NPLs) in influential emerging market economies such as China and India, along with rising corporate debt levels, are sources of concern. And although many of the NPLs are at state-owned enterprises, and can be rolled over, this rolling over will begin to starve the rest of these economies of new capital.

Since the financial crisis, the debt of the nonfinancial sector across 15 emerging market economies nearly tripled, to \$25.6 trillion, or more than 100

Figure 8-44. Emerging Market Credit to Nonfinancial Corporations, 2008–17

Percentage of nominal GDP



Sources: Bank for International Settlements; national sources; CEA calculations.

Note: Emerging market economies include Argentina, Brazil, Chile, China (including Hong Kong), Hungary, India, Indonesia, Malaysia, Mexico, Poland, Russia, South Africa, South Korea, Thailand, and Turkey.

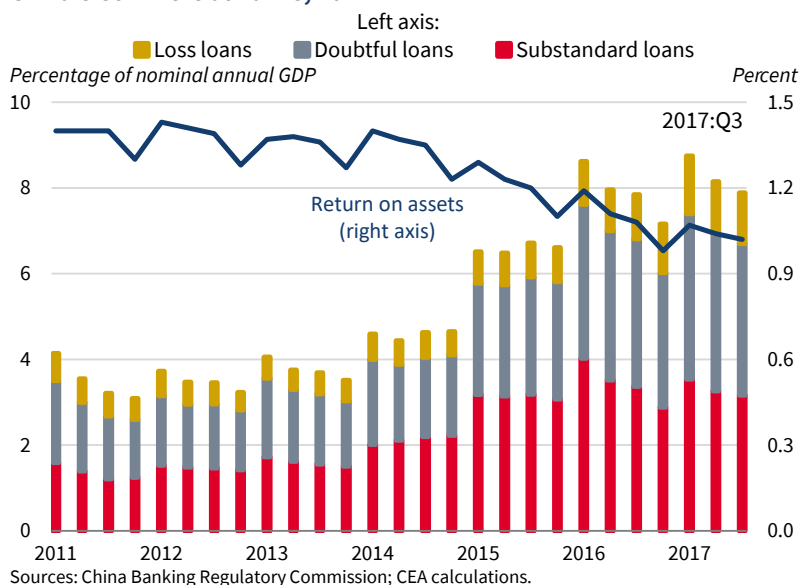
percent of combined GDP, in the second quarter of 2017.⁶ China is driving up the average, with corporate debt at a high 159.0 percent of GDP, as shown in figure 8-44.

Rapid credit growth in China, the world's second-largest economy, poses further risks. Its total nonfinancial sector debt reached about 235 percent of annual GDP in 2016, and the International Monetary Fund projects it to increase to almost 300 percent of annual GDP by 2022 (IMF 2017c). Lending to the private sector grew by 16 percent in 2016, twice as fast as nominal GDP. Historically, such rapid increases in credit growth have been associated with sharp growth slowdowns and financial crises.⁷ Rapid credit growth has contributed to China having one of the world's largest banking sectors, which further amplifies risks through possible contagion and cross-border spillovers. China's banking sector is now nearly three times the average banking sector size in other emerging and developing economies, and it is also above the advanced economy average of 283 percent of annual GDP. Banking sector growth has been accompanied by a rise in NPLs, which, though roughly stable for the past six quarters (at about 8 percent of annual GDP), have more than doubled as a share of GDP since 2012 (figure 8-45).

⁶ The emerging market economies include Argentina, Brazil, Chile, China, Hungary, India, Indonesia, Malaysia, Mexico, Poland, Russia, South Africa, South Korea, Thailand, and Turkey.

⁷ The aggregate gap between private sector credit and GDP is a useful indicator to gauge the buildup of banking sector risk (BIS 2010).

Figure 8-45. Nonperforming Loans and Return on Assets for China's Commercial Banks, 2011-17



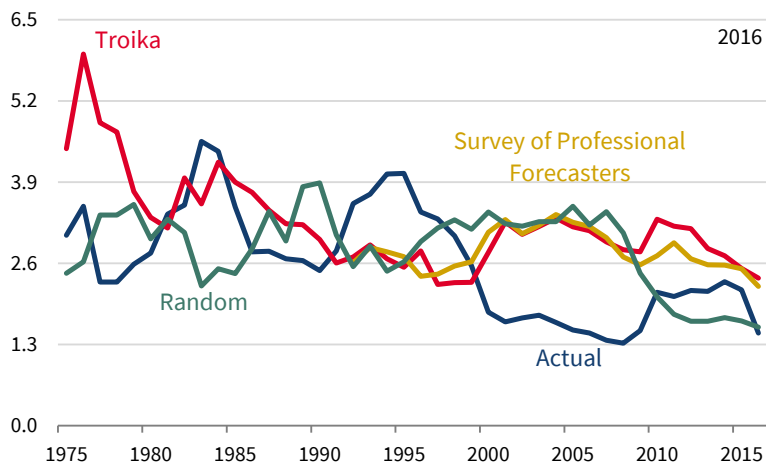
The increasing share of NPLs in India's banking sector poses further risks. According to country-sourced statistics provided to the IMF, NPLs as a share of all loans (i.e., the NPL slippage ratio) in India stood at 9.7 percent in the third quarter of 2017, compared with 1.7 percent in China (IMF 2017e). NPLs have increased at an alarming rate in recent years, with the current NPL slippage ratio in India almost double that in FY 2014/15 (IMF 2017b). Public sector banks, with the State Bank of India as a leading example, account for the lion's share of NPLs in the banking sector. The Reserve Bank of India (India's central bank) predicts that gross NPLs as a proportion of all loans will increase to 10.8 percent in the first quarter of 2018, and to 11.1 percent by September 2018 (RBI 2017). However, the stress of India's banking sector may be ameliorated in the future, given that the government recently announced a \$32.4 billion package to recapitalize publicly owned banks.

The Outlook

Historically, policy-inclusive Administration economic forecasts have not exhibited a stellar track record of correctly predicting actual long-run macroeconomic outcomes, either in absolute terms or relative to alternative forecasts. Figure 8-46 plots the 10-year (5-year before 1996) average annual GDP growth rate forecasted by the so-called Troika—the Council of Economic Advisers, Office of Management and Budget, and Treasury Department—against the 10-year forecasts of the Federal Reserve Bank of Philadelphia's Survey of

Figure 8-46. Projected Real GDP Growth Rate, 1975–2016

10-year average annual growth rate



Sources: Bureau of Economic Analysis, National Income and Product Accounts; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters; Office of Management and Budget; Department of the Treasury; CEA calculations.

Note: Before 1996, 5-year annual averages are used for the Troika forecast.

Professional Forecasters (SPF), a simple random walk model, and the actual subsequent 10-year average growth rates.⁸ Not only have the Administration’s forecasts underperformed the SPF, but they have also underperformed against a simple random walk model, in which the next 10-year average growth rate is a function of the previous 10-year (5-year before 1996) average growth rate plus a random error.

Though the random walk model generates slightly higher variance than the Troika, the mean absolute error and root mean-squared error of the random walk forecasts are smaller, and the random walk has a lower maximum absolute forecast error than the Troika. Moreover, both the Troika’s and SPF’s forecasts tend to suffer from optimism bias; whereas the Troika and SPF overestimate growth 74 and 73 percent of the time, respectively, the random walk overestimates it only 51 percent of the time. These findings are consistent with an earlier analysis by McNees (1995).

The evident underperformance of the Administration’s forecasts owes in large part to the Knightian uncertainty inherent in forecasts that must account for the effects of policy objectives—the implementation of which is the outcome of a fundamentally unpredictable political process. Indeed, we would expect Presidential administrations to attach high probabilities both to the implementation of their policy objectives and to the success of these objectives in delivering economic growth—though the political contingency

⁸ Before 1990, the SPF survey was conducted by the American Statistical Association and the National Bureau of Economic Research.

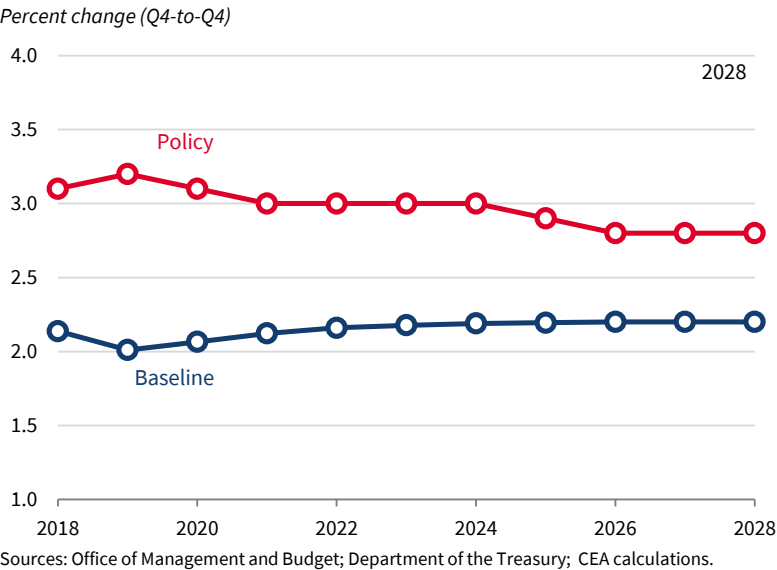
of policy outcomes means that realization is not guaranteed. But their underperformance owes also to the general difficulty of macroeconomic forecasting. As Reis (2010) points out, if an applied microeconomist were asked to translate a point estimate of a randomly administered treatment effect into an unconditional 10-year forecast, the performance of this exercise would likely be abysmal. Predicting the path of a random variable differs fundamentally from estimating a parameter, a difference that can render forecasting more challenging than policy analysis—for instance, when estimating the effect of an exogenous fiscal shock.

The CEA, therefore, views greater forecasting transparency as a desirable aim. More transparency permits, among other things, making a clear distinction between a baseline forecast and additional estimated policy effects. A clear, replicable baseline can then focus dialogue—and, if necessary, debate—on what should constitute the primary subject of public discourse: the issue of estimating the effects of proposed policy and the probability of implementation. This distinction can also enable private firms that are affected by official forecasts to independently evaluate the weight they should attach to these forecasts in formulating long-term plans.

Although the development of more sophisticated and richly specified dynamic macroeconomic models, including a growing variety of dynamic stochastic general equilibrium models, is arguably the most promising branch of macroeconomic modeling (Wieland et al. 2016), richer and more dynamic models also require an expanding set of parameter assumptions. Moreover, this requires enhanced judgment by modelers, even when those parameters are informed by data. Partly for this reason, such models not only continue to perform poorly in absolute terms but also struggle to consistently match or outperform in horseraces against simpler, reduced-form autoregressive models—in particular vector autoregressions (VARs) informed by a Bayesian prior (Wieland et al. 2012; Edge and Gurkaynak 2010; Del Negro and Schorfheide 2013; Edge, Kiley, and LaForte 2010).

Regardless of the current state of macroeconomic modeling, however, a common benchmark alternative against which new vintages of structural models are evaluated remains, as it has since Sims (1980), the workhorse VAR. As n -equation, n -variable linear models in which each variable is explained by its own lagged values, as well as lagged values of the remaining $n - 1$ variables, VARs provide a simple yet powerful tool for capturing dynamics in multiple co-moving, macroeconomic time series. Moreover, though the usefulness of VARs for structural inference and policy analysis is more contentious, due to identification challenges, where identification is of secondary importance—for example, in the context of multistep-ahead forecasting—VARs have consistently proven to offer reliable multivariate benchmark forecasts without the imposition of often unsettled theory.

Figure 8-47. The Administration's Forecasted Real GDP (Growth Rate), 2018–28



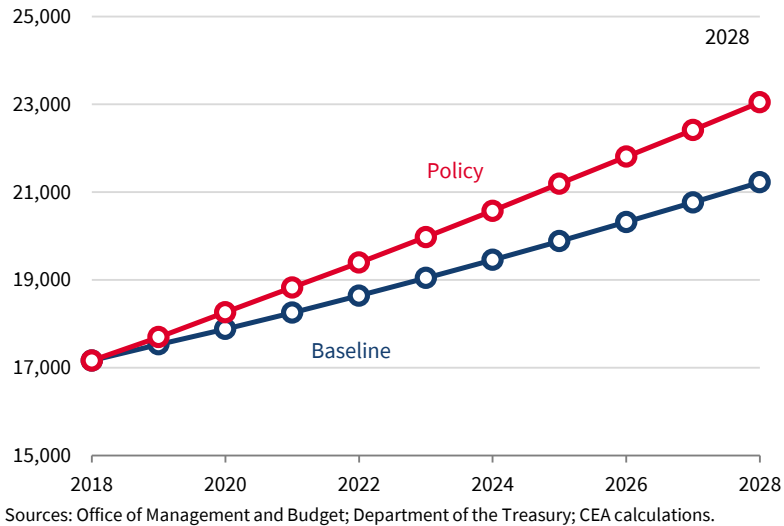
The challenge for employing a VAR for a forecast over any time horizon, but particularly over a long-term forecasting window, is that as a mean-reverting model, it is highly sensitive to sample period selection. Longer sample periods, however, tend to exhibit persistent low-frequency movements in some or all of the included variables (Stock and Watson 2012, 2016). Ignoring these low-frequency movements introduces misspecification errors into forecasts due to mean reversion of what are in fact nonstationary variables. One solution to this problem, adapting the approach of Fernald and others (2017), is to decompose growth rates into trend, cyclical, and higher-frequency components using deviations from Okun’s Law and a partial linear regression model with a frequency filter in order to estimate the long-run growth rate. One can then estimate the VAR using detrended values, and then add the trends back in. This is the approach employed for the Administration’s baseline forecast.

As a baseline forecast of GDP growth over the next 11 years, therefore, the CEA estimated an unrestricted, reduced-form VAR on real GDP, the unemployment gap, the yield spread of 10-year over 3-month Treasuries, the labor force participation rate, and real personal consumption expenditures, specified in detrended growth rates. Postestimation, we then add back in the data-based trends. Optimal lag length was determined by satisfaction of the Akaike and Hannan-Quinn information criteria.

Because VAR forecasts extrapolate from present data, a VAR baseline incorporates current expectations about future policy, and these expectations may be manifested in the selected variables in the model. Given the required

Figure 8-48. The Administration's Forecasted Real GDP (Level), 2018–28

Real dollars (billions, \$2009)



finalization of the forecast in November 2017, however, the Administration’s forecast was only able to incorporate data through 2017:Q3. The baseline forecast is therefore estimated only on the basis of data received before what press reports throughout the first three quarters of 2017 indicate should plausibly be considered an unanticipated individual and corporate income tax shock arriving at the end of 2017:Q4, as reflected in the pattern of private forecasted revisions reported above in figure 8-1. Therefore, this baseline forecast does not include the expected effect of the Tax Cuts and Jobs Act. The baseline forecast from 2018 through 2028 is plotted as the lower line in figure 8-47, and in levels as the lower line in figure 8-48.

Similarly, though the mean expected probability of successful implementation of the Administration’s other policy objectives may have been revised upward following the 2017:Q4 passage of the Tax Cuts and Jobs Act, general pessimism throughout 2017 about the legislative success of the Administration’s agenda suggests that other post-2017:Q3 policy shocks should likewise be considered unanticipated. Accordingly, to generate the Administration’s full, policy-inclusive forecast, we then add to our baseline forecast the estimated growth effects of the Administration’s policy goals, as reported and discussed in the preceding chapters.

GDP Growth during the Next Three Years

As illustrated in the top line of figure 8-47 and reported in the second column (“Real GDP”) of table 8-1, the Administration expects economic growth to

increase to 3.1 percent in 2018, and to remain above 3.0 percent through 2020. Though the baseline GDP forecast, plotted as the lower line in figure 8-47, is 2.1 percent a year for the next three years, there are also substantial front-loaded growth effects from individual and corporate income tax cuts and reforms, as well as a further boost to net exports, owing to a reduction in corporate profit shifting, as reported in chapter 1 (tax reform). (Baseline GDP forecasts are also consistent with a range of simple $AR(p)$ models.)

Consistent with the evidence presented in chapter 1, and in particular the results of Mertens and Ravn (2013), the Administration also expects the labor market to continue to strengthen in the near term, with the unemployment rate falling to 3.7 percent in 2019:Q4 (see the fifth column, “Unemployment rate,” of table 8-1). Declining unemployment is a predictable consequence of the coincidence of demographically driven trends in labor force participation and strong growth expectations. Although inflation expectations remain low and close to the Federal Reserve Board’s 2.0 percent target for the PCE price index, the Administration does expect a strengthening labor market to put slight upward pressure on inflation by 2020, as shown in the third column (“GDP price index”) of table 8-1.

In addition, consumer spending is expected to remain strong as a result of a positive wealth effect due to recent rising household wealth. A large body of academic literature generally estimates that the marginal propensity to consume out of wealth is on the order of \$0.03 to \$0.05 on \$1.00 of wealth (Poterba 2000), as shown in figure 8-8 above. More recently, Juster and others (2006) find that a \$1.00 capital gain in corporate equities increases spending by \$0.19 in a five-year period. Carroll, Otsuka, and Slacalek (2011), meanwhile, find that a \$1.00 gain in financial wealth in a given quarter raises spending by about \$0.01 in the immediately subsequent quarter, and by \$0.04 to \$0.06 over a few years. Recent gains in household wealth therefore suggest near-term strength in consumer spending.

GDP Growth over the Longer Term

Over the longer term, the Administration’s baseline forecast is for output to grow by an overall average annual rate of 2.2 percent through 2028 (see figure 8-47, lower line). The full, policy-inclusive forecast, which assumes implementation of the Administration’s agenda, is that, on average, real GDP will grow by 3.0 percent annually through 2028 (see figure 8-47, top line, and the second column of table 8-1). We expect growth to moderate slightly after 2020, as the capital-to-output ratio asymptotically approaches its new, postcorporate tax reform steady state, and as the pro-growth effects of the Tax Cuts and Jobs Act’s individual elements dissipate (though the level effect remains permanent). As shown in figure 8-49, the current Administration’s long-run, policy-inclusive forecast is conservative relative to those of previous administrations, and is in fact slightly below the median of 3.1 percent. Moreover, the baseline forecast

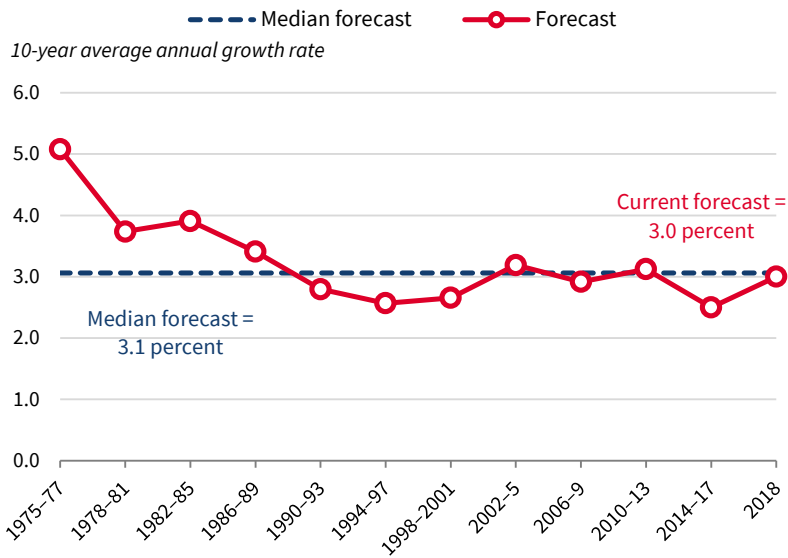
Table 8-1. Administration Economic Forecast, 2016–28

Year	Percent change (Q4-to-Q4)				Level (calendar year)		
	Nominal GDP	Real GDP (chain-type)	GDP price index (chain-type)	Consumer price index	Unemployment rate (percent)	Interest rate, 91-day Treasury bills (percent)	Interest rate, 10-year Treasury notes (percent)
2016 (Actual)	3.4	1.8	1.5	1.8	4.9	0.3	1.8
2017	4.1	2.5	1.6	2.1	4.4	0.9	2.3
2018	4.7	3.1	1.6	1.9	3.9	1.5	2.6
2019	5.1	3.2	1.8	2.0	3.7	2.3	3.1
2020	5.1	3.1	1.9	2.3	3.8	2.9	3.4
2021	5.1	3.0	2.0	2.3	3.9	3.0	3.6
2022	5.1	3.0	2.0	2.3	4.0	3.0	3.7
2023	5.1	3.0	2.0	2.3	4.2	2.9	3.7
2024	5.1	3.0	2.0	2.3	4.3	2.9	3.6
2025	5.0	2.9	2.0	2.3	4.5	2.9	3.6
2026	4.9	2.8	2.0	2.3	4.7	2.9	3.6
2027	4.9	2.8	2.0	2.3	4.8	2.9	3.6
2028	4.9	2.8	2.0	2.3	4.8	2.9	3.6

Sources: Bureau of Economic Analysis, National Income and Product Accounts; Bureau of Labor Statistics, Current Population Survey, Labor Productivity and Costs; Department of the Treasury; Office of Management and Budget; Council of Economic Advisers.

Note: Forecast was based on data available as of November 16, 2017. The interest rate on 91-day T-bills is measured on a secondary-market discount basis.

Figure 8-49. Average 10-Year Forecast, by Administration, 1975–2018



Sources: Office of Management and Budget; Department of the Treasury; CEA calculations.
Note: Before 1996, the long-run forecast was for five years.

is exactly in line with the long-run outlook given in the 2017 *Economic Report of the President*, which projected real output growth returning to its long-term trend rate of 2.2 percent a year after a brief period of above-trend growth of 2.4 and 2.3 percent in 2017 and 2018, reflecting our view that nonimplementation of the Administration’s policy objectives would simply result in a reversion to the lower growth expectations of recent years.

Partially offsetting the declining contribution to growth of corporate and individual tax cuts and reforms near the closing of the budget window, however, is the expected contribution to long-run growth of deregulation and infrastructure investment, as reported in chapters 2 and 4, respectively. Also—as discussed in chapter 1, on tax reform, and in chapter 3, on labor markets—we expect an additional contribution to growth from policies designed to offset recent trends in labor force participation, both among near-retirement and prime-age workers. Overall, the Administration therefore expects full policy implementation to cumulatively raise real GDP over the baseline by between 5 and 6 percent over the budget window, as illustrated in figure 8-48. Consistent with growth slowing slightly in the latter half of the budget window, from 3.2 percent in 2019 to 2.8 percent in 2028, the Administration expects unemployment to gradually return to its natural level, which will also stabilize inflation (see the fifth column of table 8-1).

As shown in table 8-2, the Administration anticipates that the primary contributor to increased growth through 2028 will be higher output per hour worked. This chapter and chapter 1 explain that U.S. labor productivity growth

Table 8-2. Supply-Side Components of Actual and Potential Real Output Growth, 1953–2028

Component	Growth rate ^a	
	History, 1953:Q2 to 2017:Q3 ^b	Forecast, 2017:Q3 to 2028:Q4
1 Civilian noninstitutional population age 16+	1.4	0.9
2 Labor force participation rate	0.1	–0.2
3 Employed share of the labor force	0.0	0.0
4 Ratio of nonfarm business employment to household employment	0.0	0.0
5 Average weekly hours (nonfarm business)	–0.2	0.2
6 Output per hour (productivity, nonfarm business) ^c	2.0	2.6
7 Ratio of real GDO to nonfarm business output ^c	–0.2	–0.5
8 Sum: Actual real GDO ^c	3.0	3.0
Memo:		
9 Potential real GDO ^d	3.1	3.1
10 Output per worker differential: GDO vs. nonfarm ^e	–0.3	–0.5

^a All contributions are in percentage points at an annual rate, forecast finalized November 2017. Total may not add up due to rounding.

^b 1953:Q2 was a business-cycle peak. 2017:Q3 is the latest quarter with available data.

^c Real GDO and real nonfarm business output are measured as the average of income- and product-side measures.

^d Computed as (line 8) - 2 * (line 3).

^e Real output per household-survey worker less nonfarm business output per nonfarm business worker. This can be shown to equal (line 7) - (line 4).

Sources: Bureau of Labor Statistics (BLS), Current Population Survey, Labor Productivity and Costs; Bureau of Economic Analysis, National Income and Product Accounts; Department of the Treasury; Office of Management and Budget; CEA calculations.

Note: Gross domestic output (GDO) is the average of GDP and gross domestic income. Population, labor force, and household employment have been adjusted for discontinuities in the population series. Nonfarm business employment, and the workweek, come from the Labor Productivity and Costs database maintained by the BLS.

has been disappointing in recent years owing to a lack of capital deepening. By substantially raising the capital stock and attracting increased net capital inflows, including investment by both foreign firms and overseas affiliates of U.S. multinational corporations, we expect enactment of corporate tax reform to considerably increase capital per worker, and thus labor productivity.

Upside and Downside Forecast Risks

As noted above, macroeconomic forecasting is difficult, given that it is subject not only to normal forecasting error but also to the realities of a Knightian world with fundamentally immeasurable risks. Some downside risks, including adverse geopolitical shocks and cyberattacks and cyber thefts, may be difficult if not impossible to quantify—though we have attempted to do so for the latter in chapter 7, on cybersecurity. Similarly, the legislative process is difficult to

predict; insofar as the Administration's policy aims are diluted or otherwise throttled during this process, growth estimates may need to be revised downward accordingly. High public and private debt levels in several developed and developing economies also constitute potential downside risks.

On the upside, international capital mobility has increased in recent decades, which suggests that the Administration's forecast may underestimate the effects of corporate tax reform and infrastructure investment on capital formation and, consequently, growth, due to diminished crowding out of private investment. Similarly, because recent academic studies have shown that individual marginal income tax rates may have differential effects across the age distribution, estimated trends in labor force participation may overstate the growth-detracting effect of demography.

Finally, the growth estimates presented throughout this *Report* have generally been derived from standard exogenous growth models. Endogenous growth models, however, suggest that institutional factors that incentivize investment in human capital may generate positive externalities and spillover effects not captured by exogenous models. Ehrlich, Li, and Liu (2017), for example, find that a 10-percentage-point increase in investment in entrepreneurial human capital raises the growth rate of per capita income by 0.5 to 1.1 percentage points. Tax reform that incentivizes investment in intangible assets and human capital more generally, regulatory reform that removes prohibitive barriers to entry for innovative firms and entrepreneurs, and infrastructure and health investments that enhance human capital accumulation therefore could yield higher growth dividends than estimated here.

Conclusion

As discussed in chapter 1, the U.S. economy, and in particular U.S. workers, have been substantially harmed in recent years by the coincidence of the high and increasing international mobility of capital and the declining competitiveness of U.S. corporate income taxation relative to the rest of the world. The result has been diminished capital formation in the United States, and consequently low labor productivity growth in the absence of capital deepening.

However, by lowering the cost of investing in the United States for both corporations and pass-through businesses, raising the after-tax return of remaining in the workforce, reducing the regulatory burden on U.S. firms, attenuating the adverse effect on U.S. net exports of corporate profit shifting, and investing in vital infrastructure projects, the Administration expects economic growth to improve on its lackluster performance in recent years. Moreover, the estimated positive effects on output and labor market outcomes are not exceptional, but rather suggest a return to historical rates of economic growth.