

The Economic Outlook

If current laws governing federal taxes and spending generally remain in place, the Congressional Budget Office estimates, the economy's real output (that is, its output adjusted to remove the effects of inflation) will expand by 2.0 percent in 2016, as measured by the change from the fourth quarter of 2015 (see Table 2-1). Real gross domestic product (GDP) rose at an annual rate of just 1.0 percent in the first half of 2016. CBO expects a stronger second half, however, mainly because major forces restraining the growth of investment in the first half—such as a decline in oil prices that reduced mining investment—have begun to wane. The 2.0 percent rate of growth that CBO anticipates for 2016 is roughly the same as the rate of growth experienced in 2015. The agency also projects that output will increase by 2.4 percent in 2017, by 2.1 percent in 2018, and slightly more slowly through 2026. (CBO's economic projections were completed in early July and therefore do not reflect recently released economic data; see Box 2-1.)

CBO projects that the economic expansion over the next two years will reduce the quantity of underused resources, or “slack,” in the economy. One sign of slack at the end of 2015 was that actual GDP was about 1.8 percent smaller than CBO's estimate of potential (that is, maximum sustainable) GDP. CBO expects that gap to narrow to less than its historical average by 2018. As a result, CBO projects that the improving economy will spur further hiring, reducing the unemployment rate from 4.8 percent in the second quarter of 2016 to 4.5 percent in 2017 and putting upward pressure on workers' wages and benefits. The increases in employment and in wages and benefits will increase participation in the labor force—both encouraging people who were out of the labor force because of weak job prospects to enter it, and encouraging people who were considering leaving the labor force to remain in it.

The reduced slack in the economy will increase inflation over the next year and push up interest rates over the next

few years. CBO expects the rate of inflation—as measured by the growth in the price index for personal consumption expenditures (the PCE price index)—to rise to the Federal Reserve's goal of 2 percent in 2017. CBO also expects the interest rate on 3-month Treasury bills to go up, rising from an average of 0.3 percent in the first half of 2016 to 1.0 percent by the end of 2017 and stabilizing at 2.8 percent by the end of 2020. Long-term interest rates are expected to rise as well, partly in response to the increase in short-term rates and partly in response to an expected increase in global interest rates as foreign economic growth improves. CBO projects that the rate on 10-year Treasury notes will increase from an average of 1.8 percent in the first half of 2016 to 2.5 percent by the end of 2017 and to 3.4 percent by the end of 2020.

Unlike its projections for the next few years, which reflect predictions of business cycle fluctuations, CBO's projections for the 2021–2026 period are based primarily on projections of underlying trends in such variables as the size of the labor force, the number of hours worked, capital investment, and productivity—that is, trends that those variables follow after the effects of business cycle fluctuations are removed. Real output will grow more quickly through 2026 than it has done over the past decade, CBO expects, because business investment will be stronger and because the economy's total factor productivity (TFP), the average real output per unit of combined labor and capital services, will grow more quickly. Nevertheless, slower growth in the nation's supply of labor is projected to keep the growth of output slower than it was during the 1980s, 1990s, and early 2000s. In CBO's projections, the economy grows by 2.0 percent per year, on average (as measured on a fourth-quarter-to-fourth-quarter basis), between 2021 and 2026.

Recognizing the uncertainty of economic forecasts, CBO constructs its projections so that they fall in the middle of

Table 2-1.

CBO's Economic Projections for Calendar Years 2016 Through 2026

	2016	2017	2018	Annual Average	
				2019–2020	2021–2026
Percentage Change From Fourth Quarter to Fourth Quarter					
Gross Domestic Product					
Real ^a	2.0	2.4	2.1	1.7	2.0
Nominal	3.5	4.3	3.9	3.6	4.0
Inflation					
PCE price index	1.5	2.0	2.0	2.0	2.0
Core PCE price index ^b	1.8	1.9	2.0	2.0	2.0
Consumer price index ^c	1.8	2.3	2.3	2.4	2.4
Core consumer price index ^b	2.3	2.2	2.3	2.3	2.3
GDP price index	1.5	1.8	1.8	1.9	2.0
Employment Cost Index ^d	2.8	3.1	3.3	3.1	3.1
Fourth-Quarter Level (Percent)					
Unemployment Rate	4.6	4.5	4.7	5.0 ^e	4.9 ^f
Percentage Change From Year to Year					
Gross Domestic Product					
Real ^a	1.9	2.4	2.2	1.7	1.9
Nominal	3.2	4.2	4.0	3.6	4.0
Inflation					
PCE price index	1.2	1.9	2.0	2.0	2.0
Core PCE price index ^b	1.7	1.8	2.0	2.0	2.0
Consumer price index ^c	1.4	2.4	2.3	2.3	2.4
Core consumer price index ^b	2.3	2.2	2.3	2.3	2.3
GDP price index	1.3	1.8	1.8	1.9	2.0
Employment Cost Index ^d	2.6	3.0	3.3	3.2	3.1
Annual Average					
Unemployment Rate (Percent)	4.8	4.5	4.6	4.9	4.9
Payroll Employment (Monthly change, in thousands) ^g	175	123	24	25	64
Interest Rates (Percent)					
Three-month Treasury bills	0.3	0.7	1.4	2.4	2.8
Ten-year Treasury notes	1.8	2.3	2.8	3.2	3.6
Tax Bases (Percentage of GDP)					
Wages and salaries	44.3	44.4	44.4	44.4	44.3
Domestic economic profits	8.7	8.4	8.2	7.8	7.3

Source: Congressional Budget Office.

Economic projections for each year from 2016 to 2026 appear in Appendix B.

GDP = gross domestic product; PCE = personal consumption expenditures.

- a. Nominal GDP adjusted to remove the effects of inflation.
- b. Excludes prices for food and energy.
- c. The consumer price index for all urban consumers.
- d. The employment cost index for wages and salaries of workers in private industries.
- e. Value for the fourth quarter of 2020.
- f. Value for the fourth quarter of 2026.
- g. Calculated as the monthly average of the fourth-quarter-to-fourth-quarter change in payroll employment.

Box 2-1.

Recently Released Economic Data

In late July, the Bureau of Economic Analysis (BEA) released its annual revision of the national income and product accounts, as well as new data about economic growth during the first half of 2016. The revision incorporates new data from various sources, as well as some changes in methods and definitions.¹ The Congressional Budget Office completed its forecast before BEA released that new information, but an initial review of the revised and newly released data does not suggest any substantial change to CBO's economic or budget projections.

Revisions to Historical Data

BEA slightly increased its estimate of the growth of real output (that is, output adjusted to remove the effects of inflation) between 2013 and 2015. It now estimates that real output grew by 2.2 percent, rather than 2.1 percent, during that period. It also estimates that national income grew 0.3 percentage points faster than it estimated previously. Two components of that income are important for forecasting revenues: corporate profits, which BEA revised downward by \$4.5 billion in 2013, upward by roughly \$80 billion in 2014, and upward again by roughly \$80 billion in 2015; and wage and salary disbursements, which were revised upward by about \$7 billion for the whole 2013–2015 period. (Most of the upward revision to income over the past three years reflected higher corporate profits, so although wages were also revised upward, their share of total income fell.) The revision left most measures of inflation—including the price index for personal consumption expenditures, the core version of that price index, and the gross domestic product (GDP) price index—largely unchanged. (The revision does not affect another measure of inflation, the consumer price index for all urban consumers or CPI-U.)

Growth in 2016

BEA also revised its estimate of GDP for the first quarter of 2016 and released its initial estimate for the second quarter. The new data indicate that real GDP grew at an average annual rate of 1.0 percent in the first half of 2016—well below the 1.7 percent rate that CBO used in constructing its economic forecast. Most of that difference resulted from unexpected weakness in business fixed investment (that is, investment in non-residential structures, equipment, and intellectual property products) and from a sharp drop in private inventory investment.

An initial review of the new data for the first half of 2016 indicates that economic growth for the year may prove to be slightly slower than CBO projected in early July. However, because a number of factors suggest that the underlying momentum in economic activity may be stronger than the recent growth of real GDP suggests, output growth in 2016 may in fact be close to CBO's projection. For one, consumer spending during the first half of the year was slightly stronger than CBO had anticipated. Also, the latest data about the labor market suggest continued growth in employment and labor income. And inventory investment will swing back if firms find that they need to replenish their inventories to meet future demand.

Implications for Future Years

Beyond 2016, the general contours of CBO's projections are unaffected by the revised and newly released data. For example, though the data indicate slightly faster growth in real GDP and slightly weaker growth in business investment in fixed capital during the past three years, they do not call for a significant change to CBO's estimates of potential GDP in the recent past or in the future. More will be known about how CBO might adjust those estimates when BEA releases its revised estimates of capital stock later this year.

1. See Bureau of Economic Analysis, "National Income and Product Accounts—Gross Domestic Product: Second Quarter 2016 (Advance Estimate)—Annual Update: 2013 Through First Quarter 2016" (press release, July 29, 2016), <http://go.usa.gov/xTcJH> (PDF, 1.9 MB).

the distribution of possible outcomes, given current law and the economic data that are available when the projections are prepared. Nevertheless, many developments—such as slower-than-expected growth in business investment, faster-than-expected growth in productivity, or weaker-than-expected economic growth abroad—could make outcomes differ substantially from what CBO has projected.

CBO's current economic projections differ in some significant respects from its last projections, which were published in January 2016. For example, CBO now projects slower growth of real GDP in 2016, largely because of the weaker-than-anticipated growth during the first half of the year. Also, the agency's projections of potential and actual GDP in 2026 are now roughly 1½ percent lower than they were in January. Those revisions were made on the basis of new data and a reassessment of future growth in TFP. In addition, CBO has reduced its projections of interest rates on Treasury securities; by 2026, those rates are roughly one-half of a percentage point lower than CBO projected in January. That revision reflects CBO's reassessment of the future demand for Treasury securities, in light of lower-than-anticipated interest rates in financial markets and recent global economic developments that point to less demand for foreign assets; it also partly reflects the revisions to projected GDP growth.

The economic projections in this report do not differ much from those of most other forecasters. They are generally similar to the *Blue Chip* consensus forecast, which was published in August, though CBO's projection of real GDP growth is higher. The agency's projections of economic activity are also generally similar to the forecasts developed by the Federal Reserve, which were presented at the Federal Open Market Committee's June 2016 meeting.

The Economic Outlook for 2016 Through 2020

Since the end of the 2007–2009 recession, real GDP has grown faster than potential GDP, on average, reducing the gap between the two and hence the amount of slack in the economy. CBO expects that gap to keep narrowing as real GDP grows more quickly in the second half of this year and next year than it did during the first half of this year (see Figure 2-1). However, growth in real GDP is

expected to slow in 2018 and to fall below but remain close to the growth of potential GDP in 2019 and 2020.

In CBO's projections, developments in the federal tax and spending policies specified in current law have a small negative effect on economic growth over the next few years, on net. By contrast, monetary policy continues to support growth over the next few years, albeit less and less so as the economy nears its potential output and the labor market tightens.

Most of the growth of output during the coming five years will be driven by consumers, businesses, and home builders, CBO anticipates. Demand from federal, state, and local governments and from foreign customers will contribute much less to economic growth.

CBO expects that slack in the labor market will nearly disappear over the next year. In the agency's projections, increased demand for workers reduces the unemployment rate and draws more workers into the labor force. Reduced slack in the labor market and the economy will help boost the rate of inflation to the Federal Reserve's target rate of 2 percent.

Unlike CBO's projections for the 2016–2018 period, those for 2019 and 2020 do not reflect expected cyclical developments in the economy. Rather, they serve as transitions to the values that CBO projects for the 2021–2026 period—which themselves are not based on predictions of business-cycle fluctuations.

Federal Fiscal Policy

If current laws remained generally the same, changes in federal spending and revenues would modestly dampen aggregate demand for goods and services over the next few years.¹ Those changes would also slightly reduce the supply of labor in the economy. Together, the changes in aggregate demand and in the supply of labor would restrain the growth of output through 2020.

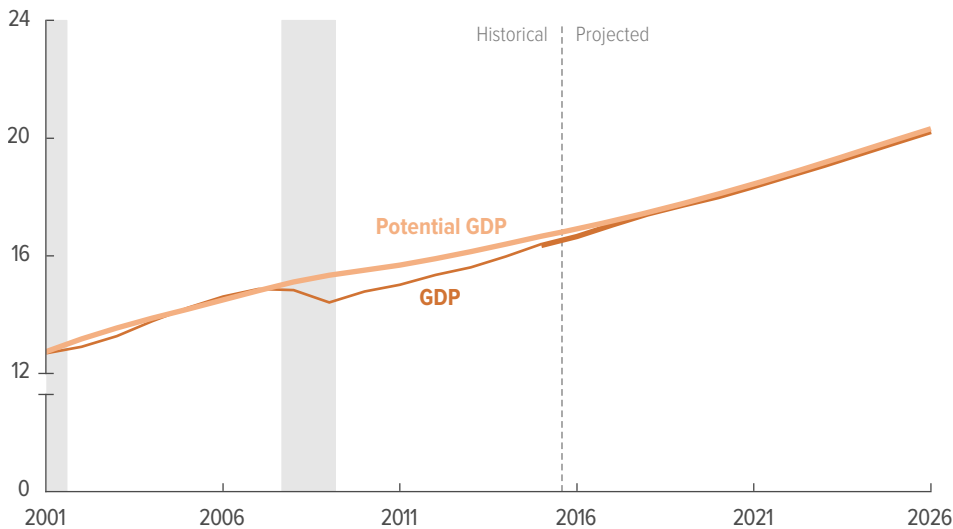
Specifically, in CBO's projections, four broad changes in federal spending and revenues that would occur under

1. Aggregate demand refers to total purchases by consumers, businesses, government, and foreigners of a country's output of final goods and services during a given period. All else being equal, changes in aggregate demand affect businesses' decisions about whether to increase production, invest in equipment, and hire workers, which in turn affect income, demand, and output.

Figure 2-1.

GDP and Potential GDP

Trillions of 2009 Dollars



In CBO's projections, the gap between the economy's actual and potential output is largely eliminated by the end of 2017 and then returns to its historical average—about one-half of one percent of potential GDP—by 2020.

Sources: Congressional Budget Office; Bureau of Economic Analysis.

Potential GDP is CBO's estimate of the maximum sustainable output of the economy.

Data are annual. Values for GDP from 2001 through 2015 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values for GDP from 2015 through 2026 (the thick line) and all values for potential GDP reflect the data available and projections made before July 29.

GDP = gross domestic product.

current law reduce growth in aggregate demand over the next five years:²

- Partly because of statutory caps limiting the growth of discretionary spending, the federal government's real purchases of goods and services decline, slightly reducing real GDP growth through 2018.³ Real federal purchases provide negligible contributions to growth in 2019 and 2020.
- The phasing out of various provisions of law governing the taxation of investment spending reduces businesses' incentives to invest, tempering the growth of their investment in structures and equipment from 2018 through 2020.

- Growth in real income pushes some households into higher tax brackets, raising effective marginal tax rates—that is, tax rates on an additional dollar of income earned by those households. That effect, which is known as real bracket creep, slightly increases households' tax liabilities, reducing their disposable (that is, after-tax) income and slightly dampening the growth of consumer spending over the next few years.
- The stimulus provided by automatic stabilizers—the automatic decreases in revenues and increases in outlays that occur when the economy weakens—continues to diminish over the next few years as the economy improves.⁴

2. The effects of those changes are incorporated into CBO's projections, but the agency has not separately quantified the impact of each.

3. Discretionary spending consists of the outlays that result from budget authority provided by appropriation acts.

4. All else being equal, automatic stabilizers affect aggregate demand because they are changes in the amount of taxes that households and businesses pay and in the transfer payments that households receive. For more discussion of automatic stabilizers, see Congressional Budget Office, *The Budget and Economic Outlook: 2016 to 2026* (January 2016), Appendix C, www.cbo.gov/publication/51129; and Frank Russek and Kim Kowalewski, *How CBO Estimates Automatic Stabilizers*, Working Paper 2015-07 (Congressional Budget Office, November 2015), www.cbo.gov/publication/51005.

Fiscal policy also reduces the supply of labor in CBO's projections. The increase in effective marginal tax rates described above would reduce the incentive to work, thus diminishing the amount of labor that people choose to supply. CBO also expects elements of the Affordable Care Act, such as the phasing out of health insurance subsidies as people's income rises, to reduce the amount of labor supplied over the next few years, as people adjust their employment circumstances in response and as more people choose to participate in health insurance marketplaces.⁵

Monetary Policy and Interest Rates

CBO expects that as the economy improves, and as the rate of inflation approaches the Federal Reserve's longer-run goal of 2 percent, the central bank will gradually reduce the extent to which its monetary policy supports economic growth. At its December 2015 meeting, the Federal Reserve's Federal Open Market Committee began that process, raising its target range for the federal funds rate—that is, the interest rate that financial institutions charge each other for overnight loans of their monetary reserves. The range is now 0.25 percent to 0.50 percent. In light of two developments—slow domestic growth in the first half of the year, and the United Kingdom's recent vote to leave the European Union, which has exacerbated uncertainty about global economic growth and financial stability—CBO expects the target range to remain at its current level until the fourth quarter of 2016. CBO expects the federal funds rate to then rise gradually, reaching 1.1 percent in the fourth quarter of 2017 and 1.8 percent in the fourth quarter of 2018 (see Figure 2-2).

As the federal funds rate rises, interest rates on federal borrowing will also rise gradually over the next few years, CBO projects. The interest rate on 10-year Treasury notes fell from 2.2 percent in the fourth quarter of 2015 to 1.8 percent in the second quarter of 2016. That rate is projected to begin increasing in the second half of 2016, reaching 1.9 percent in the fourth quarter of 2016, 2.9 percent in the fourth quarter of 2018, and 3.4 percent in the fourth quarter of 2020.

Those projected increases reflect three factors. First, CBO anticipates that the interest rate on 3-month Treasury bills will rise (to 0.4 percent in the fourth quarter of 2016, 1.7 percent in the fourth quarter of 2018, and

2.8 percent in the fourth quarter of 2020) as the Federal Reserve gradually reduces the extent to which monetary policy supports the growth of aggregate demand.⁶ Such increases in short-term rates boost longer-term rates because the latter are partly determined by investors' expectations of the former. Second, foreign economic growth is expected to improve, pushing up rates abroad and in the United States. In CBO's assessment, the interest rate on 10-year Treasury notes fell over the first half of 2016 partly because falling interest rates abroad put downward pressure on rates here; improving foreign economic growth is expected to reverse that effect.

And third, CBO expects an increase in the term premium—the extra return paid to bondholders for the added risk associated with holding long-term Treasury securities (after average expected interest rates on shorter-term securities are accounted for). Several factors have pushed the term premium on U.S. Treasury securities to historically low levels in recent years. One is limited long-term investment opportunities abroad, which may have prompted global investors to shift their holdings out of foreign bonds and into longer-term U.S. Treasury securities, keeping interest rates on those securities down. Other factors are investors' heightened concern about global economic growth and their perception that the value of long-term Treasury securities rises when growth is weak (which implies that those securities may provide a useful hedge against such risks). CBO projects that the term premium will rise over the next several years as the factors that have recently suppressed it dissipate. However, because those factors are expected to dissipate slowly, CBO expects the interest rate on 10-year notes to rise more slowly than the rate on 3-month bills and to stabilize slightly later.⁷

5. For more information, see Edward Harris and Shannon Mok, *How CBO Estimates the Effects of the Affordable Care Act on the Labor Market*, Working Paper 2015-09 (Congressional Budget Office, December 2015), www.cbo.gov/publication/51065.

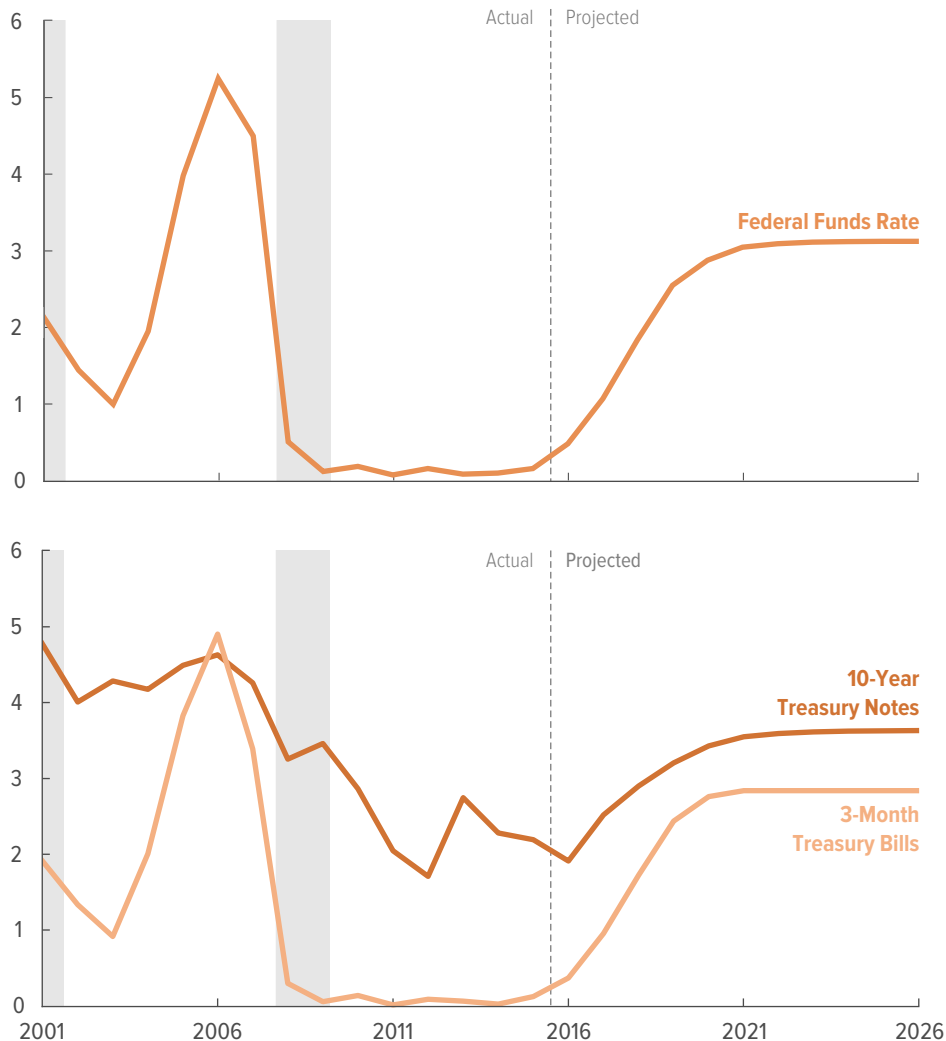
6. CBO expects the interest rate on 3-month Treasury bills to be lower than the federal funds rate over the next 10 years, as it has generally been in the past. The reason for that historical difference is that Treasury securities are free of default risk, whereas the overnight unsecured loans made at the federal funds rate carry a small risk of default.

7. In addition, long-term rates have probably been held down by the influence of the Federal Reserve's large portfolio of long-term assets. CBO expects the size of that portfolio to gradually diminish, beginning next year; that development will put upward pressure on the term premium and the 10-year rate. CBO's expectation that the reduction in the size of the Federal Reserve's portfolio will begin later than the resumption of increases in the federal funds rate is another reason that the interest rate on 10-year Treasury notes is expected to rise more slowly than the rate on 3-month bills and to stabilize slightly later.

Figure 2-2.

Interest Rates

Percent



CBO expects the Federal Reserve to start increasing the federal funds rate on a sustained basis in December 2016.

In CBO's projections, interest rates on Treasury securities rise steadily over the next few years, reflecting continued economic improvement and increases in the federal funds rate.

Sources: Congressional Budget Office; Federal Reserve.

The federal funds rate is the interest rate that financial institutions charge each other for overnight loans of their monetary reserves.

Data are annual and are fourth-quarter values. Actual data are plotted through 2015.

Despite CBO's expectation that the 10-year rate will rise, the agency does not expect it to return to the levels seen in the two decades before the 2007–2009 recession. Several factors discussed below will probably continue to suppress interest rates throughout the 10-year projection period (see “The Economic Outlook for 2021 Through 2026” on page 51).

Contributions to the Growth of Real GDP

CBO expects that consumer spending, business investment, and residential investment will drive the growth of real GDP over the next few years (see Figure 2-3).⁸

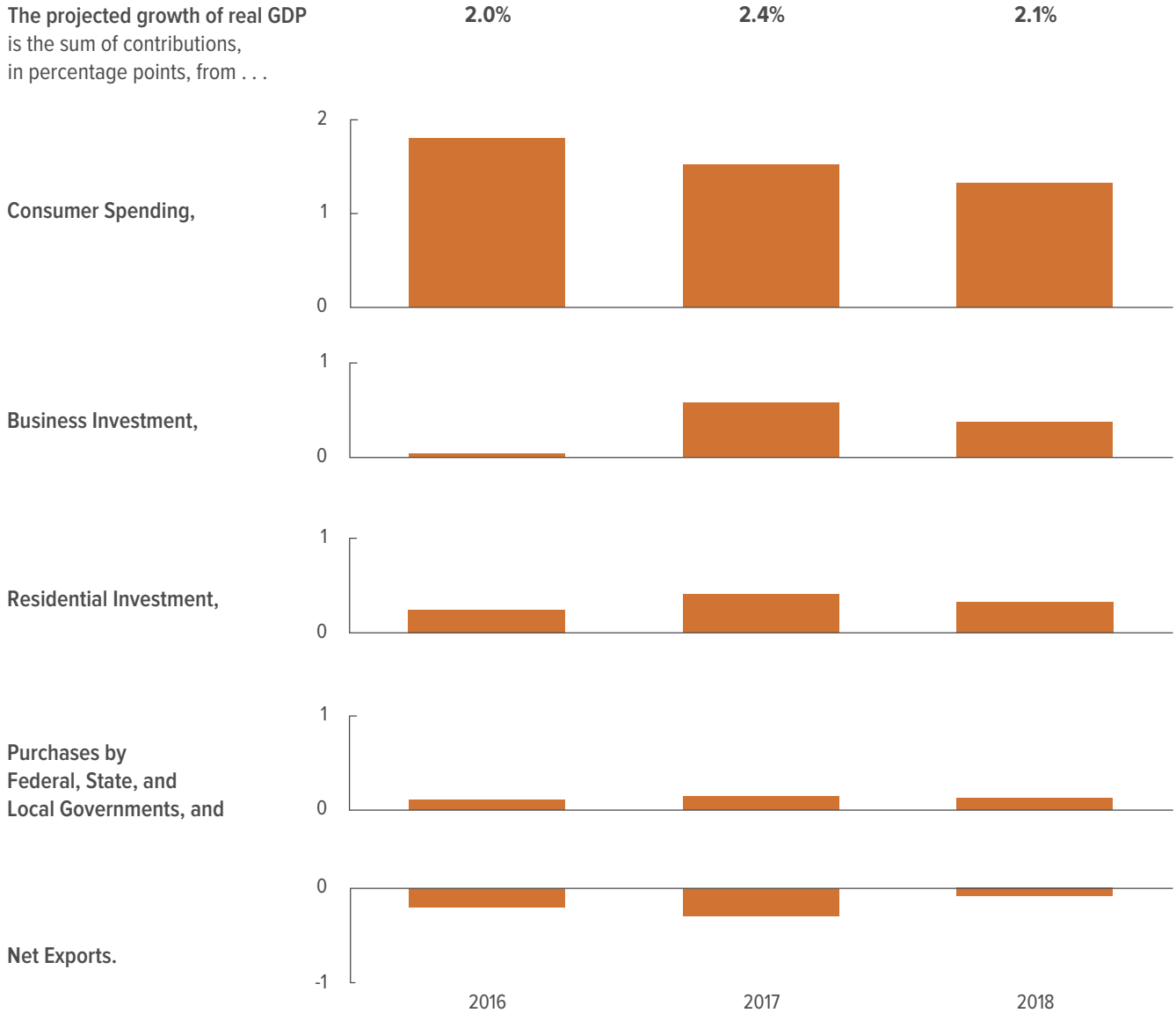
Consumer spending is expected to provide the largest contribution to that growth, as it has generally done in the past. However, the anticipated pickup in growth in the second half of 2016 and in 2017 stems largely from faster growth in investment—particularly in business equipment and structures—as the growth in spending by consumers slows (see Table 2-2). On net, total purchases by governments are projected to have a small positive effect on the growth of GDP through 2020. In contrast,

8. Those components' contributions to real GDP growth reflect their growth rate weighted by their share of nominal GDP.

Figure 2-3.

Projected Contributions to the Growth of Real GDP

The projected growth of real GDP is the sum of contributions, in percentage points, from . . .



Source: Congressional Budget Office.

The values show the contribution of the major components of GDP to the projected growth rate of real GDP (that is, GDP adjusted to remove the effects of inflation). Consumer spending consists of personal consumption expenditures. Business investment comprises purchases of equipment, nonresidential structures, and intellectual property products, as well as the change in inventories. Residential investment comprises the construction of single-family and multifamily structures, manufactured homes, and dormitories; spending on home improvements; and brokers' commissions and other ownership-transfer costs. Purchases by federal, state, and local governments are taken from the national income and product accounts. Net exports are exports minus imports.

Data are annual. Changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next.

GDP = gross domestic product.

Table 2-2.

Projected Growth in Real GDP and Its Components

Percent	2016	2017	2018
Real GDP	2.0	2.4	2.1
Consumer Spending	2.6	2.2	1.9
Business Investment	0.4	4.6	2.9
Business fixed investment	1.4	4.9	3.3
Residential Investment	6.7	10.9	8.0
Purchases by Federal, State, and Local Governments	0.6	0.8	0.7
Federal	-0.8	-0.4	-0.7
State and local	1.5	1.6	1.5
Exports	2.2	3.7	3.0
Imports	3.2	4.9	3.0
Memorandum:			
Net Exports (Change in billions of 2009 dollars)	-38.5	-56.3	-17.3

Source: Congressional Budget Office.

Real GDP is the output of the economy adjusted to remove the effects of inflation. Consumer spending consists of personal consumption expenditures. Business investment comprises business fixed investment—purchases of equipment, nonresidential structures, and intellectual property products—and the change in inventories. Residential investment comprises the construction of single-family and multifamily structures, manufactured homes, and dormitories; spending on home improvements; and brokers' commissions and other ownership-transfer costs. Purchases by federal, state, and local governments are taken from the national income and product accounts. Net exports are exports minus imports.

Data are annual. Changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next year.

GDP = gross domestic product.

net exports (exports minus imports) will restrain growth from 2016 through 2019 but contribute slightly to growth thereafter, CBO projects.

Consumer Spending. CBO expects consumer spending on goods and services, which accounts for over two-thirds of economic output, to be a major component of the growth of real GDP through 2020. It is expected to contribute nearly all—1.8 percentage points—of the 2.0 percentage-point growth of real GDP this year. However, CBO estimates that the contribution of consumer spending to real GDP growth will recede to 1.5 percentage points in 2017 and decline somewhat thereafter.

In CBO's projections, the main factor explaining the slowing growth of consumer spending over the next few years is slowing growth in real disposable personal income—which, in turn, largely reflects slowing growth in employees' real compensation (see Figure 2-4). The growth rate of real compensation diminishes, notably in 2017 and 2018, as the growth in employment slows; that moderation outweighs an acceleration in compensation per hour. Also reducing the projected growth of real disposable income are CBO's expectations that energy prices will continue to rebound through the end of 2017

(reducing some of the extra purchasing power that consumers gained in recent years) and that factors such as real bracket creep will slightly increase personal tax liabilities.

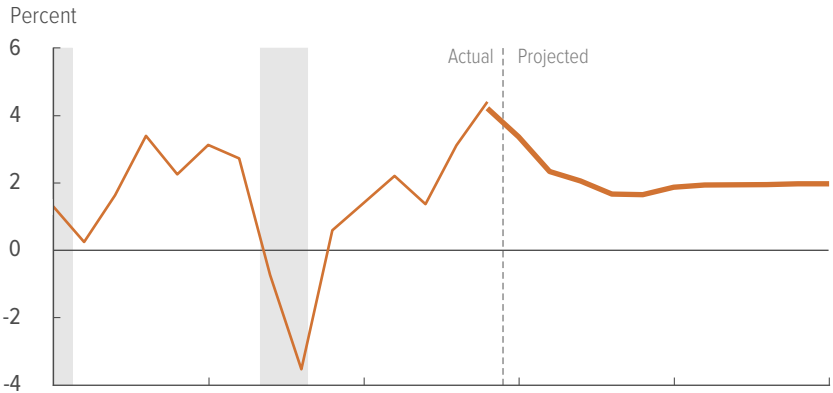
Nevertheless, CBO expects consumer spending to grow—by 2.6 percent in 2016 and by smaller amounts in later years. One factor projected to support consumer spending is further increases in housing prices, which will help raise household wealth. Another is improvements in households' access to credit and creditworthiness. As employment and disposable income rise further, CBO expects banks to continue to increase their willingness to make consumer loans. Households' debt and debt-service payments have fallen markedly as a percentage of disposable personal income since the recession ended in 2009, and delinquency rates on consumer loans are historically low, by some measures. Lighter debt burdens give families greater capacity to borrow for major purchases. Although interest rates are likely to rise in the future, their effect on debt-service burdens will be muted, because the rates are expected to remain low by historical standards.

Business Investment. CBO projects that real business investment will contribute 0.1 percentage point to the

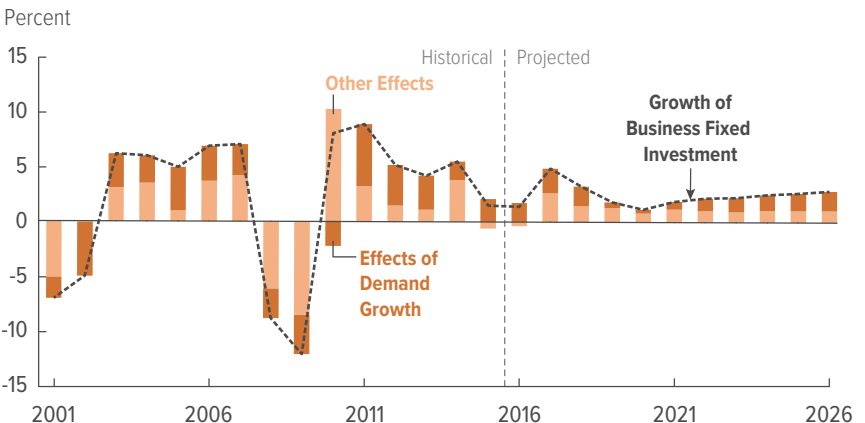
Figure 2-4.

Factors Underlying the Projected Contributions to the Growth of Real GDP

Slowing growth in the total amount of **employees' real compensation** is projected to slow the growth of consumer spending in the next few years.



Over the next few years, in CBO's assessment, businesses' response to the **past and expected growth of demand** will drive the growth of their real fixed investment. However, the faster growth of investment projected for 2017 is due to **other effects**, such as the end of a prolonged drop in the price of crude oil.



Source: Congressional Budget Office, using data from the Bureau of Economic Analysis, the Census Bureau, and the Federal Reserve.

The total amount of employees' real compensation is the sum of wages, salaries, and supplements divided by the price index for personal consumption expenditures. Percentage changes in employees' real compensation are measured from the average of one calendar year to the next. Values from 2001 through 2015 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2026 (the thick line) reflect the data available and projections made before July 29.

The effects of demand growth are the estimated effects of the past and expected growth of demand for businesses' output on the growth of real business fixed investment (purchases of equipment, nonresidential structures, and intellectual property products, adjusted to remove the effects of inflation). That is, businesses buy new capital both to meet the growth of demand for their goods and services since the last time they purchased capital and to meet the expected future growth of demand. (They also replace worn-out or obsolete capital.) The other effects on business fixed investment include such factors as taxes and the cost of financing investments. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next. Values reflect the data available before the Bureau of Economic Analysis released its revisions to the national income and product accounts on July 29, 2016.

Continued

growth of real GDP in 2016, the result of a negative contribution in the first half of the year and an expected positive one in the second half. Real business investment is projected to make a larger contribution to real GDP growth in 2017, 0.6 percentage points, and that increase accounts for much of the projected rise in the growth of GDP next year. Investment contributes 0.4 percentage points to the projected growth of output in 2018 and

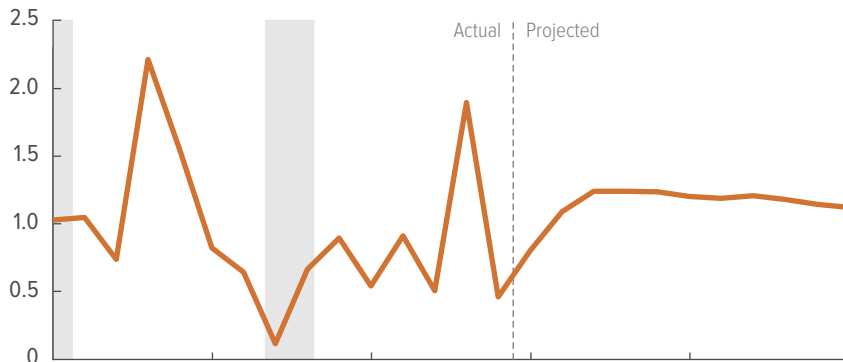
less after that. All of those contributions will be from business fixed investment—that is, investment in non-residential structures, equipment, and intellectual property products—rather than from investment in inventories. Inventory investment is expected to make a small negative contribution to growth in 2016, largely because it slowed during the first half of the year, and thereafter to make neither a positive nor a negative contribution.

Figure 2-4.

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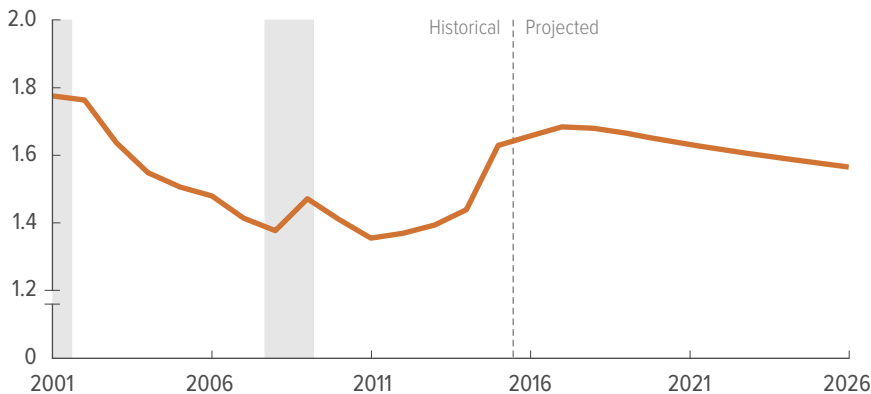
Factors Underlying the Projected Contributions to the Growth of Real GDP

Millions of Households



A projected increase in **household formation** will contribute to faster growth in residential investment during the next two years.

Index, 1970 = 1



The continued appreciation of the **exchange rate of the U.S. dollar** this year is projected to contribute to lower net exports this year and next.

Household formation is the change in the number of occupied housing units from the fourth quarter of the previous year to the fourth quarter of the year indicated.

The measure of the exchange rate of the dollar is an export-weighted average of exchange rates between the dollar and the currencies of the United States' leading trading partners. Data are calendar year averages.

Actual and historical data are plotted through 2015.

GDP = gross domestic product.

Businesses' response to the past and expected growth of demand for their output will drive the growth of their fixed investment over the next few years, in CBO's view (see Figure 2-4). In addition to replacing worn-out or obsolete capital assets, businesses invest in new assets to meet unexpected demand for their goods and services in the past and expected demand in the future. Although the current level of nonmining investment is roughly compatible with businesses' need to keep pace with expected new demand, in CBO's estimation, businesses still need to make up for some investment forgone during the recession and slow recovery—when sluggish consumer spending, residential construction, and spending by state and local governments curtailed investment. For example, both the national office vacancy rate and the

national industrial availability rate are near the lows reached during the last business cycle.⁹ CBO expects that the growth in demand will continue to significantly boost investment through 2018 but that it will slow and provide a smaller boost in later years.

A number of other factors contribute to the projected increase of business investment next year. For one, CBO anticipates that the price of crude oil will rise. During

9. The office vacancy rate is the amount of vacant office space for lease divided by the total square footage of office space. The industrial availability rate is the supply of available space in large industrial buildings as a percentage of the total amount of such space.

2015 and early 2016, falling oil prices sharply reduced real investment in mining structures and mining equipment; modestly higher oil prices are expected to boost mining-related investment next year. Also, factors that contributed to the weakness in real investment in non-mining equipment at the end of last year and during the first half of this year—declining productivity (which reduced the profitability of new investment) and weaker business confidence—will wane, in CBO’s view.

Some factors temper CBO’s projections of business investment after next year. Partial-expensing provisions in the tax code, which encourage investment by letting businesses deduct new capital expenses from their taxable income more rapidly than they could otherwise, will gradually expire during the 2018–2020 period. The increase in interest rates anticipated in CBO’s forecast will also exert some downward pressure on investment, but not enough to offset the influence of the ongoing economic expansion.

Residential Investment. CBO expects real residential investment to keep growing rapidly over the next few years, even as mortgage interest rates rise.¹⁰ The fact that the sector is small will limit its contribution to the growth of real GDP, but CBO expects that contribution to be noticeably larger than the historical average. CBO projects that residential investment will contribute 0.2 percentage points to the growth of real GDP in 2016—slightly less than in 2015, because the growth of housing starts slowed this year.¹¹ As such growth picks up, residential investment is projected to contribute 0.4 percentage points to GDP in 2017 and a smaller amount thereafter.

CBO anticipates that the construction of new homes will be the primary contributor to residential investment, mainly because of stronger household formation (see Figure 2-4).¹² Aside from a puzzling surge in 2014, household formation has been unusually weak since the 2006 peak of the housing boom, averaging only about 750,000 net new households per year over the past

10 years—far lower than the annual average of 1.23 million over the 20 years before that. Some of the recent weakness probably stems from a sharp tightening of mortgage lending standards from 2007 to 2009. Even though those standards remain tighter than they were before 2007, they have begun loosening over the past few years; as they continue to loosen and as employment continues to improve, household formation will gradually return to historical averages, CBO expects.

CBO anticipates that stronger growth in demand for housing will put upward pressure on house prices. In 2015, house prices rose by 5.9 percent.¹³ CBO projects that they will increase by 4.2 percent in 2016 and by about 2.5 percent per year, on average, over the 2017–2020 period. (That projection incorporates an expected increase in the supply of housing units, which will temper the price increases resulting from stronger housing demand.)

Government Purchases. During each of the next three years, if current laws governing federal fiscal policies generally remained in place, total real purchases of goods and services by federal, state, and local governments would contribute 0.1 percentage point to the growth of real output, roughly the same amount as in 2015, CBO projects. The projected growth of the real value of total government purchases in 2016 results from an estimated 0.8 percent decrease in federal purchases and an estimated 1.5 percent increase in state and local purchases. CBO projects similar changes for 2017 and 2018, assuming that the statutory caps on funding for discretionary programs would cause reductions in real purchases by the federal government in both of those years. (See Chapter 1 for a discussion of how the caps affect projected outlays.) In later years of the projections, real purchases by the federal government change little.

In 2019 and 2020, real government purchases are projected to contribute 0.2 percentage points annually to the growth of real output, almost entirely because of growth in real purchases by state and local governments. CBO projects that state and local purchases will grow throughout the 2016–2020 period because, in its view, state and local governments will increase spending as their tax revenues continue to grow.

10. Residential investment consists mostly of the construction of single-family and multifamily residences, residential improvements, and real estate agents’ commissions and other ownership transfer costs.

11. Housing starts are the number of new housing units on which construction has begun in a given period.

12. Household formation is the change in the number of occupied housing units.

13. That increase, which is on a fourth-quarter-to-fourth-quarter basis, was calculated from the Federal Housing Finance Agency’s price index for home purchases.

Net Exports. CBO expects real net exports to fall from 2016 through 2019, extending the decline of the past two years.¹⁴ The projected decline reflects CBO's expectation that real imports will grow faster than real exports, on average. The decline in real net exports reduces projected GDP growth by 0.2 percentage points in 2016, by 0.3 percentage points in 2017, by 0.1 percentage point in 2018, and by a negligible amount in 2019. In 2020, real net exports are expected to rise slightly, making a very small contribution to growth.

CBO's projection of real net exports is strongly influenced by a significant increase in the exchange value of the dollar during the past two years and by the agency's forecast of that value (see Figure 2-4). From mid-2014 through the second quarter of this year, the trade-weighted U.S. dollar appreciated by approximately 20 percent.¹⁵ In CBO's estimation, that appreciation occurred because long-term interest rates declined among the United States' leading trading partners, particularly in Europe and Asia, and because the outlook for foreign growth deteriorated. Those developments boosted the dollar by increasing demand for dollar-denominated assets relative to assets denominated in other currencies. More recently, after the United Kingdom's vote to leave the European Union, the dollar rose significantly against the British pound and the euro, implying that the expected return on assets from the United Kingdom and the European Union fell in relation to the expected return on dollar-denominated assets. In CBO's projections, foreign central banks' efforts to boost aggregate demand in response to such factors continues to increase the exchange value of the dollar over the next two years, making U.S. exports more expensive abroad and thus tending to reduce net exports.

CBO also expects that stronger growth in the United States than in its trading partners will weaken net exports over the next two years. In particular, prices for oil and

other commodities, which are lower than their averages over the past 10 years, are dampening growth in Canada and Mexico. The United Kingdom's pending exit from the European Union will probably reduce growth in European economies and especially in the British economy over at least the next few years. In addition, China's economic output is projected to keep decelerating as its economy shifts to depend less on investment and more on consumption.

In later years, however, as commodity prices rebound, CBO expects faster growth among the nation's major trading partners—especially Canada and Mexico, and to a lesser extent China. As a result, net exports are projected to decline less in 2019 than in previous years and to start rising in 2020. Moreover, CBO expects that as growth strengthens and inflation rises in foreign economies, central banks will gradually tighten their monetary policies—pushing up interest rates in those countries, reducing the exchange value of the dollar, and leading to an increase in U.S. net exports in 2020 (and beyond).

The Labor Market

The labor market continued to improve in the first half of 2016. The primary measure that CBO uses to assess the amount of slack in the labor market—the estimated shortfall in employment from its potential amount—fell by about 1 million people between the end of 2015 and June 2016, when it stood at 1.4 million people. (For more discussion of the current amount of slack, see Box 2-2.) That decline reflected both a drop in the unemployment rate and an increase in the labor force participation rate.¹⁶

According to CBO's estimates, the growth of aggregate demand will increase demand for labor, shrinking the employment shortfall to about three-quarters of a million people by the end of 2016 and eliminating it by the middle of 2017 (see Figure 2-5). That projection reflects two expectations that partly offset each other: first, that the labor force will be smaller than its estimated potential size during that period; second, that the unemployment rate will fall below the estimated natural rate of unemployment (the rate that arises from all sources except fluctuations in

14. Net exports are currently negative, meaning that the United States imports more than it exports. A decrease in net exports indicates that imports are increasing more than exports.

15. CBO's measure of the exchange value of the dollar is an export-weighted average of the exchange rates between the dollar and the currencies of leading U.S. trading partners. Similarly, CBO calculates the economic growth of leading U.S. trading partners as a weighted average of their growth rates, using shares of U.S. exports as weights.

16. The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are at least 16 years old and are either working or seeking work.

Box 2-2.**Current Slack in the Labor Market**

Underused resources, or “slack,” remains in the labor market. The Congressional Budget Office bases that assessment on its analysis of the employment shortfall, on various other measures of underused labor, and on such indicators as the growth of compensation and rates of hiring and quitting.

The employment shortfall, CBO’s primary measure of slack in the labor market, is the difference between actual employment and the agency’s estimate of potential (maximum sustainable) employment. Potential employment is what would exist if the unemployment rate equaled its natural rate—that is, the rate that arises from all sources except fluctuations in aggregate demand for goods and services—and if the labor force participation rate equaled its potential rate. Consequently, the employment shortfall has two components: an unemployment component and a participation component. The unemployment component is the difference between the number of jobless people seeking work at the current rate of unemployment and the number who would be jobless at the natural rate of unemployment. The participation component is the difference between the number of people in the current labor force and the number who would be in the labor force at the potential labor force participation rate. CBO estimates that the employment shortfall was about 1.4 million people in the second quarter of 2016; nearly the entire shortfall (about 1.3 million people) stemmed from a depressed labor force participation rate.

The employment shortfall accounts for the most important sources of slack in the current labor market, but it does not account for all of them. One source of slack that is not accounted for in the employment shortfall is an unusually large percentage of part-time workers who would prefer to work full time. In the second quarter of 2016, about 6 million workers, or about 4 percent of all workers, were employed part time for economic reasons—that is, because employers were offering them part-time jobs, even though they would have preferred full-time jobs. That 4 percent rate was still about 1 percentage point higher than the rate in the fourth quarter of 2007. But it is hard to determine how much of that 1 percentage-point difference represented slack, because part of the increase since 2007 might have been related to structural factors. One such factor is that employment has been shifting to industries that employ a larger fraction of part-time workers, such as service industries. That development may be increasing the share of employees who work fewer hours than they would like.¹

Another source of slack is the number of people who are marginally attached to the labor force—that is, who are not looking for work now but have looked for it in the past 12 months. That number is larger than it was before the recession—about 1.7 million people in the second quarter of 2016, up from about 1.4 million in the fourth quarter of 2007. Because the elevated number of marginally attached workers is closely related to the depressed rate of labor force participation, it is largely reflected in CBO’s measure of the employment shortfall. Marginally attached workers are also included in the U-6 measure of underused labor computed by the Bureau of Labor Statistics, along with the number of unemployed people and the number of people employed part time for economic reasons.² In the second quarter of this year, the U-6 measure stood at 9.7 percent, down slightly from 9.9 percent in the fourth quarter of last year but higher than the 8.5 percent observed before the recession.

Some measures of the number of hours worked, such as the average number of hours worked per week, could also indicate slack in the labor market. CBO does not use hours to measure slack because the agency forecasts average hours worked per week for only a portion of the economy (the nonfarm business sector). Nonetheless, by the end of 2015, the average number of hours worked per week had returned to its prerecession level, and in the nonfarm business sector, it had returned to its usual relationship with potential average hours worked per week. That fact suggests that any cyclical influence on the average number of hours worked per week is not currently a significant source of labor market slack.³

Other economic indicators offer mixed signals about the amount of slack remaining in the labor market. Hourly labor compensation continued to grow more slowly than labor productivity and inflation in the first half of 2016, indicating slack. But two indicators—the rate at which job seekers are hired and the rate at which workers are quitting their jobs, both measured as a fraction of total employment—show little evidence of slack: Both are currently near their prerecession levels.

1. See Rob Valletta and Catherine van der List, “Involuntary Part-Time Work: Here to Stay?” Economic Letter 2015-19 (Federal Reserve Bank of San Francisco, June 8, 2015), <http://tinyurl.com/pbywpck>.

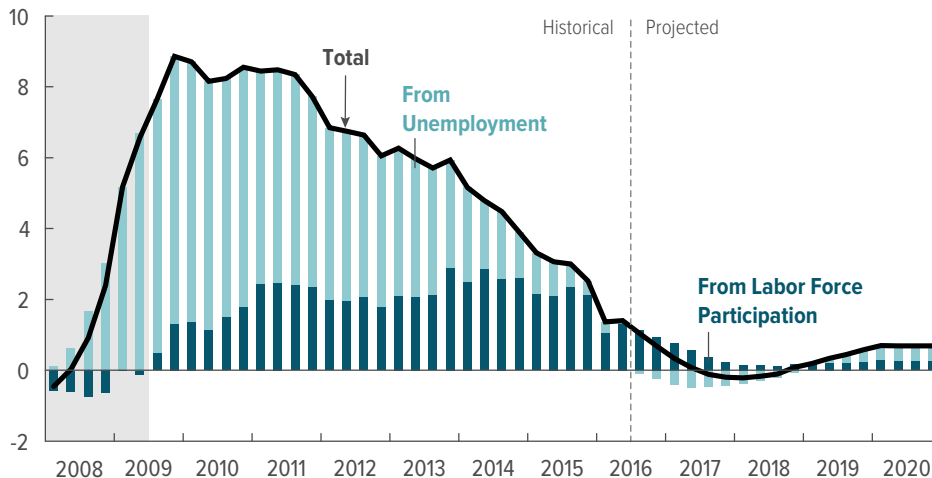
2. The U-6 measure is the number of unemployed workers, marginally attached workers, and workers employed part time for economic reasons as a percentage of the labor force plus all marginally attached workers. By contrast, the unemployment rate that is generally reported in the news—the U-3 unemployment rate—is the number of unemployed workers as a percentage of the labor force.

3. The percentage of workers who are working part time for economic reasons is above its prerecession level. Yet the average number of weekly hours worked per job has returned to its prerecession level. The apparent contradiction can be reconciled by noting two developments. First, the number of workers who hold multiple jobs is depressed, so the average number of hours worked per worker is lower than it would be otherwise. Second, the increase in the average number of weekly hours worked per job partly reflects an increase in overtime hours, which may have been concentrated in some jobs even as workers in other jobs would have preferred more hours.

Figure 2-5.

The Employment Shortfall

Millions of People



CBO expects the employment shortfall to disappear by the middle of next year.

Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

The employment shortfall is the sum of two components. The first, the employment shortfall from unemployment, is the number of people who are not employed but would be if the unemployment rate equaled its natural rate (the rate that arises from all sources except fluctuations in aggregate demand for goods and services). That component is projected to fall below zero this year through 2018, reflecting CBO's estimate that the unemployment rate will be below its natural rate during that period. The second component, the employment shortfall from labor force participation, is the number of people who are not employed but would be if the rate of labor force participation equaled its potential.

Data are quarterly.

aggregate demand for goods and services) from mid-2016 until the end of 2018.

Furthermore, the projected drop in the unemployment rate, combined with a labor force participation rate expected to approach its potential value in 2017, leads to a small projected employment surplus—that is, actual employment that is higher than CBO's estimate of potential employment—from the second half of 2017 through 2018. The agency expects the surplus to peak at roughly a quarter of a million people in early 2018. The increased demand for labor and competition for workers, CBO projects, will boost the growth of hourly labor compensation (a measure that includes not only wages and salaries but benefits as well). During 2018, the increase in labor compensation will slightly dampen demand for labor, eliminating the employment surplus by the end of the year, CBO anticipates.

CBO's labor market projections for 2019 and 2020, by contrast, do not reflect expected cyclical developments in the economy. Instead, they serve as transitions to the values that CBO projects for later years, which are based primarily on long-term trends in the supply of labor.

Consequently, the unemployment rate is projected to rise slightly in 2019 and 2020 so that it reaches its historical relationship with the natural rate of unemployment, increasing labor market slack to its average level over past decades.

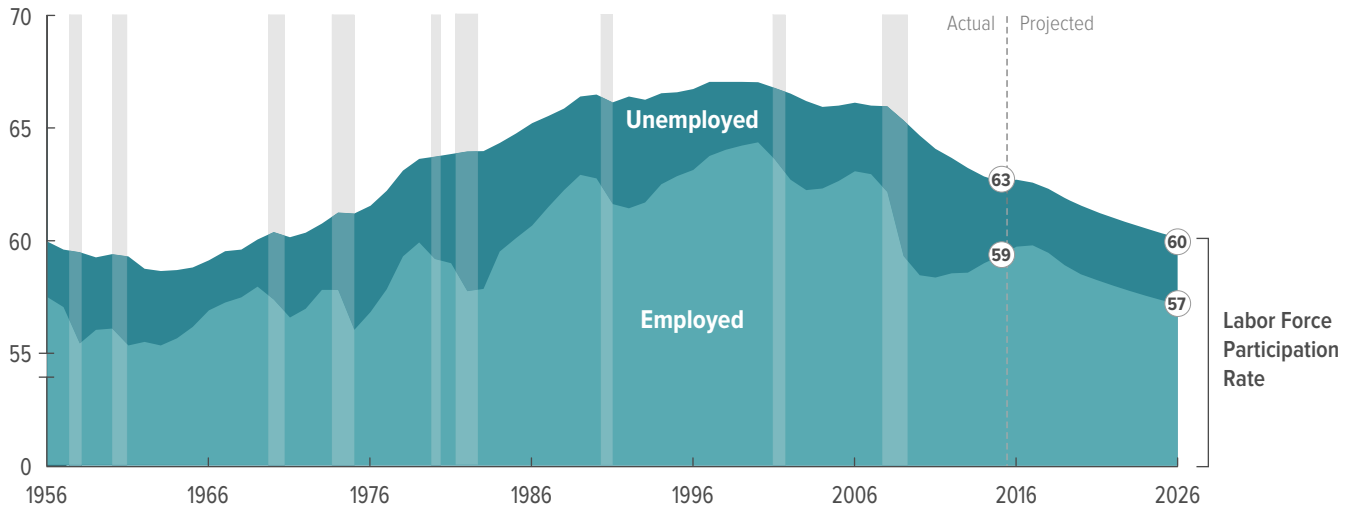
Employment. CBO expects demand for labor to remain healthy. Nonfarm payroll employment rose solidly in the first half of 2016, posting an average increase of 186,000 jobs per month, and the agency expects it to continue to increase, though more slowly, over the next few years—by about 164,000 jobs per month in the second half of 2016 and by about 123,000 jobs per month in 2017. CBO projects that slowdown in employment growth not because it projects a cyclical decline in demand for labor but because it expects the retirement of baby boomers—people born between 1946 and 1964—to slow the growth of the labor force. CBO's employment projections imply that the number of people employed, measured as a percentage of the population, will be roughly unchanged over the next two years. After 2017, however, CBO expects a steady decline in that percentage, as the agency expects the labor force participation rate to fall (see Figure 2-6).

Figure 2-6.

The Labor Force, Employment, and Unemployment

The percentage of the population that is employed is projected to remain roughly unchanged over the next two years and then to decrease through 2026, mainly because baby boomers will be retiring and leaving the labor force.

Percentage of the Population



Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

The labor force consists of people who are employed and people who are unemployed but who are available for work and are actively seeking jobs. Unemployment as a percentage of the population is not the same as the official unemployment rate, which is expressed as a percentage of the labor force. Here, the population is the civilian noninstitutionalized population age 16 or older.

Data are annual. Actual data are plotted through 2015.

Labor Force Participation. CBO expects the labor force participation rate to decline slightly next year and more quickly in later years, when its fall would match the fall of the potential participation rate (see Figure 2-7). The actual rate was 62.7 percent in the second quarter of this year—roughly where it has stood since the fourth quarter of 2013, and one-half of a percentage point below CBO’s estimate of the potential rate. CBO projects that the actual rate will reach 62.6 percent by the middle of 2017. That rate would be roughly one-tenth of a percentage point below the potential rate, reflecting the long-term relationship between the two rates.

The projected declines in the actual and potential rates of labor force participation reflect several factors. The most important is that members of the baby-boom generation will continue to retire from the labor force in large numbers. The lingering effects of the recession and ensuing weak recovery also continue to push down participation, in CBO’s view: Despite recent declines in long-term unemployment, some of the people who lost jobs in the recession left the labor force and will not return.

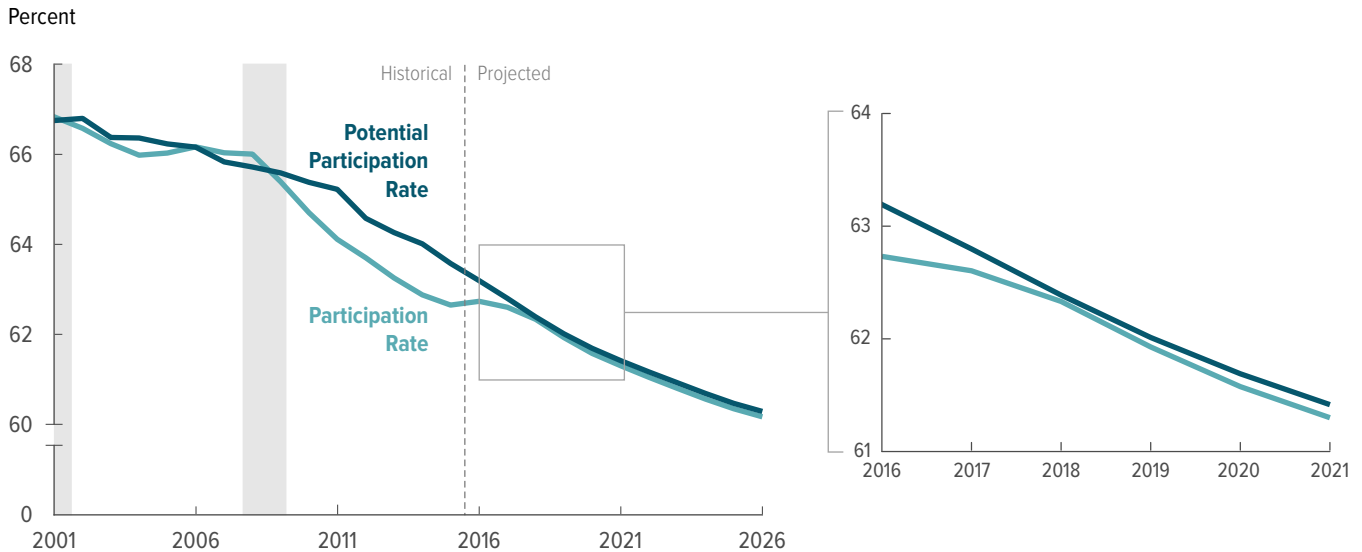
Furthermore, federal tax and spending policies are expected to lower participation rates slightly over the next several years. In particular, the amount of labor that people are willing to supply is projected to continue to decline over the next few years as people continue adjusting their employment circumstances in response to the provisions of the Affordable Care Act. The structure of the tax code, which pushes some people with rising income into higher tax brackets, will also lower participation rates over the next decade. Finally, long-term trends involving particular groups of people are projected to push down the participation rate slightly. Those trends include, for example, declining labor force participation rates by younger and less educated workers.

During the next year and a half, the effect of those factors will be largely offset by continued improvement in hiring, as brisk employment growth and rising wages are expected to draw some workers back into the labor force. That improvement explains why the labor force participation rate declines only slightly in CBO’s projections through

Figure 2-7.

Labor Force Participation Rates

CBO expects the rate of labor force participation to decline slightly next year and more quickly through 2026.



Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

The participation rate is the percentage of people in the civilian noninstitutionalized population who are at least 16 years old and in the labor force. The labor force consists of people who are employed and people who are unemployed but who are available for work and are actively seeking jobs. The potential participation rate is what the participation rate would be if not for the effects of the business cycle.

Data are annual. Historical data are plotted through 2015.

2017. Thereafter, the actual labor force participation rate is projected to decline, in tandem with the potential rate, to 61.5 percent in the fourth quarter of 2020.

Unemployment. The unemployment rate fell from 5.0 percent in the fourth quarter of 2015 to 4.9 percent in the middle of 2016. That decline continued the fall that occurred during 2015, when the unemployment rate decreased by nearly three-quarters of a percentage point. Most of the decline over the past two years stemmed from a drop in long-term unemployment (that is, unemployment lasting at least 27 consecutive weeks) as some people who had been unemployed for a long time obtained jobs (see Figure 2-8). That decline suggests that two factors that have perpetuated long-term unemployment in recent years—the stigma associated with it and the erosion of skills that can result from it—have diminished.

CBO projects that the unemployment rate will fall to 4.6 percent by the end of this year and to 4.5 percent next year, which would be about 0.2 percentage points below the agency’s estimate of the natural rate of unemployment. That decline in the unemployment rate reflects

a projected increase in demand for labor that would reduce the number of unemployed people. The stronger demand for labor would also encourage people to remain in or rejoin the labor force and seek work, raising the labor force participation rate and moderating the decline in the unemployment rate. Even though the unemployment rate is expected to be relatively low during the coming year, CBO anticipates that some slack will remain in the labor market through the middle of 2017 because fewer people will be participating in the labor market than would do so if the economy was operating at its potential.

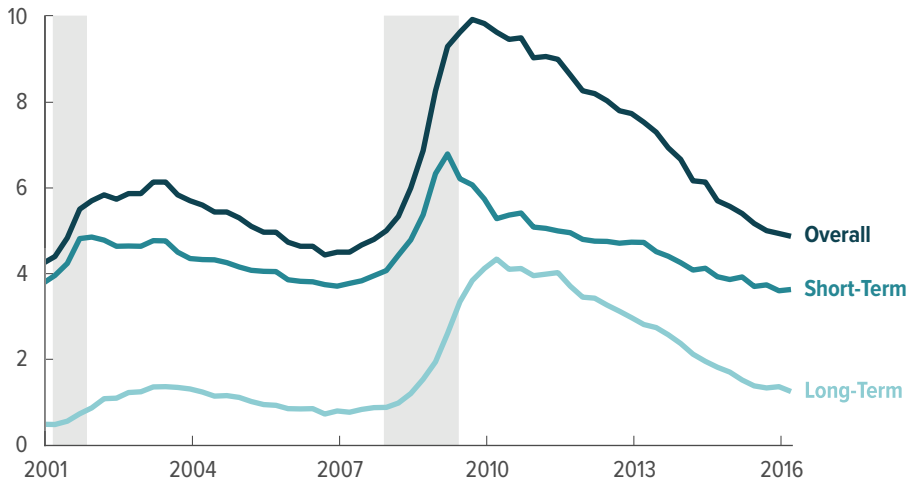
CBO expects the natural rate of unemployment to be 4.7 percent from 2018 through 2020. That expectation reflects the rate’s decline in recent years—which has occurred as the composition of the workforce has shifted toward older workers, who tend to have lower unemployment rates, and away from less educated workers, who tend to have higher unemployment rates.

Labor Compensation. Hourly compensation rates for workers in private industry, which have grown slowly

Figure 2-8.

Unemployment Rates

Percent



Most of the decline in the overall unemployment rate in the past few years reflected a drop in long-term unemployment, suggesting that the effects of stigma and the erosion of skills that can stem from long-term unemployment have diminished.

Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

The overall unemployment rate is the sum of the short-term unemployment rate and the long-term unemployment rate. The short-term unemployment rate is the percentage of the labor force that has been out of work for 26 weeks or less. The long-term unemployment rate is the percentage of the labor force that has been out of work for at least 27 consecutive weeks. The labor force consists of people who are employed and people who are unemployed but who are available for work and are actively seeking jobs.

Data are quarterly and are plotted through the second quarter of 2016.

since the end of the recession, have recently shown signs of a faster increase. CBO estimates that the employment cost index (ECI) for those workers grew at an average annual rate of 2 percent during the 2010–2015 period but at an average annual rate of 2¾ percent during the first half of this year. The agency projects that the ECI for those workers will grow by more than 3 percent a year, on average, over the next several years (see Figure 2-9). The growth rates of other measures of compensation, such as the average hourly earnings of production and non-supervisory workers in private industries, are similarly expected to increase.¹⁷

CBO's projections of labor compensation are based on its projections of demand for workers, slack in the labor market, productivity, and inflation. In the past, growth in labor compensation has been among the last labor market indicators to recover after a recession, picking up only when little slack is left in the labor market. As slack

diminishes and firms must increasingly compete for a shrinking pool of unemployed or underemployed workers, growth in hourly compensation will rise, in CBO's assessment.

Inflation

CBO expects inflation to rise through 2017. Diminishing slack in the economy will increase inflation, but widely held expectations of low and stable inflation will restrain the increase.

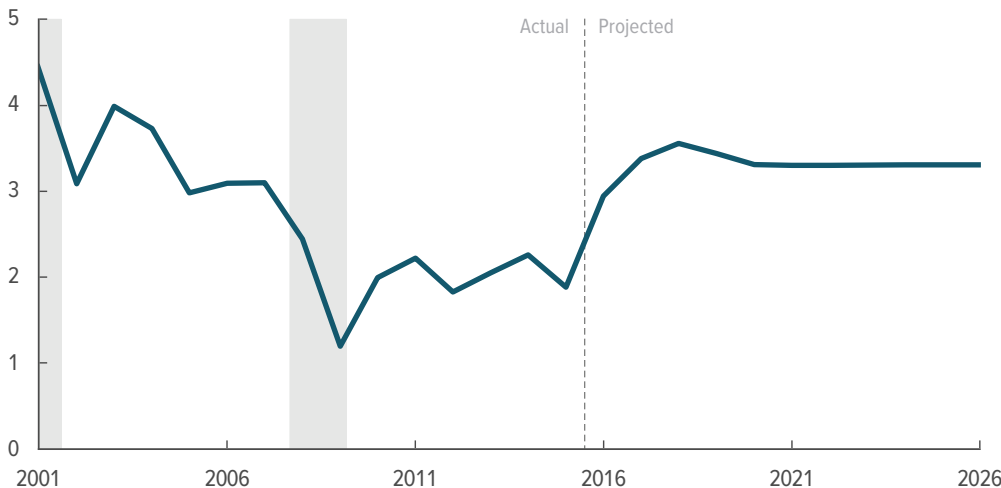
This year, CBO projects, the rate of inflation in the PCE price index will rise to 1.5 percent, up from 0.5 percent in 2015 (see Figure 2-10). That increase reflects diminishing slack and CBO's forecast of higher prices for crude oil, which will boost prices for energy goods and services; working in the opposite direction is an increase in the value of the dollar in relation to other currencies, which will suppress inflation in the price of many imported goods. In 2017, the rate of inflation is projected to rise to 2.0 percent, the Federal Reserve's longer-run goal. After 2017, CBO expects the rate to remain at 2.0 percent. That projection reflects CBO's judgment that consumers and businesses expect the Federal Reserve to adjust monetary policy to prevent inflation from deviating from its 2 percent target for long. CBO has a similar projection

17. An additional indicator of recent acceleration in wage growth comes from the Federal Reserve Bank of Atlanta's Wage Growth Tracker, which measures the median change from year to year in the hourly wages recorded in the Current Population Survey. That indicator shows average wage growth of 3.3 percent in the first half of 2016, compared with 3.1 percent in 2015. See www.frbatlanta.org/chcs/wage-growth-tracker for more details.

Figure 2-9.

Hourly Labor Compensation

Percentage Change



CBO projects that reduced slack in the labor market, along with faster growth in productivity and prices, will boost the growth of hourly labor compensation.

Source: Congressional Budget Office, using data from the Bureau of Labor Statistics.

Hourly labor compensation is measured by the employment cost index for the total compensation—wages, salaries, and employers' costs for employees' benefits—of workers in private industry.

Data are annual. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next. Actual data are plotted through 2015.

for core PCE inflation, which excludes food and energy prices. In CBO's forecast, that inflation rate reaches 1.8 percent this year, 1.9 percent in 2017, and 2.0 percent in 2018, where it remains through 2020.

The consumer price index for all urban consumers (CPI-U) and its core version are expected to increase a little more quickly than their PCE counterparts because of the different methods used to calculate them. CBO projects that the difference between inflation as measured by the CPI-U and inflation as measured by the PCE price index will generally be about 0.4 percentage points per year, which is close to the average difference over the past several decades.

The Economic Outlook for 2021 Through 2026

CBO's projections of GDP, unemployment, inflation, and interest rates for 2021 through 2026—unlike its projections for the next few years—are not based on forecasts of cyclical developments in the economy. Rather, they are based mainly on projections of underlying trends in key variables, such as the size of the labor force, the number of hours worked, capital investment, and productivity. CBO also considers the effects on those variables of the federal tax and spending policies specified in current law.

CBO has made the following projections for the 2021–2026 period:

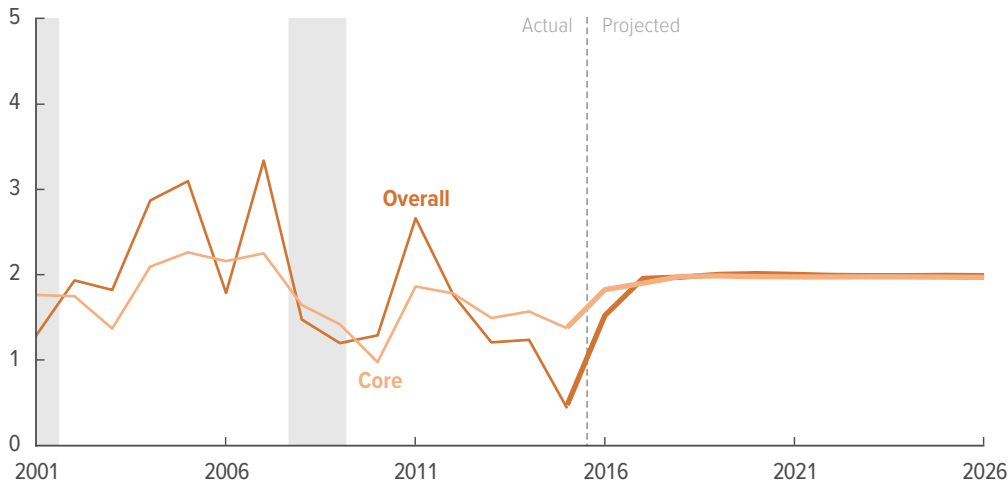
- Actual and potential real GDP grow at an average rate of roughly 2.0 percent per year. Real GDP stays one-half of one percent below real potential GDP, on average—as it has roughly been, on average, over the seven complete business cycles that occurred between 1961 and 2009.¹⁸
- The unemployment rate remains stable at 4.9 percent, slightly above the estimated natural rate of 4.7 percent. That gap is consistent with the average gap between actual and potential GDP.
- Both overall inflation and core inflation average 2.0 percent per year as measured by the PCE price index, and both are slightly higher as measured by the CPI-U.
- The interest rates for 3-month Treasury bills and 10-year Treasury notes average 2.8 percent and 3.6 percent, respectively.

18. See Congressional Budget Office, *Why CBO Projects That Actual Output Will Be Below Potential Output on Average* (February 2015), www.cbo.gov/publication/49890.

Figure 2-10.

Inflation

Percentage Change in Prices



CBO expects inflation to rise to the Federal Reserve's goal of 2 percent next year—an expectation that is consistent with CBO's projection of diminishing slack in the economy.

Source: Congressional Budget Office, using data from the Bureau of Economic Analysis.

The overall inflation rate is based on the price index for personal consumption expenditures; the core rate excludes prices for food and energy.

Data are annual. Values from 2001 through 2015 (the thin lines) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2026 (the thick lines) reflect the data available and projections made before July 29. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next.

Potential Output

Real output will grow more quickly during the 2021–2026 period than it has during the past decade, CBO expects, because the economy's productivity will grow more quickly and because business investment will be stronger. Nevertheless, slower growth in the nation's supply of labor will probably keep economic growth weaker than it was during the 1980s, 1990s, and early 2000s.

Growth in Potential Output Compared With Growth Since the Last Recession. For the 2021–2026 period, CBO expects potential output to grow by 2.0 percent per year, on average (see Table 2-3). Such growth would be faster than the 1.5 percent per year estimated for the 2008–2015 period. The main reason for the projected increase is that CBO expects potential labor force productivity (the ratio of potential GDP to the potential labor force) to accelerate. By contrast, CBO anticipates that the potential labor force will grow at almost exactly the same rate at which it grew from 2008 through 2015.

In CBO's projections, the pickup in potential labor force productivity is concentrated in the nonfarm business sector, which accounts for about three-quarters of GDP. In particular, CBO expects growth in potential TFP in

the nonfarm business sector to quicken from its unusually slow pace of 0.8 percent per year since 2008 to 1.2 percent during the 2021–2026 period.¹⁹

CBO also projects that capital services, which contribute to labor productivity and potential output, will grow more quickly than they did from 2008 through 2015. The growth of capital services in the nonfarm business sector has been restrained since 2008 because of weak investment, itself partly a response to the cyclical weakness of aggregate demand for goods and services. And in the long term, the growth of capital services generally depends on increases in TFP and hours worked, both of which have grown slowly since 2008. In CBO's projections, most of the increase in the growth of capital services between the 2008–2015 period and the 2021–2026 period comes from faster growth in potential TFP.

19. CBO projects that by 2020, growth in potential TFP will gradually return to a rate equal to the weighted average of the growth rates estimated between 1991 and 2015. The projected rate for 2020 is slightly slower than the unweighted average for the 1991–2015 period because CBO places more weight on the relatively slow growth of TFP during the recession and recovery than on the faster growth rates of the 1990s and early 2000s.

Table 2-3.

Key Inputs in CBO's Projections of Potential GDP

Percent

	Average Annual Growth						Projected Average Annual Growth			
	1950-1973	1974-1981	1982-1990	1991-2001	2002-2007	2008-2015	Total, 1950-2015	2016-2020	2021-2026	Total, 2016-2026
Overall Economy										
Potential GDP	4.0	3.2	3.2	3.2	2.5	1.5	3.2	1.7	2.0	1.8
Potential Labor Force	1.6	2.5	1.6	1.2	1.0	0.5	1.5	0.4	0.5	0.5
Potential Labor Force Productivity ^a	2.4	0.7	1.6	2.0	1.5	0.9	1.7	1.3	1.4	1.4
Nonfarm Business Sector										
Potential Output	4.1	3.6	3.4	3.7	2.8	1.7	3.4	1.9	2.3	2.1
Potential Hours Worked	1.4	2.3	1.6	1.4	0.3	0.5	1.3	0.3	0.5	0.4
Capital Services	3.8	3.8	3.5	3.8	2.8	1.7	3.4	2.3	2.1	2.2
Potential TFP	1.9	1.0	1.1	1.4	1.7	0.8	1.4	0.9	1.2	1.1
Potential TFP excluding adjustments	1.9	1.0	1.1	1.4	1.3	0.8	1.4	0.9	1.2	1.1
Adjustments to TFP (Percentage points) ^b	0	0	0	0.1	0.4	0	0.1	*	*	*
Contributions to the Growth of Potential Output (Percentage points)										
Potential hours worked	0.9	1.5	1.0	0.9	0.2	0.3	0.9	0.2	0.3	0.3
Capital services	1.2	1.2	1.2	1.3	1.0	0.6	1.1	0.8	0.7	0.8
Potential TFP	1.9	1.0	1.1	1.4	1.7	0.8	1.4	0.9	1.2	1.1
Total Contributions	4.0	3.7	3.4	3.6	2.9	1.7	3.4	1.9	2.3	2.1
Potential Labor Productivity ^c	2.6	1.3	1.8	2.3	2.6	1.2	2.1	1.6	1.8	1.7

Source: Congressional Budget Office.

Potential GDP is CBO's estimate of the maximum sustainable output of the economy.

GDP = gross domestic product; TFP = total factor productivity; * = between -0.05 percentage points and zero.

- The ratio of potential GDP to the potential labor force.
- The adjustments reflect CBO's estimate of the unusually rapid growth of TFP between 2001 and 2003, as well as changes in the labor force's average level of education and experience.
- The ratio of potential output to potential hours worked in the nonfarm business sector.

Nonetheless, the projections of the potential labor force, capital services, and potential TFP are dampened because of lingering effects of the recession and slow recovery.

Because of those factors, CBO expects potential labor force productivity for the economy as a whole to pick up to 1.4 percent. That growth rate is substantially higher than the 0.9 percent average rate that CBO estimates for the 2008–2015 period.

Growth in Potential Output Compared With Growth in Previous Business Cycles. Even though CBO's projection of the growth of potential output over the 2021–2026 period represents an acceleration, it is a full percentage

point slower than the estimated 3.0 percent average annual growth that the economy experienced between 1981 and 2007. Most of that difference reflects the slower growth of the potential labor force, which will result mainly from the ongoing retirement of baby boomers and from a relatively stable labor force participation rate among working-age women. (That rate increased sharply from the 1960s to the mid-1990s.) Federal tax and spending policies set in current law are also projected to cause some people to work less than in earlier decades (see "The Labor Market" below). The rest of the difference between the growth of potential output projected for the 2021–2026 period and the growth seen between 1981 and 2007 results from a slower increase in potential

labor force productivity (which averaged 1.7 percent from 1981 to 2007). That slowdown is attributable mainly to two further projections of CBO's: slower growth of capital services and slower potential TFP growth in the nonfarm business sector. Those projections mainly reflect CBO's projection of greater federal borrowing, which would crowd out some private investment, and the agency's expectation that some of the very slow growth of TFP since the 2007–2009 recession will persist.

The Labor Market

In CBO's projections, the unemployment rate follows its long-term relationship with the natural rate of unemployment. Specifically, the unemployment rate falls from 5.0 percent in the first quarter of 2020 to 4.9 percent in the fourth quarter of 2026—roughly a quarter of a percentage point higher than the natural rate of 4.7 percent.²⁰ The natural rate also declines slightly over that period, reflecting the shift in the composition of the workforce toward older workers, who tend to have lower unemployment rates, and away from less educated workers, who tend to have higher ones.

CBO projects a potential rate of labor force participation of 60.3 percent in 2026. That rate is about 1 percentage point lower than what the agency projects for 2021 and about 5½ percentage points lower than the estimated rate at the end of 2007. CBO attributes roughly 4½ percentage points of the decline between 2007 and 2026 to the aging of the population (because older people tend to participate less in the labor force than younger ones do) and to the reduced participation of less skilled workers, and one-quarter of a percentage point to the fact that some workers withdrew from the labor force in response to the recent recession and slow recovery. The rest of the projected decline in potential labor force participation stems from the Affordable Care Act and the structure of the tax code, both of which reduce workers' incentive to supply labor. CBO projects that employment as a percentage of the population will fall to 57 percent in 2026, reflecting that decline in the potential labor force participation rate.

Real compensation per hour in the nonfarm business sector, a measure of labor costs that is a useful gauge of longer-term trends, will grow at an average annual rate of 1.9 percent between 2021 and 2026, CBO projects.

20. The projected gap between the unemployment rate and the natural rate corresponds to the projected gap between output and potential output.

That projection is consistent with the agency's projection that the annual growth of labor productivity in that sector will average 1.8 percent over that period, reflecting the close historical relationship between productivity growth and real compensation growth. Although that relationship broke down in the early 2000s, when real compensation per hour grew more slowly than productivity, in recent years the two have grown at similar rates, suggesting that the relationship has been largely restored. CBO expects that it will be maintained in the future. Another measure of hourly labor compensation, the ECI for workers in private industry, shows a similar pattern in the agency's projections.

Inflation

In CBO's projections, inflation as measured by the overall PCE and the core PCE price indexes averages 2.0 percent per year over the 2021–2026 period. That rate is consistent with the Federal Reserve's longer-run goal and is broadly in line with widely held expectations. As measured by the CPI-U and the core CPI-U, projected inflation is higher during that period, at 2.4 percent and 2.3 percent per year, respectively. The CPI-U and the core CPI-U have grown at similar rates, on average, over long periods. But from 2021 through 2026, CBO expects energy prices to rise slightly more quickly than other prices, making the CPI-U grow more quickly than the core CPI-U, on average.

Interest Rates

CBO projects that the interest rates on 3-month Treasury bills and 10-year Treasury notes will average 2.8 percent and 3.6 percent, respectively, throughout the 2021–2026 period. The federal funds rate is projected to be 3.1 percent.

The projected *real* interest rate on 10-year Treasury notes—that is, after the effect of expected inflation (as measured by the CPI-U) is removed—equals 1.2 percent between 2021 and 2026. That rate would be well above the current real rate but well below the average real rate of 2.9 percent between 1990 and 2007. CBO uses that period for comparison because it featured fairly stable expectations of inflation and no severe economic downturns or financial crises.

According to CBO's analysis, average real interest rates on Treasury securities will be lower than they used to be for several reasons, including slower growth in the labor force and slightly slower growth of productivity, both of which

will reduce the rate of return on capital. Furthermore, a greater share of total income is expected to go to high-income households, which will increase saving and make more funds available for borrowing. The premium on risky assets is expected to be higher than its average from 1990 to 2007—boosting relative demand for Treasury securities, increasing their prices, and thereby lowering their interest rates. And net inflows of capital from other countries, measured as a percentage of GDP, are also expected to be higher, making more funds available for borrowing.

CBO expects the term premium—the extra return paid to bondholders for the added risk associated with holding long-term bonds—to be smaller from 2021 through 2026, on average, than it was before the late 1990s. Over the past two decades, the prices of long-term Treasury securities and of risky assets in the United States have moved in opposite directions. In other words, periods with weaker economic growth and lower returns in the stock market have been associated with increases in the prices of Treasury securities, which was not the case before the early 2000s. As a result, investors trying to protect themselves from adverse economic surprises may demand long-term Treasury securities to a greater degree than they used to. A related factor pushing down the term premium is that investors may have increased their demand for financial assets, such as long-term Treasury securities, that can protect them from unexpectedly low inflation. Altogether, CBO anticipates, that greater demand for long-term Treasury securities will result in a term premium and long-term interest rates that are lower than they were before the late 1990s.

Other factors are projected to push real interest rates up from their earlier average, but not by enough to offset the factors pushing rates down. Federal debt is projected to grow as a percentage of GDP, increasing the supply of Treasury securities. The country's ratio of older people, who will be drawing down their savings, to younger workers in their prime saving years will be higher than it was before; that will decrease saving, thereby making fewer funds available for borrowing. And a larger share of income will come from capital, increasing returns on capital assets with which Treasury securities compete.²¹

In addition to considering those factors, CBO relies on information from financial markets when it projects interest rates over the long term, and incorporating that information has tended to reduce the agency's projections

in recent years. For example, the current interest rate on long-term Treasury securities is determined by investors' expectations of interest rates on shorter-term securities several years into the future. Prices in financial markets indicate that investors expect short-term interest rates to rise only gradually over the next several years, possibly because they expect certain forces putting downward pressure on interest rates in the United States to persist over the next decade. One force is weakness in global financial and monetary conditions, which has resulted in a flight to low-risk securities and currencies, especially U.S. Treasury securities. A second force is low interest rates on foreign assets, which push down rates on U.S. assets that can be substituted for them. Finally, investors may have concluded that obstacles to U.S. economic growth will persist, requiring the Federal Reserve to keep short-term interest rates extraordinarily low. As a result, CBO's projections of long-term rates are lower than they would have been otherwise.

Projections of Income From 2016 Through 2026

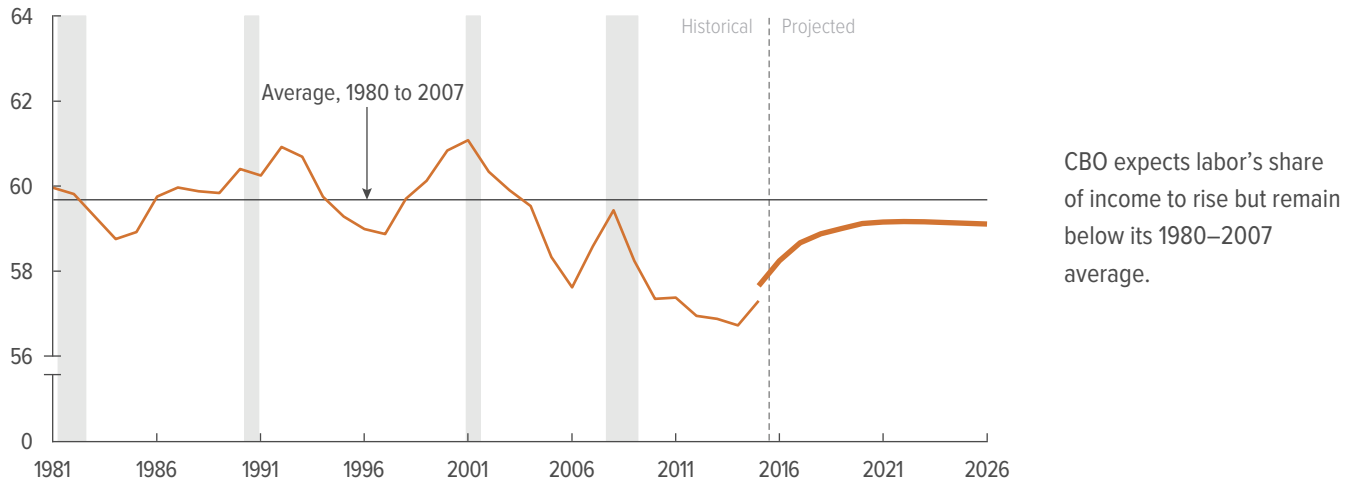
Economic activity and tax revenues depend on aggregate income—the total amount of income in the economy—and on its distribution among various categories, such as labor income, domestic economic profits, proprietors' income, and interest and dividend income. CBO therefore projects income in those categories over the next 10 years, estimating each category's share of gross domestic income (GDI, the income earned in the production of GDP).²² The categories of income that affect revenues most strongly are labor income (especially wage and salary payments) and domestic economic profits.²³

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21. For a more detailed discussion of the factors affecting future interest rates, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), pp. 100–103, www.cbo.gov/publication/51580.
 22. In principle, GDI equals GDP because each dollar of production yields a dollar of income; in practice, they differ because of difficulties in measuring both quantities.
 23. Calculating domestic economic profits involves adjusting estimates of corporations' domestic profits to remove distortions in depreciation allowances caused by tax rules and to exclude the effects of inflation on the value of inventories. Estimates of domestic economic profits exclude certain income of U.S.-based multinational corporations that is derived from foreign sources, most of which does not generate corporate income tax receipts in the United States.

Figure 2-11.

Labor Income

Percentage of Gross Domestic Income



Source: Congressional Budget Office, using data from the Bureau of Economic Analysis.

Labor income is the sum of employees' compensation and CBO's estimate of proprietors' income that is attributable to labor. Gross domestic income is all income earned in the production of gross domestic product. For further discussion of labor's share of income, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433.

Data are annual. Values from 1981 through 2015 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2026 (the thick line) reflect the data available and projections made before July 29.

In CBO's projections, labor income grows more quickly than other kinds of income through 2020, increasing its share of GDI from 57.7 percent in 2015 to 59.1 percent in 2020 (see Figure 2-11). That will happen for two reasons, CBO expects: Employment will rise, and compensation per hour will grow more quickly as slack in the labor market dissipates. As a result, the bargaining power of workers will improve, and the share of income that goes to corporate profits will be smaller. Later in the projection period, however, the growth of hourly compensation is projected to slow slightly, which will stem further rises in labor's share of GDI.

Despite the projected growth of labor's share of GDI, CBO expects some factors that have depressed that share since 2000 to continue during the coming decade. As a result, in CBO's projections, labor's share of GDI does not return to its 1980–2007 average of nearly 60 percent. One such factor is globalization, which has tended to move the production of labor-intensive goods and services to countries with labor costs that are lower than those in the United States. Another factor is technological change, which may have increased returns to capital more than returns to labor.

CBO projects that domestic economic profits, which equaled 9.3 percent of GDI in 2015, will fall to 7.4 percent in 2026. Over the next several years, that decline is expected to occur largely because of a pickup in the growth of labor compensation but also because of an increase in corporate interest payments (the result of rising interest rates) and an increase in the income of sole proprietorships and partnerships. In CBO's projections, while labor's share of GDI rises and domestic economic profits fall as a percentage of GDI, the sum of all categories of income grows less rapidly than output, reversing a trend seen since 2000 and making GDI equal to GDP by the second half of the projection period.

Another measure of overall income, real gross national product (GNP), is projected to grow at an average rate of 1.9 percent per year between 2016 and 2026. Unlike the more commonly cited GDP, GNP includes income that U.S. residents earn abroad and excludes income that foreigners earn in this country. GNP is therefore a better measure than GDP of the resources available to U.S. households.

Some Uncertainties in the Economic Outlook

Even if no significant changes were made to the federal policies specified in current law, economic outcomes would undoubtedly differ from CBO's projections. The agency therefore constructs its projections so that they fall in the middle of the distribution of possible outcomes, given current law and the economic data that are available. The economy will inevitably fluctuate, but CBO expects periods of weak and strong economic growth to balance out, on average, in a way that is consistent with its projections over the next 10 years.

It is possible, however, that periods of weak and strong economic growth will not balance out, particularly in a given 10-year period. If a prolonged period of slower-than-projected growth was not offset by a period of faster-than-projected growth, CBO's projections of growth over the entire 10-year projection period would probably turn out to be too high; so would its projections of interest rates and inflation, in all likelihood. Similarly, if a prolonged period of stronger-than-projected growth was not offset by a period of weaker-than-projected growth, CBO's 10-year projections of growth, interest rates, and inflation would probably turn out to be too low. CBO's projections for 2016 through 2020 and its projections for 2021 through 2026 are uncertain for different reasons.

Uncertainty From 2016 Through 2020

Over the next five years, many developments—such as unforeseen changes in the labor market, the housing market, business confidence, or international conditions—could make economic growth and other variables differ considerably from what CBO has projected. On the one hand, the agency's current forecast of employment and output for the 2016–2020 period may be too pessimistic. For example, firms might respond to the expected increase in aggregate demand for goods and services with more robust hiring and investment than CBO anticipates. If so, the unemployment rate could fall more sharply and inflationary pressures could rise more quickly than CBO projects. In addition, a greater-than-expected easing of borrowing constraints in mortgage markets could support more rapid growth of the number of households and residential investment than CBO anticipates, accelerating the housing market's recovery and further boosting house prices. Households' increased wealth could then buttress consumer spending, raising GDP.

On the other hand, CBO's forecast for 2016 through 2020 may be too optimistic. For example, if the increased tightness of labor markets does not lead to increases in hourly wages and benefits, household income and consumer spending could grow more slowly than CBO anticipates. A decline in the rate of economic growth in China could weaken the U.S. economy by disrupting the international financial system and reducing global economic growth; so could increased uncertainty in the United Kingdom and the European Union as a result of the former's vote to leave the latter.

In addition, there is a possibility that the economy will enter a recession in the next few years because of those developments or others. The current economic expansion has lasted 7 years—longer than the average expansion (about 5 years) in the previous 11 business cycles, a series that began in 1945. Over the past 30 years, expansions that have lasted at least 6 years and that are characterized by a relatively low unemployment rate, as the current expansion is, have tended to fall into recession within 2 years. However, the duration of economic expansions has varied greatly. And although the longest expansion over the previous 11 business cycles has been 10 years, no statistical evidence suggests that the length of an expansion alone causes the economy to enter a recession. Some recent indicators, such as a slowdown in the growth of investment spending and a narrowing of the spread between long-term and short-term interest rates, point to a slightly elevated (but still low) risk of recession, while others, such as the growth of nonfarm payroll employment, suggest that the risk of recession has not increased.

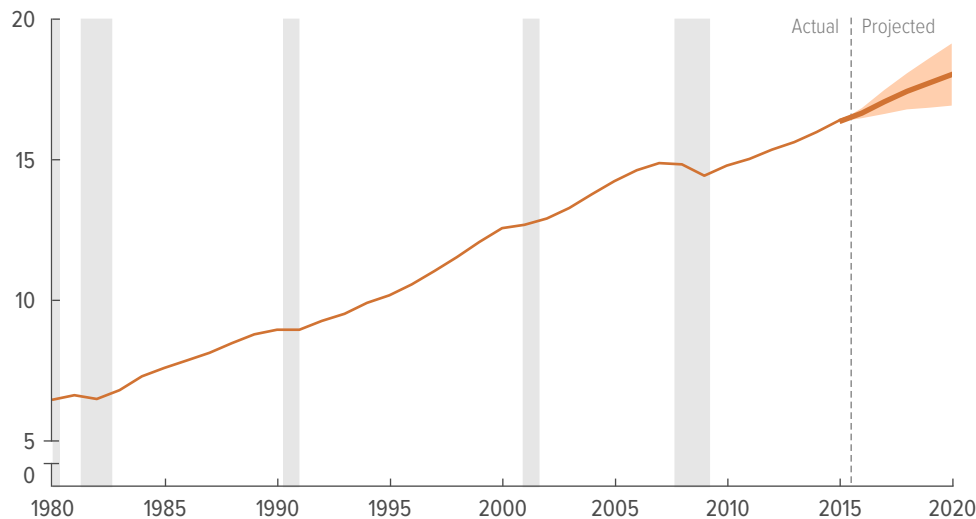
To roughly quantify the degree of uncertainty in its projections for the next five years, CBO analyzed its past forecast errors for the growth rate of real GDP over five-year periods since 1976. Those errors have a standard deviation of 1.3 percentage points.²⁴ Thus, in CBO's view, there is a two-thirds chance that the average growth rate of real GDP will be between 0.7 percent and 3.2 percent over the next five years (see Figure 2-12). Similarly, CBO's forecast errors for inflation over five-year periods (as measured by the CPI-U) have a standard deviation of 1.5 percentage points, which suggests that there is a

24. For more on the inherent uncertainty underlying economic forecasts, see Congressional Budget Office, *CBO's Economic Forecasting Record: 2015 Update* (February 2015), www.cbo.gov/publication/49891.

Figure 2-12.

The Uncertainty of CBO's Projection of Real GDP

Trillions of 2009 Dollars



In CBO's baseline projections, **real GDP** grows at an average annual rate of 2.0 percent over the 2016–2020 period—but there is a two-thirds chance that the growth will be between 0.7 percent and 3.2 percent.

Sources: Congressional Budget Office; Bureau of Economic Analysis.

The shaded area around CBO's baseline projection of real GDP (that is, nominal GDP adjusted to remove the effects of inflation) is one way of illustrating the uncertainty of that projection. The area is based on the errors in CBO's one-year through five-year projections from 1976 through 2015. To construct the area, CBO used values that were one standard deviation above and below its baseline projection for each of the years from 2016 through 2020. In other words, there is a two-thirds chance that real GDP will turn out to be within that area in each year.

Data are annual. Values from 1980 through 2015 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 29, 2016. Values from 2015 through 2020 (the thick line) reflect the data available and projections made before July 29.

GDP = gross domestic product.

two-thirds chance that inflation will average between 0.6 percent and 3.6 percent over the next five years.

Uncertainty From 2021 Through 2026

The factors that will determine the economy's output later in the coming decade are also uncertain. For example, if the labor force grew more quickly than expected—say, because older workers chose to stay in the labor force longer than expected—the economy could grow considerably more quickly than it does in CBO's projections. The natural rate of unemployment could be lower than expected, or productivity could grow more rapidly; those developments would likewise make the economy grow more quickly. By contrast, the economy could grow more slowly than expected—for instance, if the growth rate of labor productivity did not increase from its postrecession level, as it does in CBO's projections.

The recent rise in income inequality adds to uncertainty about output. Economists' findings about how income inequality affects economic growth have been mixed:

Some studies conclude that it raises growth, others that it slows growth, and still others that it has no effect. Economists continue to study the issue, and CBO will update its analysis if research yields a more definitive conclusion. In the meantime, CBO's projections include effects of income inequality only implicitly—that is, to whatever extent past changes in inequality have affected economic growth.

Comparison With CBO's January 2016 Projections

In two important respects, CBO's current economic projections differ from those that it issued in January 2016 (see Table 2-4). First, CBO expects real GDP and real potential GDP in 2026 to be 1.6 percent lower than was projected in January. Second, CBO expects interest rates in 2026 to be lower than previously projected—short-term rates by 0.4 percentage points and long-term rates by 0.5 percentage points. Other changes to CBO's projections are modest.

Table 2-4.

Comparison of CBO's Current and Previous Economic Projections for Calendar Years 2016 Through 2026

	2016	2017	2018	Annual Average		
				2016–2020	2021–2026	2016–2026
Percentage Change From Fourth Quarter to Fourth Quarter						
Real GDP ^a						
August 2016	2.0	2.4	2.1	1.9	2.0	2.0
January 2016	2.7	2.5	2.1	2.2	2.0	2.1
Nominal GDP						
August 2016	3.5	4.3	3.9	3.8	4.0	3.9
January 2016	4.3	4.4	4.0	4.1	4.1	4.1
PCE Price Index						
August 2016	1.5	2.0	2.0	1.9	2.0	1.9
January 2016	1.5	2.0	2.0	1.9	2.0	1.9
Core PCE Price Index ^b						
August 2016	1.8	1.9	2.0	1.9	2.0	2.0
January 2016	1.6	1.9	2.0	1.9	2.0	1.9
Consumer Price Index ^c						
August 2016	1.8	2.3	2.3	2.2	2.4	2.3
January 2016	1.7	2.4	2.4	2.3	2.4	2.3
Core Consumer Price Index ^b						
August 2016	2.3	2.2	2.3	2.3	2.3	2.3
January 2016	2.0	2.2	2.3	2.2	2.3	2.3
GDP Price Index						
August 2016	1.5	1.8	1.8	1.8	2.0	1.9
January 2016	1.6	1.9	1.9	1.9	2.0	2.0
Employment Cost Index ^d						
August 2016	2.8	3.1	3.3	3.1	3.1	3.1
January 2016	2.9	3.3	3.4	3.2	3.2	3.2
Real Potential GDP						
August 2016	1.5	1.6	1.7	1.7	2.0	1.8
January 2016	1.6	1.7	1.9	1.9	2.0	2.0
Annual Average						
Unemployment Rate (Percent)						
August 2016	4.8	4.5	4.6	4.7	4.9	4.8
January 2016	4.7	4.4	4.6	4.7	5.0	4.9
Interest Rates (Percent)						
Three-month Treasury bills						
August 2016	0.3	0.7	1.4	1.5	2.8	2.2
January 2016	0.7	1.6	2.5	2.3	3.2	2.8
Ten-year Treasury notes						
August 2016	1.8	2.3	2.8	2.7	3.6	3.2
January 2016	2.8	3.5	3.8	3.7	4.1	3.9
Tax Bases (Percentage of GDP)						
Wages and salaries						
August 2016	44.3	44.4	44.4	44.3	44.3	44.3
January 2016	43.9	43.9	43.9	43.9	43.9	43.9
Domestic economic profits						
August 2016	8.7	8.4	8.2	8.1	7.3	7.7
January 2016	8.7	8.6	8.3	8.3	7.5	7.8

Source: Congressional Budget Office.

GDP = gross domestic product; PCE = personal consumption expenditures.

- a. Nominal GDP adjusted to remove the effects of inflation.
- b. Excludes prices for food and energy.
- c. The consumer price index for all urban consumers.
- d. The employment cost index for wages and salaries of workers in private industries.

Revisions to Projected Output

CBO's lower estimates of economic output reflect new economic data, analysis, and developments that occurred between late December 2015 (when the agency completed its January forecast) and early July 2016 (when the agency completed its current forecast). The largest revision was to CBO's estimate of potential output during the 2016–2026 period. The agency also lowered its estimate of output growth over the next few years.

Growth in Potential Output. In CBO's current projections, the growth of real potential GDP is about 0.1 percentage point per year lower, on average, than it was in the January projections. The downward revision stemmed from slower projected growth in the potential labor force (which is discussed below in "Revisions to Labor Market Projections"), in potential TFP, and in capital services in the nonfarm business sector.

CBO still expects potential TFP growth in the nonfarm business sector to quicken from its unusually slow pace of 0.8 percent since 2008, but the agency now expects it to reach an average pace of about 1.2 percent per year during the 2021–2026 period, down from the nearly 1.4 percent that was projected in January. Over the entire 2016–2026 period, CBO now projects that potential TFP will grow at an annual average rate of 1.1 percent, down from the previous projection of 1.2 percent.

Most of the revision to potential TFP reflects newly released data that indicate significantly weaker growth during late 2015 and early 2016 than CBO had previously expected. As a result, CBO now projects that TFP growth will begin to recover later, and end up lower, than it projected in January.

In addition, CBO made two changes to its method of estimating potential output that had a modest effect on projected potential TFP. First, to estimate underlying trends in key economic variables—that is, trends excluding the effects of business cycle fluctuations—CBO now uses its primary measure of labor market slack, the employment shortfall, rather than the difference between the actual and natural rates of unemployment. That change suggests slightly slower growth of potential TFP. Second, CBO reassessed the relative contributions of labor and capital services to output to make them more consistent with recent trends and the estimates of other leading researchers.

That change likewise suggests that potential TFP will grow less than CBO expected in January.

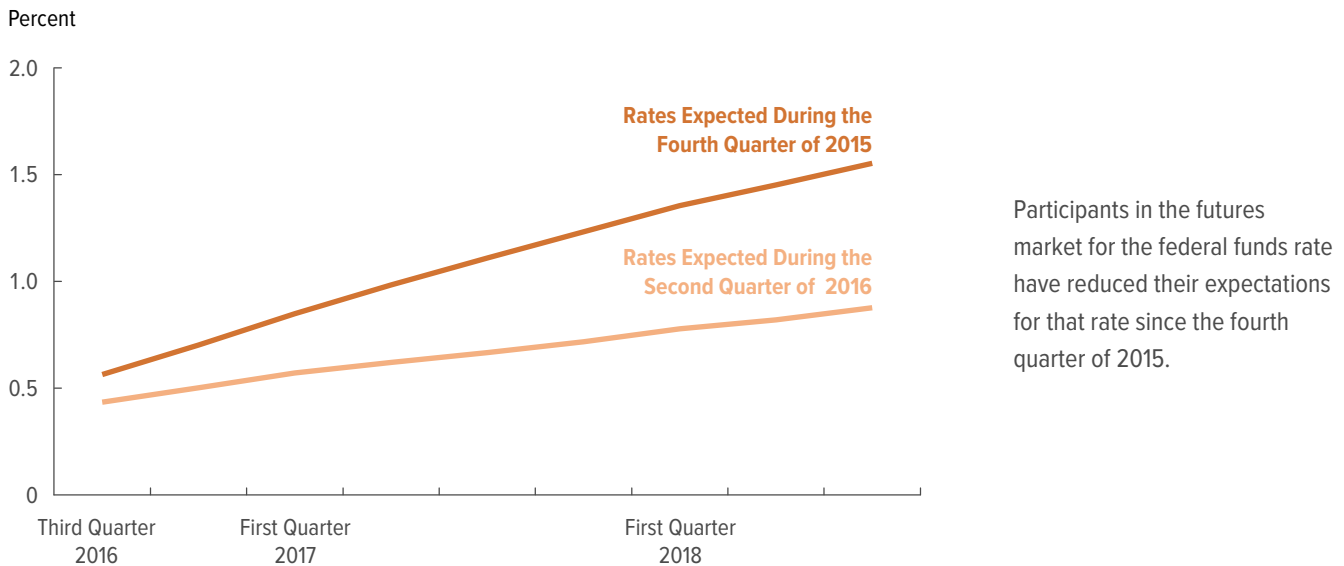
CBO made several changes that lowered its projection of capital services, on net. One, the slower projected growth in potential TFP, reduced estimated demand for capital goods and hence the growth of capital services. That effect is responsible for much of the decline since January in the projected growth of capital services over the 2021–2026 period. Another change also slightly reduced the projected growth of capital services—modestly lower projected growth in the potential number of hours worked in the nonfarm business sector. Two further changes that affect capital services offset each other. CBO projects more federal borrowing than it did in January, which would crowd out funds available for private investment and thus dampen the growth of capital services; but it also projects less demand for investment overseas, which would lead to more net inflows of foreign financial capital to the United States, offsetting the crowding-out effect on private investment of the increased federal borrowing.

Growth in Output From 2016 to 2020. Surprisingly weak growth in output since late 2015 led CBO to reassess the economy's underlying momentum. As a result, the agency reduced its projections of growth in output over the next few years. CBO currently projects that real GDP will grow by 1.9 percent per year, on average, from 2016 through 2020; in January, the projection was 2.2 percent. That change reflects a downward revision to the average projected growth rate of consumer spending over the period, a revision that was made because CBO now expects income to grow more slowly over the next few years than it did in January. Furthermore, business fixed investment has grown at a surprisingly weak pace in recent quarters, which has contributed to a lower projection for the growth of investment during this year. CBO also revised upward its projections of net exports for the 2016–2020 period, but that revision was not large enough to offset the other reductions; in fact, it was mainly attributable to the downward revision in GDP growth, which slows projected growth in demand for imports.²⁵ And CBO slightly revised upward the

25. CBO also accounted for the United Kingdom's vote to leave the European Union, which is expected to affect net exports in the United States through an expected strengthening of the dollar over the next few quarters. The effect is projected to be slight, however.

Figure 2-13.

Expectations in the Futures Market for the Federal Funds Rate



Source: Congressional Budget Office, using data from Bloomberg.

The federal funds rate is the interest rate that financial institutions charge each other for overnight loans of their monetary reserves.

Data are quarterly averages derived from monthly futures prices.

projected growth of government consumption and investment over the 2016–2020 period.

Revisions to Projected Interest Rates

CBO anticipates that interest rates will be significantly lower, on average, over the coming decade than it projected in January. In CBO's projections for 2016 through 2020, the interest rate on 3-month Treasury bills is 0.8 percentage points lower, on average, than it was in January, and the rate on 10-year Treasury notes (which is partly determined by the expected future rates for 3-month bills) is 1 percentage point lower, on average. From 2021 through 2026, the projections of those two rates are 0.4 percentage points lower and 0.5 percentage points lower, on average, than they were in January.

The revisions for the 2016–2020 period reflect recent economic data and events that point to slower domestic and foreign GDP growth than was expected in January. The growth of real U.S. GDP during the first half of 2016 was slower than CBO and many analysts had expected. That slower growth, coupled with uncertainty about the effects of the United Kingdom's vote to leave the European Union, led CBO to expect that the Federal Reserve would raise the federal funds rate more slowly than projected in January. Probably for similar reasons,

participants in the market for federal funds futures have substantially reduced their expectations for the rise in the federal funds rate as well (see Figure 2-13). Federal Reserve officials and private-sector forecasters have also lowered their projections of the federal funds rate.

As a result of its revision to the projected federal funds rate, CBO revised downward its projections for the interest rates on 3-month Treasury bills and, to a smaller degree, on 10-year Treasury notes over the next several years. In addition, CBO considered the impact of low foreign interest rates, which have made U.S. Treasury securities an attractive investment to a greater degree than CBO projected in January. CBO expects that added demand to dampen the rise in interest rates through 2020.

The revisions for the 2021–2026 period primarily reflect upward revisions to the agency's projections of two of the factors that affect interest rates over the longer run—the added return that investors require for holding risky assets, and net inflows of capital from other countries. In CBO's assessment, a higher-than-expected premium on risky assets has partly accounted for the surprisingly low rate of interest so far this year: When that premium is high, it increases relative demand for Treasury securities,

boosting their prices and thereby lowering their interest rates. The agency anticipates that the higher-than-expected premium will persist to some extent through 2026. CBO's higher projection of net inflows of capital from other countries (measured as a percentage of GDP) is the result of the agency's expectation that foreign economies will grow more slowly than was projected in January. Larger net inflows of capital would make more funds available for borrowing and thus reduce interest rates in the United States.

In addition to lowering its projections of short-term and long-term interest rates, CBO lowered its projection of the term premium. The term premium during the 2021–2026 period, calculated as the difference between the 10-year rate and the 3-month rate, fell from 0.9 percentage points in CBO's January forecast to 0.8 percentage points in the current projection. That downward revision was based on an analysis of the relationship over the past two decades between rates of return on Treasury securities and rates of return on equities in the United States, as well as on an analysis of the factors underlying the surprisingly low level of interest rates since January. As in January, CBO expects some of the factors currently suppressing the term premium to dissipate over the 2016–2020 period, but it does not expect the term premium to reach the levels that it achieved before the late 1990s. That is mainly because CBO expects investors to keep wanting Treasury securities as protection against adverse economic outcomes and unexpectedly low inflation. CBO expects those factors to lead to greater demand for long-term securities than it did in January.

Revisions to Labor Market Projections

Since January, CBO has lowered its projections of the labor force participation rate, and consequently of the size of the labor force, for most of the years through 2026. For the next two years, however, CBO projects that the labor force participation rate will be about two-tenths of a percentage point higher than was projected in January. That upward revision reflects recently released data showing that participation was slightly higher than CBO projected earlier in the year; CBO expects the recent uptick to persist for the next two years. After 2018, however, CBO's projection of the labor force participation rate is roughly one-third of a percentage point lower than it was in January. That change is due to a downward revision to the estimated potential labor force participation rate over

that period: After reassessing trends, CBO revised downward the expected long-term participation of less educated workers and young workers.

CBO's current projection of the unemployment rate between 2021 and 2026 is slightly lower than it was in January, the result of a downward revision to the natural rate of unemployment from 2015 through 2026. That revision, in turn, was made after CBO more carefully assessed how demographic trends have affected that rate. The share of younger workers in the working-age population has declined over the past two decades; less educated workers have been participating in the labor market at lower rates; and younger workers and less educated workers are more likely to be unemployed than older workers and workers with more education. CBO expects those trends to persist over the next decade. Consequently, the agency has reduced its estimate of the economywide natural rate of unemployment by one-tenth of a percentage point from 2015 through 2026, so that the rate reaches 4.7 percent in 2026. That revision led CBO to lower its estimate of the unemployment rate in 2026 from 5.0 percent to 4.9 percent.

CBO's current projection of growth in nonfarm payroll employment during most of the 2016–2026 period is lower than it was in January. That revision results in modestly lower projected growth in the potential number of hours worked in the nonfarm business sector. The revision stems from the downward revision in projected GDP growth, because slower growth in GDP implies slower growth in demand for labor and employment.

Revisions to Projected Inflation

CBO projects that consumer price inflation through 2026 will be very similar to what was projected in January. Core inflation is expected to be slightly higher in 2016 than it was in CBO's January projection, largely because of faster expected growth in housing costs throughout the year. However, the current projection of overall inflation in consumer prices in 2016 is roughly the same as the one in the January forecast, because lower projections of food and energy prices offset the higher projection of housing costs. Inflation as measured by the GDP price index is expected to be slightly lower in the second half of 2016, in 2017, and in 2018 than CBO expected in January, largely because of lower-than-expected growth in the price of U.S. exports. CBO's projections of inflation in later years have changed little since January.

Comparison With Other Economic Projections

The agency's projections of the growth of real GDP, the unemployment rate, inflation, and interest rates in 2016 and 2017 are generally similar to the *Blue Chip* consensus—the average of roughly 50 forecasts by private-sector economists that was published in the August 2016 *Blue Chip Economic Indicators*. CBO anticipates a slightly stronger economy in the short run, projecting real GDP growth that is higher than the middle two-thirds of *Blue Chip* forecasts for 2016 and that is at the top of that two-thirds span for 2017 (see Figure 2-14). The agency also expects a slightly stronger labor market, projecting an unemployment rate in both years that is lower than the *Blue Chip* consensus but within the middle two-thirds of the forecasts. CBO's projections of the interest rates on 3-month Treasury bills and on 10-year Treasury notes also fall within the middle two-thirds of the *Blue Chip* forecasts.

CBO projects faster growth of real output over the coming year than do most of the Federal Reserve

officials whose forecasts were reported at the June 2016 meeting of the Federal Open Market Committee (see Figure 2-15). The Federal Reserve reports three sets of forecasts: a median, a range, and a central tendency. The median is calculated from forecasts made by the members of the Board of Governors of the Federal Reserve System and the presidents of the Federal Reserve Banks. The range is based on the highest and lowest of those forecasts. The central tendency is the range without the three highest and three lowest projections. CBO's projections of the growth of real GDP are within the central tendency in 2016 and 2018 and slightly above it in 2017. CBO's projections of the unemployment rate and inflation are within the central tendency in all three years.

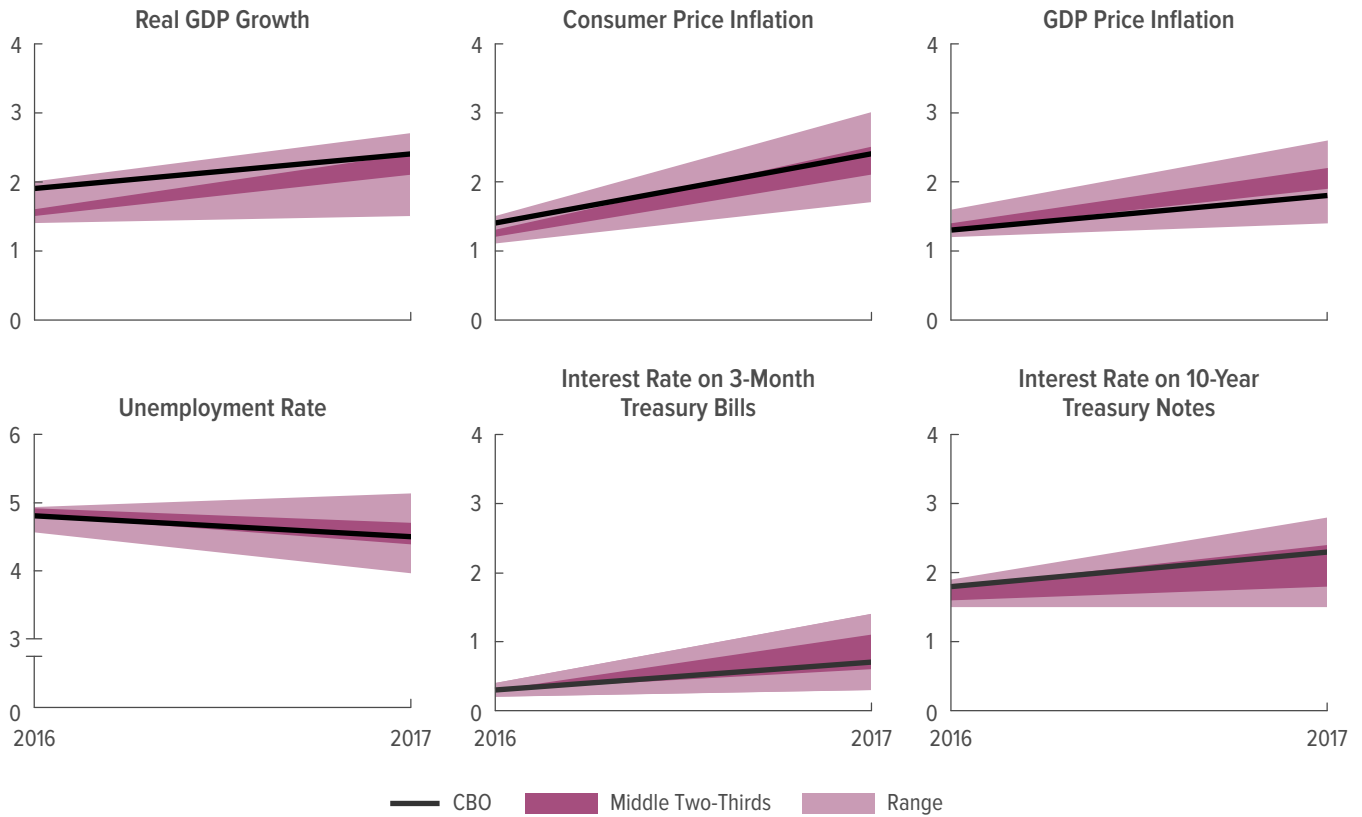
CBO's projections probably differ from those of the other forecasters at least partly because of differences in the economic news available when the forecasts were completed and differences in the economic and statistical models used. In addition, other forecasters may be assuming changes in federal policies that are not included in CBO's projections, which are based on current law.

Figure 2-14.

Comparison of Economic Projections by CBO and *Blue Chip* Forecasters

CBO’s projections are generally similar to those by *Blue Chip* forecasters, although CBO projects faster growth of real GDP this year and next.

Percent



Sources: Congressional Budget Office; Wolters Kluwer, *Blue Chip Economic Indicators* (August 10, 2016).

The full range of forecasts from the *Blue Chip* is based on the highest and lowest of the roughly 50 forecasts. The middle two-thirds of that range omits the top one-sixth of the forecasts and the bottom one-sixth.

Real GDP is the output of the economy adjusted to remove the effects of inflation. Consumer price inflation is calculated with the consumer price index for all urban consumers. Real GDP growth and inflation rates are measured from the average of one calendar year to the next.

The unemployment rate is a measure of the number of jobless people who are available for work and are actively seeking jobs, expressed as a percentage of the labor force. The unemployment rate and interest rates are calendar year averages.

Data are annual.

GDP = gross domestic product.

Figure 2-15.

Comparison of Economic Projections by CBO and Federal Reserve Officials

CBO's projections of real GDP growth, the unemployment rate, and inflation are generally within the central tendency of forecasts by Federal Reserve officials.



Sources: Congressional Budget Office; Board of Governors of the Federal Reserve System, “Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents, June 2016” (June 15, 2016), <http://go.usa.gov/xTWAW> (PDF, 165 KB).

The full range of forecasts from the Federal Reserve is based on the highest and lowest of the 17 projections by the Board of Governors and the president of each Federal Reserve Bank. The central tendency is that range without the 3 highest and 3 lowest projections—roughly speaking, the middle two-thirds of the range.

For CBO, longer-term projections are values for 2026. For the Federal Reserve, longer-term projections are described as the value at which each variable would settle under appropriate monetary policy and in the absence of further shocks to the economy.

Real GDP is the output of the economy adjusted to remove the effects of inflation.

The unemployment rate is a measure of the number of jobless people who are available for work and are actively seeking jobs, expressed as a percentage of the labor force.

The core PCE price index excludes prices for food and energy.

Data are annual. Real GDP growth and inflation rates are measured from the fourth quarter of one calendar year to the fourth quarter of the next. The unemployment rate is a fourth-quarter value.

GDP = gross domestic product; PCE = personal consumption expenditures.

[*Data for longer-term values corrected on August 24, 2016]

