

The Economic Outlook

The Congressional Budget Office anticipates that, under the assumption that current laws governing federal taxes and spending generally remain in place, economic activity will expand at a solid pace in 2015 and the next few years. As measured by the change from the fourth quarter of the previous year, real (inflation-adjusted) gross domestic product (GDP) will grow by 2.9 percent this year, by another 2.9 percent in 2016, and by 2.5 percent in 2017, CBO expects. By comparison, the agency estimates that real GDP increased by 2.1 percent in 2014—the net result of a decline in the first quarter and brisk growth later in the year (see Box 2-1).

Economic expansion this year and over the next few years will be driven by increases in consumer spending, business investment, and residential investment, CBO expects. In addition, government purchases of goods and services are expected to contribute slightly to growth in 2016 and 2017. By contrast, net exports are projected to impose a drag on growth in 2015 and 2016 but to contribute to growth thereafter.

CBO expects the pace of output growth to reduce the quantity of underused resources, or “slack,” in the economy over the next few years. The difference between actual GDP and CBO’s estimate of potential (that is, maximum sustainable) GDP—which is a measure of slack for the whole economy—was about 2 percent of potential GDP at the end of 2014, but the agency expects that gap to be essentially eliminated by the second half of 2017. CBO also expects slack in the labor market—which is indicated by such factors as the elevated unemployment rate and a relatively low rate of labor force participation—to dissipate over the next few years. In particular, the agency projects that increased hiring will reduce the unemployment rate from 5.7 percent in the fourth quarter of 2014 to 5.3 percent in the fourth quarter of 2017. Also, the increased hiring will encourage

some people to enter or stay in the labor force, in CBO’s estimation. That will slow the decline in labor force participation, which arises from underlying demographic trends and federal policies, but it will also slow the fall of the unemployment rate.

Over the next few years, reduced slack in the economy will diminish the downward pressure on inflation and interest rates. Nevertheless, because slack is expected to dissipate only slowly—and because of a strengthening dollar, broadly held expectations for low inflation, and a recent sharp decline in oil prices (which put downward pressure on energy costs)—CBO expects the rate of inflation, as measured by the price index for personal consumption expenditures (PCE), to stay below the Federal Reserve’s goal of 2 percent during the next few years. CBO anticipates that the interest rate on 3-month Treasury bills will remain near zero until the second half of 2015 and then rise to 3½ percent by 2018. The agency further expects that the rate on 10-year Treasury notes will rise from an average of 2½ percent last year to 4½ percent by 2019.

CBO’s projections for the period from 2020 through 2025 exclude possible cyclical developments in the economy, because the agency does not attempt to predict the timing or magnitude of such developments so far in the future. CBO projects that real GDP will grow by an average of 2.2 percent per year from 2020 through 2025—a rate that matches the agency’s estimate of the growth of potential output in those years. CBO anticipates that output will grow much more slowly than it did during the 1980s and 1990s, primarily because the labor force is expected to grow more slowly than it did then. The lingering effects of the recent recession and of the ensuing slow recovery are also expected to cause GDP to be lower from 2020 through 2025 than it would otherwise have

Box 2-1.**Data Released Since Early December**

In this chapter, the Congressional Budget Office's estimates of economic output in 2014 and economic projections for this year and future years are based on data available in early December 2014. Since then, revised and newly released data indicate that the growth of real (inflation-adjusted) gross domestic product (GDP) was stronger during the second half of 2014 than CBO had estimated. In addition, interest rates on long-term Treasury securities have been lower and oil prices have declined further since mid-December than CBO had anticipated.

The unexpected strength in economic activity in the second half of last year and the continued decline in oil prices suggest that output may grow more this year than CBO forecast. Lower interest rates, taken alone, have the same implication; however, lower rates may reflect a worsening in the outlook for global growth among some observers, and diminished prospects for growth in other countries would weigh on growth in the United States. Providing a

small offset to the positive effects, a larger-than-expected increase in the exchange value of the dollar since mid-December points to slightly weaker net exports this year than CBO forecast. Moreover, labor market developments in December were mixed: The decline in the unemployment rate and the increase in payroll employment were larger than CBO had expected, but there was a surprisingly low rate of labor force participation and unexpectedly weak growth of average hourly earnings.

All told, the newly available data suggest that slack in the economy may dissipate a little more quickly than CBO had anticipated. A preliminary assessment of that new information does not significantly alter CBO's view of potential (or maximum sustainable) GDP, but it does suggest that the difference between GDP and potential GDP at the end of 2014 was roughly one-quarter of one percentage point smaller than the estimate that CBO made for the forecast presented here.

been. CBO projects that the unemployment rate between 2020 and 2025 will average 5.4 percent and that inflation (as measured by the PCE price index) will be 2.0 percent. Over the same period, the projected interest rates on 3-month Treasury bills and 10-year Treasury notes are 3.4 percent and 4.6 percent, respectively.

Recognizing that economic forecasts are always uncertain, CBO constructs its forecasts to be in the middle of the distribution of possible outcomes for the economy, given the federal fiscal policies that are embodied in current law. Nevertheless, even if fiscal policies remain as they are projected under current law, many developments—such as unforeseen changes in the housing and labor markets, in business confidence, and in international conditions—could cause economic outcomes to differ substantially from those that CBO has projected.

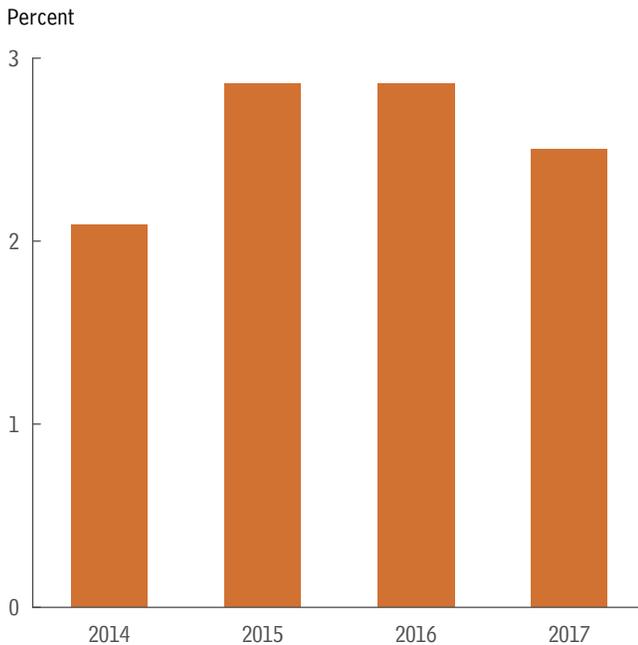
CBO's current economic projections differ in a number of ways from its most recent previous ones, which it

published in August 2014. For instance, for the period from 2014 through 2018, CBO now projects real GDP growth averaging 2.5 percent annually, a rate roughly 0.2 percentage points lower than the rate projected in August. The principal reason for that difference is that CBO has revised downward its estimates of potential output and consequently its estimate of the current amount of slack in the economy. Also as a result of the downward revision to estimated potential output, CBO currently forecasts that real GDP will be roughly 1 percent lower in 2024 than it did in August. In addition, CBO now projects lower rates of unemployment for the next several years than it did in August.

CBO's current economic projections do not differ much from the projections of other forecasters. They are generally very similar to those of the *Blue Chip* consensus, which is based on the forecasts of about 50 private-sector economists. CBO's projections also differ only slightly from the forecasts made by the Federal Reserve that were

Figure 2-1.**Projected Growth in Real GDP**

Economic activity will expand at a solid pace in 2015 and over the next few years, CBO projects.



Source: Congressional Budget Office.

Notes: Real gross domestic product is the output of the economy adjusted to remove the effects of inflation.

Data are annual. The percentage change in real GDP is measured from the fourth quarter of one calendar year to the fourth quarter of the next year.

The value for 2014 does not incorporate data released by the Bureau of Economic Analysis since early December 2014.

GDP = gross domestic product.

presented at the December 2014 meeting of the Federal Open Market Committee.

The Economic Outlook for 2015 Through 2019

CBO expects output to grow faster in the next few years than it has in the past few years—at an annual rate of 2.9 percent over the next two years and then by 2.5 percent in 2017 (see Figure 2-1 and Table 2-1). By comparison, the agency estimates that annual GDP growth averaged about 2¼ percent over the past three years. CBO anticipates that consumer spending and

investment will be the primary contributors to the growth of output over the next few years. In CBO’s projections, the changes in fiscal policy that will occur under current law have little effect on growth in the near term; monetary policy supports growth this year and over the next few years, but by smaller degrees over time. The agency also expects that output growth will be boosted this year by the steep decline in crude oil prices in the second half of 2014 (see Box 2-2).

CBO expects slack in the labor market to keep diminishing from 2015 through 2017. In the agency’s projections, the greater demand for workers lowers the unemployment rate through 2017 and contributes to faster growth in hourly labor compensation; those developments are expected to encourage more people to enter, reenter, or remain in the labor force. CBO anticipates that the rate of inflation will remain low this year but rise over the next few years as the economy strengthens and as shifts in the supply of and demand for crude oil—as expected in oil futures markets—begin to push oil prices up. However, CBO expects the rate of inflation to remain below the Federal Reserve’s longer-term goal of 2 percent until 2017.

Those projections for 2015 through 2017 are based on CBO’s forecasts of cyclical developments in the economy. In contrast, the agency’s projections for the 2020–2025 period are based primarily on average historical relationships—for example, the average historical relationship of output to potential output and of the unemployment rate to the natural rate of unemployment (the rate arising from all sources except fluctuations in the overall demand for goods and services). The projections of output and of the unemployment rate for the intervening years, 2018 and 2019, represent transition paths toward those average historical relationships.

Federal Fiscal Policy

Changes in federal fiscal policy (that is, the government’s tax and spending policies) that result from current law will have little effect on the growth of the economy this year, because of three small and largely offsetting effects:

- The dollar value of federal purchases, relative to the size of the economy, will be lower this year than in 2014, slowing GDP growth slightly, CBO estimates.

Table 2-1.**CBO's Economic Projections for Calendar Years 2015 to 2025**

	Estimated,	Forecast			Projected Annual Average	
	2014	2015	2016	2017	2018–2019	2020–2025
Percentage Change From Fourth Quarter to Fourth Quarter						
Gross Domestic Product						
Real (Inflation-adjusted)	2.1	2.9	2.9	2.5	2.1	2.1
Nominal	4.0	4.2	4.6	4.5	4.2	4.2
Inflation						
PCE price index	1.3	1.4	1.9	2.0	2.0	2.0
Core PCE price index ^a	1.5	1.8	1.9	1.9	2.0	2.0
Consumer price index ^b	1.2 ^c	1.5	2.3	2.3	2.4	2.4
Core consumer price index ^a	1.7 ^c	2.1	2.2	2.3	2.3	2.3
GDP price index	1.8	1.3	1.7	1.9	2.0	2.0
Employment Cost Index ^d	2.3	2.7	3.2	3.6	3.6	3.4
Fourth-Quarter Level (Percent)						
Unemployment Rate	5.7 ^c	5.5	5.4	5.3	5.5 ^e	5.4 ^f
Percentage Change From Year to Year						
Gross Domestic Product						
Real	2.2	2.8	3.0	2.7	2.1	2.2
Nominal	3.9	4.5	4.6	4.6	4.2	4.2
Inflation						
PCE price index	1.4	1.1	1.9	1.9	2.0	2.0
Core PCE price index ^a	1.4	1.7	1.9	1.9	2.0	2.0
Consumer price index ^b	1.6 ^c	1.1	2.2	2.3	2.4	2.4
Core consumer price index ^a	1.7 ^c	2.0	2.2	2.3	2.3	2.3
GDP price index	1.6	1.6	1.6	1.9	2.0	2.0
Employment Cost Index ^d	2.0	2.7	3.0	3.5	3.6	3.4
Calendar Year Average						
Unemployment Rate (Percent)	6.2 ^c	5.5	5.4	5.3	5.4	5.4
Payroll Employment (Monthly change, in thousands) ^g	234 ^c	184	148	111	69	78
Interest Rates (Percent)						
Three-month Treasury bills	* ^c	0.2	1.2	2.6	3.5	3.4
Ten-year Treasury notes	2.5 ^c	2.8	3.4	3.9	4.4	4.6
Tax Bases (Percentage of GDP)						
Wages and salaries	42.7	42.6	42.6	42.7	42.8	43.0
Domestic economic profits	9.9	10.0	9.7	9.4	8.8	8.0

Sources: Congressional Budget Office; Bureau of Labor Statistics; Federal Reserve.

Notes: Estimated values for 2014 do not reflect the values for GDP and related series released by the Bureau of Economic Analysis since early December 2014.

Economic projections for each year from 2015 to 2025 appear in Appendix F.

GDP = gross domestic product; PCE = personal consumption expenditures; * = between zero and 0.05 percent.

- a. Excludes prices for food and energy.
- b. The consumer price index for all urban consumers.
- c. Actual value for 2014.
- d. The employment cost index for wages and salaries of workers in private industries.
- e. Value for 2019.
- f. Value for 2025.
- g. Calculated as the monthly average of the fourth-quarter-to-fourth-quarter change in payroll employment.

Box 2-2.**The Effect of the Recent Drop in Oil Prices on U.S. Output**

Oil prices have fallen markedly since the Congressional Budget Office completed its previous forecast in August 2014. The prices of two major varieties of crude oil, West Texas Intermediate and Brent, stood at \$60 and \$65 per barrel, respectively, in early December 2014, when CBO finalized its economic forecast. Those prices were roughly \$40 per barrel lower than when CBO finalized its projection in the summer, and the lowest in nearly six years.¹ Prices for crude oil in futures markets in early December signaled an end to the decline in prices in early 2015; prices were then expected to return to a modest upward trajectory. Still, futures markets suggested that crude oil deliverable in 2020 would cost about \$20 per barrel less than those markets suggested when the summer forecast was completed. On the basis of those readings, CBO incorporated into its current forecast an estimate that the reduction in oil prices since August 2014 would raise real (inflation-adjusted) gross domestic product (GDP) in the United States slightly this year and have a very small positive effect on GDP in the longer term.

Since early December, crude oil prices have declined by a further \$15 per barrel, and crude oil futures market prices for 2020 have declined by a further \$7 per barrel. That further reduction in oil prices, taken by itself, suggests that output may grow faster this year than CBO forecast.

The Near Term

CBO estimates that the declines in oil prices for immediate and future delivery that occurred between August and December 2014 will raise real GDP in the United States by 0.3 percent at the end of 2015. The decline in expected future oil prices will also raise GDP during the 2016–2019 period, but by less than in 2015 because of the anticipated partial rebound in those prices.

The boost to GDP over the next five years will be the net effect of two partly offsetting sets of factors. On the one hand, the drop in oil prices has several positive effects. It has lowered the prices of petroleum products, including gasoline. As a result, U.S. households will have savings on purchases of petroleum products that they can spend on other goods and services, raising GDP. Also, when businesses that use petroleum

products pass some of their lower costs on to consumers in the form of lower prices, U.S. households can similarly use their savings on those items to increase consumption. Furthermore, the large and sudden decline in gasoline prices appears to have raised consumer confidence, which provides an additional boost to household spending. Some of the additional consumer spending will result in higher imports, boosting output in other countries rather than in the United States; but most of the additional spending will be on U.S. goods and services, which will boost U.S. GDP, as will greater domestic investment by firms responding to the increase in demand for goods and services.

On the other hand, U.S. GDP will be reduced because lower oil prices reduce the incentive for domestic oil producers to explore and develop additional resources. That reduced incentive will dampen the oil producers' investment in 2015; indeed, CBO projects that such investment will decline this year after rapid growth in recent years. Lower oil prices also reduce the wealth of U.S. households that own stock in oil producers or otherwise own oil-related assets, which reduces spending by those households (although that response is estimated to be much smaller than the increase in spending by other U.S. households mentioned above).

The Longer Term

In CBO's projection, lower oil prices have a very small positive effect on GDP between 2020 and 2025, when real GDP is projected to depend on the quantity of labor and capital supplied to the U.S. economy and on the productivity of that labor and capital. In particular, lower oil prices are expected to have a small positive impact on the productivity of labor and capital. That increase also will be the result of two partly offsetting effects. The lower price of one input into production, energy, will lead firms to use more of that input and thus make other inputs more productive. However, lower oil prices will reduce investment in the development of shale resources—that is, crude oil trapped in shale and certain other dense rock formations. In CBO's view, the development of shale resources boosts the productivity of labor and capital in the mining sector, so less development means a smaller boost.² However, CBO estimates that the shale projects that are abandoned or are not undertaken because of lower oil prices will be the least productive ones, so their abandonment will have little effect on GDP.

1. The decline in prices resulted from a mismatch between changes in consumption and production. In particular, European and Chinese consumption slowed; Libyan supplies increased, following significant declines that resulted from a civil war; and the growth of U.S. oil production outpaced expectations. In addition, OPEC (Organization of the Petroleum Exporting Countries) decided in November 2014 not to cut production.

2. For a discussion of the impact of shale resources on GDP, see Congressional Budget Office, *The Economic and Budgetary Effects of Producing Oil and Natural Gas From Shale* (December 2014), www.cbo.gov/publication/49815.

- However, the growing number of people who will receive Medicaid coverage or subsidies through health insurance exchanges because of the Affordable Care Act (ACA)—along with the resulting rise in health insurance coverage—will both stimulate greater demand for health care and allow lower-income households that gain subsidized coverage to increase their spending on other goods and services, slightly boosting GDP growth.¹
- In addition, the recent retroactive extension through 2014 of various tax provisions that had expired at the end of 2013 is projected to make businesses' tax payments in 2015 smaller than they would otherwise have been and, as a result, to provide a small boost to output growth this year. (Those provisions, which reduced the tax liabilities of individuals and corporations, include bonus depreciation allowances, which permit certain businesses to deduct the cost of new investments from taxable income more rapidly than they could otherwise.)

By contrast, changes in federal fiscal policy restrained output growth in the past several years. For example, in 2013, they reduced growth by roughly 1½ percentage points, according to CBO's estimates, primarily because tax rates on some income increased when certain tax provisions expired and because the federal government cut its purchases of goods and services (relative to the size of the economy) as sequestration under the Budget Control Act of 2011 (Public Law 112-25) took effect. In 2014, changes in fiscal policy reduced output growth by an estimated one-quarter of one percentage point. The main reason was that extended unemployment insurance expired at the end of 2013. Also, the temporary expiration of bonus depreciation at the end of 2013 increased tax payments and may have discouraged investment by firms that did not expect bonus depreciation to be retroactively extended through 2014. In addition, continued reductions in federal purchases (relative to the size of the economy) restrained the demand for goods and services.

From 2016 through 2019, changes in federal fiscal policy that result from current law will affect the economy in different ways.² The stimulus provided by the automatic stabilizers in the federal budget (that is, provisions of law that automatically decrease revenues or increase outlays when the economy weakens) will continue to wane as the

economy improves and will therefore provide a smaller boost to the demand for goods and services.³ Collections of corporate and individual income taxes will rise because of the expiration at the end of 2014 of bonus depreciation and other tax provisions, reducing GDP. In addition, rising income will push some taxpayers into higher tax brackets over time, which will reduce their incentive to work and thus reduce labor supply and GDP.

The ACA will also affect the labor market in coming years and therefore affect output.⁴ The largest impact of the ACA on the labor market, especially as slack diminishes, will be that some provisions of the act raise effective tax rates on earnings and thus reduce the amount of labor that some workers choose to supply. That effect occurs partly because the health insurance subsidies that the act provides through the Medicaid expansion and the exchanges are phased out for people with higher income, creating an implicit tax on additional earnings by some people, and partly because the act directly imposes higher taxes on the labor income of other people.

Monetary Policy and Interest Rates

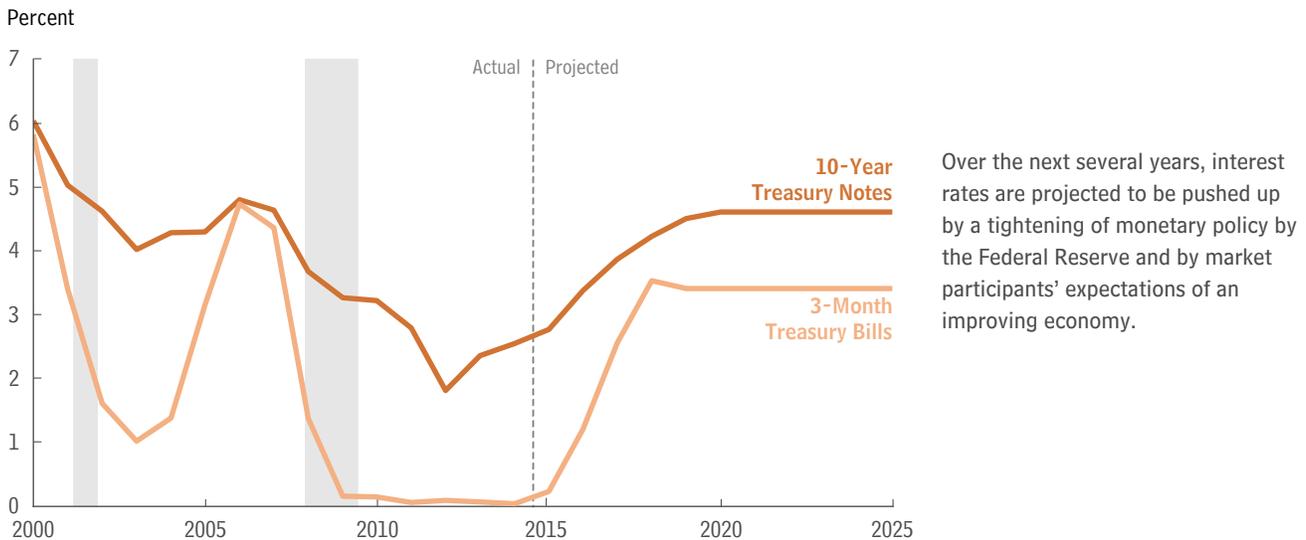
CBO expects that, over the next few years, the Federal Reserve will gradually reduce the extent to which monetary policy supports economic growth. In CBO's forecast, the federal funds rate—the interest rate that financial institutions charge each other for overnight loans of their monetary reserves—rises from 0.1 percent at the end of 2014 to 0.6 percent by the end of 2015 and then settles at 3.7 percent in 2019. CBO expects the Federal Reserve to achieve that increase by raising the interest rate that it pays banks on their deposits at the Federal Reserve (the interest rate on overnight reserves) and by selling and repurchasing some securities on a temporary basis (in what are known as reverse repurchase agreements).

1. For CBO's current estimates of how the ACA will affect health insurance coverage, see Appendix B.

2. The effects described in this paragraph and the following one are incorporated into CBO's projections; however, the agency has not separately quantified the impact that each would have.

3. All else being equal, automatic stabilizers affect the demand for goods and services by changing the amount of taxes that households and businesses pay and the transfer payments that households receive. The change in demand, in turn, affects businesses' decisions to gear up production and hire workers, changing income and demand further. For CBO's current estimates of the automatic stabilizers' effects on the federal budget, see Appendix D.

4. For more information, see Congressional Budget Office, *The Budget and Economic Outlook: 2014 to 2024* (February 2014), Appendix C, www.cbo.gov/publication/45010.

Figure 2-2.**Interest Rates on Treasury Securities**

Sources: Congressional Budget Office; Federal Reserve.

Note: Data are annual. Actual data are plotted through 2014.

CBO projects the interest rate on three-month Treasury bills to remain near zero until mid-2015, to increase to 2.6 percent in 2017, and to be 3.4 percent in 2019 (see Figure 2-2). CBO's projections for short-term interest rates were broadly consistent with the expectations of participants in the financial markets when the agency's forecast was completed in early December, although those expectations now suggest somewhat lower interest rates over the next few years.

According to CBO's projections, the interest rate on 10-year Treasury notes will rise from 2.4 percent in the second half of 2014 to 3.9 percent in 2017 and then settle at 4.6 percent by the end of 2019. That rise will reflect continued improvement in economic conditions and the expected rise in short-term interest rates. However, CBO expects that those long-term rates will reach 4.6 percent somewhat later than the interest rate on three-month Treasury bills reaches 3.4 percent. The main reason for the difference in timing is that the long-term rates will probably be held down by the Federal Reserve's large portfolio of long-term assets. The Federal Reserve has indicated that it will begin to gradually reduce its holdings of long-term assets at some point after it starts raising the federal funds rate, depending on economic and financial conditions and the economic outlook; CBO projects that those holdings will start to decline in 2016, but that they will take many years to fall to historical levels.

Contributions to the Growth of Real GDP

CBO expects the growth of real GDP from 2015 through 2019 to be driven largely by consumer spending and investment, both business and residential. Government purchases are projected to have a small positive effect on GDP growth in 2016 and 2017. In contrast, net exports will restrain growth in 2015 and 2016, although they will contribute to growth thereafter, CBO projects.

Consumer Spending. After growing by an estimated 2.2 percent from the fourth quarter of 2013 to the fourth quarter of 2014, real spending on consumer goods and services will grow by 3.3 percent in 2015, CBO expects. Because consumer spending accounts for about two-thirds of GDP, that projection means that consumer spending will contribute 2.3 percentage points to the projected growth of GDP this year (see Figure 2-3). CBO estimates that consumer spending will grow more slowly in later years and contribute an average of about 1½ percentage points to the growth of output from 2016 through 2019, which would be close to its average contribution over the past five years.

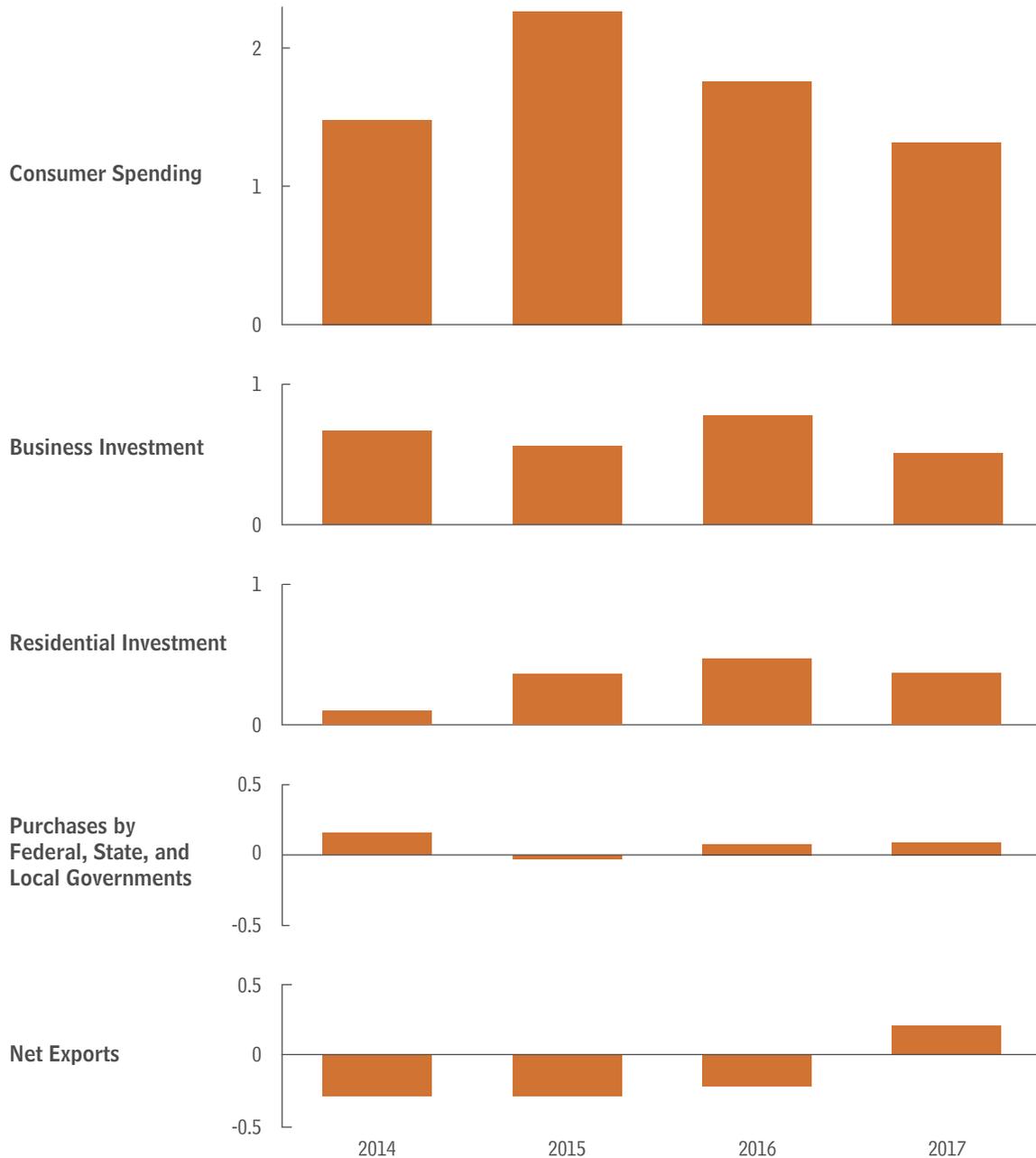
The same factors that spurred the growth of consumer spending in 2014—solid gains in real disposable (after-tax) personal income and household wealth—will continue to do so over the next few years, in CBO's assessment. The agency expects that real disposable personal income will again grow solidly in 2015, driven

Figure 2-3.

Projected Contributions to the Growth of Real GDP

Consumer spending and investment will drive the growth of real GDP over the next few years, CBO expects.

Percentage Points



Source: Congressional Budget Office.

Notes: Data are annual. The values show the percentage-point contribution of the major components of GDP to the fourth-quarter-to-fourth-quarter growth rate of real GDP (output adjusted to remove the effects of inflation). Consumer spending is personal consumption expenditures. Business investment includes purchases of equipment, nonresidential structures, and intellectual property products and the change in inventories. Residential investment includes the construction of single-family and multifamily structures, manufactured homes, and dormitories; spending on home improvements; and brokers' commissions and other ownership-transfer costs. The measure of purchases by federal, state, and local governments is taken from the national income and product accounts. Net exports are exports minus imports. The values for 2014 do not incorporate data released by the Bureau of Economic Analysis since early December 2014.

GDP = gross domestic product.

primarily by growth in the compensation of employees (see Figure 2-4). Moreover, energy prices are expected to keep falling in the first part of this year, boosting households' purchasing power, just as they did in the second half of last year. Household wealth increased sharply in 2014, largely because of gains in stock prices, and it is projected to rise again this year—though more slowly—mostly because of rising house prices. In addition, significant improvements in consumer confidence last year are expected to continue to boost spending.

Continued improvements in consumers' creditworthiness and in the availability of credit will also support increases in consumer spending over the next few years, CBO projects. Delinquency rates on consumer loans and home mortgage loans continued to fall last year, and banks have become more willing to make consumer loans. The ratio of household debt to disposable personal income, which had fallen markedly from 2010 through 2012, declined much more slowly in 2013 and 2014, suggesting that households are becoming more willing to borrow, that financial institutions are becoming more willing to lend, or both.

Business Investment. CBO expects investment by businesses—which consists of fixed investment (investment in equipment, nonresidential structures, and intellectual property products) and investment in inventories—to be a key contributor to the growth of real GDP over the next few years. CBO anticipates that real business investment will increase by 4.3 percent between the fourth quarter of 2014 and the fourth quarter of 2015, by 5.9 percent the following year, and by smaller amounts in subsequent years. That projection means that real business investment will contribute 0.6 percentage points to the growth of real GDP in 2015, 0.8 percentage points in 2016, and somewhat less in later years (see Figure 2-3).

The components of fixed investment that have historically been the most sensitive to the business cycle—investment in equipment and nonmining structures—will contribute the most to the growth of investment in 2015, in CBO's estimation.⁵ Growth in those

components will be strong enough to offset a decline in investment in mining structures, which will result from lower oil prices. The decline in mining investment is projected to abate in 2016 as oil prices stabilize, further boosting the overall growth of fixed investment. Inventory investment will be somewhat smaller in 2015 than in 2014, CBO estimates, but have little impact on GDP growth in subsequent years.

Stronger projected growth in the demand for goods and services is a major reason for CBO's expectation of rising business investment. As the effects of very weak growth in demand during and immediately after the recession have faded, businesses have had a greater incentive to increase productive capacity and thus capital services (the flow of services available for production from the stock of capital; see Figure 2-4). As a result, business investment has expanded rapidly in recent years, growing at an average annual rate of 8 percent since 2009. Over the next few years, in response to increasing demand for their products, businesses will keep boosting investment at a pace faster than output growth, CBO projects.

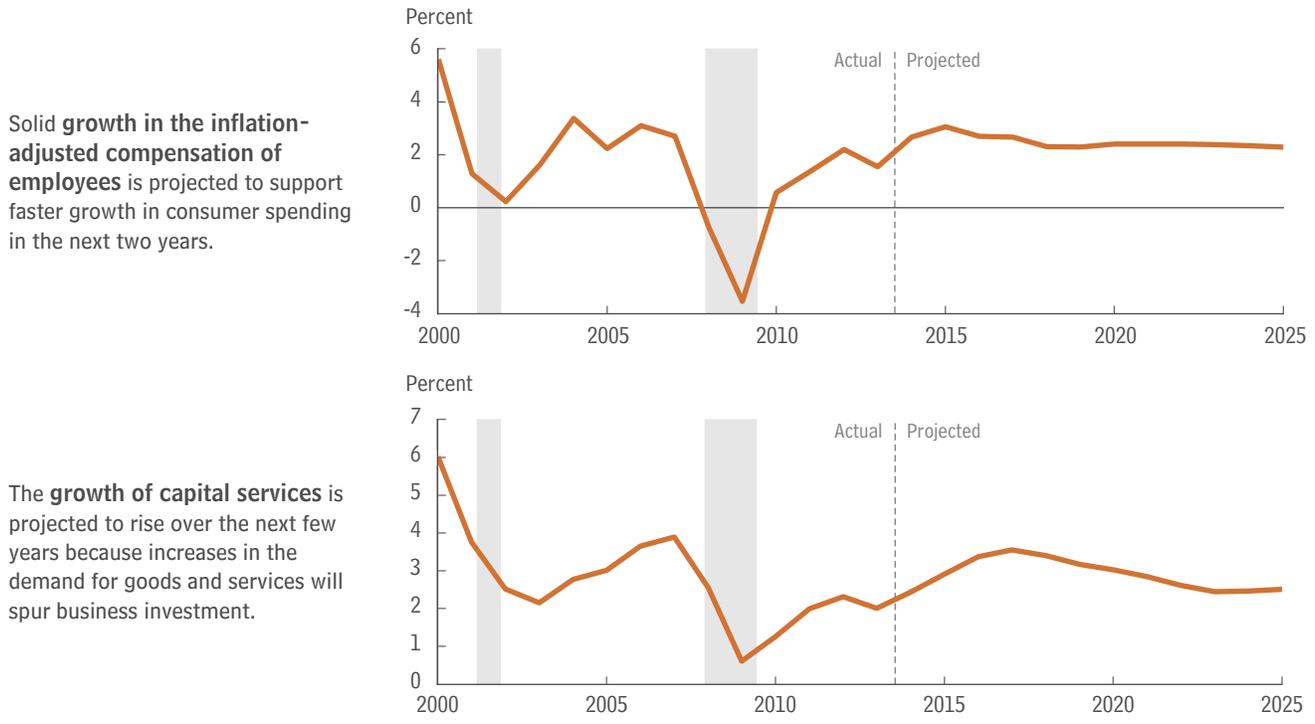
Residential Investment. CBO expects rapid growth in real residential investment over the next few years, but the small size of the sector will limit its contribution to the growth of real GDP. Real residential investment is expected to grow by 11 percent this year on a fourth-quarter-to-fourth-quarter basis, and by more than 13 percent next year, before moderating in subsequent years. That projection implies a contribution to output growth of roughly one-half of one percentage point over each of the next few years (see Figure 2-3).

Housing starts—new, privately owned housing units on which construction begins in a given period—account for a large share of residential investment, and CBO expects them to post very strong growth, from an estimated 1.0 million units in 2014 to roughly 1.7 million units in 2019. The number of housing starts has been low in recent years because of weak household formation and a high vacancy rate (that is, the percentage of homes that are vacant). Household formation has been weaker since 2012 than one would expect, given the size of the increases in employment since then and the historical relationship between employment and household formation (see Figure 2-4). That weakness has probably resulted partly from the fact that lending standards for mortgages have remained fairly tight; household formation may also have been weak because households'

5. The term "business cycle" describes fluctuations in overall economic activity accompanied by fluctuations in the unemployment rate, interest rates, income, and other variables. Over the course of a business cycle, real activity rises to a peak and then falls until it reaches a trough; then it starts to rise again, beginning a new cycle. Business cycles are irregular, varying in frequency, magnitude, and duration.

Figure 2-4.

Factors Underlying the Projected Contributions to the Growth of Real GDP



Solid growth in the inflation-adjusted compensation of employees is projected to support faster growth in consumer spending in the next two years.

The growth of capital services is projected to rise over the next few years because increases in the demand for goods and services will spur business investment.

Sources: Congressional Budget Office; Bureau of Economic Analysis; Bureau of the Census; Consensus Economics.

Notes: Data are annual. Actual data are plotted through 2013. Values for 2014 are CBO's estimates.

In the top panel, inflation-adjusted compensation of employees is total wages, salaries, and supplements divided by the price index for personal consumption expenditures. Percentage changes are measured from the average of one calendar year to the next.

In the bottom panel, capital services are a measure of the flow of services available for production from the real (inflation-adjusted) stock of capital (equipment, structures, intellectual property products, inventories, and land). Percentage changes are measured from the average of one calendar year to the next.

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expectations for income growth have been slow to improve since the recession and because student loans have rendered some young adults unable or unwilling to obtain a mortgage. Better prospects for jobs and wages, as well as greater access to mortgage credit, will encourage more household formation and raise the demand for housing, in CBO's view, despite the negative effects of an expected rise in interest rates for mortgage loans. The greater demand for housing will help to reduce the vacancy rate, which will further encourage home building.

CBO anticipates that the stronger growth in demand for housing will put upward pressure on house prices. That upward pressure will be offset to some degree by the projected increase in the supply of housing units. On balance, CBO projects, house prices—as measured by the

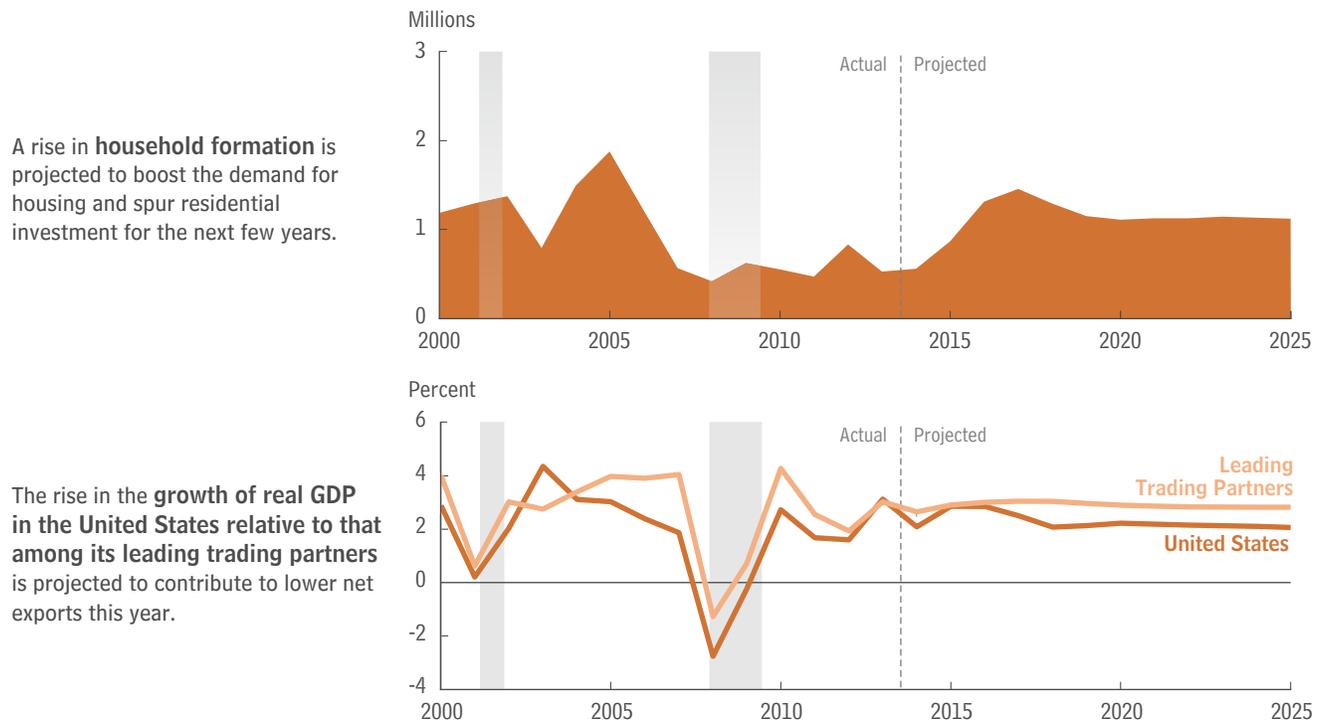
Federal Housing Finance Agency's (FHFA's) price index for home purchases—will increase by almost 3 percent in 2015 and by about 2½ percent per year, on average, over the 2016–2019 period. According to CBO's forecast, FHFA's index will surpass its prerecession peak (without being adjusted for overall inflation) in 2017.

Government Purchases. CBO projects that purchases of goods and services by governments at the federal, state, and local levels—which make up the portion of government spending directly included in GDP—will have little direct effect on the growth of output this year and contribute slightly in later years (see Figure 2-3 on page 34). In 2014, real government purchases increased by nearly 1 percent on a fourth-quarter-to-fourth-quarter basis, providing a mild positive contribution to real GDP growth. (During the previous four years, real government

Figure 2-4.

Continued

Factors Underlying the Projected Contributions to the Growth of Real GDP



A rise in **household formation** is projected to boost the demand for housing and spur residential investment for the next few years.

The rise in the **growth of real GDP in the United States relative to that among its leading trading partners** is projected to contribute to lower net exports this year.

Notes: In the top panel, household formation is the change in the number of households from one calendar year to the next.

In the bottom panel, the percentage change in real (inflation-adjusted) gross domestic product among the United States' leading trading partners is calculated using an average of the rates of growth of their real GDPs, weighted by their shares of U.S. exports. The trading partners included in the average are Australia, Brazil, Canada, China, Hong Kong, Japan, Mexico, Singapore, South Korea, Switzerland, Taiwan, the United Kingdom, and the countries of the euro zone. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next.

GDP = gross domestic product.

purchases had dampened real GDP growth.) This year, CBO expects an increase in real purchases by state and local governments to roughly offset a decline in real purchases by the federal government; in later years, growth in purchases by the former are expected to more than offset continued contractions in purchases by the latter.

CBO's projections of real purchases by state and local governments reflect the agency's expectation that those governments' finances will continue to improve. The recession and weak subsequent recovery, combined with a sharp drop in house prices between 2007 and 2011, significantly reduced those governments' tax revenues and strained their finances. In the past two years, however, the stronger economy and increases in house prices have improved state and local governments' finances, which has allowed them to purchase more. CBO expects real purchases by state and local governments to increase by

about 1 percent per year from 2015 through 2019. In contrast, under current law, real purchases by the federal government—mostly stemming from discretionary appropriations—are projected to fall by 2 percent this year and by an annual average of 0.7 percent over the 2015–2019 period.

Net Exports. CBO expects that net exports (that is, exports minus imports) will impose a drag on GDP growth in 2015 and 2016, just as they did last year. In real terms, net exports are projected to be about \$50 billion lower in the fourth quarter of 2015 than they were in the fourth quarter of 2014, dampening GDP growth by about 0.3 percentage points (see Figure 2-3 on page 34). Real net exports are projected to decline further in 2016, but by a smaller amount—about \$40 billion. In each of the following three years, however, CBO projects that net exports will rise and add slightly to GDP growth.

CBO's projection of net exports is based partly on important differences in the expected pace of economic activity in the United States and among the nation's leading trading partners (see Figure 2-4 on page 36). CBO expects growth in the United States this year to improve relative to the growth of the leading trading partners; consequently, U.S. spending on imports will rise more than the trading partners' spending on U.S. exports will, reducing net exports.⁶ For example, the economies of the euro zone are expected to grow unevenly and sluggishly in 2015 and 2016, and China's economy is projected to grow more modestly over the next few years than in previous years. Over time, though, CBO expects U.S. growth to slow slightly relative to growth among the nation's trading partners and particularly the countries in the euro zone; that will provide a small boost to net exports. Another factor affecting CBO's forecast of net exports is growing domestic energy production, which is expected to reduce demand for imported energy products.

CBO's projection of net exports is also based on the increase in the exchange value of the dollar last year and on the agency's forecast of a slight further increase in the exchange value this year. The increase last year was partly caused by a decline in long-term interest rates among leading U.S. trading partners, particularly in Europe and Asia, and by a deterioration in the outlook for foreign growth. Those developments increased the exchange value of the dollar by boosting the relative demand for dollar-denominated assets. This year, CBO expects the rise in economic growth in the United States relative to growth among the nation's trading partners to continue to contribute to rising interest rates in the United States relative to those abroad. That widening divergence in interest rates is projected to provide an additional boost to the relative demand for dollar-denominated assets and to further increase the exchange value of the dollar. The higher exchange value for the dollar will make imports for U.S. consumers cheaper and U.S. exports to foreign buyers more expensive, dampening net exports in the near term. As growth in foreign economies strengthens over time, however, CBO expects foreign central banks to tighten their monetary policies gradually, which will

6. CBO calculates the growth of leading U.S. trading partners using a weighted average of their growth rates. That measure uses shares of U.S. exports as weights. Similarly, 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.

lower the exchange value of the dollar and contribute to stronger net exports later in the projection period.

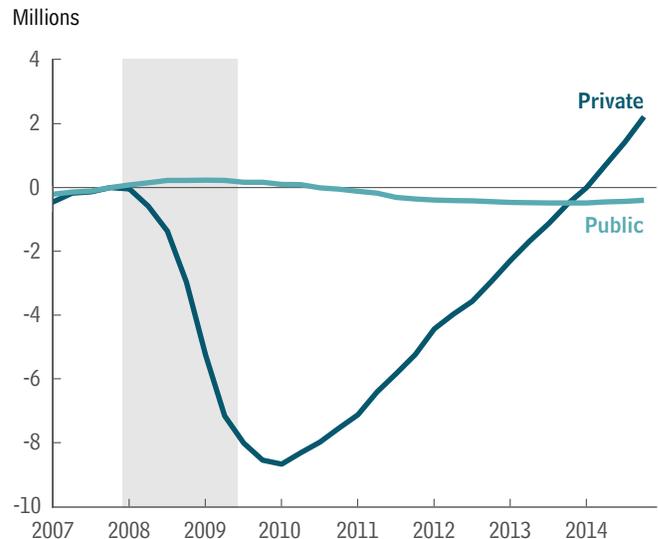
The Labor Market

Employment climbed briskly in 2014, marking more than four years of gains. An average of 234,000 nonfarm jobs were added per month in 2014, significantly more than the monthly average of about 185,000 jobs in the previous three years. Nearly all employment growth since the end of the recession in 2009 has occurred in the private sector, where employment in 2014 surpassed its prerecession peak; employment in the public sector remains well below its prerecession peak (see Figure 2-5).

Although conditions in the labor market improved notably in 2014, CBO estimates that a significant amount of slack remains. But CBO anticipates that the strengthening economy will lead to continued gains in employment, largely eliminating that slack by 2017.

Figure 2-5.

Changes in Private and Public Employment Since the End of 2007



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: Private employment consists of all employees on the payrolls of nonfarm private industries. Public employment consists of all employees on government payrolls, excluding temporary and intermittent workers hired by the federal government for the decennial census.

Changes are measured from the beginning of the recession in the fourth quarter of 2007.

Data are quarterly and are plotted through the fourth quarter of 2014.

Current Slack in the Labor Market. Slack in the labor market includes the degree to which people who are not working would work if employment prospects were better, as well as the degree to which people who are employed would work longer hours if they could. Measuring slack is difficult, especially in light of the unusual developments that have taken place in the labor market since the recent recession. But in CBO’s view, the key components of slack in the labor market are the following:

- The number of people working or actively looking for work is smaller than would be expected if the demand for workers was stronger. Specifically, the labor force participation rate—the percentage of people in the civilian noninstitutionalized population who are at least 16 years old and are either working or actively seeking work—is well below CBO’s estimate of the *potential* labor force participation rate, which is the rate that would exist if not for the temporary effects of fluctuations in the overall demand for goods and services attributable to the business cycle.
- The unemployment rate is higher than CBO’s estimate of the current natural rate of unemployment.
- The share of part-time workers who would prefer full-time work is unusually high.

Several indicators provide additional evidence that significant slack remains in the labor market. Most important is hourly labor compensation, which continues to grow more slowly than it did before the recession. Other indicators are the rate at which job seekers are hired and the rate at which workers are quitting their jobs, both of which remain lower than they were before the last recession.

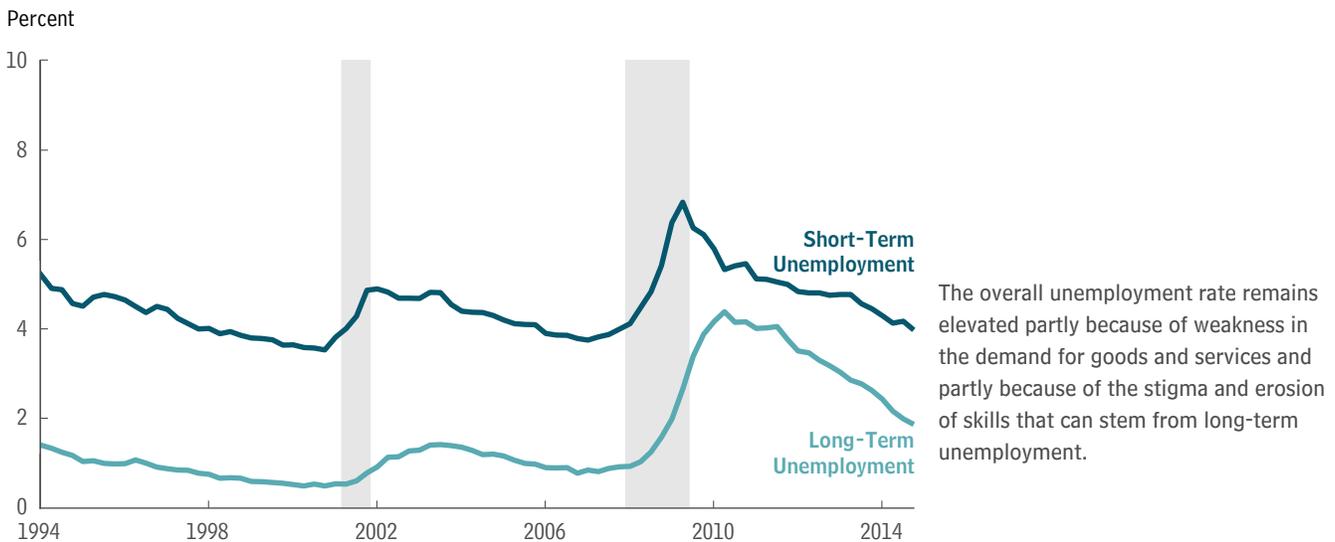
If the unemployment rate had returned to its level in December 2007, and if the labor force participation rate had equaled its potential rate, there would have been more people employed in 2014—about 2¾ million more in the fourth quarter, according to CBO’s estimates. The elevated unemployment rate and the depressed labor force participation rate account for that shortfall in roughly equal proportions. The equivalent shortfall in employment in the fourth quarter of 2013 was about 5¼ million people, largely reflecting the elevated unemployment rate, CBO estimates; at its peak in 2009, the shortfall was 8½ million people. Those estimates of

shortfalls in employment use a measure that does not include the number of people who have left the labor force permanently in response to the recession and slow recovery. However, the measure includes unemployed workers who would have difficulty finding jobs even if demand for workers were higher. Different measures of shortfalls in employment might be appropriate for some purposes.

Labor Force Participation. The labor force participation rate fell from 65.9 percent in the fourth quarter of 2007, at the beginning of the recession, to 62.8 percent in the second quarter of 2014; it has since stabilized. About 1¾ percentage points of that roughly 3 percentage-point decline in participation, CBO estimates, stems from long-term trends (especially the aging of the population), but the rest of the decline is attributable to the weakness of the economy during the past several years. Specifically, about three-quarters of one percentage point represents the extent to which actual participation is lower than potential participation because of the recent cyclical weakness in employment prospects and wages; that gap is one component of slack in the labor market, and it will close over time as more people enter or reenter the labor force (as this chapter discusses below in “The Labor Market Outlook Through 2019” on page 42). And about one-half of one percentage point of the decline represents workers who became discouraged by the persistent weakness in the labor market and permanently dropped out of the labor force.⁷

Unemployment. The unemployment rate was 5.7 percent in the fourth quarter of 2014, roughly three-quarters of one percentage point above its level at the end of 2007. CBO estimates that roughly one-quarter of one percentage point of the difference between the rate in the fourth quarter and the rate before the recession is a temporary effect of cyclical weakness in the economy and thus is another component of slack in the labor market. (At its peak, in late 2009, the temporary effect of cyclical weakness on the unemployment rate was about 4¼ percentage points, CBO estimates.) CBO estimates that structural

7. Since publishing its most recent previous projections in *An Update to the Budget and Economic Outlook: 2014 to 2024* (August 2014), www.cbo.gov/publication/45653, CBO has revised downward its estimate of the degree to which the persistent weakness in the labor market led some workers to become discouraged and permanently drop out of the labor force. See “Comparison With CBO’s August 2014 Projections” on page 52.

Figure 2-6.**Rates of Short- and Long-Term Unemployment**

Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The rate of short-term unemployment is the percentage of the labor force that has been out of work for 26 weeks or less. The rate of long-term unemployment is the percentage of the labor force that has been out of work for at least 27 consecutive weeks.

Data are quarterly and are plotted through the fourth quarter of 2014.

factors account for the remainder of the difference (and an equivalent increase in CBO's estimate of the natural rate of unemployment).⁸ In particular, the stigma and erosion of skills that can stem from long-term unemployment (that is, unemployment that lasts for at least 27 consecutive weeks), which have remained higher than they were before the recent recession, are continuing to push up the unemployment rate.⁹

The difference between the unemployment rate in the fourth quarter and the unemployment rate before the recession can be explained entirely by an increase in long-term unemployment. Though the rate of short-term unemployment (the number of people unemployed for 26 weeks or less as a percentage of the labor force) in the fourth quarter of 2014 nearly matched the rate in the

fourth quarter of 2007, the rate of long-term unemployment was still nearly 1 percentage point above the earlier rate of 0.9 percent (see Figure 2-6). The elevated rate of long-term unemployment in part reflects an increase in the natural rate of unemployment, but in CBO's view, that elevated rate also reflects slack in the labor market. CBO expects that many of the long-term unemployed who are not near retirement age will be employed again in the next few years. Indeed, much of the decline in the rate of long-term unemployment last year appears to have happened because people found work, not because they left the labor force.

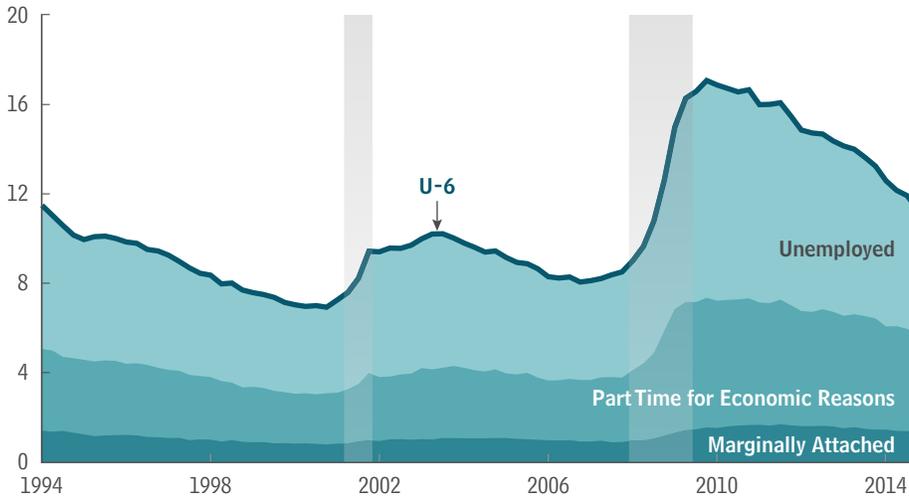
Part-Time Employment. Another component of labor market slack is the number of people employed but not working as many hours as they would like. The incidence of part-time employment for economic reasons (that is, part-time employment among workers who would prefer full-time employment) remains significantly higher than it was before the recession (see Figure 2-7). The continued large share of part-time workers is one reason that the Bureau of Labor Statistics' U-6 measure of underused labor stood at 11.4 percent in the fourth quarter of 2014, down from a peak of 17.1 percent in the fourth quarter

8. CBO has revised that estimate of the effect of the structural factors downward since publishing its most recent previous projections in August. See "Comparison With CBO's August 2014 Projections" on page 52.

9. Another structural factor that raised the unemployment rate until recently, in CBO's view, was a decrease in the efficiency with which employers filled vacancies. CBO estimates that that effect dissipated by late 2014.

Figure 2-7.**Underuse of Labor**

Percentage of the Labor Force Plus Marginally Attached Workers



The **U-6** measure of the underuse of labor has fallen since the end of the recession but remains quite high: The percentage of people who are unemployed, the percentage of people who are employed **part time for economic reasons**, and the percentage of people who are **marginally attached** to the labor force are all greater than they were before the recession began.

Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: Part-time employment for economic reasons refers to part-time employment among workers who would prefer full-time employment. People who are marginally attached to the labor force are those who are not currently looking for work but have looked for work in the past 12 months.

Data are quarterly and are plotted through the fourth quarter of 2014.

of 2009 but still nearly 3 percentage points above its level before the recession.¹⁰

Indicators of Labor Market Slack. Continued weak growth in hourly rates of labor compensation (that is, wages, salaries, and benefits) is an important signal that significant slack remains in the labor market. The reason is that when slack exists—that is, when labor resources are underused and many workers are unemployed or working fewer hours than they would like—firms can hire from a large pool of underemployed workers. Hence, the firms have a smaller incentive to increase compensation in order to attract workers.

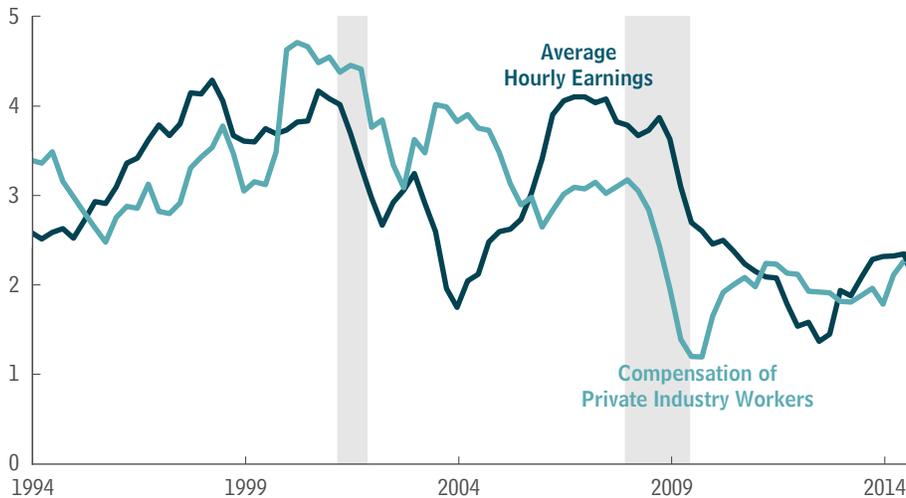
10. The U-6 measure combines the number of unemployed people, the number of people who are employed part-time for economic reasons, and the number of people who are “marginally attached” to the labor force (that is, who are not currently looking for work but have looked for work in the past 12 months). It divides the total by the number of people in the labor force plus the number of marginally attached workers. The number of workers who are marginally attached to the labor force is also larger than it was before the recession—about 2.1 million people in the fourth quarter of 2014, up from about 1.4 million in the fourth quarter of 2007.

Labor compensation continues to grow considerably more slowly than it did before the recession, although it sped up a bit in 2014, according to some measures. Hourly rates of compensation, as measured by the employment cost index (ECI) for workers in private industry, grew by 2.0 percent in 2013; during the year ending in the third quarter of 2014, such compensation rose at an annual rate of 2.3 percent (see Figure 2-8). Similarly, the ECI for wages and salaries alone rose slightly faster last year than in the previous year—at an annual rate of 2.2 percent during the year ending in the third quarter of 2014, as opposed to 2.0 percent in 2013. Another measure—the average hourly earnings of production and nonsupervisory workers on private non-farm payrolls, which measures only wages—grew a bit more slowly in 2014 than in 2013. However, all of those compensation measures were growing faster before the recession.

Two other indicators of slack in the labor market, the rate at which job seekers are hired and the rate at which workers are quitting their jobs (as a fraction of total employment), also have not fully recovered. Those rates have improved since reaching low points in the second quarter

Figure 2-8.**Measures of Compensation Paid to Employees**

Percentage Change



When labor is underused—as is currently the case—firms can hire from a relatively large pool of underemployed workers and thus have less incentive to increase compensation to attract workers.

Accordingly, compensation has been growing considerably more slowly than it did before the recession.

Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: Average hourly earnings are earnings of production and nonsupervisory workers on private nonfarm payrolls. Compensation is measured by the employment cost index for workers in private industry.

Data are quarterly. Average hourly earnings are plotted through the fourth quarter of 2014; the employment cost index is plotted through the third quarter of 2014. Percentage changes are measured from the same quarter one year earlier.

of 2009, suggesting that employers are gaining confidence in the strength of the economy and that workers are more confident about finding new jobs after quitting. However, each rate has recovered only about two-thirds of the decline from its 2001–2007 average.

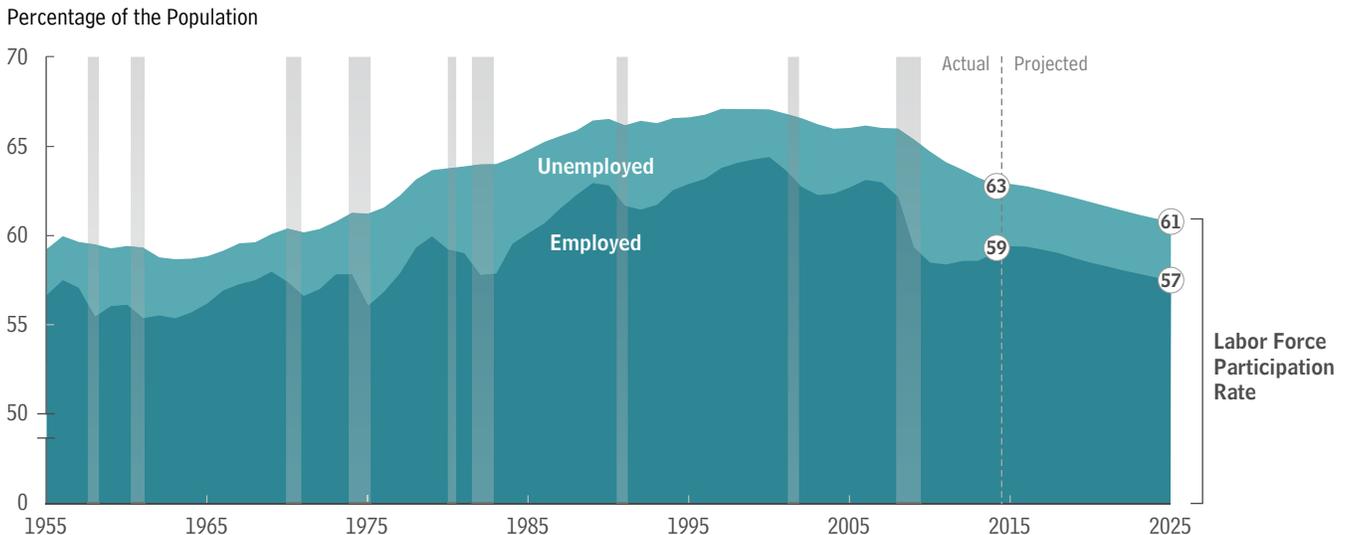
Difficulties in Measuring Slack in the Labor Market. Considerable difficulties arise in measuring slack in the labor market, especially under current circumstances. For example, in assessing potential labor force participation, CBO estimated how many people permanently dropped out of the labor force because of such factors as long-term unemployment. However, CBO may have underestimated or overestimated that number, and therefore potential labor force participation could be lower or higher, respectively, than the agency thinks. Similarly, CBO's estimate of the increase in the natural rate of unemployment since before the recession incorporates the agency's estimate of the decrease in the efficiency with which employers fill vacancies. That decrease in efficiency has dissipated over the past year, in CBO's judgment, as workers have acquired new skills, shifted to faster-growing industries and occupations, and relocated to take

advantage of new opportunities. But if such adjustments in the labor market have occurred more slowly than CBO has estimated, the natural rate of unemployment would currently be higher than CBO has estimated. A higher natural rate would suggest more upward pressure on wages for any given unemployment rate.

The Labor Market Outlook Through 2019. The growth of output this year will increase the demand for labor, leading to solid employment gains and a further reduction in labor market slack, according to CBO's estimates. Those developments are expected to continue at a more moderate pace over the following two years. The unemployment rate is projected to fall to 5.5 percent in the fourth quarter of 2015 and to edge down to 5.3 percent by the fourth quarter of 2017 (see Table 2-1 on page 30). CBO expects the decline in the unemployment rate to be tempered by the fact that labor force participation, because of the stronger labor market, will decline less than would be expected on the basis of demographics and certain other factors. CBO also expects the diminished slack in the labor market to raise the growth of hourly labor compensation modestly.

Figure 2-9.**The Labor Force, Employment, and Unemployment**

The percentage of the population that is employed is projected to fall over the next 10 years because of declining participation in the labor force, mainly by baby boomers as they age and move into retirement.



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: 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. The population is the civilian noninstitutionalized population age 16 or older.

Data are annual. Actual data are plotted through 2014.

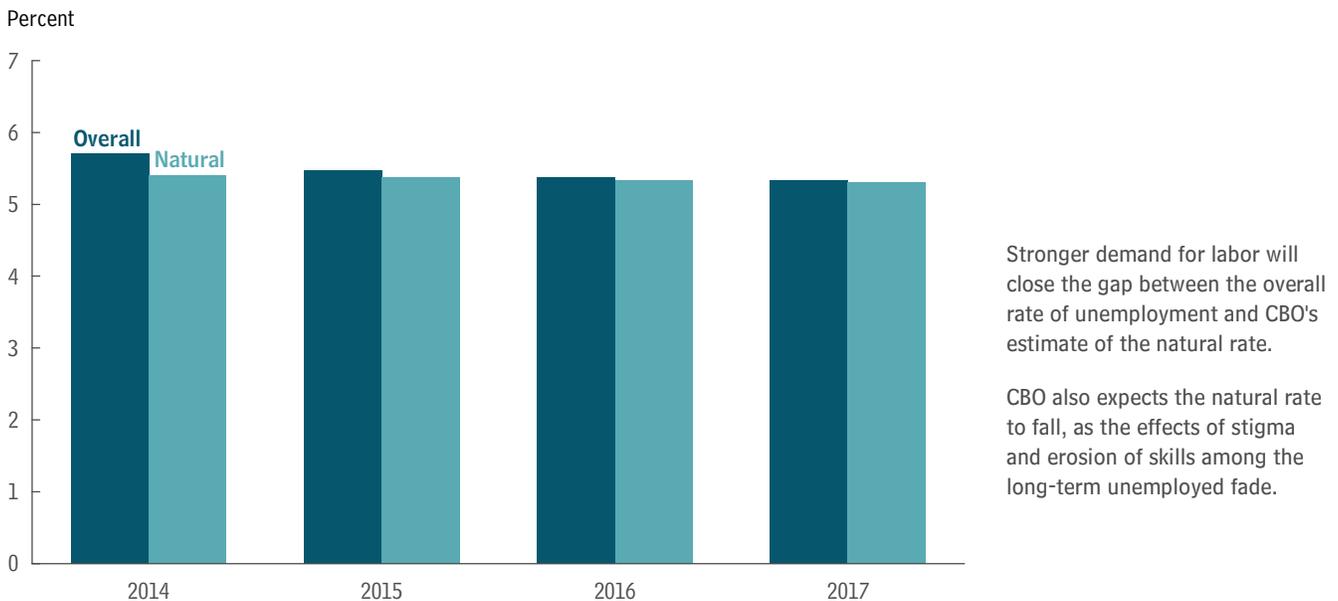
CBO's labor market projections for 2018 and 2019 are largely based on a transition to the agency's projections for later years, when the relationship between the unemployment rate and the natural rate of unemployment is expected to match its historical average. Therefore, CBO projects slightly higher unemployment rates in 2018 and 2019—5.4 percent and 5.5 percent, respectively.

Employment. CBO expects nonfarm payroll employment to rise by an average of about 180,000 jobs per month in 2015. In 2016 and 2017, the average projected increase is about 130,000 per month, a number that is consistent with the expected moderation of output growth as output converges on its potential. That projection is also consistent with the expected improvement in productivity growth. Growth in employment and in total hours worked in the past two years was faster than what the modest growth in GDP during that period would have suggested, which meant that labor productivity grew unusually slowly. This year, CBO expects that labor productivity will grow at close to its average rate over the most recent business cycle, which means that output can grow more rapidly than it did last year even though

employment is projected to grow a little more slowly than it did last year.

Despite the diminishing slack in the labor market, the number of people employed as a percentage of the population is projected to remain close to its current level—about 59 percent—through 2019 (see Figure 2-9). That percentage is well below the levels seen in the two decades before the recent recession, a difference that primarily reflects the long-term trends pushing down labor force participation, above all the aging of the baby boomers and their move into retirement.

Labor Force Participation. The rate of labor force participation has dropped noticeably in recent years, and CBO expects the rate to continue to decline—by about one-half of one percentage point (to 62.5 percent) by the end of 2017 and by an additional one-half of one percentage point (to 62 percent) by 2019. A number of factors will dampen participation. The most important is the ongoing movement of the baby-boom generation into retirement. Federal tax and spending policies—in particular, certain aspects of the ACA, and also the structure of

Figure 2-10.**Overall and Natural Rates of Unemployment**

Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The overall 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 natural rate is CBO's estimate of the rate arising from all sources except fluctuations in the overall demand for goods and services.

Data are fourth-quarter values. The value for the overall rate in 2014 is actual; values in other years are projected.

the tax code, whereby rising income pushes some people into higher tax brackets—will also tend to lower the participation rate in the next several years.¹¹

But another factor is projected to offset some of those effects. Increasing demand for labor as the economy improves is expected to boost participation in the next few years: Some workers who left the labor force temporarily, or who stayed out of the labor force because of weak employment prospects, will enter the labor force, and other workers will choose to stay in the labor force rather than drop out. Those factors will push the labor force participation rate back toward its potential rate. Therefore, the projected decline in the labor force participation rate over the next few years is slower than what would result from demographic changes and the effects of fiscal policy alone.

The Unemployment Rate. For two reasons, CBO expects the unemployment rate to decline from an average of 6.2 percent in 2014 to 5.3 percent in 2017 (see Figure 2-10). First, stronger demand for labor will close the gap between the unemployment rate and the natural rate. Second, CBO expects the natural rate to fall as the effects of stigma and erosion of skills among the long-term unemployed fade.

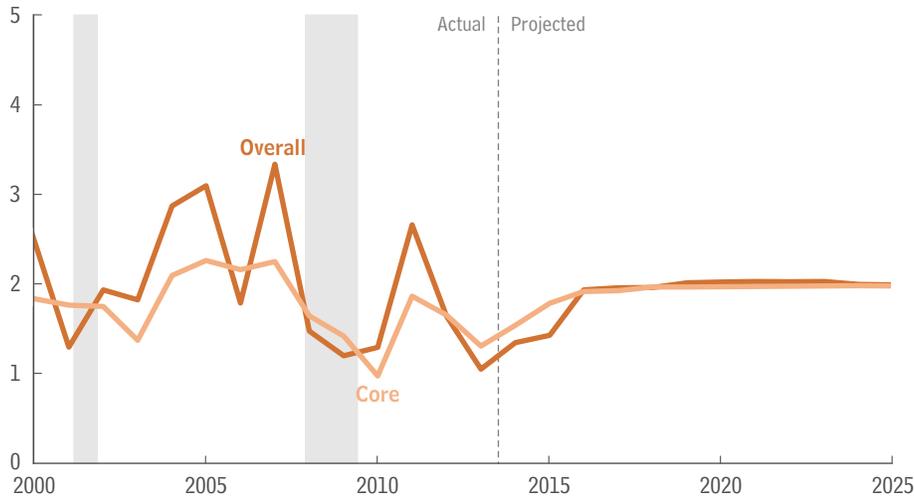
However, the unemployment rate is projected to decline much less than it has in recent years, because CBO expects growth in employment and the drop in the labor force participation rate to be slower during the next few years, on balance, than they have been in the past few years.

Labor Compensation. CBO projects stronger growth in hourly labor compensation over the next several years than in 2014. That pickup is consistent with the agency's projection of firms' stronger demand for workers. To some degree, firms can attract unemployed or underemployed workers without increasing compensation growth. However, as slack in the labor market diminishes

11. For more information about the ACA's effects on labor force participation, see Congressional Budget Office, *The Budget and Economic Outlook: 2014 to 2024* (February 2014), Appendix C, www.cbo.gov/publication/45010.

Figure 2-11.**Inflation**

Percentage Change in Prices



CBO anticipates that prices will rise modestly over the next several years, reflecting the remaining slack in the economy and widely held expectations for low and stable inflation.

Sources: Congressional Budget Office; Bureau of Economic Analysis.

Notes: 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. Percentage changes are measured from the fourth quarter of one calendar year to the fourth quarter of the next. Actual data are plotted through 2013; the values for 2014 are CBO's estimates and do not incorporate data released by the Bureau of Economic Analysis since early December 2014.

and firms must increasingly compete for workers, CBO projects that growth in hourly compensation will pick up. That increase in compensation will boost labor force participation and the number of available workers, thereby moderating the overall increase in compensation growth. CBO expects the ECI for total compensation of workers in private industry to increase at an average annual rate of 3.6 percent from 2015 through 2019, compared with an average of about 2 percent during the past several years. The growth of other measures of hourly labor compensation, such as the average hourly earnings of production and nonsupervisory workers in private industries, is similarly expected to increase.

Inflation

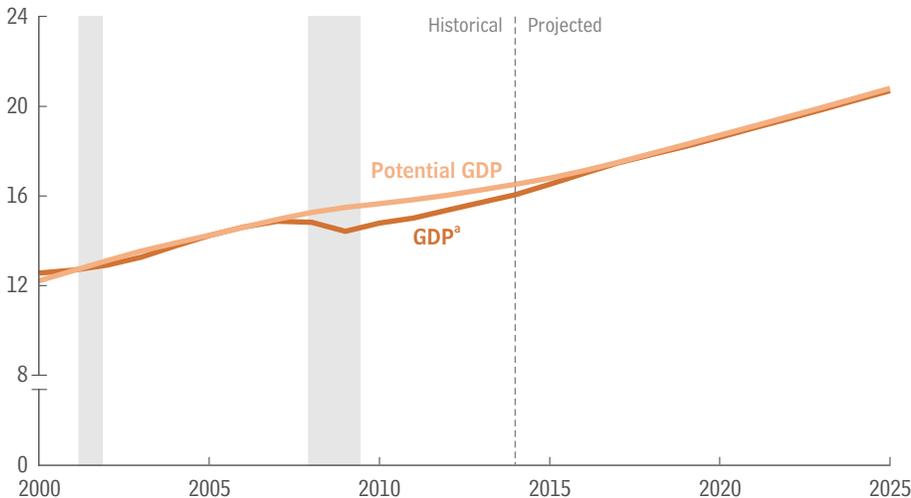
CBO projects that the rate of inflation in 2015—as measured by the percentage change in the PCE price index from the fourth quarter of 2014 to the fourth quarter of 2015—will remain subdued (see Table 2-1 on page 30 and Figure 2-11). CBO expects less downward pressure on inflation this year and in the next few years because of the diminishing amount of slack in the economy. In 2015, however, CBO expects significant downward pressure on inflation to result from two recent developments: the increase in the exchange value of the dollar, which

will reduce inflation by lowering import prices, and lower prices for crude oil, which will reduce energy prices (see Box 2-2 on page 31). In CBO's projections, inflation in the PCE price index will be 1.4 percent this year, very slightly above last year's estimated 1.3 percent. By contrast, CBO expects the *core* PCE price index—which excludes prices for food and energy—to rise at a faster 1.8 percent rate this year after an estimated 1.5 percent increase last year.

In 2016 and 2017, CBO projects the rate of overall PCE inflation to be close to the rate of core PCE inflation because of a partial rebound—consistent with prices in oil futures markets—in the price of crude oil. Given expectations for inflation and the anticipated reduction in slack, the projected rate of inflation for both measures rises to 1.9 percent in 2016 and stabilizes at 2.0 percent by the end of 2017. That rate is equal to the Federal Reserve's longer-term goal, reflecting CBO's judgment that consumers and businesses expect inflation to occur at about that rate and that the Federal Reserve will make changes in monetary policy to prevent inflation from exceeding or falling short of its goal for a prolonged period.

Figure 2-12.**GDP and Potential GDP**

Trillions of 2009 Dollars



The gap between GDP and potential GDP—a measure of underused resources, or slack—will essentially be eliminated by the end of 2017, CBO expects.

Sources: Congressional Budget Office; Bureau of Economic Analysis.

Notes: Potential gross domestic product is CBO's estimate of the maximum sustainable output of the economy.

Data are annual. Actual data are plotted through 2013; projections are plotted through 2025 and are based on data available through early December 2014.

GDP = gross domestic product.

a. From 2020 to 2025, the projection for actual GDP falls short of that for potential GDP by one-half of one percent of potential GDP.

The consumer price index for all urban consumers (CPI-U) and its core version are expected to increase a little more rapidly than their PCE counterparts, because of the different methods used to calculate them and also because housing rents play a larger role in the consumer price indexes. CBO projects that the difference between inflation as measured by the CPI-U and inflation as measured by the PCE price index after this year 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 2020 Through 2025

CBO's economic projections for 2020 through 2025 are not based on forecasts of cyclical developments in the economy, as its projections for the next several years are. Rather, they are based on projections of underlying growth factors—such as the growth of the labor force, of hours worked, and of productivity—that exclude cyclical movements. Actual outcomes will no doubt deviate from what the underlying growth factors suggest, so CBO's economic projections are intended to reflect average

outcomes. The projections take into account several factors: historical patterns for the nonfarm business sector and for the rest of the economy; projected changes in demographics; the response of investment to those and other long-term trends; CBO's estimates of the persistent effects of the 2007–2009 recession and of the slow economic recovery that followed it; and federal tax and spending policies under current law.

CBO projects that real GDP will be about one-half of one percent below real potential GDP, on average, during the 2020–2025 period (see Figure 2-12). That gap is based on CBO's estimate that output has been roughly that much lower than potential output, on average, over the period from 1961 to 2009, a period that included seven complete business cycles (measured from trough to trough). Indeed, over the course of each of the five complete business cycles that have occurred since 1975, output has been lower than potential output, on average: CBO estimates that over each of those cycles, the shortfall in output relative to potential output during and after that cycle's economic downturn has been larger and has

lasted longer than the excess of output over potential output during that cycle's economic boom.¹²

In CBO's projections for the 2020–2025 period:

- The growth of real GDP averages 2.2 percent per year, as does the growth of real potential GDP.
- The unemployment rate edges down from 5.5 percent in 2020 to 5.4 percent in 2022 and subsequent years; during that period, it slightly exceeds CBO's estimate of the natural rate of unemployment, which is consistent with CBO's projection that output will fall short of potential output.
- Both inflation and core inflation, as measured by the PCE price index, average 2.0 percent a year. Inflation as measured by the CPI-U is somewhat higher.
- The interest rates on 3-month Treasury bills and 10-year Treasury notes are 3.4 percent and 4.6 percent, respectively.

Potential Output

The growth in real potential output that CBO projects for the 2020–2025 period (2.2 percent per year, on average) is substantially slower than CBO's estimate of the growth in real potential output during the business cycles, as measured from peak to peak, that occurred between 1982 and 2007 (3.1 percent per year, on average) but substantially faster than the growth in potential output during the current business cycle so far—that is, between 2008 and 2014 (1.4 percent per year, on average). Those differences reflect changes in the growth of potential hours worked, the growth of capital services, and the growth of potential productivity—primarily in the nonfarm business sector, which represents roughly three-quarters of total output. In addition, CBO's projection for potential output in the 2020–2025 period is lower than it would have been if the 2007–2009 recession had not occurred. According to CBO's estimates, the recession and the ensuing slow recovery have weakened the factors that determine potential output—labor supply, capital services, and productivity—for an extended period.

12. Further discussion will be provided in Congressional Budget Office, *Why CBO Projects Average Output Will Be Below Potential Output* (forthcoming).

Overall Output Growth. The main reason that potential output is projected to grow more slowly than it did in the earlier business cycles is that CBO expects growth in the potential labor force (the labor force adjusted for variations caused by the business cycle) to be much slower than it was earlier (see Table 2-2). Growth in the potential labor force will be held down by the ongoing retirement of the baby boomers; by a relatively stable labor force participation rate among working-age women, after sharp increases from the 1960s to the mid-1990s; and by federal tax and spending policies set in current law, which will reduce some people's incentives to work (as this chapter discusses below, in "The Labor Market" on page 50).

The main reason that CBO expects potential output to grow more quickly than it has over the past half-dozen years is that the agency expects the potential productivity of the labor force to grow more quickly. In CBO's projections, potential productivity grows at an annual rate of 1.6 percent from 2020 through 2025, which would be close to its average rate of growth during the business cycles between 1982 and 2007 and substantially higher than the 0.9 percent average rate that CBO estimates for 2008 through 2014. That projected increase, in turn, mostly reflects CBO's assessment of potential total factor productivity, or TFP—which is the average real output per unit of combined labor and capital services—in the nonfarm business sector. That measure has grown unusually slowly since the onset of the recession in 2007, but CBO estimates that it will accelerate during the next few years, returning to its average rate of growth during the years before the recession.

The Nonfarm Business Sector. In the nonfarm business sector, CBO projects that potential output will grow at an average rate of 2.6 percent per year over the 2020–2025 period. Like the projected growth rate of *overall* potential output, that growth rate would be lower than it was during the business cycles from 1982 through 2007 but higher than it has been since 2007.

Potential hours worked in the nonfarm business sector are projected to grow at an average annual rate of 0.6 percent from 2020 through 2025—more slowly than they did in earlier periods (particularly from 1982 through 2001) but more quickly than they did from 2008 through 2014. The reason that growth in hours in that sector is expected to be faster than it was during that most recent period, despite the projected slow growth of the

Table 2-2.**Key Inputs in CBO's Projections of Potential GDP**

Percent, by Calendar Year

	Average Annual Growth						Projected Average Annual Growth			
	1950-1973	1974-1981	1982-1990	1991-2001	2002-2007	2008-2014	Total, 1950-2014	2015-2019	2020-2025	Total, 2015-2025
Overall Economy										
Potential GDP	4.0	3.3	3.2	3.2	2.8	1.4	3.3	2.1	2.2	2.1
Potential Labor Force	1.6	2.5	1.6	1.3	0.9	0.5	1.5	0.5	0.6	0.5
Potential Labor Force Productivity ^a	2.4	0.8	1.6	1.9	1.9	0.9	1.8	1.6	1.6	1.6
Nonfarm Business Sector										
Potential Output	4.1	3.7	3.3	3.6	3.2	1.6	3.5	2.5	2.6	2.5
Potential Hours Worked	1.4	2.4	1.6	1.2	0.7	0.2	1.3	0.5	0.6	0.6
Capital Services	3.9	4.1	4.0	4.3	3.0	2.1	3.7	3.1	2.8	2.9
Potential TFP	1.9	0.8	1.0	1.4	1.8	0.9	1.4	1.2	1.3	1.3
Potential TFP excluding adjustments	1.9	0.8	1.0	1.3	1.3	0.9	1.4	1.2	1.3	1.3
Adjustments to TFP (Percentage points) ^b	0	0	0	0.1	0.5	*	0.1	*	*	*
Contributions to the Growth of Potential Output (Percentage points)										
Potential hours worked	1.0	1.7	1.1	0.9	0.5	0.1	0.9	0.3	0.5	0.4
Capital input	1.2	1.2	1.2	1.3	0.9	0.6	1.1	0.9	0.8	0.9
Potential TFP	1.9	0.8	1.0	1.4	1.8	0.9	1.4	1.2	1.3	1.3
Total Contributions	4.0	3.6	3.3	3.6	3.1	1.6	3.5	2.5	2.6	2.5
Potential Labor Productivity ^c	2.7	1.3	1.7	2.3	2.5	1.5	2.2	2.0	1.9	2.0

Source: Congressional Budget Office.

Notes: 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.

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

overall potential labor force, is that other sectors—including owner-occupied housing, nonprofit institutions serving households, and state and local governments—are expected to become a smaller share of the economy.¹³

Capital services in the nonfarm business sector are also projected to grow more slowly from 2020 through 2025 than they did during the business cycles from 1982 through 2007, primarily because of the slower growth of potential hours worked. But the projected growth of

capital services from 2020 through 2025 is somewhat faster than such growth has been since 2007, reflecting projected increases in investment. The growth of capital

13. The output of the state and local government sector includes only the compensation of state and local employees and the depreciation of equipment, structures, and intellectual property products owned by state and local governments. Other purchases by state and local governments—such as new capital investments, goods that are not capital investments, and contracted services—are part of the output of other sectors of the economy, primarily the nonfarm business sector.

services has been restrained since 2007 because of weak investment, which itself was a response to the cyclical weakness of demand; in the long run, however, the growth of capital services depends mostly on the growth of hours worked and on the rate of increase in productivity.

CBO projects that potential TFP growth in the nonfarm business sector between 2020 and 2025 will equal its average between 2002 and 2007 (after the effects of a temporary surge in the early 2000s are excluded) of 1.3 percent. That is, CBO projects the growth rate of potential TFP to be essentially what recent history, before the recession, would have suggested. That approach is similar to the one that CBO uses to project trends in other factors that determine the growth of potential output. The projected growth rate is also close to the average observed during the business cycles from 1982 through 2007, a longer period that witnessed marked swings in the growth of TFP.¹⁴ However, the projected rate is more rapid than the estimated average annual rate of growth of 0.9 percent from 2008 to 2014, as this chapter discusses below.

Lingering Effects of the Recession and Slow Recovery.

Incorporated into the projection of overall potential output growth is CBO's expectation that each of the factors that determine potential output—potential labor hours, capital services, and potential TFP—will be lower through 2025 than it would have been if not for the recession and slow recovery. In most cases, it is difficult to quantify the effects of the recession and slow recovery on those factors. For example, there is significant uncertainty in estimating how much of the recent weakness in TFP can be traced to the effect of the recession and slow recovery on potential TFP, and how much reflects other developments in the economy. In addition, the effects of the recession and slow recovery on the labor force, capital services, and productivity are interrelated; for example, a smaller potential labor force implies a smaller need for firms to invest in capital services.

In CBO's assessment, the recession and weak recovery have led to a reduction in potential labor hours. Persistently weak demand for workers has led some people to leave the labor force permanently, and persistently high long-term unemployment has generated some stigma and erosion of skills for some workers, pushing the natural rate of unemployment above its prerecession level. CBO estimates that the lasting effects of the recession and slow recovery will, in 2025, boost the unemployment rate by about 0.2 percentage points and depress the labor force participation rate by about 0.3 percentage points.

CBO projects that, by 2025, the primary effect of the recession and the weak recovery on capital services will occur through the number of workers and TFP: Fewer workers require proportionately less capital, all else being equal, and lower TFP tends to reduce investment as well. The economic weakness has also affected capital services because of the plunge in investment during the recession, although CBO expects that effect to dissipate by 2025. In addition, the sharp increase in federal debt—which resulted from changes in fiscal policies that were made in response to the weak economy, as well as from the automatic stabilizers—is estimated to crowd out additional capital investment in the long term. CBO has not quantified the effect of each of those factors in its current projection.

Finally, CBO estimates that the recession and slow recovery contributed to the significant slowdown in the growth of potential TFP from 2008 to 2014 compared with the previous business cycles since 1982—and that slowdown will result in a lower level of potential TFP throughout the next decade even if growth in potential TFP picks up, as CBO expects it to. In CBO's judgment, the protracted weakness in demand for goods and services and the large amount of slack in the labor market lowered potential TFP growth by reducing the speed with which resources were reallocated to their most productive uses, slowing the rate at which workers gained new skills, and restraining businesses' spending on research and development. However, quantifying the role of the recession and weak recovery in the slowdown in potential TFP growth is difficult because factors unrelated to the weak economy may also have slowed such growth. For example, there appears to have been a slowdown in advances in information technology beginning in the few years prior to the

14. During that period, potential TFP grew at an average annual rate of 1.4 percent if the surge in the early 2000s is included and at a rate of 1.2 percent if it is excluded, CBO estimates.

recession.¹⁵ (For more discussion, see “Comparison With CBO’s August 2014 Projections” on page 52.)

The Labor Market

CBO projects that the unemployment rate will edge down from 5.5 percent at the beginning of 2020 to 5.4 percent in 2025, and the agency’s estimate of the natural rate of unemployment falls from 5.3 percent to 5.2 percent over the same period. The labor force participation rate is expected to fall as well, from about 62 percent in 2020 to about 61 percent in 2025.

The decline in the estimated natural rate of unemployment over the 2020–2025 period reflects the diminishing effect of structural factors associated with the extraordinary increase in long-term unemployment—namely, the stigma of being unemployed for a long time and the erosion of skills that can occur. After contributing 0.5 percentage points to the natural rate in 2014, those factors are projected to contribute 0.3 percentage points at the beginning of 2020 and 0.2 percentage points in 2025.

The projected difference of roughly one-quarter of one percentage point between the unemployment rate and the natural rate during the 2020–2025 period is not based on a forecast of particular cyclical movements in the economy. Rather, it is based on CBO’s estimate that the unemployment rate has been roughly that much higher than the natural rate, on average, over the 50-year period ending in 2009.¹⁶ The difference between the projections of the unemployment rate and the natural rate over the 2020–2025 period corresponds to the projected gap between output and potential output that was discussed above.

CBO’s projection of the labor force participation rate in 2025—approximately 61 percent—is about 1 percentage point lower than the rate that it projects for 2020 and 5¼ percentage points lower than that rate at the end of

2007. Most of the projected decline between 2007 and 2025 can be attributed to long-term trends, especially the aging of the population, CBO estimates. The remainder stems from the reduction in some people’s incentive to work resulting from the ACA and the structure of the tax code and from the permanent withdrawal of some workers from the labor force in response to the recession and slow recovery.

Inflation

In CBO’s projections, inflation as measured by the PCE price index and the core PCE price index averages 2.0 percent annually during the 2020–2025 period; that rate is consistent with the Federal Reserve’s longer-term goal. 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, respectively. (Differences in the ways that the two price indexes are calculated make the CPI-U grow faster than the PCE price index, on average.)

Interest Rates

CBO projects that the interest rates on 3-month Treasury bills and 10-year Treasury notes will be 3.4 percent and 4.6 percent, respectively, from 2020 through 2025. CBO expects the federal funds rate to be 3.7 percent during that period.

After being adjusted for inflation as measured by the CPI-U, the projected real interest rate on 10-year Treasury notes equals 2.2 percent between 2020 and 2025. That would be well above the current real rate, but roughly three-quarters of a percentage point below the average real rate between 1990 and 2007, a period that CBO uses for comparison because it featured fairly stable expectations for inflation and no significant financial crises or severe economic downturns. According to CBO’s analysis, a number of factors will act to push down real interest rates on Treasury securities relative to their earlier average: slower growth of the labor force (which reduces the return on capital), slightly slower growth of productivity (which also reduces the return on capital), a greater share of total income going to high-income households (which tends to increase saving), and a higher risk premium on risky assets (which increases the relative demand for risk-free Treasury securities, boosting their prices and thereby lowering their interest rates). Other factors will act to raise real interest rates relative to their earlier average: a larger amount of federal debt as a percentage of GDP (which increases the relative supply of

15. See John Fernald, *Productivity and Potential Output Before, During, and After the Great Recession*, Working Paper 20248 (National Bureau of Economic Research, June 2014), www.nber.org/papers/w20248.

16. Specifically, that has been the average difference between the unemployment rate and CBO’s estimate of the natural rate between 1961 and 2009. The average difference was larger during more recent periods: about three-quarters of one percentage point between 1973 and 2009 and about 1 percentage point between 1973 and 2014.

Treasury securities), smaller net inflows of capital from other countries as a percentage of GDP (which reduces the supply of funds available for borrowing), a smaller number of workers in their prime saving years relative to the number of older people drawing down their savings (which tends to decrease saving and thus also reduces the supply of funds available for borrowing), and a higher share of income going to capital (which increases the return on capital assets with which Treasury securities compete). CBO expects that, on balance, those factors will result in real interest rates on Treasury securities that are lower than those between 1990 and 2007.¹⁷

Projections of Income

Economic activity and federal tax revenues depend not only on the amount of total income in the economy but also on how that income is divided among its constituent parts: labor income, domestic economic profits, proprietors' income, interest and dividend income, and other categories.¹⁸ CBO projects various categories of income by estimating their shares of gross domestic income (GDI).¹⁹ Of the categories of income, the most important components of the tax base are labor income, especially wage and salary payments, and domestic corporate profits.

In CBO's projections, labor income grows faster than the other components of GDI over the next decade, increasing its share from an estimated 56.8 percent in 2014 to 58.3 percent in 2025 (see Figure 2-13).²⁰ The projected increase in labor income's share of GDI stems

17. For a more detailed discussion of the factors affecting interest rates in the future, see Congressional Budget Office, *The 2014 Long-Term Budget Outlook* (July 2014), pp. 108–109, www.cbo.gov/publication/45471.

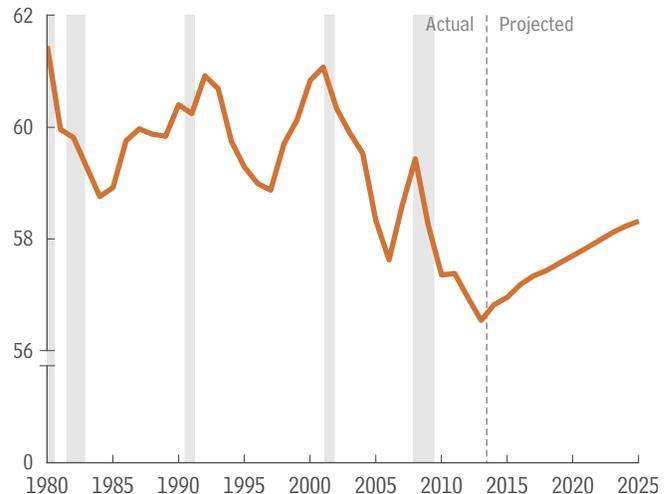
18. Domestic economic profits are corporations' domestic profits adjusted to remove distortions in depreciation allowances caused by tax rules and to exclude the effects of inflation on the value of inventories. Domestic economic profits exclude certain income of U.S.-based multinational corporations that is derived from foreign sources, most of which does not generate corporate income tax receipts in the United States.

19. 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. GDP was about 1 percent smaller than GDI in 2014, but CBO projects that GDP will grow slightly faster than GDI over the next decade, which will leave the gap between the two in 2025 equal to its long-run historical average.

Figure 2-13.

Labor Income

Percentage of Gross Domestic Income



Sources: Congressional Budget Office; Bureau of Economic Analysis.

Notes: Labor income is defined as the sum of employees' compensation and CBO's estimate of the share 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 the labor share of income, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433.

Data are annual. Actual data are plotted through 2013; the value for 2014 is CBO's estimate and does not incorporate data released by the Bureau of Economic Analysis since early December 2014.

primarily from an expected pickup in the growth of real hourly labor compensation, which will result from strengthening demand for labor. However, CBO expects some factors that have depressed labor income's share of GDI in recent years to continue during the coming decade, preventing that share from reaching its 1980–2007 average of nearly 60 percent. In particular, globalization has tended to move the production of labor-intensive goods and services to locations where labor costs

20. CBO defines labor income as the sum of employees' compensation and a percentage of proprietors' income. That percentage is employees' compensation as a share of the difference between GDI and proprietors' income. For further discussion of labor income's share of GDI, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433.

are lower, and technological change appears to have made it easier for employers to substitute capital for labor.

In CBO's projections, domestic economic profits fall from 9.8 percent of GDI in 2014 to 7.8 percent in 2025. That decline occurs largely because of two factors: the pickup in the growth of labor compensation and a projected increase in corporate interest payments, the result of rising interest rates.

Some Uncertainties in the Economic Outlook

Significant uncertainty surrounds CBO's economic forecast—which the agency constructed to be in the middle of the distribution of possible outcomes, given the federal fiscal policies embodied in current law. But even if no significant changes are made to those policies, economic outcomes will undoubtedly differ from CBO's projections. Many developments—such as unforeseen changes in the housing market, the labor market, business confidence, and international conditions—could cause economic growth and other variables to differ substantially from what CBO has projected.²¹

The agency's current forecast of employment and output from 2015 through 2019 may be too pessimistic. For example, if firms responded to the expected increase in overall demand for goods and services with more robust hiring than CBO anticipates, the unemployment rate could fall more sharply than CBO projects. In addition, a greater-than-expected easing of borrowing constraints in mortgage markets could support stronger residential investment, accelerating the housing market's recovery and further boosting house prices. Households' increased wealth could then buttress consumer spending, raising GDP.

Alternatively, CBO's forecast for the next five years may be too optimistic. For instance, if investment by businesses rose less than CBO projects, production would

also rise more slowly, and hiring would probably be weaker as well. That outcome could restrain consumer spending, which would reinforce the weakness in business investment. An unexpected worsening in international political or economic conditions could likewise weaken the U.S. economy by disrupting the international financial system, interfering with international trade, and reducing business and consumer confidence. In addition, because oil prices are set in international markets, disruptions to foreign oil production could affect U.S. energy prices.

A number of factors that will determine the economy's output later in the coming decade are also uncertain. For example, the economy could grow considerably faster than CBO forecasts if the labor force grew more quickly than expected (say, because older workers chose to stay in the labor force longer than expected), business investment was stronger, or productivity grew more rapidly. Similarly, lower-than-expected growth would occur if the stigma and erosion of skills that stem from elevated long-term unemployment dissipate more slowly than CBO projects, because then growth in the number of hours worked would be smaller (if all other factors were held equal), which would in turn lead to less business investment.

Comparison With CBO's August 2014 Projections

CBO's current economic projections differ somewhat from the projections that it issued in August 2014 (see Table 2-3). For the period from 2014 through 2018—the first period examined in that report—real GDP is now expected to grow by 2.5 percent annually, on average, which is about 0.2 percentage points less than CBO projected at the time. Because projected growth from 2019 through 2024 is almost unchanged, on average, the change in the earlier period means that real GDP is now projected to be roughly 1 percent lower in 2024 than the agency projected in August. The projected unemployment rate is also slightly lower in CBO's current forecast than it was in its August forecast, as are interest rates after 2018. CBO's projection of inflation in 2015 is currently lower than it was in August, but its projection of inflation in later years is roughly unchanged.

Output

Although real GDP grew faster than expected in 2014 and was about one-half of one percent higher at the end

21. The inherent uncertainty underlying economic forecasts will be discussed in Congressional Budget Office, *CBO's Economic Forecasting Record: 2015 Update* (forthcoming). CBO regularly evaluates the quality of its economic forecasts by comparing them with the economy's actual performance and with forecasts by the Administration and the *Blue Chip* consensus. Such comparisons indicate the extent to which imperfect information and analysis—factors that affect all forecasters—might have caused CBO to misread patterns and turning points in the economy.

Table 2-3.**Comparison of CBO's Current and Previous Economic Projections for Calendar Years 2014 to 2024**

	Estimated, 2014	Forecast			Projected Annual Average	
		2015	2016	2017	2018–2024	2014–2024
Percentage Change From Fourth Quarter to Fourth Quarter						
Real (Inflation-adjusted) GDP						
January 2015	2.1	2.9	2.9	2.5	2.1	2.3
August 2014	1.5	3.4	3.4	2.7	2.2	2.4
Nominal GDP						
January 2015	4.0	4.2	4.6	4.5	4.2	4.3
August 2014	3.2	5.2	5.3	4.7	4.2	4.3
PCE Price Index						
January 2015	1.3	1.4	1.9	2.0	2.0	1.9
August 2014	1.9	1.7	1.8	1.9	2.0	1.9
Core PCE Price Index ^a						
January 2015	1.5	1.8	1.9	1.9	2.0	1.9
August 2014	1.6	1.9	1.9	1.9	2.0	1.9
Consumer Price Index ^b						
January 2015	1.2 ^c	1.5	2.3	2.3	2.4	2.2
August 2014	2.5	1.9	2.0	2.2	2.4	2.3
Core Consumer Price Index ^a						
January 2015	1.7 ^c	2.1	2.2	2.3	2.3	2.2
August 2014	1.9	2.2	2.2	2.3	2.3	2.2
GDP Price Index						
January 2015	1.8	1.3	1.7	1.9	2.0	1.9
August 2014	1.8	1.7	1.8	1.9	2.0	1.9
Employment Cost Index ^d						
January 2015	2.3	2.7	3.2	3.6	3.5	3.3
August 2014	1.9	3.0	3.5	3.7	3.4	3.3
Real Potential GDP						
January 2015	1.6	1.8	2.1	2.2	2.2	2.1
August 2014	1.7	1.9	2.1	2.2	2.2	2.1
Calendar Year Average						
Unemployment Rate (Percent)						
January 2015	6.2 ^c	5.5	5.4	5.3	5.4	5.5
August 2014	6.2	5.9	5.7	5.7	5.6	5.7
Interest Rates (Percent)						
Three-month Treasury bills						
January 2015	* ^c	0.2	1.2	2.6	3.4	2.5
August 2014	0.1	0.3	1.1	2.1	3.4	2.5
Ten-year Treasury notes						
January 2015	2.5 ^c	2.8	3.4	3.9	4.5	4.0
August 2014	2.8	3.3	3.8	4.2	4.7	4.3
Tax Bases (Percentage of GDP)						
Wages and salaries						
January 2015	42.7	42.6	42.6	42.7	42.9	42.8
August 2014	42.8	42.7	42.5	42.6	43.0	42.9
Domestic economic profits						
January 2015	9.9	10.0	9.7	9.4	8.2	8.7
August 2014	9.2	9.3	9.4	9.3	7.9	8.3

Sources: Congressional Budget Office; Bureau of Labor Statistics; Federal Reserve.

Notes: Estimated values for 2014 do not reflect the values for GDP and related series released by the Bureau of Economic Analysis since early December 2014.

GDP = gross domestic product; PCE = personal consumption expenditures; * = between zero and 0.05 percent.

- a. Excludes prices for food and energy.
- b. The consumer price index for all urban consumers.
- c. Actual value for 2014.
- d. The employment cost index for wages and salaries of workers in private industries.

of the year than CBO anticipated in August, CBO has revised downward its projection of real GDP after 2015. Specifically, the agency projected in August that real GDP would increase at an average annual pace of 2.7 percent in 2014 through 2018; it now projects an average 2.5 percent rate. The primary reason for that change is that the agency has reduced its estimate of potential output.

The revision to potential output mainly results from CBO's reassessment of the growth in potential TFP in the nonfarm business sector since 2007. In CBO's previous projection, that measure of productivity grew by 1.2 percent per year, on average, from 2007 through 2014—one-tenth of a percentage point below the pace that CBO estimated for the 2002–2007 trend (excluding the effects of a temporary surge in the early 2000s) because of a small estimated effect of the recession. However, CBO now estimates that potential TFP slowed more significantly after 2007, growing by only 0.9 percent per year from 2008 to 2014. That revision to CBO's estimate of potential TFP growth reduces the estimated growth of potential GDP between 2007 and 2014, and it lowers CBO's estimate of the level of potential GDP in the fourth quarter of 2014 by about 1 percent.

What prompted that change? In previous periods of cyclical weakness, actual TFP has generally been lower than potential TFP, and CBO's August projection followed that pattern. But the growth of actual TFP in the past few years has persistently been lower than CBO anticipated, so the gap between actual TFP and CBO's previous estimate of potential TFP was widening even as other economic measures, such as the gap between the unemployment rate and the natural rate of unemployment, were improving.

Consequently, CBO now interprets more of the persistent weakness in *actual* TFP in the nonfarm business sector as reflecting weakness in *potential* TFP for the sector—concluding that potential TFP grew more slowly from 2008 to 2014 than the agency had previously estimated.²² That slowdown may have resulted from larger-than-anticipated effects of the factors that CBO has repeatedly attributed to the economy's prolonged weakness: delayed reallocation of resources to their most productive uses, slower adoption of new skills and technologies, and curtailed spending on research and development. The slowdown may also reflect factors unrelated to

the recession and weak recovery—such as a reduction in the pace of innovation in industries that produce and use information technology, which may have begun before the recession.²³

Because the growth of potential TFP in the nonfarm business sector has been revised downward for the past six years and is nearly unrevised for the next decade, the estimated *level* of TFP in that sector is lower throughout the coming decade than it was in CBO's August projections—and therefore the estimated level of potential nonfarm business sector output is lower as well. As a result, CBO has revised its projection of potential output in 2024 (the last year of the agency's August projection) downward by 1 percent, a revision similar to the one that the agency made for 2014.²⁴

22. In the current projection, CBO uses one trend in TFP for the 2001–2007 business cycle and another for the following years through 2014. (In both cases, CBO estimated trends after accounting for business cycle effects.) The agency's current approach yields a gap between actual TFP and estimated potential TFP that is roughly constant in recent years. CBO views that gap as resulting largely from ongoing cyclical weakness in the economy.

23. See John Fernald, *Productivity and Potential Output Before, During, and After the Great Recession*, Working Paper 20248 (National Bureau of Economic Research, June 2014), www.nber.org/papers/w20248.

24. Since 2007, CBO has lowered its projection of potential output in 2017—the end of the projection period for the estimates made in 2007—by about 9 percent. (That comparison excludes the effects of changes that the Bureau of Economic Analysis made to the definition of GDP during its comprehensive revision of the national income and product accounts in 2013.) Calculating the degree to which different factors have contributed to that revision is very difficult and subject to considerable uncertainty. Nonetheless, CBO estimates that reassessments of economic trends that had started before the recession began account for about one-half of the revision. For example, CBO has concluded that rates of growth in potential labor hours in the 2000s were generally lower than they were in the 1990s and lower than the agency had estimated in its 2007 projection. The remainder of the revision to potential output is attributable to a number of factors that have each had a smaller effect. Those factors include the recession and weak recovery, revisions of historical data, changes in CBO's methods for estimating potential output, revisions to estimated net flows of immigration based on analysis of recently released data, and the effect of higher federal debt in crowding out capital investment in the long term. For further discussion, see Congressional Budget Office, *Revisions to CBO's Projection of Potential Output Since 2007* (February 2014), pp. 8–11, www.cbo.gov/publication/45150.

CBO has also revised downward its projection of average real GDP growth from 2014 through 2018—a revision that reflects primarily the downward revision to CBO’s estimate of potential GDP but also some recent economic developments, including the appreciation in the exchange value of the dollar. For the end of 2014, real GDP is revised upward by one-half of one percent, relative to CBO’s August projections. Coupling that upward revision with CBO’s 1 percent downward revision to potential output, CBO estimates that the gap between actual and potential GDP at the end of 2014—currently estimated to be $2\frac{1}{4}$ percent—is $1\frac{1}{2}$ percentage points narrower than the agency projected in August. A narrower output gap suggests that there is less room for a strengthening economy to keep output growth above the growth rate of potential output without inducing a tightening of monetary policy to keep inflation from rising above the Federal Reserve’s longer-term goal. As a result, CBO now projects that output growth over the next few years will be modestly slower than in its previous projection (and that short-term interest rates will rise more rapidly).

The Labor Market

During the second half of 2014, employment rose (and the unemployment rate fell) more than CBO anticipated, which led the agency to reduce its projection of the unemployment rate from 5.9 percent to 5.5 percent in 2015 and by smaller amounts in subsequent years. In addition, CBO now expects the growth of nonfarm payroll employment to be about 50,000 jobs (per month, on average) greater this year, and about 30,000 jobs greater next year, than the agency projected in August. Recent evidence suggests better employment prospects for those currently outside the labor force than CBO previously anticipated. Moreover, the stronger labor market in CBO’s current forecast suggests greater incentives for people to enter or remain in the labor force than in CBO’s previous forecast. As a result, the expected rate of labor force participation has been revised upward from 62.7 percent to 62.9 percent in 2015 and from 62.5 percent to 62.8 percent in 2016.

CBO also revised downward its projection of the natural rate of unemployment over the next decade—by about one-quarter of a percentage point each year over the next few years and by about one-tenth of a percentage point in later years—for two reasons. First, recent evidence about employment and wages suggests that reductions in the efficiency with which employers fill vacancies have been

causing a smaller disruption to the labor market than CBO previously estimated; thus, that effect is estimated to have dissipated by the end of 2014, more quickly than CBO previously thought. Second, evidence about the propensity of the long-term unemployed to find jobs suggests that they experience somewhat less stigma and erosion of skills than CBO previously estimated.²⁵ In particular, although the long-term unemployed tend to have considerably worse labor market outcomes than the short-term unemployed have, the difference now appears to be a little smaller than CBO previously estimated.

Further, CBO revised upward its projection of the potential labor force participation rate over the next decade—by 0.1 percentage point each year, on average. CBO estimates that unusual aspects of the slow recovery of the labor market that have led workers to become discouraged and permanently drop out of the labor force are having a slightly smaller effect than the agency projected in August. CBO now expects that fewer of the long-term unemployed will leave the labor force permanently, in light of the evidence that their labor market outcomes seem to differ less from those of the short-term unemployed than the agency previously estimated. In addition, evidence since 2013 shows a surprising uptick in the number of people moving directly from outside the labor force into employment, which suggests better employment prospects for those outside the labor force than CBO anticipated.

For the period from 2020 through 2025, CBO revised its projections of the actual unemployment rate and the actual labor force participation rate to be consistent with its revisions to the natural rate of unemployment and the potential participation rate. The agency has done so because it projects (just as it did in August) that the unemployment rate and the participation rate will return to their historical relationships with the natural rate of unemployment and the potential participation rate.

Interest Rates

CBO currently projects generally higher short-term interest rates and lower long-term interest rates during the

25. For examples, see Rob Dent and others, *How Attached to the Labor Market Are the Long-Term Unemployed?* (Federal Reserve Bank of New York, November 2014), <http://tinyurl.com/kt772t8>; and Rob Valletta, *Long-Term Unemployment: What Do We Know?* Economic Letter 2013-03 (Federal Reserve Bank of San Francisco, February 2013), <http://tinyurl.com/mxqtv5j>.

2015–2019 period than it projected in August. Short-term rates are projected to be higher, on average, because CBO now estimates that there is less slack in the economy than the agency previously estimated, and therefore expects that the Federal Reserve will provide slightly less support for growth through its conduct of monetary policy over the next few years. The lower projection for long-term interest rates reflects CBO's estimate that factors that have led to an unexpected decline in long-term rates (as the next paragraph explains) will persist over the next decade.

CBO's projections of short- and long-term interest rates between 2020 and 2025 are 0.1 percentage point lower than they were in August. Over the past six months, the outlook for growth among leading U.S. trading partners has unexpectedly deteriorated, which implies poorer investment opportunities in those countries and lower rates of return on assets in those countries. In addition, CBO anticipates that foreign central banks will respond to slower-than-expected growth by maintaining slightly looser monetary policy than CBO expected, which also lowers rates of return abroad. As a result of those factors, U.S. Treasury securities have become relatively more attractive to investors, a development that has put downward pressure on U.S. interest rates.

Comparison With Other Economic Projections

CBO's projections of the growth of real GDP, the unemployment rate, inflation, and interest rates in 2015 and 2016 are generally very similar to the projections of the *Blue Chip* consensus published in January 2015 (see Figure 2-14). CBO's forecast of the growth of real GDP matches that of the *Blue Chip* consensus for this year and is 0.1 percentage point faster for next year. CBO's forecast of inflation, as measured by the CPI-U, is 0.1 percentage point higher than the *Blue Chip* consensus this year but

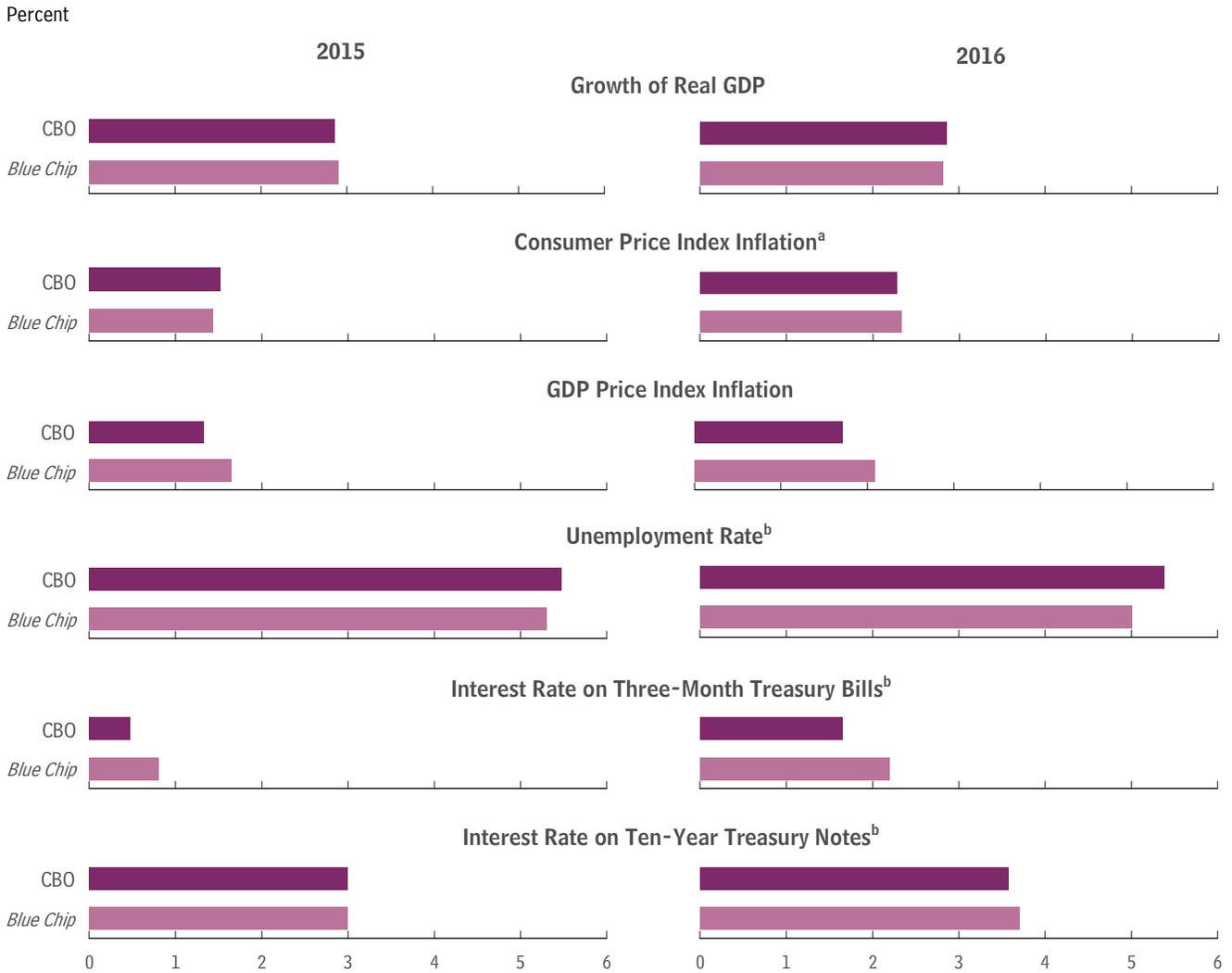
does not differ from it next year. CBO's projection for the unemployment rate is close to that of the *Blue Chip* consensus this year but is modestly higher next year. Finally, relative to the *Blue Chip* consensus for 2015 and 2016, CBO's forecast for short-term interest rates is somewhat lower, while the forecast for long-term interest rates is similar.

Similarly, CBO's projections differ only slightly from the forecasts made by the Federal Reserve that were presented at the December 2014 meeting of the Federal Open Market Committee (see Figure 2-15). The Federal Reserve reports two sets of forecasts: a range (which reflects the highest and lowest forecasts of the members of the Board of Governors of the Federal Reserve System and of the presidents of the Federal Reserve Banks) and a central tendency (which excludes the range's three highest and three lowest projections). CBO's projections of the growth of real GDP and inflation in 2015 and beyond are within the Federal Reserve's central tendencies. CBO's projections of the unemployment rate in 2015 and beyond fall within the Federal Reserve's ranges but are at the high end of the central tendencies or slightly above them.

CBO's projections probably differ from those of the other forecasters at least partly because of varying assumptions about the government's future tax and spending policies. For example, CBO's projections, which are based on current law, incorporate the effects of the recent retroactive extension through 2014 of certain provisions that reduce the tax liabilities of individuals and firms, but also reflect an assumption that those cuts will not be subsequently extended. Other forecasters might assume extensions of those tax cuts beyond 2014. Also, CBO's projections might differ from those of the other forecasters because of differences in the economic news available when the forecasts were completed and differences in the economic and statistical models used.

Figure 2-14.

Comparison of Economic Projections by CBO and the *Blue Chip* Consensus



Sources: Congressional Budget Office; Aspen Publishers, *Blue Chip Economic Indicators* (January 10, 2015).

Notes: The *Blue Chip* consensus is the average of about 50 forecasts by private-sector economists.

Real gross domestic product is the output of the economy adjusted to remove the effects of inflation.

Growth of real GDP and inflation rates are measured from the fourth quarter of one calendar year to the fourth quarter of the next year.

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.

GDP = gross domestic product.

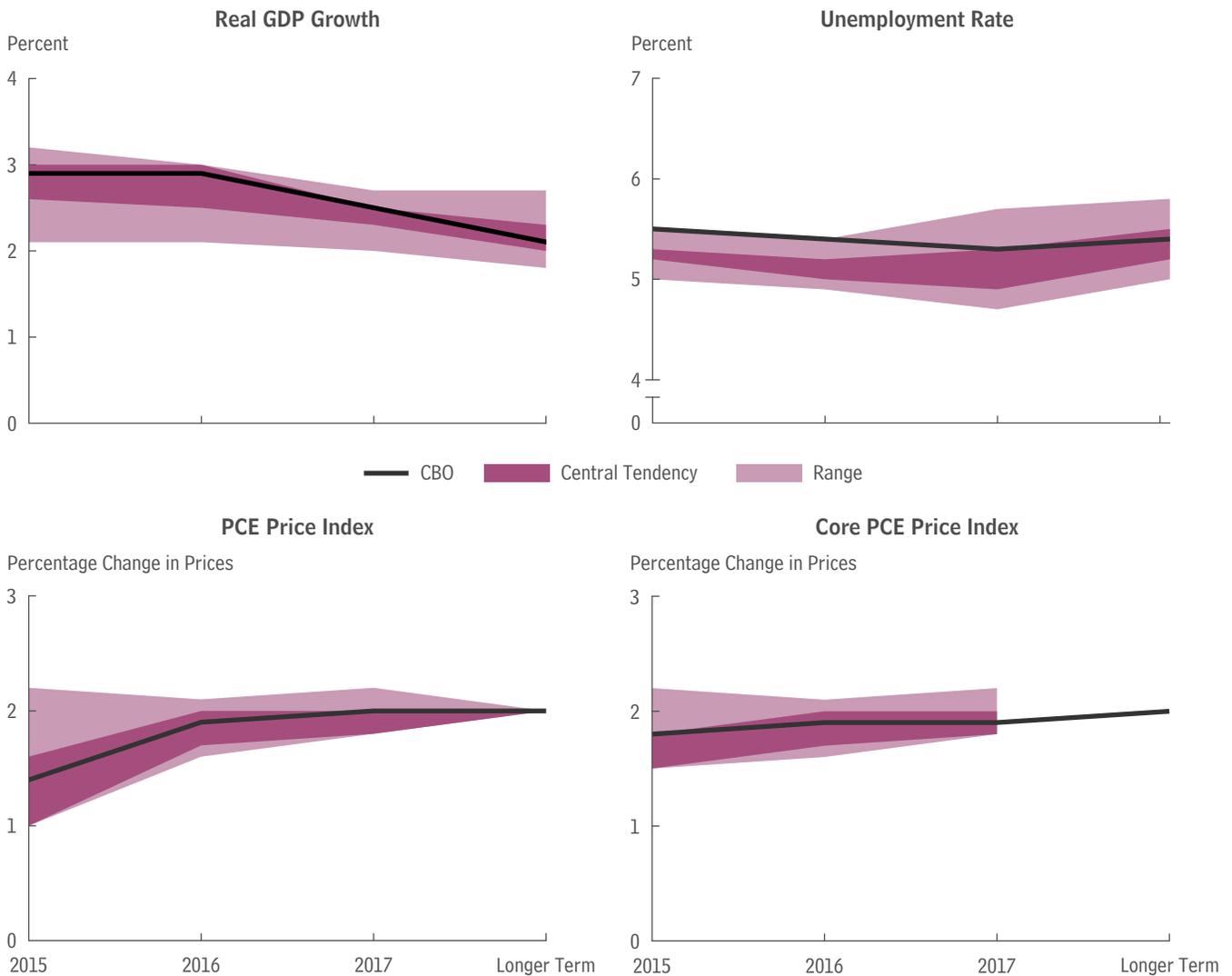
a. The consumer price index for all urban consumers.

b. Rate in the fourth quarter.

Figure 2-15.

Comparison of Economic Projections by CBO and the Federal Reserve

CBO's projections of the growth of real GDP and of inflation are within the Federal Reserve's central tendencies, and CBO's projections of the unemployment rate are at the high end of or slightly above the central tendencies.



Sources: Congressional Budget Office; Board of Governors of the Federal Reserve System, "Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents, December 2014" (December 17, 2014).

Notes: The range of estimates from the Federal Reserve reflects the projections of each member of the Board of Governors and the president of each Federal Reserve Bank. The central tendency is that range without the three highest and three lowest projections.

For CBO, longer-term projections are values for 2025. 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 gross domestic product 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.

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