

The Economic Outlook

Overview

If current laws governing federal taxes and spending generally remained in place, the economy would continue to expand over the next decade but at a slower pace than it did in 2018, the Congressional Budget Office projects. In particular, CBO estimates that recent changes to tax policy and federal spending boosted growth in 2018 by more than they are expected to boost growth in the coming years. The agency's current economic forecast, which underlies its baseline budget projections, includes projections of real (inflation-adjusted) gross domestic product (GDP; also referred to as output or actual output), inflation, interest rates, and other key variables for the years from 2019 to 2029. Considerable uncertainty stemming from both policy and non-policy-related forces surrounds those projections.

Projections for 2019 to 2023

CBO's projections for the next five years show the economy experiencing a muted cycle, in which real GDP and employment initially exceed and then return to their respective maximum sustainable levels through slower but still positive economic growth. Over that period, interest rates are expected to rise above their current levels, helping to bring economic activity to its sustainable level and restrain inflationary pressure.

Output. Real GDP is projected to grow by 2.3 percent in 2019 and by an average of 1.7 percent per year from 2020 through 2023 (see Figure 2-1). Most of the growth of output in CBO's forecast over the next few years is driven by consumer spending and, to a lesser extent, business and residential investment and exports. Compared with the robust pace of output growth in 2018—3.1 percent, the fastest annual growth since 2005—output growth is projected to slow in 2019. That projected slowdown largely results from an anticipated slowdown in the growth of business fixed investment, as the positive effects of recent tax legislation on investment growth begin to wane, and from a sharp reduction in federal purchases starting in the fourth quarter of 2019 that would occur under current law. From 2020 to

2023, in CBO's projections, slower growth of consumer spending causes output growth to slow further. Recent changes in trade policy, on net, are expected to have a small, negative effect on real output in the next few years.

Output Gap. By CBO's estimate, real GDP began to exceed its potential level in early 2018 for the first time since 2007. (Potential GDP is an estimate of the maximum sustainable output of the economy.) Because the growth of real GDP is expected to outpace the growth of its potential in 2019, the output gap—the difference between actual and potential GDP, expressed as a percentage of potential GDP—is expected to widen further this year. A positive output gap indicates that the demand for goods and services temporarily exceeds the economy's maximum sustainable capacity to supply them, which leads to heightened demand for labor as well as upward pressure on inflation and interest rates. In CBO's projections, real GDP grows more slowly than potential GDP after 2019; as a result, the output gap starts to narrow and turns negative by 2022.

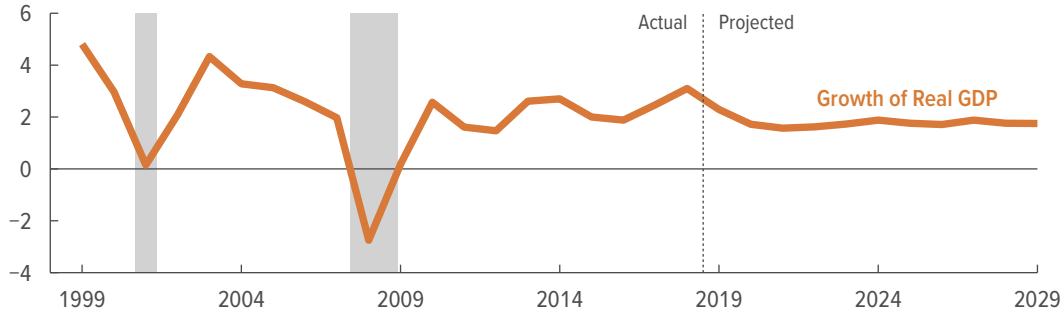
Labor Market. As growth in the demand for goods and services continues to increase the demand for labor, the labor market is expected to strengthen further in 2019, and employment is expected to remain above its maximum sustainable level in the next few years. In CBO's projections, the unemployment rate falls to 3.5 percent in the second half of 2019, its lowest point since the 1960s, before rising steadily between 2020 and 2023 as output growth slows during those years. The labor force participation rate stays stable in the next year or so before falling in line with its long-run trend.

Inflation and Interest Rates. Strong product and labor markets are projected to put upward pressure on interest rates and price and wage inflation. The recent increase in tariffs is also expected to slightly boost the price level. The rate of inflation, as measured by the price index for personal consumption expenditures (PCE), is projected to modestly exceed the Federal Reserve's long-run goal

Figure 2-1.

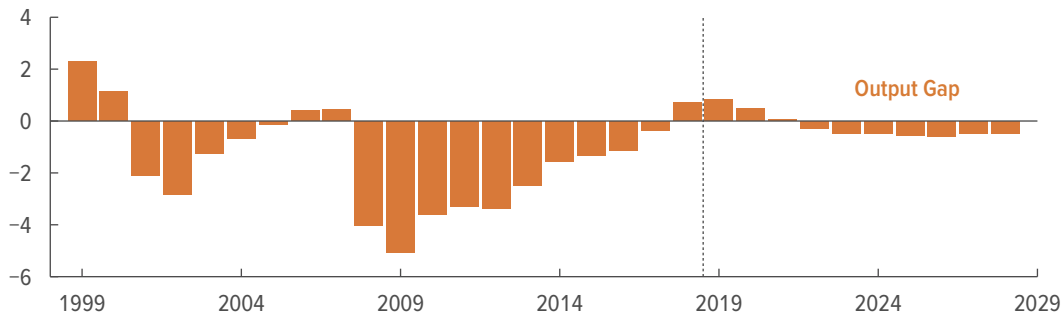
CBO's Economic Forecast in Brief

Percent



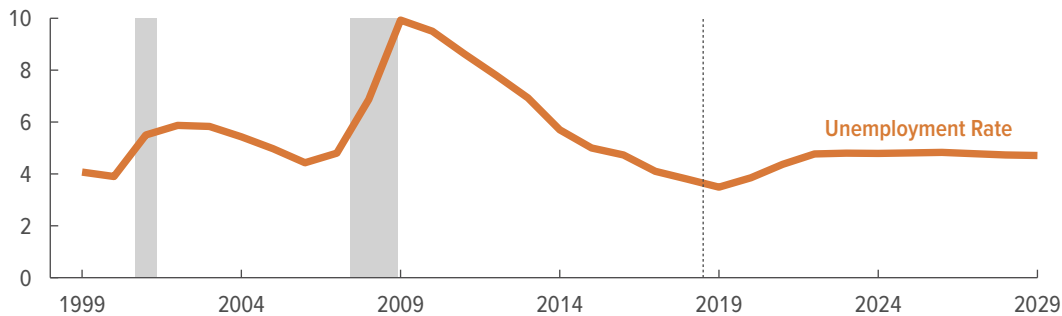
In CBO's forecast, growth of real GDP, bolstered by consumer spending, is 2.3 percent this year.

Percentage of Potential GDP



This year's growth builds on last year's strong demand for goods and services, pushing GDP further above potential GDP and widening the output gap.

Percent



The heightened demand for goods and services increases the demand for labor, lowering the unemployment rate this year.

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

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Real GDP growth is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

Potential GDP is CBO's estimate of the maximum sustainable output of the economy. The output gap is the difference between GDP and potential GDP, expressed as a percentage of potential GDP. A positive value indicates that GDP exceeds potential GDP; a negative value indicates that GDP falls short of potential GDP. Values for the output gap are for the fourth quarter of each year.

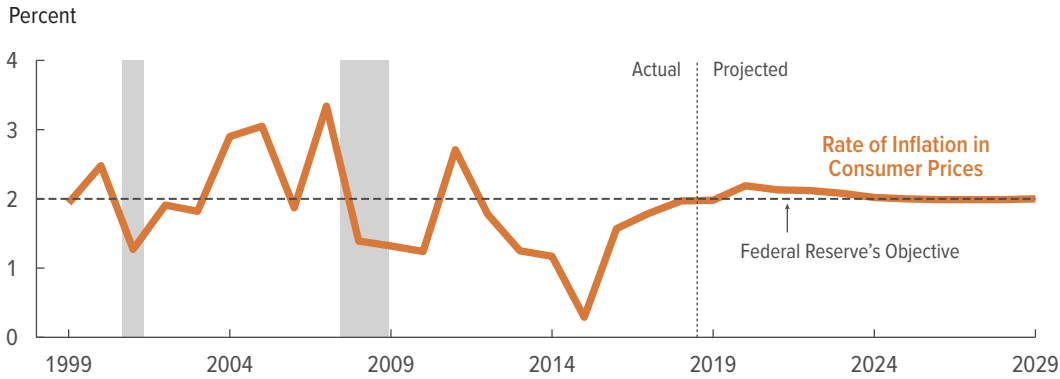
The unemployment rate is the number of jobless people who are available for and actively seeking work, expressed as a percentage of the labor force. For the unemployment rate, data are fourth-quarter values.

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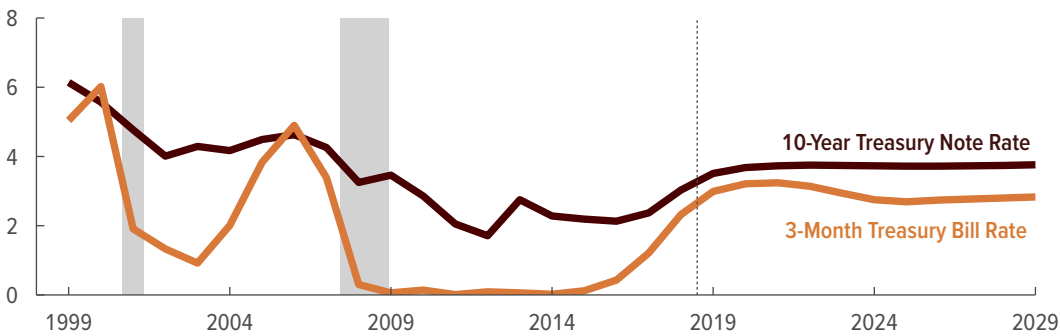
Figure 2-1.

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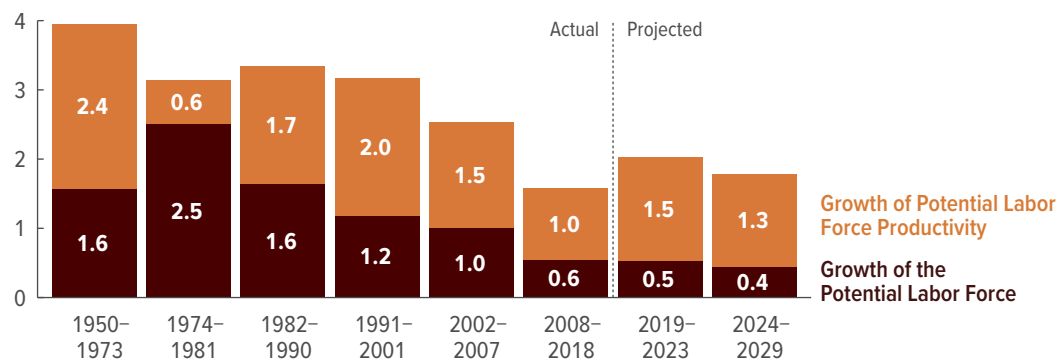
CBO's Economic Forecast in Brief



Strong demand for goods, services, and labor this year pushes the rate of inflation in consumer prices slightly above the Federal Reserve's objective of 2 percent over the next few years.



Interest rates continue to rise over the next few years, in part because the Federal Reserve is projected to raise the federal funds rate to slow the growth of overall demand and reduce the associated inflationary pressures.



In the coming decade, the growth of real potential GDP (the sum of the growth of the potential labor force and the growth of potential labor force productivity) is projected to be faster than it has been since 2008 but slower than it was in previous periods.

Inflation in consumer prices is based on the price index for personal consumption expenditures and is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

The federal funds rate is the interest rate that financial institutions charge each other for overnight loans of their monetary reserves. The data for interest rates are fourth-quarter values.

The potential labor force is CBO's estimate of the size of the labor force arising from all sources except fluctuations in the overall demand for goods and services. Potential labor force productivity is the ratio of real potential GDP to the potential labor force. The bars show compound annual growth rates over the specified periods calculated using calendar year data.

Values for 2018, with the exception of the unemployment rate and interest rates, are CBO's estimates.

GDP = gross domestic product.

of 2 percent over the next few years. CBO expects the Federal Reserve to continue to raise the target range for the federal funds rate (the interest rate that financial institutions charge each other for overnight loans of their monetary reserves) in 2019. In CBO's projections, the rising federal funds rate helps to push up other interest rates in the economy, which, in turn, helps prevent inflation from rising much above 2 percent for any extended time period.

Projections for 2024 to 2029

CBO's projections of GDP, unemployment, inflation, and interest rates for 2024 through 2029 are based mainly on the agency's projections of the underlying trends in the factors that determine those key variables. In particular, over the long term, real GDP tends to grow at the same rate as potential GDP, which is determined by factors such as the size of the labor force, the average number of labor hours per worker, capital investment, and productivity. In analyzing those factors, CBO takes into account the effects of federal tax and spending policies—as well as trade and other public policies—embodied in current law. In some cases, policies might be projected not only to affect potential output but also to influence the overall demand for goods and services, causing the gap between actual output and potential output to change.

From 2024 to 2029, real GDP is projected to grow by about 1.8 percent each year. That growth is close to but slightly slower than potential output growth, on average, during that period. The small difference in growth between actual and potential output arises because of a slight, temporary slowdown in the growth of actual output from 2025 to 2026, when some of the major provisions of the 2017 tax act (Public Law 115-97, originally called the Tax Cuts and Jobs Act) are scheduled to expire.

In CBO's projections, potential output over the 2019–2029 period grows more quickly than it has grown since the 2007–2009 recession, mainly because the agency projects the rate of growth in the productivity of the labor force to accelerate to nearly its average over the past 25 years. Nevertheless, the growth of potential output is projected to be slower than its long-term historical average because the working-age population and hence the labor force are expected to grow more slowly than they did in the past.

Uncertainty

Many developments, such as unexpected changes in international conditions, business confidence, or underlying productivity growth, could make economic outcomes differ significantly from CBO's projections. Recent and prospective changes in U.S. trade policy and possible further retaliatory actions by key U.S. trading partners add to that uncertainty. Moreover, recession risks may rise over the next few years from various imbalances and vulnerabilities in the economy associated with the current, relatively long period of expansion. Because of that uncertainty, the agency constructs its projections so that they represent the average of a distribution of possible outcomes.

Comparison With CBO's Previous Projections and Other Economic Projections

Although CBO's current economic forecast does not differ significantly from the forecast that the agency published in August 2018, it nevertheless incorporates many changes that reflect new data and methodological improvements. For example, CBO revised its projections of several factors that determine potential output. But because the revisions to those factors, on net, offset one another, the resulting changes to real GDP and real potential GDP in 2028 (the last year of the previous projection period) are slight.

The economic projections in CBO's latest forecast do not differ significantly from those of other forecasters. In particular, they are generally similar to most of the forecasts by the private-sector economists who contributed to the January 2019 *Blue Chip Economic Indicators*. The agency's projections are also similar to the latest forecasts by Federal Reserve officials for 2019, but they are somewhat weaker for the 2020–2021 period and the long term.

Fiscal and Trade Policies

CBO's economic projections reflect federal fiscal and trade policies under current law. Fiscal policy affects the economy not only through government spending on goods and services, which contributes directly to GDP growth, but also through the federal tax code and federal transfer programs (such as Social Security and Medicare), which affect both the demand and the supply side of the economy. Changes to trade policy—such as the recent increases in tariffs on certain imported goods—can also affect economic activity by influencing domestic prices, trade flows, and real output and income. (See Box 2-1 for discussion of the effects of recent changes in trade policy.) In addition, fiscal policy and tariffs (which are a form of

tax) both have important implications for federal deficits and debt, which in turn are key determinants in CBO's projections of national saving and borrowing from abroad.

Fiscal Policy

Three pieces of legislation enacted in the past fiscal year significantly affected fiscal policy and the economic outlook.¹ The first, the 2017 tax act, permanently lowered the top corporate income tax rate to 21 percent and changed the way that businesses' foreign income is taxed. The act also lowered individual income tax rates and broadened the base of income subject to tax through 2025. In addition, it included provisions that affect the way businesses and individuals calculate their taxable income. The two other pieces of legislation affected spending. The Bipartisan Budget Act of 2018 (P.L. 115-123) increased the caps on discretionary funding for 2018 and 2019 and provided substantial funding for emergency assistance. The Consolidated Appropriations Act, 2018 (P.L. 115-141), provided total appropriations for discretionary accounts near the level of the newly increased caps. Taken together, the three pieces of legislation generated a substantial fiscal stimulus, which supported strong economic growth in 2018 and is expected to continue to facilitate output growth in the first three quarters of 2019.²

The fiscal stimulus created by the large increase in federal funding during 2018 and part of 2019 is projected to diminish significantly by the end of 2019 as the statutory limits on discretionary funding significantly constrain such spending through fiscal year 2021. Discretionary outlays are projected to fall by \$38 billion in fiscal

year 2020 and increase by only \$4 billion in fiscal year 2021 under current law. Such a decline in discretionary outlays relative to their fiscal year 2019 levels would dampen economic growth while reducing the federal budget deficit in the near term, CBO estimates. Less federal borrowing would ultimately boost the resources available for private activities, particularly private investment, in later years.

As noted in its April 2018 report, CBO estimates that the 2017 tax act will continue to have appreciable effects on the U.S. economy over the next decade.³ The lower marginal income tax rates that will be in place for much of the projection period will encourage workers to work more hours and businesses to increase investment in productive capital, thereby raising potential output over the projection period. In addition, higher disposable (after-tax) income for households will, in CBO's estimate, boost the demand for goods and services, raising actual GDP further above its potential and generating some inflationary pressure during the first half of the projection period. In the meantime, those positive effects on economic growth will be partly offset by the larger deficits created by the tax act. In later years, as many temporary provisions of the 2017 tax act are scheduled to phase out or expire, growth of actual GDP falls below the growth of potential output in CBO's projections, but the law's total effect on the levels of investment, employment, and output remains positive toward the end of the projection period. That occurs because the positive effect on incentives from the provisions that were still in place at the end of the period would more than offset the negative effect of greater federal debt.

Trade Policy

In 2018, the United States imposed new tariffs on 12 percent of goods imported into the country.⁴ Some of those new tariffs apply broadly to imports from nearly all U.S. trading partners, including the tariffs on washing machines, solar panels, and steel and aluminum products (see Table 2-1 on page 28). Other new tariffs affect

1. For details on CBO's estimates of the effects of those fiscal policy changes on the U.S. economy for the 2018–2028 period, see Congressional Budget Office, *The Budget and Economic Outlook: 2018 to 2028* (April 2018), www.cbo.gov/publication/53651.

2. CBO's economic projections were completed before the partial shutdown of the federal government, which started on December 22, 2018, and ended on January 25, 2019. CBO estimates that the reduction in compensation, federal purchases, and private economic activity from the partial shutdown lowered real GDP in the fourth quarter of 2018 by 0.1 percent and will lower real GDP in the first quarter of 2019 by 0.2 percent. Most of that lost output is expected to be recovered in subsequent quarters, and the shutdown's effects are not expected to alter the level of real GDP in the longer run. For a discussion of those estimates, see Congressional Budget Office, *The Effects of the Partial Shutdown Ending in January 2019* (January 2019), www.cbo.gov/publication/54937.

3. See Congressional Budget Office, *The Budget and Economic Outlook: 2018 to 2028* (April 2018), Appendix B, www.cbo.gov/publication/53651; and "Key Methods That CBO Used to Estimate the Macroeconomic Effects of the 2017 Tax Act" (Supplemental Material for *The Budget and Economic Outlook: 2018 to 2028*, April 2018), <https://go.usa.gov/xQcZD>.

4. The values and shares of trade affected are measured relative to their 2017 values.

Box 2-1.**The Effects of Recent Changes in Trade Policy**

In 2018, the United States and its trading partners imposed new trade barriers. The United States imposed new tariffs on 12 percent of goods imported into the country.¹ In response to those new tariffs, U.S. trading partners imposed tariffs on 9 percent of all goods exported by the United States. On net, the Congressional Budget Office estimates that those new trade barriers will reduce U.S. real (inflation-adjusted) gross domestic product (GDP) by about 0.1 percent, on average, through 2029. Those changes in trade policy increase policy uncertainty among investors, which may further reduce U.S. output. (CBO's baseline analysis reflects the assumption that all newly implemented changes to trade policy, both domestic and foreign, are permanent and that scheduled changes to trade policy—such as the additional increase of the tariff rate from 10 percent to 25 percent on certain Chinese imports scheduled for March 2019—do not take effect.)² CBO's estimates of the economic effects of those new trade barriers are subject to considerable uncertainty, particularly over the longer run.

Short-Run Effects

CBO projects that the recent changes in trade policy in the United States and its trading-partner countries will reduce the level of U.S. real GDP by about 0.1 percent by 2022. Tariffs are taxes levied on imported goods and therefore raise prices on imports in the same way that a sales tax raises the price consumers and businesses pay for goods and services. Tariffs reduce domestic GDP mostly by raising the prices paid by U.S. consumers and businesses, which reduces the purchasing power of domestic consumers and increases the cost of business investment. Also contributing to that reduction in U.S. output is a decline in U.S. exports resulting from new tariffs imposed by the United States and its trading partners. Partially offsetting those negative effects is an increase in output from the replacement of imports with domestically produced goods and services.

1. The values and shares of trade affected are measured relative to their 2017 values.
2. Although those changes are scheduled, the Administration has significant discretion to adjust tariff policy without legislative action.

In the short run, CBO projects that the newly implemented tariffs will raise the prices paid by U.S. consumers and businesses directly by making imported goods more expensive and, indirectly, by making the goods and services produced with imported goods more costly. The magnitude of those price changes—and therefore the extent of the negative impact on domestic output—depends on how much of the increase in costs is absorbed by foreign producers and how much of those costs is passed along to domestic consumers and businesses. In CBO's assessment, foreign producers will absorb more of the tariffs' costs in the near term as they initially try to maintain market share, but domestic consumers and businesses will bear more of the costs over time. Moreover, import tariffs can increase prices if domestic producers raise the prices they charge for domestic goods that compete with the imports subject to new tariffs.

In CBO's assessment, the inflationary effects of the newly implemented tariffs on domestic prices will be dampened over time as imports are diverted to countries whose goods are not subject to tariffs. In addition, increases in domestic prices are expected to be partially offset by a decline in the prices of U.S. tradable goods that are subject to retaliatory tariffs from U.S. trading partners. CBO estimates that U.S. producers will lower the price of those tradable goods to keep the total cost of exports competitive. To the degree that U.S. producers cannot charge different prices to foreign and domestic buyers, prices for some U.S. goods will decline as the result of tariffs.

CBO estimates that, on net, new tariffs will increase the price index for personal consumption expenditures by 0.1 percent and the price index for private investment by 0.5 percent by 2022. Like other price increases that result from taxes, those higher prices will reduce consumer spending by diminishing the purchasing power of consumer income and will reduce investment by making capital goods more expensive. Consequently, CBO estimates that by 2022, changes in trade policy will reduce real consumption by 0.1 percent and real private investment by 0.3 percent.

Continued

Box 2-1.

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The Effects of Recent Changes in Trade Policy

In addition to reducing consumption and investment, tariffs are also projected to lower U.S. economic output in the short run by reducing real U.S. exports. Import tariffs imposed by the United States make U.S. exports less competitive in foreign markets by raising the exchange value of the dollar and increasing the cost of inputs to domestic production of exports (particularly when tariffs are imposed on intermediate inputs). In addition, retaliatory tariffs imposed by U.S. trading partners reduce demand for U.S. exports by increasing the price of those exports relative to goods sourced from other countries. Tariffs levied by the United States on foreign goods may also reduce output growth among U.S. trading partners, in turn reducing their demand for U.S. exports. That decline in exports would be moderated by trade diversion; some U.S. exports that were previously sold to countries that have imposed new tariffs would get diverted to other trading partners. As a result, CBO projects that changes in trade policy both in the United States and abroad will reduce real U.S. exports by 0.5 percent by 2022.

Partially offsetting those negative effects on U.S. output, tariffs also encourage businesses to relocate some of their production activities from foreign countries to the United States. Tariffs imposed by the United States make it more costly for U.S. businesses and consumers to purchase imported goods and increase the demand for domestic goods. In response to those tariffs, U.S. production rises as some businesses choose to relocate their production to the United States. In the meantime, tariffs on intermediate goods encourage some domestic companies to relocate their production abroad where those intermediate goods are less expensive. On net, CBO estimates that U.S. output will rise slightly as a result of relocation.

Long-Run Effects

The long-term effects of the new tariffs on the U.S. economy are also expected to lower real GDP, although the magnitude of those effects is more uncertain than CBO's estimates of their short-run effects. On net, the recent trade policy changes lead to lower real private investment and, in turn, potential output, in CBO's projections. Although the increase in the price of imported capital goods leads to a reduction in investment, that

effect is partially offset because the increase in tariff revenues reduces government deficits, boosting the resources available for private investment. The magnitude of those long-run investment effects is uncertain because it is difficult to project how tariff changes will affect long-run investment by companies that rely on complex global supply chains. Nevertheless, CBO projects that tariffs will reduce the level of potential output by 0.1 percent in 2029.

Higher import tariffs can also lower total factor productivity in the United States. One reason import tariffs reduce U.S. productivity is that they might allow lower-productivity firms to remain in business in domestic industries whose products compete with imports from foreign countries. In addition, higher import tariffs may discourage economies of scale and scope and decrease the variety and quality of products available to consumers and businesses, which, in turn, reduce the productivity of businesses in the United States. Because the effect of tariffs on long-run productivity is difficult to estimate, however, CBO has not incorporated any adjustments to productivity resulting from tariffs in its baseline projections.

Uncertainty About Trade Policy

The recent changes in trade policy have increased uncertainty about future trade policy changes in a way that might further reduce U.S. output. Recent changes to trade policy may signal a fundamental shift in global trade policy and an increased risk of erosion of the rules-based global trading system that would significantly increase the risks associated with investment in the United States and abroad. If investors lose confidence in stable international trade and economic relationships, then that increased uncertainty may delay investments or discourage them entirely, leading to less economic activity both in the United States and abroad. The slower economic growth of U.S. trading partners resulting from that uncertainty could also spill over into the U.S. economy through a decrease in demand for U.S. exports. CBO has not incorporated any adjustments to its economic forecast as a result of that increase in trade policy uncertainty but is closely monitoring data for signs of such an effect.

Table 2-1.

U.S. Imports Affected by Tariffs Recently Imposed by the United States

Billions of Dollars

Category of Goods	Value of Imports Affected by Tariffs							Share of Category Affected by Tariffs (Percent)
	2017 Trade Value	Tariff on Solar Panels	Tariff on Washing Machines	Tariff on Steel	Tariff on Aluminum	Tariffs on Chinese Goods	All Recent Tariffs	
Food, Feed, and Beverages	138	0	0	0	0	5	5	3.6
Industrial Supplies and Materials	507	0	0	24	17	34	75	14.7
Capital Goods, Except Automotive	641	6	*	5	*	116	128	19.9
Automotive Vehicles, Parts, and Engines	359	1	0	0	0	19	19	5.4
Consumer Goods	602	0	2	0	*	55	57	9.5
Other Goods	95	0	0	0	0	*	*	**
Total	2,342	7	2	29	17	229	284	12.1
Affected Imports' Share of Total Imports (Percent)	n.a.	0.3	0.1	1.2	0.7	9.8	12.1	n.a.

Source: Congressional Budget Office, using information from the Census Bureau and the Office of the U.S. Trade Representative.

n.a. = not applicable; * = between zero and \$500 million; ** = between zero and 0.05 percent.

only imports from China, covering about half of U.S. imports from China and targeting mostly intermediate goods and capital goods.

In response to those new tariffs, U.S. trading partners retaliated with their own tariffs on 9 percent of all goods exported by the United States, primarily industrial supplies and materials as well as agricultural products (see Table 2-2).

On net, CBO estimates that those new trade barriers will reduce the level of U.S. real GDP by roughly 0.1 percent, on average, through 2029, although that estimate is subject to considerable uncertainty. CBO's analysis incorporates the assumption that the trade policy in effect as of December 4, 2018, will continue permanently without scheduled or unscheduled changes.⁵ In CBO's projections, U.S. tariffs reduce U.S. economic activity primarily by reducing the purchasing power of U.S. consumers' income as a result of higher prices and by making capital goods more expensive. In the meantime, retaliatory tariffs by U.S. trading partners reduce U.S. exports.

5. CBO completed its current economic projections on December 4, 2018.

The Economic Outlook for 2019 to 2023

CBO expects real GDP to grow by 2.3 percent in 2019 and by an average of 1.7 percent per year from 2020 through 2023 (see Table 2-3). Most of the growth of output in CBO's forecast over the next few years is driven by consumer spending and, to a lesser extent, by business and residential investment and exports (see Figure 2-2 on page 31). Demand from state and local governments also adds to the growth of output between 2019 and 2023, whereas real purchases by the federal government projected under current law subtract from that growth every year until 2023.

Even though the projected 2.3 percent growth in real GDP in 2019 is slower than the 3.1 percent real GDP growth in 2018, it is nonetheless faster than the expected growth in potential GDP. As a result, in CBO's projections, the output gap continues to widen until late 2019. (The output gap turned positive in early 2018.) Heightened demand for goods and services leads to a further increase in the demand for labor, causing the unemployment rate to fall further below its natural rate during most of 2019. (The natural rate of unemployment is the rate arising from all sources other than fluctuations in the overall demand for goods and services, including normal job turnover and the structural

Table 2-2.

U.S. Exports Affected by Tariffs Recently Imposed by Other Countries

Billions of Dollars

Category of Goods	2017 Trade Value	Value of Exports Affected by Tariffs			Share of Category Affected by Tariffs (Percent)
		Tariffs Imposed by China	Tariffs Imposed by Rest of World	All Recent Tariffs	
Food, Feed, and Beverages	133	20	8	28	20.9
Industrial Supplies and Materials	465	35	12	47	10.1
Capital Goods, Except Automotive	533	24	1	25	4.7
Automotive Vehicles, Parts, and Engines	158	22	*	23	14.4
Consumer Goods	198	5	7	12	5.9
Other Goods	60	*	0	*	**
Total	1,546	105	29	134	8.7
Affected Exports' Share of Total Exports (Percent)	n.a.	6.8	1.8	8.7	n.a.

Source: Congressional Budget Office, using information from the Census Bureau and the Office of the U.S. Trade Representative.

n.a. = not applicable; * = between zero and \$500 million; ** = between zero and 0.05 percent.

mismatch between the skills that jobs require and those that job seekers possess.)

Strong demand for goods, services, and labor is expected to put upward pressure on price and wage inflation, as well as interest rates, in 2019. Higher inflation and interest rates, along with slower growth in federal purchases, in turn restrain output growth in later years. As the growth of actual output slows more markedly starting in 2020, in CBO's projections, the positive output gap gradually narrows and turns negative by 2022.

CBO's projections of the economy over the next few years reflect both anticipated fluctuations in the components of final demand (such as consumption and investment) and projected changes in supply-side factors (such as growth in productivity and the supply of labor), as well as the interactions between them.⁶ Supply-side factors, which underlie the agency's estimate of potential GDP, influence short-term economic growth primarily through their effect on the output gap and, in turn, on inflation and interest rates; however, they can also

affect demand-side components directly.⁷ For example, when domestic output temporarily exceeds its long-run potential, an increased fraction of domestic demand may need to be satisfied through imports rather than through domestic production. Also, limited available domestic capacity for production could restrain the growth in exports.

Actual Output

CBO expects the growth of real GDP to slow in 2019 as some of the factors underlying the robust output growth in 2018 wane, although other factors will carry into 2019 (see Table 2-4 on page 32). On the one hand, healthy growth in real household disposable income (reflecting, among other things, rising labor and capital income in the strong economy and falling energy prices) is expected to support solid growth in consumer spending in 2019. On the other hand, growth in business fixed investment, which contributed almost one-third of the GDP growth in 2018, is expected to slow markedly this year as the effects of the 2017 tax act on investment

6. See Robert W. Arnold, *How CBO Produces Its 10-Year Economic Forecast*, Working Paper 2018-02 (Congressional Budget Office, February 2018), www.cbo.gov/publication/53537.

7. Not only can supply-side factors influence the components of demand, but demand-side factors can directly influence supply-side factors as well. For example, strong demand for goods and services encourages businesses to invest more to meet that demand, and greater investment boosts the capital stock and hence the economy's long-run capacity to produce.

Table 2-3.

CBO's Economic Projections for Calendar Years 2019 to 2029

	Estimated, 2018 ^a	2019	2020	2021	Annual Average	
					2022– 2023	2024– 2029
Percentage Change From Fourth Quarter to Fourth Quarter						
Gross Domestic Product						
Real ^b	3.1	2.3	1.7	1.6	1.7	1.8
Nominal	5.4	4.3	3.8	3.6	3.8	3.9
Inflation						
PCE price index	2.0	2.0	2.2	2.1	2.1	2.0
Core PCE price index ^c	1.9	2.2	2.2	2.1	2.1	2.0
Consumer price index ^d	2.2 ^e	2.2	2.6	2.5	2.5	2.3
Core consumer price index ^c	2.2 ^e	2.6	2.7	2.6	2.4	2.3
GDP price index	2.2	2.0	2.0	2.0	2.1	2.1
Employment Cost Index ^f	3.3	3.5	3.7	3.5	3.3	3.1
Fourth-Quarter Level (Percent)						
Unemployment Rate	3.8 ^e	3.5	3.9	4.4	4.8 ^g	4.7 ^h
Percentage Change From Year to Year						
Gross Domestic Product						
Real ^b	2.9	2.7	1.9	1.6	1.6	1.8
Nominal	5.2	4.8	3.9	3.7	3.7	3.9
Inflation						
PCE price index	2.1	1.9	2.2	2.2	2.1	2.0
Core PCE price index ^c	1.9	2.0	2.2	2.2	2.1	2.0
Consumer price index ^d	2.4 ^e	2.1	2.6	2.6	2.5	2.3
Core consumer price index ^c	2.1 ^e	2.4	2.6	2.6	2.4	2.3
GDP price index	2.2	2.1	2.0	2.0	2.1	2.1
Employment Cost Index ^e	3.0	3.4	3.6	3.6	3.3	3.1
Annual Average						
Unemployment Rate (Percent)	3.9 ^e	3.5	3.7	4.2	4.7	4.8
Payroll Employment (Monthly change, in thousands) ^j	213 ^e	148	68	21	33	61
Interest Rates (Percent)						
Three-month Treasury bills	1.9 ^e	2.8	3.2	3.2	3.1	2.8
Ten-year Treasury notes	2.9 ^e	3.4	3.6	3.7	3.7	3.7
Tax Bases (Percentage of GDP)						
Wages and salaries	43.1	43.1	43.4	43.6	43.7	43.8
Domestic corporate profits ^j	8.7	8.9	8.4	8.1	7.9	7.9

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

Economic projections for each year from 2019 to 2029 appear in Appendix E.

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

a. Values for 2018 do not reflect the values for GDP and related series that the Bureau of Economic Analysis has released since early December 2018.

b. Real values are nominal values that have been adjusted to remove the effects of changes in prices.

c. Excludes prices for food and energy.

d. The consumer price index for all urban consumers.

e. Actual value for 2018.

f. The employment cost index for wages and salaries of workers in private industry.

g. Value for the fourth quarter of 2023.

h. Value for the fourth quarter of 2029.

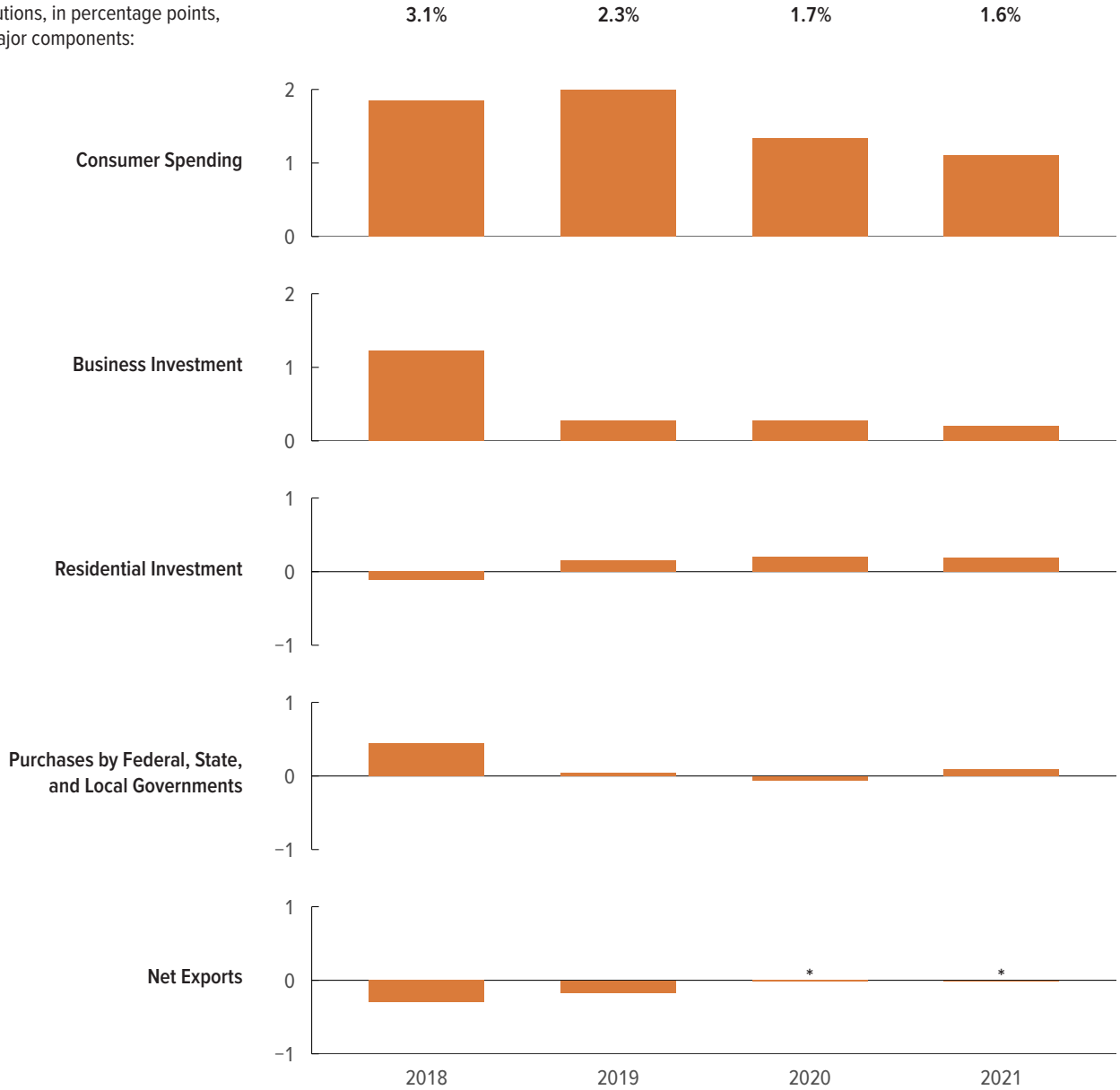
i. The average monthly change, calculated by dividing the change in payroll employment from the fourth quarter of one calendar year to the fourth quarter of the next by 12.

j. Consists of domestic profits, adjusted to remove distortions in depreciation allowances caused by tax rules and to exclude the effects of changes in prices on the value of inventories.

Figure 2-2.

Projected Contributions to the Growth of Real GDP

The growth of real GDP is the sum of contributions, in percentage points, of its major components:



Sources: Congressional Budget Office; Bureau of Economic Analysis.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Consumer spending consists of personal consumption expenditures. Business investment includes purchases of equipment, nonresidential structures, and intellectual property products, as well as 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. Purchases by federal, state, and local governments are taken from the national income and product accounts. Net exports are exports minus imports.

Growth rates are measured from the fourth quarter of one calendar year to the fourth quarter of the next. CBO calculated the contributions by weighting the components’ growth rates by their shares of nominal GDP.

Values for 2018 are CBO’s estimates.

GDP = gross domestic product; * = between -0.05 percent and zero.

Table 2-4.

Projected Growth in Real GDP and Its Components

Percent

	Estimated, 2018	2019	2020	2021	Annual Average	
					2022– 2023	2024– 2029
Real GDP	3.1	2.3	1.7	1.6	1.7	1.8
Components of Real GDP						
Consumer spending	2.7	2.9	1.9	1.6	2.0	2.0
Business investment	9.2	2.0	2.0	1.5	1.4	2.9
Business fixed investment	6.8	3.2	2.4	1.7	1.4	2.9
Residential investment	-2.7	3.9	5.0	4.7	3.0	-0.1
Purchases by federal, state, and local governments	2.5	0.2	-0.3	0.5	0.4	0.5
Federal	4.3	-1.5	-2.4	0.0	-0.3	0.4
State and local	1.5	1.2	0.9	0.8	0.8	0.5
Exports	2.2	2.7	3.4	3.4	3.2	3.1
Imports	3.8	3.3	2.9	2.8	2.9	2.8
Memorandum:						
Net Exports (Change in billions of 2012 dollars)	-71.5	-47.2	-14.7	-12.4	-22.0	-24.0

Source: Congressional Budget Office.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Consumer spending consists of personal consumption expenditures. Business investment includes purchases of equipment, nonresidential structures, and intellectual property products, as well as 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. Purchases by federal, state, and local governments are taken from the national income and product accounts. Net exports are exports minus imports.

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

GDP = gross domestic product.

moderate, growth in the demand for goods and services slows, and energy prices fall. Also, under current law, federal purchases are projected to fall sharply in the fourth quarter of 2019, subtracting from GDP growth this year.

Output growth is projected to slow more substantially after 2019. In CBO's projections, both consumer spending and business investment continue to grow, but at rates that are lower than their respective growth rates in the long run. Purchases by state and local governments also add slightly to GDP growth. By contrast, federal government purchases, on average, are projected to continue to subtract from GDP growth in those years.

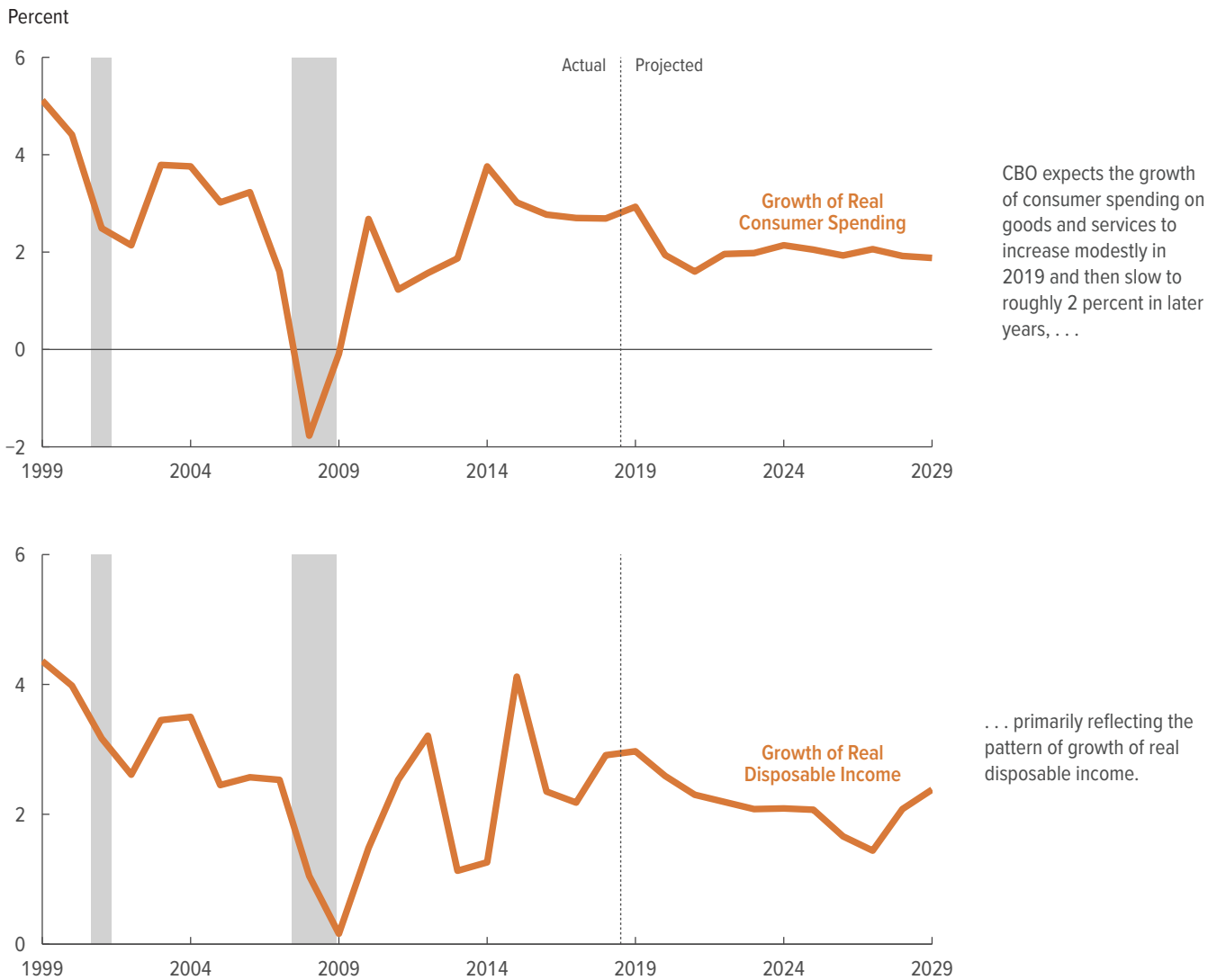
Consumer Spending. CBO expects solid growth in consumer spending on goods and services to be the primary contributor to the growth of GDP in 2019. In the agency's projections, real consumer spending on goods and services grows by 2.9 percent in 2019 (up slightly from

2.7 percent in 2018), contributing 2 percentage points to the 2.3 percent growth rate of real GDP this year (see Figure 2-3). That growth in consumer spending stems mainly from healthy growth in real household disposable income, which is expected to grow at roughly the same pace in 2019 as in 2018 before slowing in subsequent years. In CBO's projections, annual growth in consumer spending slows to an average of 1.9 percent between 2020 and 2023, as growth in income slows and households gradually respond to higher interest rates.

Several factors support the agency's projection of solid growth in real household disposable income and consumer spending in 2019. The most important factor is employee compensation, which is expected to grow at a slightly faster pace in 2019 than it grew in recent years. In addition, a number of factors that supported consumer spending growth in 2018 are expected to carry into 2019. For example, many households are expected to adjust gradually to the smaller personal tax liabilities resulting

Figure 2-3.

Consumer Spending and Income



Sources: Congressional Budget Office; Bureau of Economic Analysis.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Consumer spending consists of personal consumption expenditures. Disposable income is the income that people receive minus the taxes and fees that they pay to governments. Growth of consumer spending is measured from the fourth quarter of one calendar year to the fourth quarter of the next. The growth of disposable income is an annual average rate measured over two years, from the fourth quarter of one year to the fourth quarter two years later (the year indicated by the horizontal axis).

Values for 2018 are CBO's estimates.

from the changes made by the 2017 tax act; therefore, the increases in after-tax income in 2018 will continue to translate into more consumer spending in 2019. Gasoline prices, which fell considerably in late 2018, are expected to fall further during 2019, restraining overall inflation and boosting the purchasing power of household income this year. Finally, although interest rates are expected to

rise further, CBO expects that overall financial conditions, including indicators of consumers' creditworthiness and banks' willingness to lend, will still broadly support the growth of consumer spending in 2019.

CBO expects the growth of consumer spending to slow markedly after 2019. Whereas compensation gains are

anticipated to continue to boost household income over those years, other sources of support for consumption growth are expected to fade. For one, the effect of the 2017 tax act on consumption growth is projected to wane as households complete the upward adjustment to their spending made possible by the increase in after-tax incomes. For another, price inflation will restrain the growth of real household income as gasoline prices stop falling and new tariffs on imported goods lead to slightly higher overall consumer prices. Moreover, with higher interest rates, the expansion in consumer credit is expected to moderate in 2020 and beyond.

Business Investment. In CBO's projections, growth in business fixed investment slows markedly after 2018—from 6.8 percent in 2018 to 3.2 percent in 2019 and to an average of 1.7 percent per year between 2020 and 2023—as most of the effect of the factors boosting growth in 2018 wanes (see Figure 2-4). Those factors, which include increased incentives for investment under the 2017 tax act, the accelerated growth of output stemming in part from the tax act and the legislated increases in federal outlays, greater incentives for oil exploration and development created by higher oil prices, and the easing of existing regulations coupled with a slowdown in new regulatory activity, are estimated to have caused real business fixed investment to grow at a 6.8 percent rate in 2018. Although provisions in the tax act also increase incentives in 2019 through 2021, they do so by less each year than they did in 2018 and thus lead to less growth in investment. In addition, GDP growth slows in those years as the fiscal stimulus provided by federal spending diminishes and a decline in oil prices slows investment in oil drilling. The only major factor that stimulated growth of investment in 2018 and will continue to do so over the next four years is stronger productivity growth, in CBO's projections.⁸

Residential Investment. CBO anticipates that, after declining in 2018, real residential investment will grow faster than overall GDP over the next few years (see Figure 2-5). In the agency's projections, real residential investment grows by 3.9 percent in 2019 (after declining by 2.7 percent in 2018) and by an average of 4.5 percent per year from 2020 to 2022 before slowing in 2023 and later years. The decline in residential investment in

2018 was attributable in part to the 2017 tax act, which included provisions that reduced the incentives to own homes, as well as to higher mortgage rates. The anticipated pickup in growth from 2019 through 2022, by contrast, mainly reflects continued strength in household formation as well as some further easing of mortgage lending standards.

Government Purchases. If current laws governing federal taxes and spending generally remained in place, total real purchases of goods and services by federal, state, and local governments would increase by only 0.2 percent in 2019—down substantially from 2.5 percent in 2018—and contract by 0.3 percent in 2020, CBO estimates (see Figure 2-6 on page 37). Those estimates reflect a sharp decrease in federal purchases starting in fiscal year 2020 that is only partially offset by an increase in state and local purchases. Specifically, in CBO's projections, real purchases by the federal government fall by 1.5 percent in 2019 (on a fourth-quarter-to-fourth-quarter basis) and by 2.4 percent in 2020, incorporating the assumption that the statutory caps on funding for discretionary programs through fiscal year 2021 would bind and hold the growth of federal consumption and investment spending to a rate below that of inflation. By contrast, real purchases by state and local governments are projected to increase at an average annual rate of 1.1 percent in those years as both demand for their services and the tax revenue that funds those services rise. In CBO's baseline projections, total real government purchases grow modestly from 2021 through 2023, at an average annual rate of 0.4 percent, as federal discretionary funding begins to grow at the rate of inflation and as state and local governments continue to slowly hire more employees.

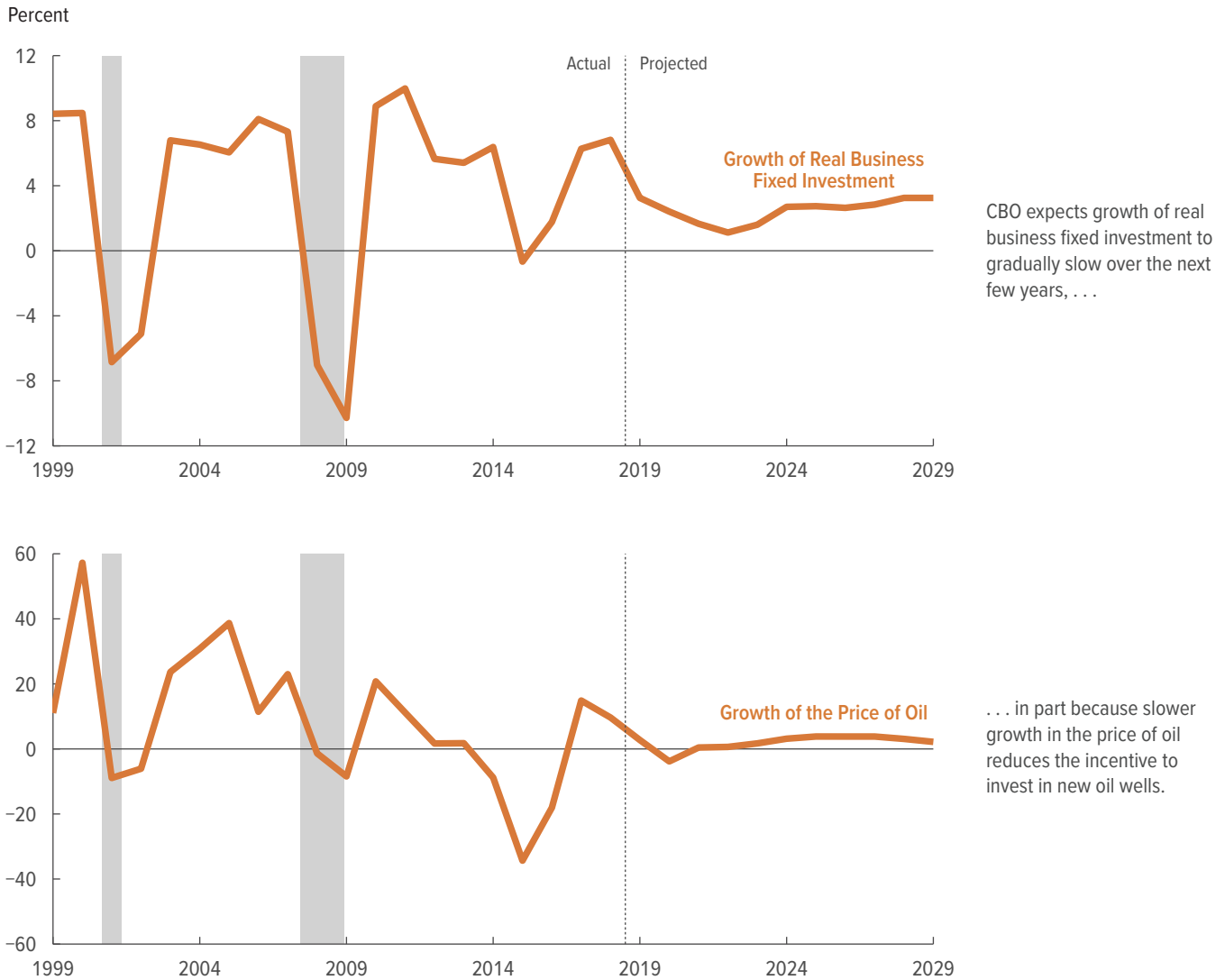
Net Exports. Continuing their downward trend since 2014, real net exports are projected to decline further this year—as real imports grow faster than real exports—before stabilizing over the following years. In CBO's projections, growth of real imports slows in 2019 as the growth of domestic purchases slows (see Figure 2-7 on page 38). Growth of real exports in 2019 also remains weak relative to their historical growth rates, reflecting in part the strength of the exchange value of the U.S. dollar, which makes U.S. exports less competitive in foreign markets.⁹ The exchange value of the dollar, which

8. See Mark Lasky, *CBO's Model for Forecasting Business Investment*, Working Paper 2018-09 (Congressional Budget Office, December 2018), www.cbo.gov/publication/54871.

9. 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.

Figure 2-4.

Business Fixed Investment and the Price of Oil



CBO expects growth of real business fixed investment to gradually slow over the next few years, . . .

. . . in part because slower growth in the price of oil reduces the incentive to invest in new oil wells.

Sources: Congressional Budget Office; Bureau of Economic Analysis; Energy Information Administration.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Business fixed investment consists of businesses’ purchases of equipment, nonresidential structures, and intellectual property products. Growth of business fixed investment is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

The price of oil is the current market price of a barrel of West Texas Intermediate crude oil. The growth of the price of oil is an annual average rate measured over two years, from the fourth quarter of one year to the fourth quarter two years later (the year indicated by the horizontal axis).

Value for growth of real business fixed investment in 2018 is CBO’s estimate.

rose substantially during 2018, is expected to remain relatively high in 2019 and fall only gradually over the following years. Moreover, new tariffs imposed by the United States and its trading partners in 2018 are expected to reduce the growth of both real imports and real exports in the near term (see Box 2-1 on page 26).

Potential Output and the Output Gap

In the agency’s projections, potential output—a measure of the economy’s fundamental capacity to supply goods and services—grows by an average of 2.0 percent per year from 2019 to 2023, roughly 0.5 percentage points more than it has grown annually, on average, from 2008

Figure 2-5.

Residential Investment and Household Formation



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

Real values are nominal values that have been adjusted to remove the effects of changes in prices. 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. Growth of residential investment is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

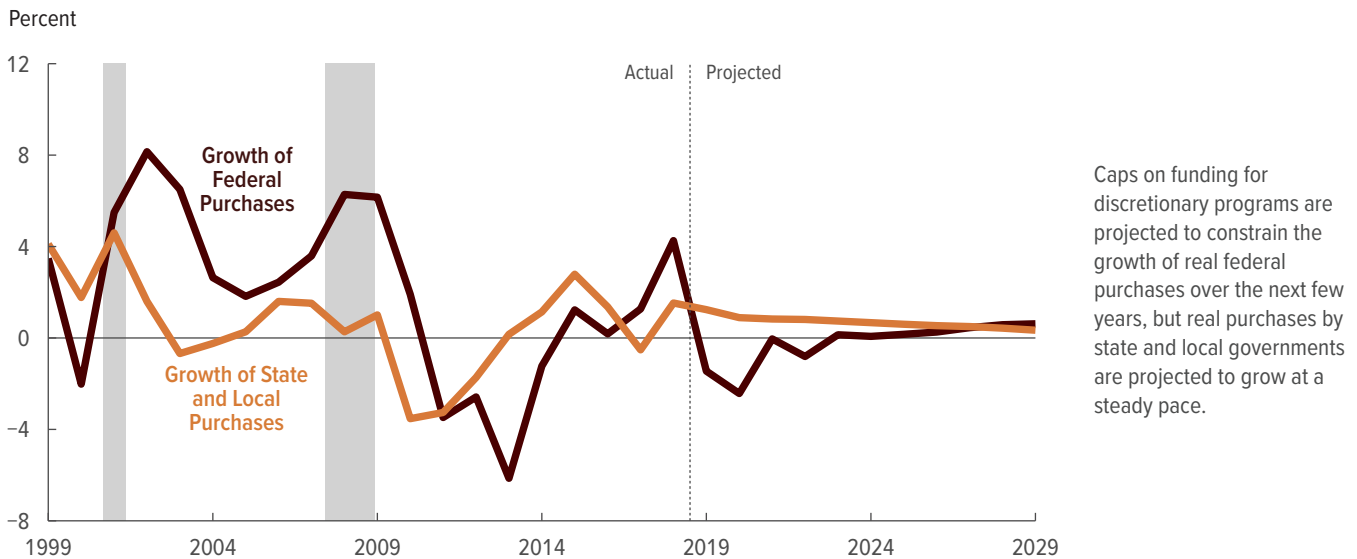
Household formation is the change in the number of occupied housing units from the fourth quarter of one calendar year to the fourth quarter of the next.

Values for 2018 are CBO's estimates.

to 2018 (see Figure 2-8 on page 39). Although the growth of potential output is determined primarily by long-run forces (such as trends in population growth, the labor force participation rate, and productivity), the acceleration of that growth in 2018 and over the next

few years in CBO's forecast is also driven by the 2017 tax act. According to the agency's estimates, the tax act increases incentives for investment (and therefore labor productivity) and labor supply and thus increases the economy's underlying productive capacity.

Figure 2-6.

Government Purchases

Sources: Congressional Budget Office; Bureau of Economic Analysis.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Government purchases are the purchases of goods and services by federal, state, and local governments that are included in gross domestic product. Growth of government purchases is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

Values for 2018 are CBO's estimates.

CBO's forecasts of the growth of actual and potential GDP imply that, in the next few years, the demand for goods and services will exceed the economy's long-run capacity to supply them. In the agency's projections, the output gap widens from zero in early 2018 to a cyclical peak of 0.9 percent of potential GDP by the second half of 2019. At the same time, in part as a result of the 2017 tax act, the pace of growth in potential output accelerates, slowing the increase in the output gap, mitigating the inflationary pressure associated with that gap, and facilitating growth in actual output. Still, starting in 2020, slower growth in consumer spending and business investment, as well as declines in federal outlays projected under current law, slow actual GDP growth in relation to the growth of potential GDP, steadily narrowing and ultimately eliminating the output gap by 2022.

The Labor Market

The labor market strengthened considerably in 2018. The primary measure that CBO uses to assess the strength of the labor market—the employment gap, or the difference between employment and potential

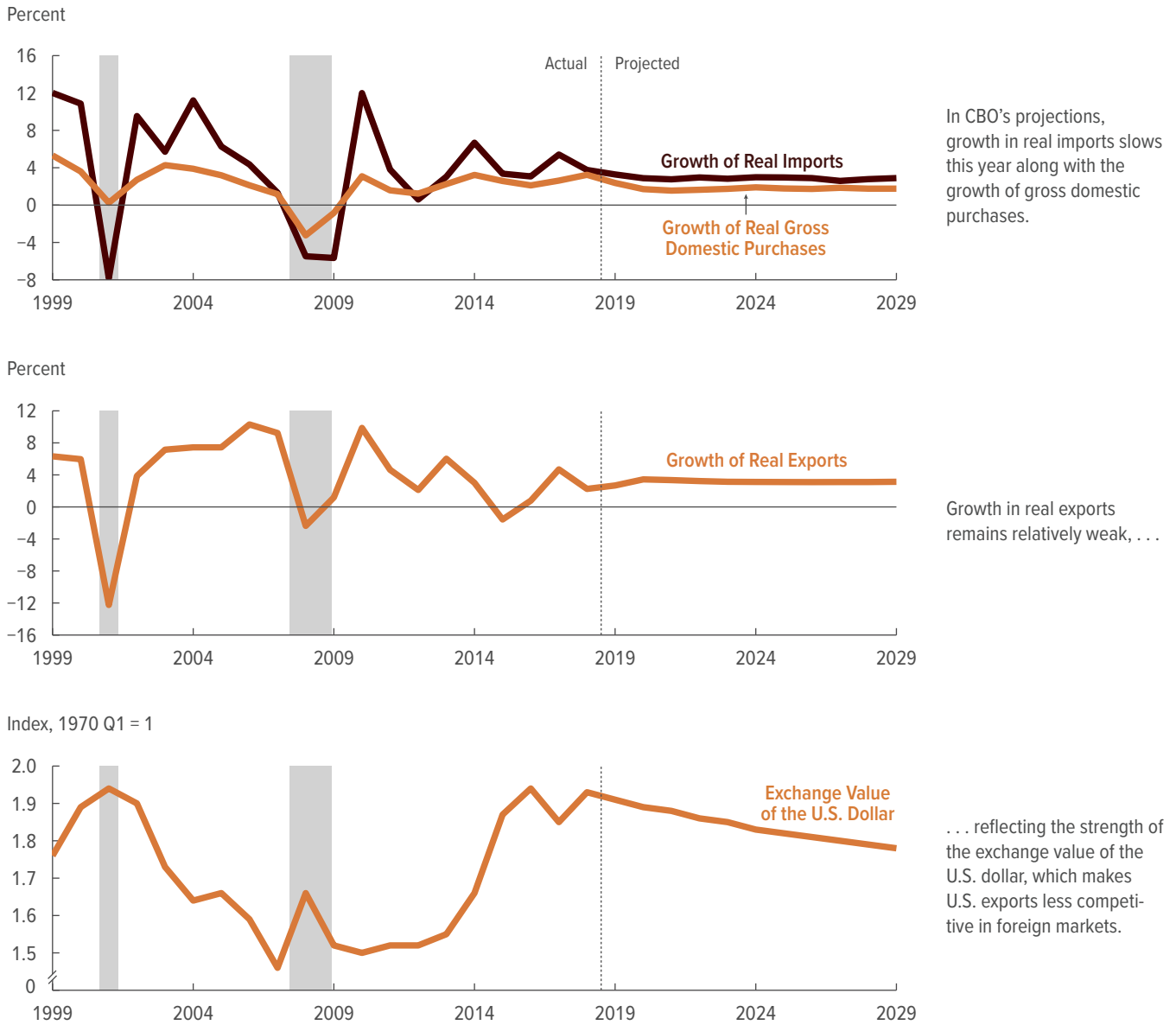
employment—indicated that the overall labor market has reached and exceeded its potential since early 2018.¹⁰ That strengthening of the labor market is also reflected in a further drop in the unemployment rate (which has been below its estimated natural rate since early 2017) and the continued stability of the labor force participation rate (which is approaching but remains slightly below its potential level). The potential labor force participation rate is itself trending down in the long run because of demographic pressures.

As the growing demand for goods and services continues to increase the demand for labor, the labor market continues to expand, in CBO's projections. In 2019, employment rises further above its potential level, the

10. Potential employment is CBO's estimate of the maximum sustainable level of employment in the long run. It equals the number of people who would be employed if the unemployment rate equaled its natural rate and if the labor force participation rate—that is, the percentage of people in the civilian, noninstitutionalized population who are at least 16 years old and are either working or seeking work—equaled its potential rate.

Figure 2-7.

Imports, Exports, and the Exchange Value of the U.S. Dollar



Sources: Congressional Budget Office; Bureau of Economic Analysis; Federal Reserve.

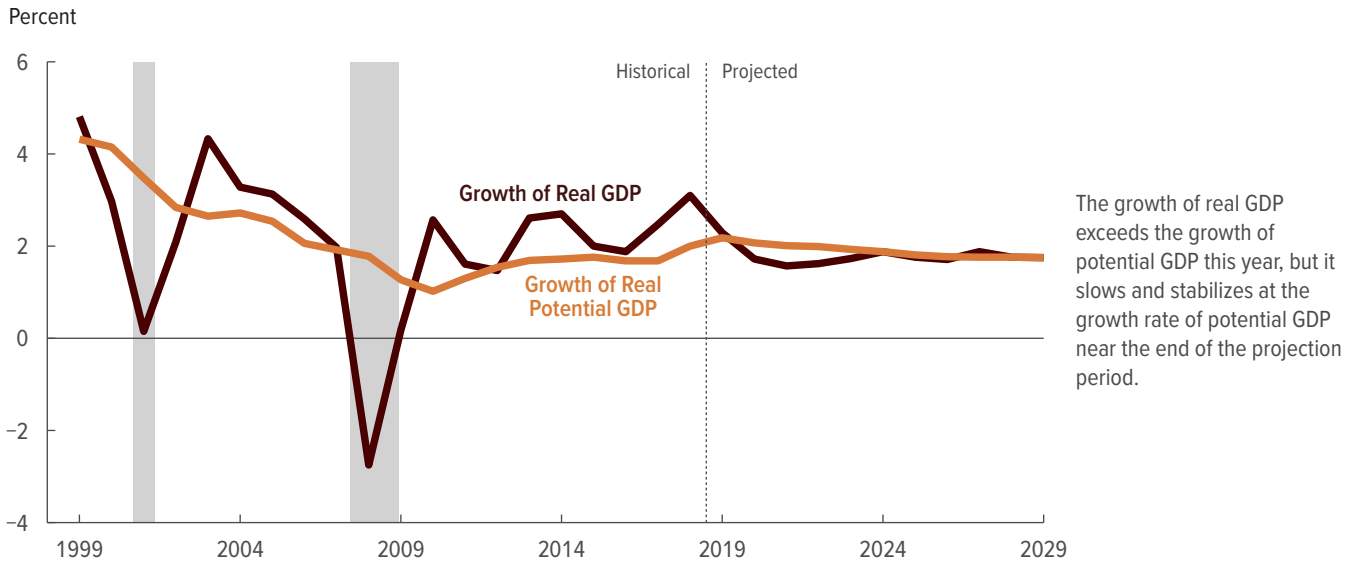
Real values are nominal values that have been adjusted to remove the effects of changes in prices. Gross domestic purchases are the sum of personal consumption expenditures, gross private domestic investment, and government consumption expenditures and gross investment. Growth is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

The exchange value of the U.S. dollar is an index of the export-weighted average of exchange rates between the dollar and the currencies of the United States' major trading partners—Australia, Brazil, Canada, China, Hong Kong, India, Japan, Mexico, Singapore, South Korea, Taiwan, the United Kingdom, and the countries of the euro zone. A higher value indicates a stronger dollar.

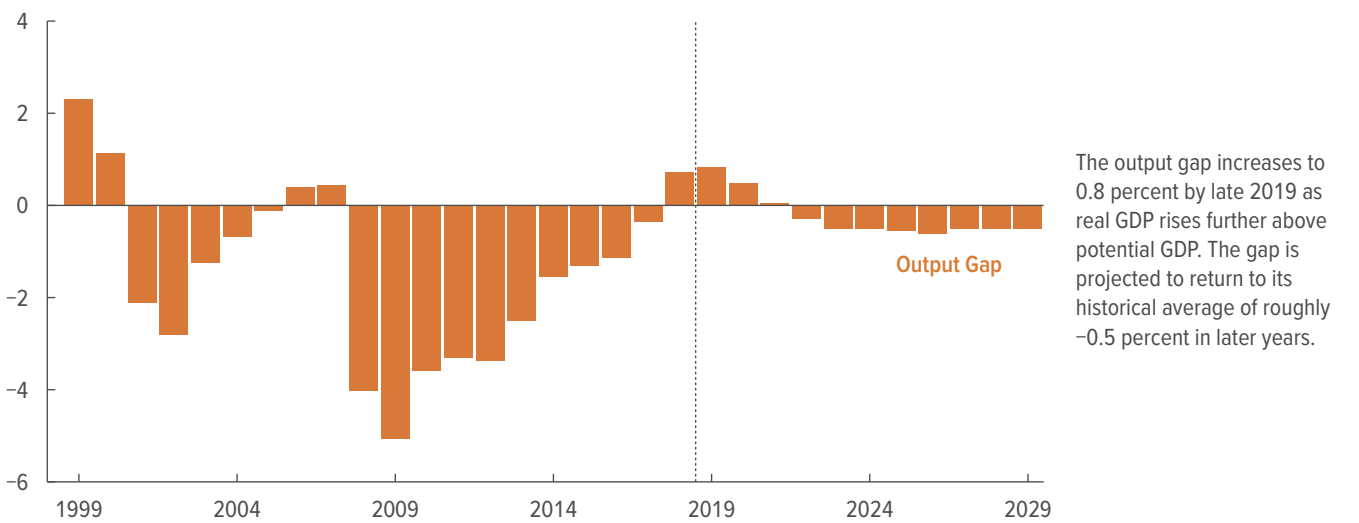
Values for 2018 are CBO's estimates.

Figure 2-8.

The Relationship Between GDP and Potential GDP



Percentage of Potential GDP



Sources: Congressional Budget Office; Bureau of Economic Analysis.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Potential GDP is CBO’s estimate of the maximum sustainable output of the economy. Growth of real GDP and of real potential GDP is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

The output gap is the difference between historical or projected GDP and potential GDP, expressed as a percentage of potential GDP. A positive value indicates that GDP exceeds potential GDP; a negative value indicates that GDP falls short of potential GDP. Values for the output gap are for the fourth quarter of each year.

Values for 2018 are CBO’s estimates.

GDP = gross domestic product.

unemployment rate falls further below the natural rate, and the gap between the actual and potential rates of labor force participation closes by the end of the year (see Figure 2-9). Meanwhile, growing demand for labor and competition for workers are also expected to boost the growth of wages and salaries and other forms of labor compensation over the next few years, which, in turn, will slow growth in the demand for labor. From 2020 to 2023, in CBO's projections, employment growth slows sharply as labor compensation rises and output growth slows. Nevertheless, employment remains higher than its potential level until 2023.

Employment. In CBO's projections, some of the momentum of strong employment growth in 2018 carries into 2019. Nonfarm payroll employment is projected to grow by an average of 148,000 jobs per month in 2019, which represents a decline from 213,000 jobs per month in 2018 but is still a healthy pace of job growth at this stage of the business cycle. From 2020 to 2023, growth in employment is expected to slow sharply, averaging just 39,000 jobs per month, reflecting an anticipated rise in the unemployment rate resulting from slower economic growth during those years and slower growth in the labor force because of the continued retirement of baby boomers (people born between 1946 and 1964).

Despite the expected slowdown in growth, CBO's employment projections imply that employment remains above its long-run potential level over the next few years. In CBO's projections, the employment gap—the difference between employment and potential employment—peaks at roughly 2 million people in late 2019 and then falls but remains positive until 2023. Employment as a percentage of the population also peaks in 2019, at about 60.6 percent, before falling back to 59.2 percent by 2023.

Unemployment. In CBO's projections, the unemployment rate falls from 3.8 percent in the fourth quarter of 2018 to 3.5 percent by the end of 2019, about 1.1 percentage points below the agency's estimate of the natural rate of unemployment. That decline in the unemployment rate reflects a continued increase in the demand for labor, which reduces the number of unemployed workers in the labor force this year. Meanwhile, the demand for labor and the resulting upward pressure on compensation also encourages people to remain in the labor force or rejoin it, making the labor force larger and

thus moderating the decline in the unemployment rate. As economic growth slows more substantially after 2019, the unemployment rate rises, reaching and surpassing its natural rate of 4.6 percent by 2023.

Even though the unemployment rate, at 3.8 percent in late 2018, is at its lowest point since the 1960s, the cyclical strength of the current labor market—and the amount of inflationary pressure it implies—is less pronounced than the unemployment rate alone suggests, in part because the natural rate of unemployment has declined over time. In CBO's estimate, the natural rate of unemployment has fallen from more than 6.0 percent in the early 1980s to 4.6 percent now. That decline has occurred because the workforce has shifted toward older workers, who tend to have lower unemployment rates, and away from less-educated workers, who tend to have higher unemployment rates.

Labor Force Participation. The labor force participation rate, which has hovered around 62.8 percent since 2014, remains close to that rate during the next two years, in CBO's projections. The stability of the labor force participation rate in recent years reflects the balancing of two opposing forces: sustained economic growth, which continues to encourage additional workers to enter and existing workers to stay in the labor force, and long-run shifts in demographics (particularly the aging of the population), which have led to a downward trend in the potential labor force participation rate. (In CBO's estimate, the potential labor force participation rate has fallen from 64.0 percent in 2014 to 63.0 percent in 2018.) Because the actual rate of labor force participation has been stable while the potential rate has continued to fall, the gap between the two rates has narrowed steadily in recent years. As the overall demand in the economy remains relatively strong in 2019, that gap is expected to close this year and then turn slightly positive in subsequent years.

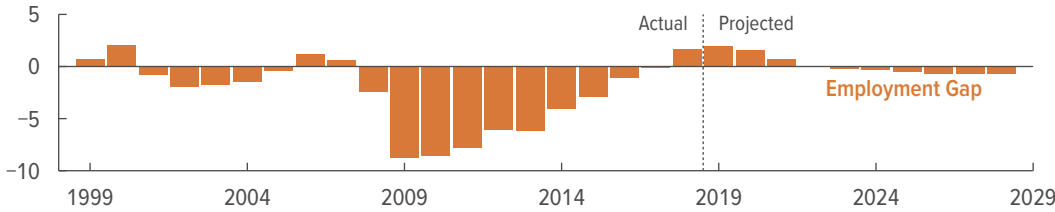
However, downward pressure from the demographic shifts is expected to dominate starting in 2020 as economic growth slows more markedly after 2019. In CBO's projections, the labor force participation rate falls from 62.8 percent in 2019 to 62.2 percent by 2023, in line with its potential rate, which falls from 63.0 percent to 62.1 percent during that period.

Labor Compensation. After several years of prolonged weakness, wage growth accelerated notably in 2018.

Figure 2-9.

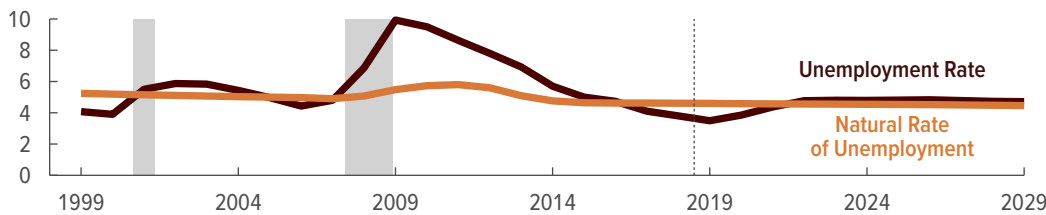
The Labor Market

Millions of People



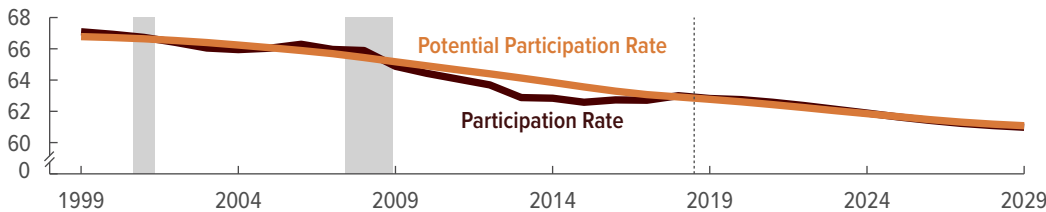
In 2019, strong demand for labor pushes employment further above its maximum sustainable amount, increasing the employment gap.

Percent



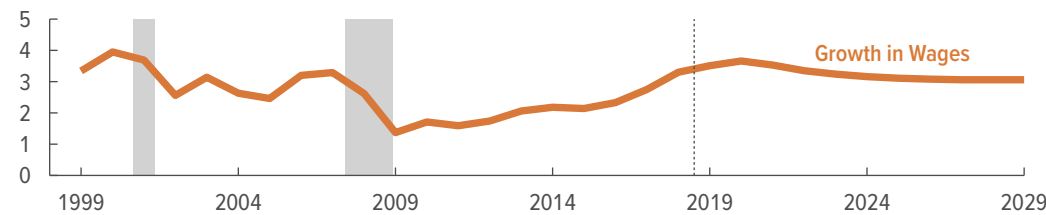
That demand lowers the unemployment rate further below CBO's estimate of the natural rate . . .

Percent



. . . and pushes the labor force participation rate above CBO's estimate of its potential rate.

Percent



In addition, that strong demand for labor puts upward pressure on wages over the next few years.

Sources: Congressional Budget Office; Bureau of Labor Statistics.

The employment gap is the difference between the number of employed people and the number who would be employed in the absence of fluctuations in the overall demand for goods and services.

The unemployment rate is the number of jobless people who are available for and seeking work, expressed as a percentage of the labor force. The natural unemployment rate is CBO's estimate of the rate of unemployment arising from all sources except fluctuations in the overall demand for goods and services.

The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are at least 16 years old and either working or seeking work. The potential labor force participation rate is the rate that CBO estimates to arise from all sources except fluctuations in the overall demand for goods and services.

Wages are measured by the employment cost index for wages and salaries of workers in private industry. Growth in wages is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

For the labor force participation and unemployment rates, data are fourth-quarter values.

Value for wage growth in 2018 is CBO's estimate.

Over the next few years, labor compensation is expected to rise further as employment remains at elevated levels and firms must compete for a relatively small pool of unemployed or underemployed workers. In CBO's projections, annual growth of the employment cost index for wages and salaries of workers in private industry averages 3.5 percent between 2019 and 2023, slightly more rapid than its 3.3 percent pace in 2018 and considerably more rapid than the 2.0 percent average from 2009 to 2017. Other measures of compensation, such as the average hourly earnings of production and nonsupervisory workers in private industries, also grow more rapidly than in recent years. (CBO's projections of labor compensation also reflect its projections of productivity and inflation.) The faster pace of wage growth is expected to restrain the demand for labor, which, in turn, will slow the pace of wage growth in later years.

Inflation

After averaging only 1.3 percent from 2012 through 2017, the annual growth rate of the price index for personal consumption expenditures (PCE)—the measure that the Federal Reserve uses to set its long-run inflation objective—increased in 2018, reaching the Federal Reserve's objective of 2 percent (see Figure 2-10). The core PCE price index, which excludes food and energy prices because they tend to be volatile, also nearly reached an annual growth rate of 2 percent. Consistently rapid growth in housing-service prices and more rapid growth in medical-service prices accounted for a large fraction of the recent increase in core inflation.

By CBO's estimate, newly imposed tariffs have had a tangible but limited effect on U.S. consumer price inflation so far. Newly imposed tariffs on certain imported consumer goods, such as washing machines, have led directly to large price increases for those products. Newly imposed tariffs on certain imported intermediate goods, such as steel and aluminum, also affected consumer prices, according to CBO's estimate. (Tariffs on imported intermediate goods increase the cost of producing consumer goods, and businesses tend to pass some of that higher cost onto consumers.) However, because the value of the consumer goods subject to tariffs is small relative to the total value of U.S. imports and because businesses can absorb some of those higher input costs, the effect of the tariffs on domestic inflation has been limited so far.

Over the next few years, growing demand for goods and services is expected to continue to put upward pressure

on inflation. Tariffs are expected to add slightly to that upward pressure, particularly in 2019 and 2020. CBO estimates that, on net, tariffs will increase the core PCE price index by 0.1 percent by the end of 2020 (see Box 2-1 on page 26). Their effect on prices is expected to be somewhat drawn out as businesses respond to recently imposed tariffs gradually, in part because of the current uncertainty about trade policy.

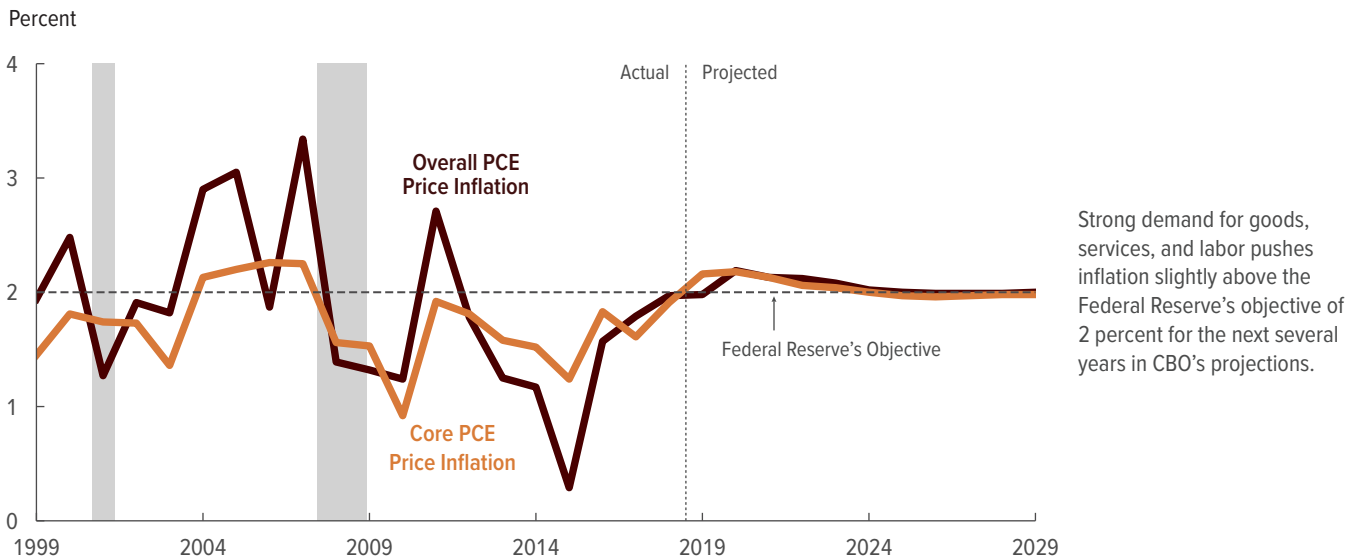
Meanwhile, the Federal Reserve is expected to further tighten monetary policy and, aided by market participants' stable expectations of future inflation, prevent inflation from substantially exceeding its long-run objective. In CBO's projections, growth in the core PCE price index rises to 2.2 percent per year in both 2019 and 2020. The core consumer price index for urban households (CPI-U), which historically tends to grow faster than the PCE price index, rises by 2.6 percent in 2019 and by 2.7 percent in 2020. In CBO's forecast, as interest rates rise and demand in the economy fades, inflation slows after 2020. By 2023, core PCE inflation falls back to 2.0 percent, and core CPI-U inflation declines to 2.4 percent.

Interest Rates

CBO expects the Federal Reserve to continue to raise the range for the federal funds rate (the interest rate that financial institutions charge each other for overnight loans of their monetary reserves) through the end of 2019 in response to the widening output gap and increasing inflationary pressures in the economy. In CBO's projections, the federal funds rate rises from 2.2 percent in late 2018 to 3.4 percent by the beginning of 2020, where it remains through 2022 (see Figure 2-11). The agency expects the Federal Reserve to then begin reducing the federal funds rate in 2023 as the output gap becomes more negative and inflationary pressures dissipate. The federal funds rate is expected to fall to 3.1 percent by the end of 2023.

The interest rates on 3-month Treasury bills and 10-year Treasury notes are also expected to be higher over the next few years. In CBO's projections, the interest rate on 3-month Treasury bills rises from 2.4 percent in the fourth quarter of 2018 to 3.1 percent in 2022. Similarly, the interest rate on 10-year Treasury notes rises from 3.0 percent in the fourth quarter of 2018 to 3.8 percent in 2022. Long-term rates remain roughly unchanged from 2022 to 2023, and short-term rates fall slightly after 2022 as the positive output gap disappears and the

Figure 2-10.

Inflation

Sources: Congressional Budget Office; Bureau of Economic Analysis.

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

Inflation is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

Values for 2018 are CBO's estimates.

PCE = personal consumption expenditures.

associated inflationary pressures dissipate. The interest rate on 3-month Treasury bills is projected to fall to 2.9 percent, and the interest rate on 10-year Treasury notes to 3.7 percent, by the end of 2023.

CBO's projections of long-term interest rates over the next few years reflect three primary factors. First, they incorporate the anticipated movements of short-term interest rates. Second, CBO expects the term premium (the premium paid to bondholders for the extra risk associated with holding longer-term bonds) to increase over the next few years as well. Various factors that pushed the term premium to historically low levels in recent years—such as investors' heightened concern about relatively weak global growth—are expected to gradually dissipate. Finally, CBO expects the ongoing reduction in the Federal Reserve's portfolio of long-term assets to provide a slight boost to long-term interest rates. Despite that boost, however, CBO expects the difference between long-term and short-term rates to narrow—often referred to as a flattening of the yield curve—through

2020. The agency expects the yield curve to then steepen slightly between 2021 and 2023.

The Economic Outlook for 2024 to 2029

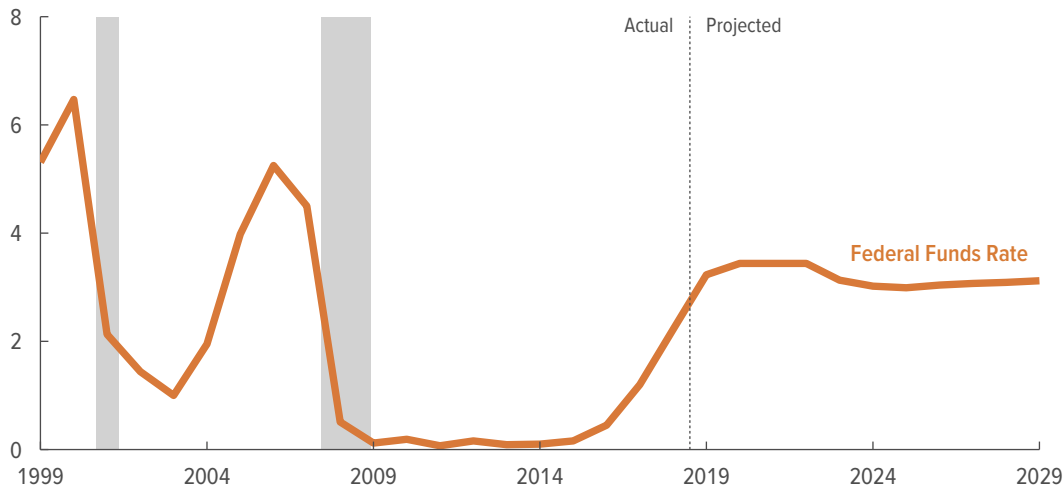
CBO's projections of the economy for 2024 through 2029 are based mainly on its projections of underlying trends in key variables, such as the size of the labor force, the average number of labor hours per worker, capital investment, and productivity.¹¹ In addition, CBO considers the effects on those variables of federal tax and spending policies—as well as trade and other public policies—embodied in current law. In some cases, policies might be projected not only to affect potential output but also to influence aggregate demand for goods and services, causing the gap between actual output and potential output to change. For example, the expiration of the temporary provisions in the 2017 tax act—including the expiration of most of the provisions affecting

11. See Robert Shackleton, *Estimating and Projecting Potential Output Using CBO's Forecasting Growth Model*, Working Paper 2018-03 (Congressional Budget Office, February 2018), www.cbo.gov/publication/53558.

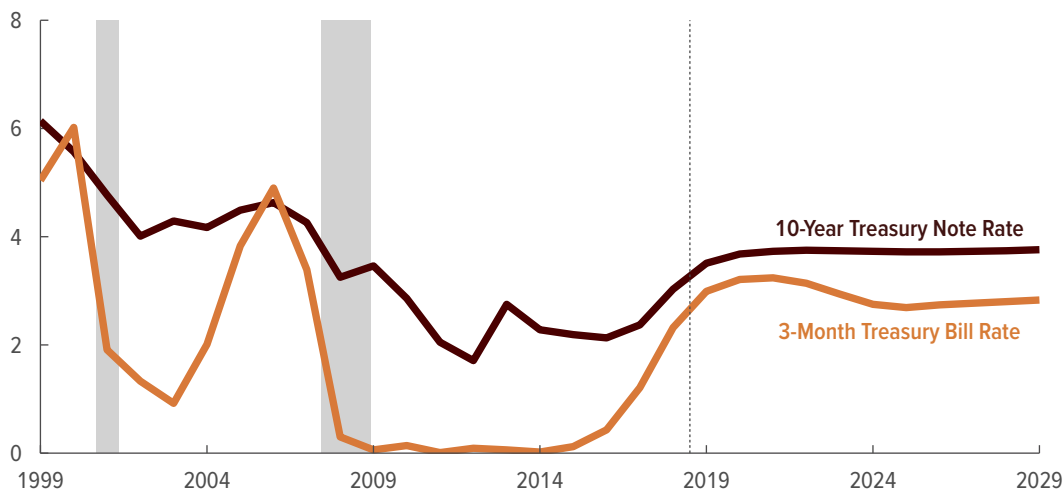
Figure 2-11.

Interest Rates

Percent



CBO expects the Federal Reserve to continue to increase the federal funds rate through the end of 2019 in response to the widening output gap and mounting inflationary pressures.



The increases in the federal funds rate and a rising term premium contribute to higher interest rates on Treasury securities.

Sources: Congressional Budget Office; Federal Reserve.

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

The term premium is the amount paid to bondholders for the extra risk associated with holding longer-term bonds.

Data are fourth-quarter values.

individual income taxes at the end of 2025 and the phaseout of bonus depreciation by the end of 2026—is projected to slow real GDP growth and to lower real GDP in relation to its potential in those years.

Potential Output and Actual Output

In CBO’s projections, potential output grows at an average rate of 1.8 percent per year over the

2024–2029 period, driven by average annual growth of about 0.5 percent in the potential labor force and of about 1.3 percent in potential labor force productivity (see Table 2-5). Compared with growth of potential output of more than 2.0 percent per year from 2019 to 2023, the annual rate of 1.8 percent in later years represents a slowdown of nearly one-quarter of a percentage point. About one-third of that slowdown results from

Table 2-5.

Key Inputs in CBO's Projections of Real Potential GDP

Percent

	Average Annual Growth						Total, 1950– 2018	Projected Average Annual Growth		
	1950– 1973	1974– 1981	1982– 1990	1991– 2001	2002– 2007	2008– 2018		2019– 2023	2024– 2029	2019– 2029
Overall Economy										
Real Potential GDP	4.0	3.2	3.4	3.2	2.5	1.6	3.2	2.0	1.8	1.9
Potential Labor Force	1.6	2.5	1.6	1.2	1.0	0.5	1.4	0.5	0.5	0.5
Potential Labor Force Productivity ^a	2.4	0.6	1.7	2.0	1.5	1.0	1.7	1.5	1.3	1.4
Nonfarm Business Sector										
Real Potential Output	4.1	3.5	3.6	3.6	2.8	1.8	3.4	2.4	2.1	2.2
Potential Hours Worked	1.4	2.3	1.8	1.2	0.4	0.5	1.3	0.6	0.3	0.4
Capital Services	3.7	3.8	3.5	3.8	2.9	2.4	3.4	2.6	2.1	2.3
Potential Total Factor Productivity	1.9	0.9	1.3	1.5	1.6	0.6	1.4	1.1	1.1	1.1
Contributions to the Growth of Real Potential Output (Percentage points)										
Potential hours worked	1.0	1.6	1.2	0.8	0.2	0.3	0.9	0.4	0.2	0.3
Capital input	1.2	0.9	1.1	1.3	0.9	0.8	1.1	0.9	0.7	0.8
Potential total factor productivity	1.9	0.9	1.3	1.5	1.6	0.6	1.4	1.1	1.1	1.1
Total Contributions	4.0	3.5	3.6	3.6	2.8	1.8	3.4	2.4	2.1	2.2
Potential Labor Productivity ^b	2.7	1.2	1.8	2.3	2.4	1.3	2.1	1.8	1.8	1.8

Source: Congressional Budget Office.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Potential GDP is CBO's estimate of the maximum sustainable output of the economy.

The table shows compound annual growth rates over the specified periods calculated using calendar year data.

GDP = gross domestic product.

a. The ratio of potential GDP to the potential labor force.

b. The ratio of potential output to potential hours worked in the nonfarm business sector.

slower growth of the potential labor force; the remaining two-thirds results from slower growth in potential labor force productivity.¹²

12. Potential labor force productivity, defined as potential output per member of the potential labor force, is a broad measure of the productive efficiency of the overall economy. It can increase when one or more of the sectors in the economy (such as government or the nonfarm business sector) produce output more efficiently—perhaps because of a boost in business fixed investment or because of a technological advance—or when production in the economy shifts away from less efficient sectors toward more efficient sectors.

The slowdown in growth is expected to be slightly more pronounced in the nonfarm business sector, which produces roughly three-quarters of GDP. Annual growth of that sector's potential output slows by about a quarter of a percentage point, in CBO's projections, from nearly 2.4 percent over the 2019–2023 period to about 2.1 percent over the 2024–2029 period. The contribution of potential hours worked falls from 0.4 percentage points per year, on average, in the first half of the 11-year projection period to 0.2 percentage points in the second half. The contribution of capital services drops from an average of 0.9 percentage points per year to 0.7 percentage points; by itself, that reduction would lead to slower growth in labor force productivity. The slowdown

in the growth of potential hours and in the growth of capital services reflects underlying long-run trends—such as the aging of the population and other demographic shifts—as well as the expiration of temporary tax provisions under current law. (Recent changes in trade policy are expected to have a small, negative effect on potential output in the long run, although the uncertainty surrounding that assessment is considerable. See Box 2-1 on page 26 for more details.)

In contrast to the slower projected growth of hours and capital services, the annual growth of potential total factor productivity (the average real output per unit of combined labor and capital services, excluding the effects of business cycles) in the nonfarm business sector accelerates, in CBO’s forecast, from slightly less than 1.1 percent in the first half of the projection period to just over 1.1 percent in the second half, somewhat offsetting the slowdown in the growth of other factor inputs. That increase plays a key role in keeping growth in potential aggregate output substantially faster than the 1.6 percent average annual growth that is estimated to have occurred since 2007, when the last recession began (see Box 2-2).

Typically, in CBO’s forecasts, the growth of actual output and the growth of potential output converge in the second half of the 11-year period, and the level of actual output stays about 0.5 percent below that of potential output, which is consistent with the long-term relationship between the two measures.¹³ In the agency’s current forecast, however, that convergence is interrupted because the expiration of the temporary provisions of the 2017 tax act is projected not only to affect the growth of potential output by reducing the supply of labor but also to result in a temporary slowdown in the growth of aggregate demand. As a consequence, in the current forecast, the gap between actual output and potential output temporarily widens and becomes more negative before returning to its long-run average (-0.5 percent of potential output) in the final years of the projection period. Correspondingly, the average growth rate of actual output during the 2024–2029 period is close to but slightly slower than that projected for potential output in those

years—both averaging about 1.8 percent per year in CBO’s current projections.

The Labor Market

CBO expects the natural rate of unemployment to decline slowly over time, from 4.6 percent in 2019 to under 4.5 percent by 2029. That slow decline reflects a shift in the composition of the workforce toward older workers, who tend to have lower rates of unemployment (when they participate in the labor force), and away from less-educated workers, who tend to have higher ones.

In CBO’s projections, the unemployment rate stops rising by 2023, and the difference between the unemployment rate and the natural rate settles at the long-term gap of about one-quarter of a percentage point.¹⁴ As the natural rate of unemployment declines slowly over time, the unemployment rate also falls between 2024 and 2029, except in 2026 when the unemployment rate rises slightly. That temporary increase occurs because the slowdown in the growth of overall demand for goods and services caused by the expiration of certain provisions of the 2017 tax act also slows the growth in the demand for labor. CBO expects the unemployment rate to be 4.7 percent in 2029, slightly below its level of 4.8 percent in 2024.

CBO expects the labor force participation rate to follow its long-term trend and fall to about 61 percent by 2029, roughly 1 percentage point below the agency’s projection for 2024. CBO attributes most of the decline from 2024 to 2029 to ongoing demographic changes—in particular, to the aging of the population (because older people tend to participate less in the labor force than younger people do).¹⁵

Growth in employment and wages is projected to moderate during the 2024–2029 period. In particular, nonfarm payroll employment increases by an average of 60,000 jobs per month during those years, in CBO’s forecast. Employment as a percentage of the civilian, noninstitutionalized population falls from 59.0 percent in 2024 to 58.1 percent in 2029, primarily reflecting the

13. See Congressional Budget Office, *Why CBO Projects That Actual Output Will Be Below Potential Output on Average* (February 2015), www.cbo.gov/publication/49890. Actual output is below potential output in the latter part of the projection period, on average, so that inputs to the budget projections (such as incomes and interest rates) are consistent with historical averages.

14. The projected gap of 0.25 percentage points between the unemployment rate and the natural rate of unemployment corresponds to the projected output gap of -0.5 percent of potential output.

15. See Joshua Montes, *CBO’s Projections of Labor Force Participation Rates*, Working Paper 2018-04 (Congressional Budget Office, March 2018), www.cbo.gov/publication/53616.

decline in the potential labor force participation rate. Real compensation per hour in the nonfarm business sector, a measure of labor costs that is a useful gauge of longer-term trends, grows at an average annual rate of 1.8 percent from 2024 to 2029—the same rate at which labor force productivity in that sector grows, in the agency’s projections, reflecting the close historical relationship between the two measures.

Inflation

In CBO’s forecast, the overall and the core PCE price indexes increase by an average of 2.0 percent per year between 2024 and 2029, which is the Federal Reserve’s long-run objective for inflation. Inflation in the overall and core CPI-U measures averages 2.3 percent growth annually in those years. Those projections reflect the historical difference between the growth rates of the PCE price index and the CPI-U.

Interest Rates

Over the 2024–2029 period, the interest rate on 3-month Treasury bills averages 2.8 percent, in CBO’s projections, and the rate on 10-year Treasury notes averages 3.7 percent. The federal funds rate averages 3.1 percent. In CBO’s projections, interest rates decline slightly in 2024 and 2025. The expected decline in 2024 primarily reflects a continued response to the slowdown in growth (and decreasing inflationary pressure) during the previous three years, whereas the expected decline in 2025 primarily reflects anticipated changes in monetary policy. Specifically, CBO expects the Federal Reserve to reduce the federal funds rate in 2025 to counteract the drag on economic growth stemming from the expiration of the individual income tax cuts. After 2025, interest rates begin to rise, as rising federal debt in relation to GDP exerts upward pressure on short- and long-term interest rates and as the term premium continues to increase.

Projections of Income for 2019 to 2029

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 labor income, domestic profits, proprietors’ income, interest and dividend income, and other categories. CBO projects various categories of income by estimating their shares of GDP. Most important for projecting federal revenues is the share of income accruing to labor, which includes highly taxed components, such as wages and salaries. (Labor’s share also includes less highly taxed forms of

compensation, such as employer-paid benefits and a fraction of proprietors’ income, although those components account for a smaller portion of total labor income than wages and salaries.) Moreover, because domestic profits are also taxed at relatively high rates, their share of GDP is important for projecting federal revenues as well.

Labor income as a share of GDP fell sharply from 2008 to 2014 but has since partially rebounded. CBO expects that rebound to continue in the coming years (see Figure 2-12 on page 50). Reflecting the effects of strong labor markets on employment and compensation, CBO’s projection includes an increase in labor’s share of GDP from 57.3 percent in 2018 to 58.8 percent in 2029. In particular, wages and salaries are expected to grow more quickly than other kinds of income throughout the 11-year projection period, and their share of total income rises from 43.1 percent of GDP in 2018 to 43.9 percent in 2029 in CBO’s projections.

Longer-term factors have depressed the share of income accruing to labor, however, and CBO expects those factors to continue to have an influence. Since the early 2000s, labor’s share of GDP has generally fallen, remaining below the range in which it had stayed over many previous business cycles. Research has identified a range of possible contributing factors behind that decline and has grappled with whether the decline in labor’s share will persist into future years. One such factor is globalization, which has increased businesses’ incentives to move the production of labor-intensive goods and services to countries with labor costs that are lower than those in the United States.¹⁶ Another factor is technological change, which may have increased returns to capital more than it has increased returns to labor.¹⁷ For example, technological change may have increased the importance of so-called intangible capital, such as

16. See, for example, Michael W.L. Elsby, Bart Hobijn, and Aysegül Sahin, “The Decline of the U.S. Labor Share,” *Brookings Papers on Economic Activity*, vol. 44, no. 2 (Fall 2013), pp. 1–63, <https://brook.gs/2VCVbyx>.

17. In particular, some economists have focused on the role of information technology in lowering the cost of capital goods, which may have induced firms to shift away from the use of labor and toward capital. See, for example, Loukas Karabarbounis and Brent Neiman, “The Global Decline of the Labor Share,” *Quarterly Journal of Economics*, vol. 129, no.1 (February 2014), pp. 61–103, <https://tinyurl.com/y9uj2yv5>.

Box 2-2.

CBO's Estimate and Projection of Potential Total Factor Productivity in the Nonfarm Business Sector

As calculated by the Congressional Budget Office, growth of total factor productivity (TFP) in the nonfarm business sector is the portion of the growth of output that remains after accounting for the contribution of hours of labor and services provided by the stock of capital. The index therefore reflects the effects on output of all economic developments other than the growth of hours and capital services, including changes in the utilization of capital and the intensity of labor effort, changes in education and skills in the labor force, spillovers from investments in private and public capital, and technological progress, all of which can be affected by a variety of public policies and regulations. Crucially, it also reflects any errors in the measurement of inputs or outputs, including the measurement of improvements in the quality of goods and services counted in gross domestic product. Because all the factors influencing the growth of TFP are difficult to measure and can vary considerably over time, TFP growth is less well understood than other elements of economic growth and more difficult to project with confidence or accuracy.

To identify and project underlying trends in TFP growth, CBO develops an estimate of potential TFP that adjusts for business-cycle effects (such as changes in the utilization of capital and the intensity of labor effort) and other short-term fluctuations. The agency then draws on a variety of methods to project potential TFP into the future.

Historically, TFP growth is quite variable from quarter to quarter. Over longer periods, however, years of comparatively steady TFP growth tend to be followed by rather abrupt transitions to years with steady but substantially different growth. For example, estimated trend growth in TFP remained relatively strong in the 1950s and 1960s, slowed considerably from the early 1970s to the mid-1990s, and resurged in the late 1990s and early 2000s. Around 2005, a few years before the recession and financial crisis that began in 2007, TFP growth again slowed in many industries and throughout the international economy. In CBO's estimate, TFP growth in the domestic nonfarm business sector was only about one-third as rapid during the 2006–2017 period as it had been from 1996 to 2005.

The agency has devoted substantial effort to understanding the causes of that slowdown and has continued to examine a variety

of methods for projecting TFP into the future.¹ CBO's current view on the set of possible factors contributing to the slowdown in TFP growth since 2005 can be summarized as follows:

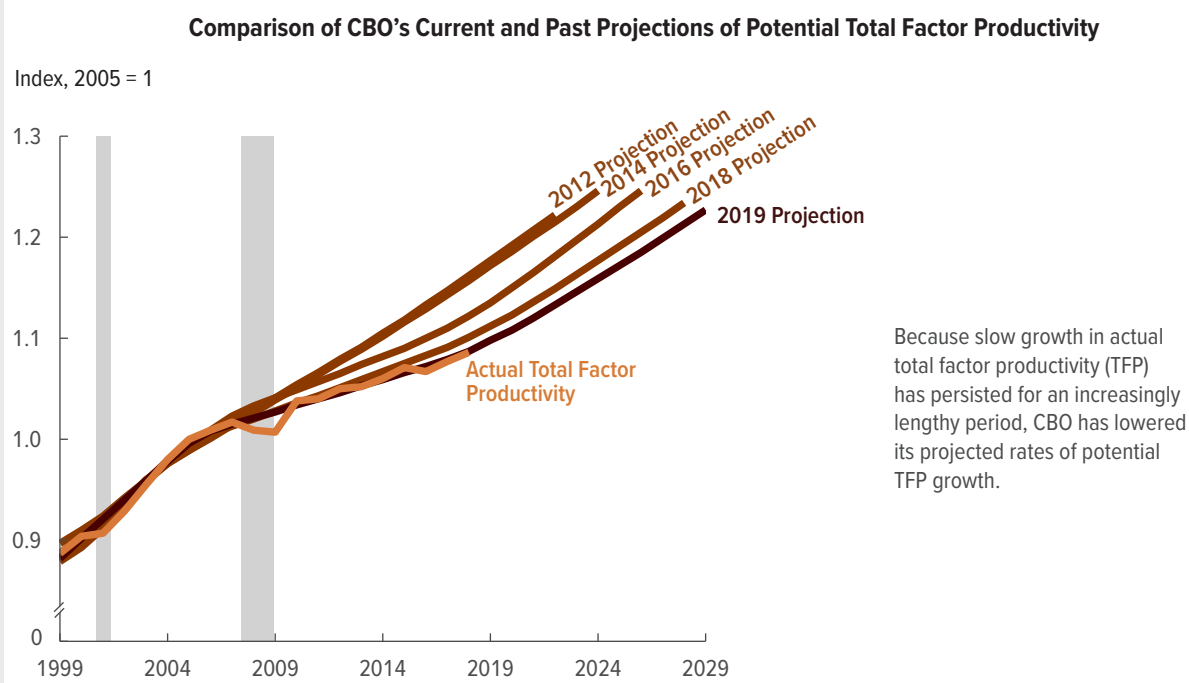
- **Measurement Issues:** Even though mismeasurement of economic phenomena is widespread and persistent, measurement issues do not appear to have been substantially worse since 2005 than they were in the past and probably account for at most a small portion of the slowdown.
- **Slower Growth of Aggregate Output:** The slower growth of the labor force and of aggregate demand in the aftermath of the recession resulted in relatively modest demand for capital investment, slow turnover of capital stock, and slow introduction of new technologies in new plants and equipment. Nevertheless, there is little evidence of a backlog of technology that exists but is not raising output and productivity through its effect on capital stock, which suggests that slower economic growth did not feed back strongly into TFP growth.
- **Demographic Effects:** Highly skilled and well-educated baby boomers are retiring, and the educational attainment of younger cohorts only modestly exceeds that of their predecessors—two demographic effects that could be restraining TFP growth. Higher-skilled workers tend to continue working longer than their predecessors, however, and younger cohorts made especially strong gains in educational attainment during the recession and the ensuing slow recovery. Both developments have tended to improve the average skill level of the aggregate labor force. As a consequence, growth of the estimated quality of the aggregate labor force since 2005 has been only moderately slower than growth over the preceding 25 years, and that slowdown has played at most a minor role in the overall slowdown in TFP growth.
- **Structural Issues:** Declining dynamism in many industries, possibly exacerbated by increasing regulatory constraints, could be contributing to slower growth in TFP. Regulatory restrictions on homebuilding in denser, high-productivity urban regions could also be slowing TFP growth. Such

1. For further discussion of CBO's method of estimating and projecting TFP, as well as more detailed discussion of the recent slowdown in TFP growth, see Robert Shackleton, *Estimating and Projecting Potential Output Using CBO's Forecasting Growth Model*, Working Paper 2018-03 (Congressional Budget Office, February 2018), Appendix C, www.cbo.gov/publication/53558.

Box 2-2.

Continued

CBO's Estimate and Projection of Potential Total Factor Productivity in the Nonfarm Business Sector



Source: Congressional Budget Office.

Total factor productivity is the average real output per unit of combined labor and capital services. Real values are nominal values that have been adjusted to remove the effects of changes in prices. Actual TFP is indexed to 1 in 2005.

problems have been developing slowly over time, however, and are difficult to associate with an abrupt slowdown in TFP growth around 2005.

- Long-Term Innovation:** Some researchers believe that long-term innovation may be slowing as well and that the economy is “running out of ideas.” The costs of research and innovation are increasing, they argue, and the resulting new ideas are not as economically significant as past innovations. Again, no evidence exists of an abrupt change around 2005 connected to such developments. Moreover, other, more optimistic researchers conclude that the pools of potential innovators and the potential market for innovative products are now global, that research tools have greatly improved and communication of innovations has become much more rapid, and that major advances in technology can continue to be expected in the future, though they may diffuse through industry rather slowly.

With slow growth in actual TFP persisting for an increasingly lengthy period, CBO has gradually lowered its projected rates of potential TFP growth (see the figure). Because extensive

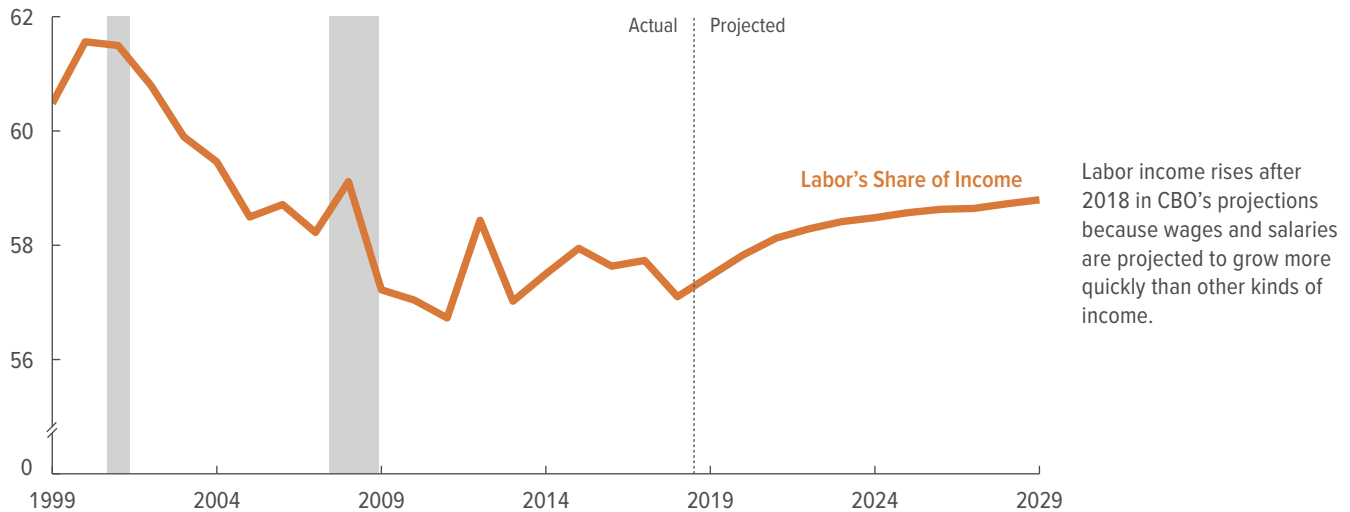
research has failed to uncover a strong, compelling explanation either for the slowdown or for its persistence and therefore yields little guidance for projections, CBO has examined a variety of methods for projecting potential TFP on the basis of past experience. As a general rule, all those methods produce large errors when trend growth rates suddenly shift, and they would have produced comparatively poor projections over the past decade because of the slowdown in TFP growth. Nevertheless, CBO has concluded that, over the past several decades, projections would have been most accurate if the projected growth of potential TFP had gradually converged over several years from the most recent estimated trend to a rate consistent with the average trend over the preceding 25 years, with twice as much weight placed on recent trend rates as on trend rates 25 years in the past.

In keeping with that conclusion, the agency currently projects potential TFP growth to gradually increase from its recent low rate of about 0.6 percent per year to a more rapid rate that is more consistent with such long-term trends—somewhat more than 1.1 percent. CBO will revise that assessment as necessary as new data become available.

Figure 2-12.

Labor Income

Percentage of Gross Domestic Product



Labor income rises after 2018 in CBO's projections because wages and salaries are projected to grow more quickly than other kinds of income.

Sources: Congressional Budget Office; Bureau of Economic Analysis.

Labor income is the sum of employees' compensation and CBO's estimate of proprietors' income that is attributable to labor.

Data are fourth-quarter values.

Value for 2018 is CBO's estimate.

advertising and brand equity.¹⁸ Intangible capital can give rise to “factorless income,” which is typically associated with large and highly productive firms that are able to boost profits more than wages.¹⁹

18. For a discussion about determining the value of intangible assets, see Congressional Budget Office, *How Taxes Affect the Incentive to Invest in New Intangible Assets* (November 2018), www.cbo.gov/publication/54648.

19. Many industries have seen rapid growth of a few highly productive firms; see David Autor and others, *The Fall of the Labor Share and the Rise of Superstar Firms*, Working Paper 23396 (National Bureau of Economic Research, May 2017), www.nber.org/papers/w23396. One interpretation of the rise of superstar firms is that it reflects the success of technological leaders or of firms with other organizational advantages in increasingly competitive markets; see, for example, John Van Reenen, “Increasing Differences Between Firms: Market Power and the Macro-Economy” (paper presented at the 2018 Economic Policy Symposium, Jackson Hole, Wyo., August 31, 2018), <https://tinyurl.com/yazt3bm4>. That interpretation contrasts with those of other observers who argue that those dominant firms may have contributed to a decline in labor's share by restraining competition in product and labor markets, which would operate to boost prices and restrain wages; see, for example, Jan De Loecker and Jan Eeckhout, *The Rise of Market Power and the*

Although the relative importance and persistence of those factors remain unclear, some of the factors that have depressed labor's share are expected to persist. As a result, CBO does not expect labor's share of GDP to reach its 1980–2000 average of nearly 60 percent.

Finally, in CBO's projections, the share of domestic corporate profits falls from 8.7 percent of GDP in 2018 to an average of 8.1 percent over the 2019–2029 period. That decline mostly reflects the rise in wages and salaries, but it also reflects an increase in corporate interest payments that results from rising interest rates.

Macroeconomic Implications, Working Paper 23687 (National Bureau of Economic Research, August 2017), www.nber.org/papers/w23687. Although some national- and industry-level analyses are consistent with that hypothesis, other studies find increased competition at the local level, where most wages are set; see Kevin Rinz, *Labor Market Concentration, Earnings Inequality, and Earnings Mobility*, Working Paper 2018-10 (Center for Administrative Records Research and Applications, Census Bureau, October 2018), <https://go.usa.gov/xE4w4>. Because the explanation for the decline in labor's share remains under debate, CBO does not tie its projection to any single factor.

Some Uncertainties in the Economic Outlook

Significant uncertainty surrounds CBO's economic forecast, which the agency constructed to be the average of the distribution of possible outcomes given the federal policies embodied in current law. Even if no significant changes were made to those policies, economic outcomes would undoubtedly differ from CBO's projections both in the near term and later in the projection period, for various reasons. Recently implemented changes to trade policies, and proposals calling for further changes, also compound the uncertainty in the current economic outlook.

Uncertainties for 2019 to 2023

Many developments—such as unforeseen changes in the labor market, business confidence, the housing market, and international conditions—could cause economic growth and other variables to differ considerably from what CBO has projected. On the one hand, the agency's current forecast of employment and output for the 2019–2023 period may be too pessimistic. For example, firms might respond to the expected increase in overall demand for goods and services with more robust hiring than CBO anticipates. If so, the unemployment rate could fall more sharply and inflationary pressures could rise more quickly than CBO projects. In addition, the 2017 tax act significantly altered the incentives to work and invest, but it is still too early to know how households and businesses are responding to those changes in incentives. If consumer spending and capital investment increased more than CBO projects, GDP growth would be correspondingly higher.

On the other hand, CBO's forecast for 2019 through 2023 may be too optimistic. For example, if the increased tightness of labor markets does not lead to increases in wages and benefits, household income and consumer spending could grow more slowly than CBO anticipates. Further declines in U.S. equity markets, if persistent, could also significantly reduce household wealth, consumer spending, and business investment. Moreover, an unexpected worsening in international political or economic conditions, such as a more severe slowdown in China's economy—which could be exacerbated by drawn-out trade disputes with the United States—or a breakdown in the Brexit negotiation, 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, recent increases in tariffs on certain imported goods materially altered the stance of U.S. trade policy, creating further uncertainty about the current economic outlook. Because tariff increases in developed economies are rare in recent history, existing empirical research provides limited guidance about how businesses and consumers in the United States and its trading-partner countries might respond. If businesses were less able to absorb the cost increases and therefore had to pass more of them onto consumers, then domestic inflation would be higher and the negative effect of those new tariffs on trade and GDP growth would be more substantial than CBO currently projects. Moreover, the rise in uncertainty stemming from possible additional changes in trade policy may weaken business confidence, causing businesses to postpone or reduce investment and adding to the negative effect of existing tariff increases on GDP growth. (See Box 2-1 on page 26 for more discussion of the uncertainty stemming from recent trade policy changes.)

In CBO's baseline projections, over the next few years, the economy experiences a muted cycle, in which the output gap initially widens and then narrows through slower but still positive economic growth. Although a recession is not the agency's baseline projection, a risk of recession nonetheless exists. The current economic expansion is the second longest in the post–World War II period (see Figure 2-13). Recent surveys indicate that private-sector forecasters see the likelihood of a recession occurring over the next few years as significant.²⁰

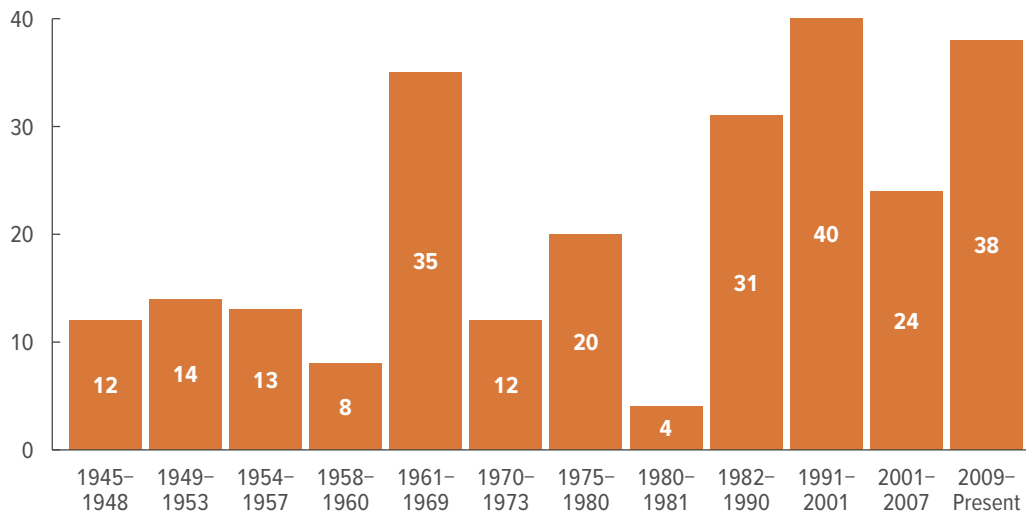
In CBO's view, economic expansions do not end simply because of their long duration; however, as an expansion lengthens, the economy may become more vulnerable to the prospect of a recession because various risk factors can develop and compound over time. Historically, such risk factors (broadly defined) have included unintended adverse effects of economic policies; economic and financial imbalances that must be resolved; and external shocks, such as adverse international events or sudden, large increases in oil prices. Currently, some of those risk

20. The *Blue Chip Indicators* (January 2019) reported a “consensus” survey result for the probability of a recession in 2019 at 25 percent and the probability of a recession in 2020 at 37 percent. A National Association of Business Economics (NABE) survey published in October 2018 found that 56 percent of participants anticipate that the next recession will begin in 2020, and about one-third of respondents believe the next recession will begin in 2021 or later.

Figure 2-13.

Duration of Economic Expansions Since 1945

Quarters



The current economic expansion has lasted more than nine years (38 quarters), about four years longer than the average expansion since 1945.

Sources: Congressional Budget Office; National Bureau of Economic Research.

The duration of an economic expansion is the number of quarters from the trough of a business cycle to its peak. For each bar, the first year is the year of the trough and the second is the year of the peak. Not shown in this figure are periods of economic contraction—recessions—which extend from the peak of a business cycle to its trough.

factors exist or could develop in the next few years. For example, on the policy front, the ongoing tightening of monetary policy, the projected decline in federal discretionary spending in fiscal year 2020 under current law, and the recent and prospective changes to trade policy all contribute to the risk that GDP growth could be significantly slower than that in CBO's baseline projections. Meanwhile, high and volatile valuations of financial assets, large federal budget deficits and debt, large U.S. current account deficits and international investment position imbalances, and corporate debt positions that could be more difficult to finance as interest rates increase are a few examples of economic and financial imbalances that could lead to a recession over the next decade. Finally, although external shocks are by definition impossible to identify in advance, the economy could be more vulnerable to such shocks in periods when it is growing more slowly.

CBO's current baseline projections incorporate the agency's consideration of the risks and effects of possible recessions in both the near and the long term. In particular, in CBO's assessment, there is a significant chance that output growth will be slower in the near term

than the agency currently projects, and that assessment includes a moderate probability of a recession over the next few years. Meanwhile, there is also a significant chance that output growth will be faster than CBO currently projects. As a result, the agency has constructed its baseline projection of economic growth in the near term to reflect the average of those possible outcomes.

In addition, CBO's projection of a persistent, negative output gap by 2023 reflects the agency's consideration of the average effect of recessions from a historical perspective. That is, CBO projects that output will be, on average, half a percent below its potential level, roughly consistent with the average gap over the complete business cycles (measured from trough to trough) that occurred in the half century from 1961 to 2009.

Uncertainties for 2024 to 2029

Recent and prospective policy changes, as well as non-policy-related factors, add to the uncertainty in the economic outlook for the later years in CBO's projection period. The scheduled expiration of key provisions of the 2017 tax act is one source of such uncertainty. Individuals and businesses could respond more (or less)

to those changes than CBO anticipates, resulting in lower (or higher) economic growth in the later years of the projection period than the agency forecasts. In addition to fiscal policy changes, recent shifts by the Administration and the Congress toward deregulation and a looser regulatory environment are expected to boost investment in the near term, which in turn would boost potential output in the long term. For instance, a shift toward deregulation in the energy sector has resulted in the approval of pipeline applications that had been pending and increased access to oil and gas exploration in the Gulf of Mexico. Similarly, lawmakers eliminated the prohibition against drilling for oil and gas in the Arctic National Wildlife Refuge. If the effects of deregulation are greater (or lesser) than CBO expects, however, then economic growth could be stronger (or weaker) than the agency projects.

Economic growth in the later years of the projection period could also be faster or slower than CBO projects for reasons unrelated to policy. If, for example, the labor force grew more quickly than expected—say, because older workers chose to stay in the labor force longer than anticipated—the economy could grow more quickly than it does in CBO’s projections. By contrast, if the growth of labor productivity did not rise above its average pace since the end of the 2007–2009 recession, as it does in CBO’s projections, the growth of GDP might be weaker than the agency projects. Further, substantial uncertainty exists about the growth of overall total factor productivity and the related prospects for long-run growth (see Box 2-2 on page 48).

Another source of uncertainty is the way income inequality affects economic growth, an issue on which economists have found mixed theoretical and empirical results.²¹ Some studies conclude that income inequal-

ity leads to faster growth, others suggest that it slows growth, and still others find that it does not affect growth. Moreover, cause and effect may be reversed: Economic growth could be directly increasing or decreasing income inequality. When a study concludes that a clear relationship exists between inequality and growth, that conclusion usually depends on factors specific to the time and place being studied. Economists continue to examine the issue, and CBO will update its analysis if research yields a more definitive conclusion. In the meantime, CBO’s projections include effects of income inequality only implicitly—that is, to whatever extent past changes in inequality have affected economic growth.

Quantifying the Uncertainty in CBO’s Projections

To quantify the degree of uncertainty in its projections for the next five years, CBO analyzed its past forecasts of the growth of real GDP and inflation.²² On the basis of that analysis, CBO estimates that—if the nature of the agency’s future forecast errors is similar to that of its previous forecast errors—there is approximately a two-thirds chance that the average annual growth rate of real GDP will be between 0.6 percent and 3.2 percent over the next five years (see Figure 2-14). Similarly, errors in CBO’s past forecasts of inflation (as measured by the CPI-U) suggest that there is roughly a two-thirds chance that the average annual rate of inflation will fall between 1.9 percent and 3.0 percent over the next five years.²³ The estimated range of real GDP reflects some of the inherent uncertainty about CBO’s estimates of real potential GDP, as errors in CBO’s longer-horizon forecasts tend to reflect the agency’s past underestimation (for example, during the late 1990s) or overestimation (for example, during the early 2010s) of potential output growth.

21. See, for example, Pedro C. Neves, Óscar Afonso, and Sandra T. Silva, “A Meta-Analytic Reassessment of the Effects of Inequality on Growth,” *World Development*, vol. 78 (February 2016), pp. 386–400, <https://tinyurl.com/y6umscxv>; Jonathan Ostry, Andrew Berg, and Charalambos Tsangarides, *Redistribution, Inequality, and Growth* (International Monetary Fund, 2014), <https://tinyurl.com/h2r2p2w> (PDF, 1.34 MB); Stephen Knowles, “Inequality and Economic Growth: The Empirical Relationship Reconsidered in the Light of Comparable Data,” *Journal of Development Studies*, vol. 41, no.1 (September 2005), pp. 135–159, <https://tinyurl.com/y89k6zs8>; and Mark D. Partridge, “Is Inequality Harmful for Growth? Comment,” *American Economic Review*, vol. 87, no. 5 (December 1997), pp. 1019–1032, www.jstor.org/stable/2951339.

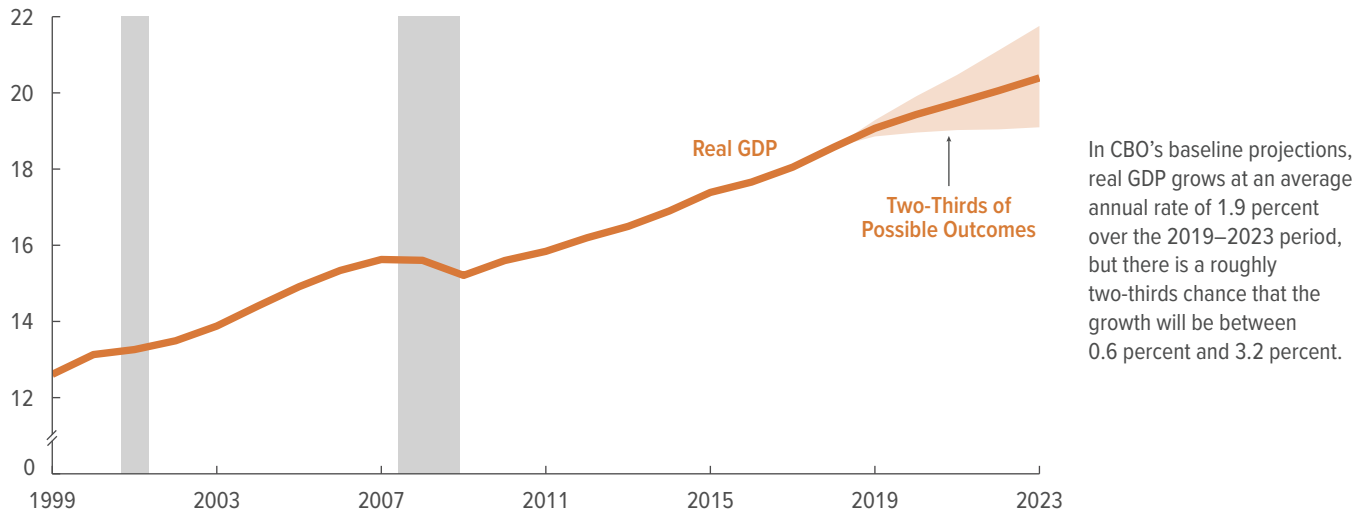
22. See Congressional Budget Office, *CBO’s Economic Forecasting Record: 2017 Update* (October 2017), www.cbo.gov/publication/53090.

23. The root mean square error of CBO’s five-year projections of the average annual growth rate of real GDP since 1976 is 1.3 percentage points. The root mean square error of CBO’s five-year projections of the average annual rate of inflation since 1983 is 0.6 percentage points. For more on the inherent uncertainty underlying economic forecasts, see Congressional Budget Office, *CBO’s Economic Forecasting Record: 2017 Update* (October 2017), www.cbo.gov/publication/53090.

Figure 2-14.

The Uncertainty of CBO's Projections of Output

Trillions of 2012 Dollars



Sources: Congressional Budget Office; Bureau of Economic Analysis.

Real values are nominal values that have been adjusted to remove the effects of changes in prices.

The shaded area around CBO's baseline projection of real GDP, which encompasses two-thirds of possible outcomes, is based on the errors in CBO's one-, two-, three-, four-, and five-year projections of the average annual growth rate of real GDP for calendar years 1976 through 2017.

The value of real GDP for 2018 is CBO's estimate.

GDP = gross domestic product.

Comparison With CBO's August 2018 Economic Projections

CBO's current economic projections are broadly similar to those in its previous set of projections published in August 2018, although they differ in some aspects (see Table 2-6).²⁴ In particular, CBO's projection of potential output growth is slightly more rapid for the 2018–2028 period than it was in the August projection; the difference is driven by somewhat more rapid growth in the potential labor force from 2026 to 2028. For the nonfarm business sector, CBO raised its projection of the growth in potential labor hours, in part because of the upward revision to the growth of the potential labor force. In addition, the agency raised its projection of the growth in capital services and lowered its projection of the growth in potential total factor productivity in the nonfarm business sector. Those two revisions reflect

changes to the contributions to GDP growth in historical data reported in the comprehensive revisions to the national income and product accounts (NIPAs) released by the Bureau of Economic Analysis during the summer of 2018, and they largely offset each other.²⁵

CBO's current projection of the size of the potential labor force is, on average, slightly smaller between 2019 and 2025 and slightly larger between 2026 and 2028 than the agency projected in August. That change results from a reevaluation of the potential labor force participation rate and a small downward revision to the projected size of the population. Specifically, CBO now expects the civilian, noninstitutionalized population in 2028 to be 0.1 percent (or 250,000 people) smaller than projected in August. That revision arises primarily because the

24. See Congressional Budget Office, *An Update to the Economic Outlook: 2018 to 2028* (August 2018), www.cbo.gov/publication/54318.

25. See Pamela A. Kelly, Stephanie H. McCulla, and David B. Wasshausen, *Improved Estimates of the National Income and Product Accounts: Results of the 2018 Comprehensive Update* (Bureau of Economic Analysis, September 2018), <https://go.usa.gov/xE4H8> (PDF, 630 KB).

agency has slightly raised its projection of mortality rates and reduced its projection of net immigration to better reflect historical trends and immigration policy.

Compared with CBO's August estimates, the agency's current estimates of the potential and actual labor force participation rates are slightly lower than previously estimated from 2019 to 2024 but slightly higher from 2025 to 2028. Those changes reflect the agency's reassessment of recent trends in the participation rates of different demographic groups that partly offset each other. Specifically, CBO lowered its estimate of the historical and projected potential participation rate for younger workers (ages 16 to 24) because their participation rate has declined substantially since the 2007–2009 recession and has failed to recover meaningfully in recent years. That development suggests that the factors that have pushed down their participation rates since the last recession are more structural and less cyclical than previously estimated. In contrast, the agency raised its estimate of the historical and projected potential participation rate for prime-age workers (ages 25 to 54) because the participation rate of that group has rebounded more strongly in the past year than previously expected. That development suggests that its decline after the last recession was driven more by cyclical factors and less by structural factors than previously estimated. In addition, because younger workers tend to have higher rates of unemployment, reducing their share in the potential labor force leads to a reduction in the economywide natural rate of unemployment.

CBO's current projection of the unemployment rate is higher during the 2019–2023 period but slightly lower during the 2024–2028 period. The upward revision in the near term largely reflects the agency's assessment that recent trends in hiring, layoffs, and retirement that had put downward pressure on the unemployment rate will not last as long as CBO estimated earlier. For the 2024–2028 period, in contrast, the downward revision occurred because the agency lowered its estimate of the natural rate of unemployment after reassessing the effects of the composition of the potential labor force.

Other changes made to CBO's forecast since August 2018 are similarly modest. For example, the agency revised downward its projection of long-term interest rates slightly—by about a quarter of a percentage point—over the next few years based on its reassessment of the cyclical sensitivity of those rates. (CBO's projection of short-term interest rates is unchanged since

August.) Changes to CBO's forecast of inflation are also slight. Although newly imposed tariffs put upward pressure on inflation in the near term, other factors, including falling gasoline prices, offset that pressure.

CBO's projection of total national income is roughly unchanged for the 2018–2028 period, but its projections of certain components of national income have changed. Some of those changes result from changes to historical data revealed by the revisions to the NIPAs. For example, CBO's projections of proprietors' income and personal interest income are higher on average over the 2018–2028 period than they were in August, whereas the projection of domestic corporate profits is lower. Other changes to the components of national income result from revised projections of other economic variables. For example, wages and salaries are projected to grow more slowly during the 2018–2028 period largely because CBO expects that employment will be slightly lower than it was in the agency's August projections.

Comparison With Other Economic Projections

CBO's projections of the economy in the next two years are generally similar to the consensus view of the private-sector economists whose forecasts were published in the January 2019 *Blue Chip Economic Indicators* (see Figure 2-15 on page 58). In particular, CBO's projections of real GDP growth and the unemployment rate are within the middle two-thirds of the ranges of *Blue Chip* forecasts for both 2019 and 2020. Even though the agency's projections of consumer price inflation and interest rates for both 2019 and 2020 are somewhat higher than the consensus view of the private-sector economists, they are within the full ranges (and mostly within the middle two-thirds of the full ranges) of *Blue Chip* forecasts.

Compared with the forecasts made by Federal Reserve officials and reported at the December 2018 meeting of the Federal Open Market Committee, CBO's projections suggest a similar economic outlook for 2019, a slightly weaker outlook for 2020, and a weaker outlook for 2021 and the longer term (see Figure 2-16 on page 59).²⁶

26. See Board of Governors of the Federal Reserve System, "Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents Under Their Individual Assessments of Projected Appropriate Monetary Policy, December 2018" (press release, December 19, 2018), <https://go.usa.gov/xEjlkz> (PDF, 109 KB).

Table 2-6.

Comparison of CBO's Current and Previous Economic Projections for Calendar Years 2018 to 2028

	2018 ^a	2019	2020	Annual Average		Total, 2018–2028
				2018–2022	2023–2028	
Percentage Change From Fourth Quarter to Fourth Quarter						
Real GDP ^b						
January 2019	3.1	2.3	1.7	2.1	1.8	1.9
August 2018	3.1	2.4	1.7	2.1	1.7	1.9
Nominal GDP						
January 2019	5.4	4.3	3.8	4.2	3.9	4.0
August 2018	5.1	4.7	3.9	4.2	3.9	4.0
PCE Price Index						
January 2019	2.0	2.0	2.2	2.1	2.0	2.0
August 2018	2.2	2.0	2.1	2.1	2.0	2.0
Core PCE Price Index ^c						
January 2019	1.9	2.2	2.2	2.1	2.0	2.0
August 2018	2.1	2.1	2.2	2.1	2.0	2.0
Consumer Price Index ^d						
January 2019	2.2 ^e	2.2	2.6	2.5	2.4	2.4
August 2018	2.5	2.3	2.5	2.5	2.4	2.4
Core Consumer Price Index ^c						
January 2019	2.2 ^e	2.6	2.7	2.5	2.3	2.4
August 2018	2.3	2.6	2.7	2.5	2.4	2.4
GDP Price Index						
January 2019	2.2	2.0	2.0	2.1	2.1	2.1
August 2018	2.0	2.2	2.2	2.1	2.1	2.1
Employment Cost Index ^f						
January 2019	3.3	3.5	3.7	3.5	3.1	3.3
August 2018	3.4	3.6	3.6	3.5	3.1	3.3
Real Potential GDP ^b						
January 2019	2.0	2.2	2.1	2.0	1.8	1.9
August 2018	2.0	2.1	2.1	2.0	1.8	1.9

Continued

The Federal Reserve reports three sets of forecasts: a median, a range, and a central tendency. The range is based on the highest and lowest forecasts made by the members of the Board of Governors of the Federal Reserve System and the presidents of the Federal Reserve Banks; the central tendency is the range formed by removing the three highest and three lowest projections. For 2019, CBO's projections of real GDP growth, unemployment, and inflation are within the central tendency of the forecasts by Federal Reserve officials, whereas the agency's projections of interest rates are above the central tendency. For 2020, 2021, and the longer term, the agency's projections of the economy are, on balance, generally weaker than Federal Reserve officials' projections.

At least part of the discrepancy between CBO's and other forecasters' projections is probably attributable to differences in the economic data available when the forecasts were completed. For example, forecasts by Federal Reserve officials were published on December 19, 2018, a couple of weeks after CBO completed its economic projections. Federal Reserve officials notably lowered their projected interest rates in relation to their previously published forecasts. In addition, discrepancies between CBO's and other forecasters' projections may be attributable to differences in the economic and statistical models used to prepare them. Moreover, other forecasters may assume that certain changes in federal policies will occur, whereas CBO's projections are based on current law.

Table 2-6.

Continued

Comparison of CBO's Current and Previous Economic Projections for Calendar Years 2018 to 2028

	2018 ^a	2019	2020	Annual Average		Total, 2018–2028
				2018–2022	2023–2028	
Annual Average						
Unemployment Rate (Percent)						
January 2019	3.9 ^e	3.5	3.7	4.0	4.8	4.4
August 2018	3.8	3.4	3.6	3.9	4.8	4.4
Interest Rates (Percent)						
Three-month Treasury bills						
January 2019	1.9 ^e	2.8	3.2	2.9	2.8	2.8
August 2018	1.9	2.8	3.1	2.9	2.8	2.8
Ten-year Treasury notes						
January 2019	2.9 ^e	3.4	3.6	3.5	3.7	3.6
August 2018	3.0	3.6	3.9	3.7	3.7	3.7
Tax Bases (Percentage of GDP)						
Wages and salaries						
January 2019	43.1	43.1	43.4	43.4	43.8	43.6
August 2018	43.1	43.4	43.7	43.6	44.1	43.9
Domestic corporate profits ^g						
January 2019	8.7	8.9	8.4	8.4	7.9	8.1
August 2018	9.5	9.6	9.1	9.1	8.3	8.7

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

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

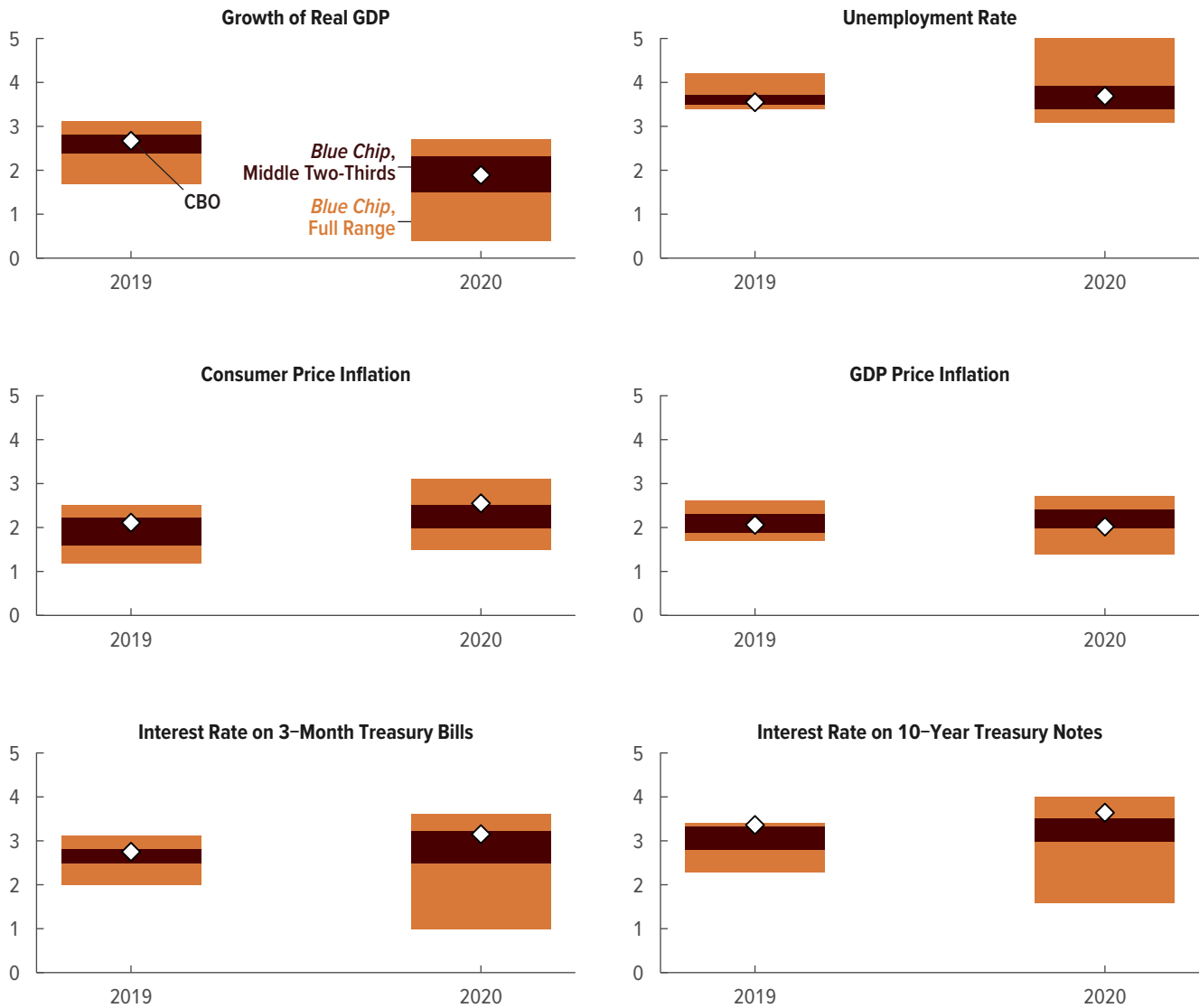
- a. Values for 2018 do not reflect the values for GDP and related series released by the Bureau of Economic Analysis since early December 2018.
- b. Real values are nominal values that have been adjusted to remove the effects of changes in prices.
- c. Excludes prices for food and energy.
- d. The consumer price index for all urban consumers.
- e. Actual value for 2018.
- f. The employment cost index for wages and salaries of workers in private industry.
- g. Consists of domestic profits, adjusted to remove distortions in depreciation allowances caused by tax rules and to exclude the effect of inflation on the value of inventories.

Figure 2-15.

Comparison of CBO’s Economic Projections With the *Blue Chip* Survey

CBO’s forecasts for the next two years are broadly similar to those in the *Blue Chip* survey.

Percent



Sources: Congressional Budget Office; Wolters Kluwer, *Blue Chip Economic Indicators*, vol. 44, no. 1 (January 10, 2019).

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

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Consumer price inflation is calculated using the consumer price index for all urban consumers. Real GDP growth and inflation rates are measured from the average of one calendar year to the next.

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

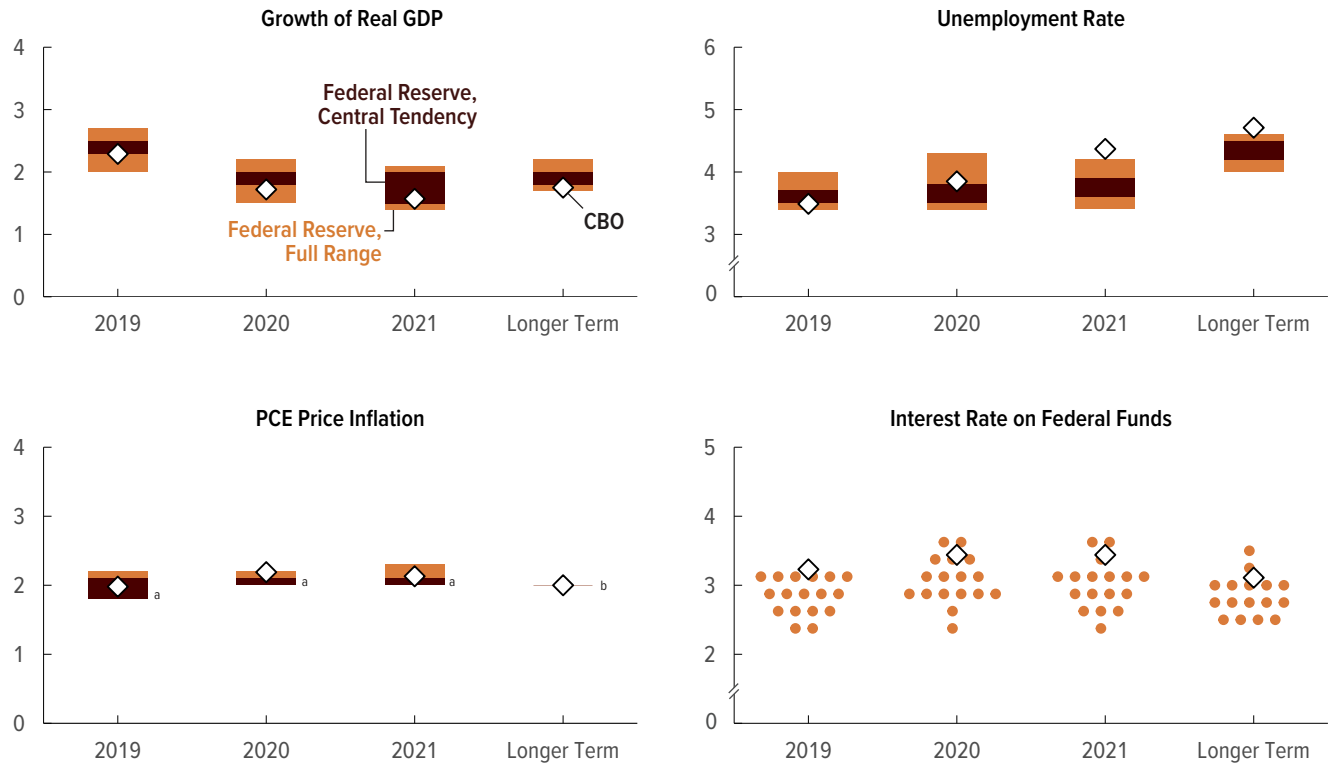
GDP = gross domestic product.

Figure 2-16.

Comparison of CBO’s Economic Projections With Projections Made by Federal Reserve Officials

CBO’s projections generally have slightly slower GDP growth and higher unemployment rates and federal funds interest rates than many of the projections by Federal Reserve officials.

Percent



Sources: Congressional Budget Office; Board of Governors of the Federal Reserve System, “Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents Under Their Individual Assessments of Projected Appropriate Monetary Policy, December 2018” (press release, December 19, 2018), <https://go.usa.gov/xEjkz> (PDF, 109 KB).

The full range of forecasts from the Federal Reserve is based on the highest and lowest of the 17 projections by the Board of Governors and the presidents of the Federal Reserve Banks. (One Federal Reserve official did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate.) The central tendency is the range formed by removing the three highest and three lowest projections—roughly speaking, the middle two-thirds of the full range.

Each of the data points for the federal funds rate represents a forecast made by one of the members of the Federal Reserve Board or one of the presidents of the Federal Reserve Banks in December 2018. The Federal Reserve officials’ forecasts of the federal funds rate are for the rate at the end of the year, whereas CBO’s forecasts are fourth-quarter values.

For CBO, longer-term projections are values for 2029. 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 values are nominal values that have been adjusted to remove the effects of changes in prices.

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

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

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

a. The lower ends of the full range and central tendency are equal.

b. For PCE price inflation in the longer term, the range and central tendency equal 2 percent.